UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

Form 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE FISCAL YEAR ENDED DECEMBER 31, 2016**

OR

o TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934 FOR THE TRANSITION PERIOD FROM TO .

Commission file number: 001-33807

EchoStar Corporation
(Exact name of registrant as specified in its charter)

Nevada	**26-1232727**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)
100 Inverness Terrace East, Englewood, Colorado	**80112-5308**
(Address of Principal Executive Offices)	(Zip Code)

Registrant's telephone number, including area code: **(303) 706-4000**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	**Name of each exchange on which registered**
Class A common stock, $0.001 par value	The NASDAQ Stock Market LLC

Securities registered pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No o

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes o No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No o

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No o

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer x	Accelerated filer o	Non-accelerated filer o (Do not check if a smaller reporting company)	Smaller reporting company o

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). Yes o No ☒

As of June 30, 2016, the aggregate market value of Class A common stock held by non-affiliates of the registrant was $1.80 billion based upon the closing price of the Class A common stock as reported on the Nasdaq Global Select Market as of the close of business on that date.

As of February 15, 2017, the registrant's outstanding common stock consisted of 46,907,032 shares of Class A common stock and 47,687,039 shares of Class B common stock, each $0.001 par value.

DOCUMENTS INCORPORATED BY REFERENCE

The following documents are incorporated into this Form 10-K by reference:

Portions of the registrant's definitive Proxy Statement to be filed in connection with its 2017 Annual Meeting of Shareholders are incorporated by reference in Part III.

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DISCLOSURE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K ("Form 10-K") contains "forward-looking statements" within the meaning of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended, including but not limited to statements about our estimates, expectations, plans, objectives, strategies, and financial condition, expected impact of regulatory developments and legal proceedings, opportunities in our industries and businesses and other trends and projections for the next fiscal quarter and beyond. All statements, other than statements of historical facts, may be forward-looking statements. Forward-looking statements may also be identified by words such as "anticipate," "intend," "plan," "goal," "seek," "believe," "estimate," "expect," "predict," "continue," "future," "will," "would," "could," "can," "may" and similar terms. These forward-looking statements are based on information available to us as of the date of this Form 10-K and represent management's current views and assumptions. Forward-looking statements are not guarantees of future performance, events or results and involve potential known and unknown risks, uncertainties and other factors, many of which may be beyond our control and may pose a risk to our operating and financial condition. Accordingly, actual performance, events or results could differ materially from those expressed or implied in the forward-looking statements due to a number of factors including, but not limited to:

- our reliance on our primary customer, DISH Network Corporation and its subsidiaries ("DISH Network"), for a significant portion of our revenue;
- our ability to implement our strategic initiatives;
- risks and uncertainties associated with the pending Share Exchange with DISH Network (as described below);
- significant risks related to the construction, launch and operation of our satellites, such as the risk of material malfunction on one or more of our satellites, risks resulting from delays or failures of launches of our satellites and potentially missing our regulatory milestones, changes in the space weather environment that could interfere with the operation of our satellites, and our general lack of commercial insurance coverage on our satellites;
- our failure to adequately anticipate the need for satellite capacity or the inability to obtain satellite capacity for our Hughes segment;
- the failure of third-party providers of components, manufacturing, installation services and customer support services to appropriately deliver the contracted goods or services;
- our ability to bring advanced technologies to market to keep pace with our customers and competitors;
- risk related to our foreign operations and other uncertainties associated with doing business internationally, including changes in foreign exchange rates between foreign currencies and the United States dollar, economic instability and political disturbances;
- the impact of variable demand and the adverse pricing and regulatory environment for digital set-top boxes; and
- dependence on our ability to successfully manufacture and sell our digital set-top boxes in increasing volumes on a cost-effective basis and with acceptable quality.

Other factors that could cause or contribute to such differences include, but are not limited to, those discussed in Part I, Item 1A. — Risk Factors and Item 7. — Management's Discussion and Analysis of Financial Condition and Results of Operations of this Form 10-K and those discussed in other documents we file with the Securities and Exchange Commission ("SEC").

All cautionary statements made herein should be read as being applicable to all forward-looking statements wherever they appear. Investors should consider the risks and uncertainties described herein and should not place undue reliance on any forward-looking statements. We do not undertake, and specifically disclaim, any obligation to publicly release the results of any revisions that may be made to any forward-looking statements, whether as a result of new information, future events or otherwise, except as required by law.

Although we believe that the expectations reflected in any forward-looking statements are reasonable, we cannot guarantee future results, events, levels of activity, performance or achievements. We do not assume responsibility for the accuracy and completeness of any forward-looking statements. We assume no responsibility for updating forward-looking information contained or incorporated by reference herein or in any documents we file with the SEC.

Should one or more of the risks or uncertainties described herein or in any documents we file with the SEC occur, or should underlying assumptions prove incorrect, our actual results and plans could differ materially from those expressed in any forward-looking statements.

PART I

Item 1. BUSINESS

OVERVIEW

EchoStar Corporation (which, together with its subsidiaries, is referred to as “EchoStar,” the “Company,” “we,” “us” and/or “our”) is a holding company that was organized in October 2007 as a corporation under the laws of the State of Nevada. We are a global provider of satellite service operations, video delivery solutions, digital set-top boxes, broadband satellite technologies and broadband services for home and small office customers. We deliver innovative network technologies, managed services, and various communications solutions for enterprise and government customers. Our Class A common stock is publicly traded on the Nasdaq Global Select Market (“Nasdaq”) under the symbol “SATS.”

We currently operate in the following three business segments:

- ***Hughes*** — which provides broadband satellite technologies and broadband services to home and small office customers and network technologies, managed services and communication solutions to domestic and international consumers and enterprise and government customers. The Hughes segment also provides managed services, hardware, and satellite services to large enterprises and government customers, and designs, provides and installs gateway and terminal equipment to customers for other satellite systems. In addition, our Hughes segment provides satellite ground segment systems and terminals to mobile system operators.
- ***EchoStar Technologies*** — which designs, develops and distributes secure end-to-end video technology solutions including digital set-top boxes and related products and technology, primarily for satellite TV service providers and telecommunication companies. Our EchoStar Technologies segment also provides digital broadcast operations, including satellite uplinking/downlinking, transmission services, signal processing, conditional access management, and other services, primarily to DISH Network Corporation and its subsidiaries (“DISH Network”) and Dish Mexico, S. de R.L. de C.V. (“Dish Mexico”), a joint venture we entered into in 2008. In addition, we provide our TV Anywhere technology through Slingbox® units directly to consumers via retail outlets and online, as well as to the pay-TV operator market. Beginning in 2015, this segment also includes our over-the-top (“OTT”), Streaming Video on Demand (“SVOD”) platform business, which primarily provides support services to DISH Network’s Sling TV™ service (“Sling TV”).
- ***EchoStar Satellite Services (“ESS”)*** — which uses certain of our owned and leased in-orbit satellites and related licenses to provide satellite service operations and video delivery solutions on a full-time and occasional-use basis primarily to DISH Network, Dish Mexico, United States (“U.S.”) government service providers, internet service providers, broadcast news organizations, programmers, and private enterprise customers. We also manage satellite operations for several satellites owned by third parties.

Following consummation of the Share Exchange described below under “Pending Share Exchange,” we will no longer operate the EchoStar Technologies business segment.

Our operations also include real estate and other activities that have not been assigned to our operating segments, including costs incurred in certain satellite development programs and other business development activities, expenses of various corporate departments, and our centralized treasury operations, including income from our investment portfolio and interest expense on our debt.

In 2008, DISH Network completed its distribution to us of its digital set-top box business, certain infrastructure, and other assets and related liabilities, including certain of its satellites, uplink and satellite transmission assets, and real estate (the “Spin-off”). Since the Spin-off, EchoStar and DISH Network have operated as separate publicly-traded companies. However, as a result of the Satellite and Tracking Stock Transaction, described in Note 4 in the notes to consolidated financial statements in Item 15 of this report, DISH Network owns preferred tracking stock in EchoStar Corporation and one of our subsidiaries representing an aggregate 80.0% economic interest in the residential retail satellite broadband business of our Hughes segment. The tracking stock is an equity security and the rights of DISH Network, as the holder of the tracking stock, in our assets are subject to the claims of our creditors. In addition, a substantial majority of the voting power of the shares of EchoStar and DISH Network is owned beneficially by Charles W. Ergen, our Chairman, and by certain trusts established by Mr. Ergen for the benefit of his family.

PENDING SHARE EXCHANGE

On January 31, 2017, EchoStar and certain subsidiaries of EchoStar entered into a Share Exchange Agreement (the "Share Exchange Agreement") among DISH Network Corporation ("DISH"), DISH Network L.L.C., an indirect wholly owned subsidiary of DISH ("DNLLC"), DISH Operating L.L.C., a direct wholly owned subsidiary of DNLLC ("DOLLC" and, collectively with DISH and DNLLC, the "DISH Parties"), EchoStar, EchoStar Broadcasting Holding Parent L.L.C., a direct wholly owned subsidiary of EchoStar's subsidiary Hughes Satellite Systems Corporation ("EB LLC"), EchoStar Broadcasting Holding Corporation, a direct wholly owned subsidiary of EB LLC ("EB Corp"), EchoStar Technologies Holding Corporation, a direct wholly owned subsidiary of EchoStar ("ET Corp"), and EchoStar Technologies L.L.C., a direct wholly owned subsidiary of EchoStar.

Pursuant to the Share Exchange Agreement, among other things: (i) EchoStar will receive all of the shares of EchoStar Tracking Stock (as defined below) owned by DNLLC in exchange for 100% of the equity interests of ET Corp, which will hold that portion of the EchoStar Technologies business segment of EchoStar that (a) designs, develops and distributes secure end-to-end video technology solutions including digital set-top boxes and related products and technology, primarily for satellite TV service providers and telecommunication companies, (b) provides TV Anywhere technology through Slingbox® units directly to consumers via retail outlets and online, as well as to the pay-TV operator market, and (c) includes our over-the-top, Streaming Video on Demand platform business, which includes assets acquired from Sling TV Holding L.L.C. (formerly DISH Digital Holding L.L.C.) and primarily provides support services to DISH's Sling TV™ operations, and (ii) EB LLC will receive all of the shares of HSS Tracking Stock (as defined below) owned by DOLLC in exchange for 100% of the equity interests of EB Corp, which will hold EchoStar's business of providing online video delivery and satellite video delivery for broadcasters and pay-TV operators, including satellite uplinking/downlinking, transmission services, signal processing, conditional access management and other services ((i) and (ii) collectively, the "Share Exchange"). Pursuant to the Share Exchange Agreement, EchoStar will also transfer certain assets, investments in joint ventures, spectrum licenses and real estate properties and the DISH Parties will assume certain liabilities relating to the transferring assets and businesses. In connection with the Share Exchange, EchoStar and DISH Network and certain of their subsidiaries will enter into certain customary agreements covering, among other things, matters relating to taxes, employees, intellectual property and the provision of transitional services. The Share Exchange has been structured in a manner to be a tax-free exchange for each of EchoStar and DISH.

In March 2014, EchoStar and its subsidiary Hughes Satellite Systems Corporation ("HSS") each issued shares of preferred stock (the "EchoStar Tracking Stock" and "HSS Tracking Stock," respectively, and together, the "Tracking Stock") to DNLLC and DOLLC, respectively. The Tracking Stock tracks the economic performance of the residential retail satellite broadband business of our Hughes segment, including certain operations, assets and liabilities attributed to such business (collectively, the "Hughes Retail Group" or "HRG"), and represents in the aggregate an 80.0% economic interest in the Hughes Retail Group (the EchoStar Tracking Stock representing a 51.89% and the HSS Tracking Stock representing a 28.11% economic interest in the Hughes Retail Group, respectively). Following the closing of the Share Exchange, the Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and terms of, the Tracking Stock will terminate and be of no further effect. For more information regarding the Tracking Stock, see Note 4 in the notes to consolidated financial statements in Item 15 of this report.

The Share Exchange is expected to be consummated three business days after the satisfaction or waiver of all of the closing conditions to the transaction (other than conditions that by their nature are to be satisfied at the closing, but subject to the satisfaction of those conditions at such time), but no earlier than February 28, 2017. The Share Exchange Agreement provides for customary termination rights of EchoStar and DISH, including the right of either party to terminate the Share Exchange Agreement if the Share Exchange has not closed by March 31, 2017. The closing conditions to the transaction involving third parties or governmental approvals have been satisfied (other than those that by their nature are to be satisfied at the closing). While we currently expect the Share Exchange to be consummated on or about February 28, 2017, no assurance can be given that the Share Exchange will be consummated on the terms or within the time frame disclosed, or at all.

See "Risks Related to the Pending Share Exchange" in Item 1A Risk Factors of this Annual Report on Form 10-K. For more information regarding the Share Exchange, see Note 20 in the notes to consolidated financial statements in Item 15 of this report and our Current Report on Form 8-K filed January 31, 2017.

BUSINESS STRATEGIES

Capitalize on demand for broadband services. We intend to capitalize on the global demand for satellite-delivered broadband services and enterprise solutions by utilizing, among other things, our industry expertise, technology leadership, increased satellite capacity, access to spectrum resources, and high-quality, reliable service to drive growth in consumer subscribers and enterprise customers.

Expand satellite capacity and related infrastructure. With the launch in December 2016 of the EchoStar XIX satellite and the expected start of service on the satellite late in the first quarter of 2017, we expect to significantly increase our satellite capacity in North America, Mexico and certain Latin American countries and to add capability for aeronautical, enterprise and international broadband services. We expect that our expertise in the identification, acquisition and development of satellite spectrum and orbital rights and satellite operations, together with our increased satellite capacity and existing, acquired or developed infrastructure, will provide opportunities to enter new international markets. We also believe market opportunities exist that will facilitate the acquisition or leasing of additional satellite capacity which will enable us to provide services to a broader customer base, including providers of pay-TV services, satellite-delivered broadband, corporate communications, and government services.

Continue development of S-band and other hybrid spectrum resources. We believe we remain in a unique position to deploy a European wide mobile satellite service ("MSS")/complementary ground component ("CGC") network and maximize the long-term value of our S-band spectrum, in Europe and other regions within the scope of our licenses. We will also continue to explore development of S-band similar spectrum assets in additional international markets.

Exploit our video delivery expertise. With our extensive experience in designing, developing, and operating video delivery systems for satellite direct-to-home ("DTH") and internet streaming, we believe we can leverage the broader adoption of advanced technologies such as placeshifting functionality, hybrid internet offerings and other in-home solutions to create opportunities for us. Therefore, if the Share Exchange is not consummated, we will continue to explore opportunities, including partnerships, joint ventures and strategic acquisitions, to expand our existing markets or enter new markets. In addition, if the Share Exchange is not consummated, we intend to seek opportunities to license our technology to other original equipment manufacturers and pay-TV providers.

Develop improved and new technologies. Our engineering capabilities provide us with the opportunity to develop and deploy cutting edge technologies, license our technologies to others, and maintain a leading technological position in the industries in which we are active.

BUSINESS SEGMENTS

HUGHES SEGMENT

Our Products and Services

Our Hughes segment is a global provider of broadband satellite technologies and broadband services for home and small office customers. We deliver network technologies, managed services, equipment, and communications solutions for domestic and international consumers and enterprise and government customers. In addition, our Hughes segment provides and installs gateway and terminal equipment and provides satellite ground segment systems and terminals for other satellite systems, including mobile system operators.

Our Hughes segment provides satellite broadband internet access and satellite technologies to North American home and office costumers, which we refer to as the consumer market, and broadband network technologies, managed services, equipment and communications solutions to domestic and international enterprise and government customers. Our Hughes segment also provides managed services, equipment and communications solutions to large enterprise customers for mobile satellite systems. We incorporate advances in technology to reduce costs and to increase the functionality and reliability of our products and services. Through the usage of advanced spectrally efficient modulation and coding methodologies, proprietary software web acceleration and compression techniques, we continue to improve the efficiency of our networks. We invest in technologies to enhance our system and network management capabilities, specifically our managed services for enterprises. We also continue to invest in next generation technologies that can be applied to our future products and services. Our consumer revenue growth depends on our success in adding new subscribers and driving higher average revenue per subscriber across our wholesale and retail channels. The growth of our enterprise and equipment businesses relies heavily on global economic conditions and the competitive landscape for pricing relative to competitors and alternative technologies.

With the launch in December 2016 and expected start of service of the EchoStar XIX satellite late in the first quarter of 2017, we expect to increase our subscribers and grow our consumer, enterprise and government revenue. The addition of new subscribers and the performance of our consumer service offering, primarily drive the revenue growth in our consumer business. Service costs related to ongoing support of our direct and indirect customers and partners are typically impacted most significantly by our growth. Long-term trends continue to be influenced primarily by the subscriber growth in our consumer business.

Our Hughes segment currently uses its two owned satellites, the SPACEWAY 3 satellite and the EchoStar XVII satellite, and additional satellite capacity acquired from multiple third-party providers, to provide satellite broadband internet access and communications services to our customers. We currently provide HughesNet Gen4 satellite broadband internet services to our consumer market customers in North America on the EchoStar XVII satellite. In December 2016, we launched our EchoStar XIX satellite, a next-generation, high throughput geostationary satellite, which will provide significant capacity for continued subscriber growth. The EchoStar XIX satellite employs a multi-spot beam, bent pipe Ka-band architecture and will provide additional capacity for the Hughes broadband services to our customers in North America and added capacity in Mexico and certain Latin American countries and is expected to add capability for aeronautical, enterprise and international broadband services. EchoStar contributed the EchoStar XIX satellite to its Hughes segment in February 2017.

We continue our efforts to grow our consumer satellite services business outside of the U.S. In April 2014, we entered into a satellite services agreement pursuant to which Eutelsat do Brasil provides us Ka-band capacity into Brazil on the EUTELSAT 65 West A satellite for a 15-year term. That satellite was launched in March 2016 and we began delivering high-speed consumer satellite broadband services in Brazil in July 2016. In September 2015, we entered into satellite services agreements pursuant to which affiliates of Telesat Canada (“Telesat”) will provide to us the Ka-band capacity on a satellite to be located at the 63 degree west longitude orbital location for a 15-year term. We expect the satellite to be launched in the second quarter of 2018 and plan to provide service in additional markets across South America once that capacity is available for commercial use.

Our Customers

Our Hughes segment delivers broadband satellite technologies and broadband internet services to North American home and small office customers. It also delivers network technologies, managed services, hardware, equipment and satellite communications solutions for domestic and international consumers and enterprise and government customers worldwide. In addition, our Hughes segment provides and installs gateway and terminal equipment and provides satellite ground segment systems and terminals for other satellite systems, including mobile system operators. Examples of our enterprise and government customers include lottery agencies, gas station operators and companies with multi-branch networks that rely on satellite or terrestrial networks for critical communication across wide geographies. Most of our enterprise customers have contracts with us for the services they purchase. Developments toward the launch of next-generation satellite systems including low-earth orbit (“LEO”) and geostationary systems could provide additional opportunities to drive the demand for our network equipment and services.

In October 2012, we entered into a distribution agreement (the “Distribution Agreement”) with dishNET Satellite Broadband L.L.C. (“dishNET”), a wholly-owned subsidiary of DISH Network, pursuant to which dishNET has the right, but not the obligation, to market, sell and distribute the Hughes satellite internet service (the “Hughes service”) under the dishNET brand. DISH Network accounted for 7.7%, 7.8% and 8.5% of our total Hughes segment revenue for the years ended December 31, 2016, 2015 and 2014, respectively. See Note 19 in the notes to consolidated financial statements in Item 15 of this report for further discussion of our related party transactions with DISH Network.

As of December 31, 2016, 2015 and 2014, our Hughes segment had approximately 1,036,000, 1,035,000 and 977,000 broadband subscribers, respectively. These broadband subscribers include customers that subscribe to our HughesNet broadband services through retail, wholesale and small/medium enterprise service channels.

As of December 31, 2016 and 2015, our Hughes segment had approximately $1.52 billion and $1.44 billion, respectively, of contracted revenue backlog. We define Hughes contracted revenue backlog as our expected future revenue under customer contracts that are non-cancelable, excluding agreements with customers in our consumer market. Of the total contracted revenue backlog as of December 31, 2016, we expect to recognize approximately $436.5 million of revenue in 2017.

Our Competition

The network communications industry is highly competitive. As a global provider of data network products and services, our Hughes segment competes with a large number of telecommunications service providers. This increasingly competitive environment has put pressure on prices and margins. To compete effectively, we emphasize our network quality, our customization capability, our offering of networks as a turnkey managed service, our position as a single point of contact for products and services and our competitive prices.

In our consumer market, we compete against traditional telecommunications and wireless carriers, other satellite internet providers, as well as digital subscriber line ("DSL") and cable internet service providers offering competitive services in many communities we seek to serve. Cost, speed and accessibility are key determining factors in the selection of a service provider by the consumer. Our primary satellite competitor in our North American consumer market is ViaSat Communications, Inc. ("ViaSat Communications"), which is owned by ViaSat, Inc. ("ViaSat"). We seek to differentiate ourselves based on the ubiquitous availability of our service, quality, proprietary technology, and distribution channels.

In our enterprise and government markets, our principal competitors for the supply of very-small-aperture terminal ("VSAT") satellite networks are Gilat Satellite Networks Ltd, ViaSat, SageNet LLC, Newtec and iDirect Technologies ("iDirect"). To differentiate ourselves from our competitors, we emphasize particular technological features of our products and services, our ability to customize networks and perform desired development work and the quality of our customer service. We also face competition from resellers and numerous local companies who purchase equipment and sell services to local customers, including domestic and international telecommunications operators, cable companies and other major carriers.

Manufacturing

Certain products in our Hughes segment are assembled at our facilities in Maryland and we outsource a significant portion of the manufacturing of our products to third parties. We believe that the manufacturing facilities used by our Hughes segment have sufficient capacity to handle current demand. We adjust our capacity based on our production requirements. We also work with third-party vendors for the development and manufacture of components that are integrated into our products. We develop dual sourcing capabilities for critical parts when practical and we evaluate outsourced subcontract vendors on a periodic basis. Our operations group, together with our engineering group, works with our vendors and subcontractors to reduce development costs, to increase production efficiency, and to obtain components at lower prices.

ECHOSTAR TECHNOLOGIES SEGMENT

Our Products and Services

Our EchoStar Technologies business segment provides secure end-to-end video and broadcast technology products and services to businesses and directly to consumers. Following consummation of the Share Exchange, we will no longer operate the EchoStar Technologies segment.

Video Delivery Products and Related Technologies. Our EchoStar Technologies segment designs, develops and distributes a wide range of video delivery products and related technologies that allow consumers to watch and control their subscription and over-the-air ("OTA") TV programming from inside their homes. Our current video delivery products and related technologies include:

- *Set-top boxes*. Provides consumers with the ability to access the enhanced picture quality and sound of 4K, high-definition ("HD") and/or standard definition ("SD") content, interactive applications, broadband connectivity and Bluetooth audio streaming, depending on the type of set-top box purchased.

- *DVR and Whole-Home HD DVR solutions.* Provides customers with the ability to record, replay and store content and multi-room HD content sharing functionality to create a whole-home entertainment experience, including commercial skipping and sideloading technologies.

- *TV Anywhere "Placeshifting" Functionality*. Provides customers with the ability to watch and control digital television content on a desktop or mobile device via a broadband internet connection. Customers have these abilities when using our set-top boxes as well as our standalone Slingbox units, which are sold directly to consumers via retail outlets and online, as well as to the pay-TV operator market.

In addition to digital set-top boxes, we design and develop related products such as satellite dishes and remote controls.

Video Broadcast Services. Our EchoStar Technologies segment also provides online video delivery and satellite video delivery for broadcasters and pay-TV operators, including satellite uplinking/downlinking, transmission services, signal processing, conditional access management, and other services, primarily to DISH Network and Dish Mexico. We operate a number of digital broadcast centers in the U.S. Our principal digital broadcast centers are located in Cheyenne, Wyoming and Gilbert, Arizona. We also have multiple regional and micro digital broadcast centers that allow us to maximize the use of the spot beam capabilities of our satellites and our customers' satellites. Programming and other data are received at these centers by fiber optic cable or satellite. The data is processed, compressed, encrypted and then uplinked to our satellites and our customers' satellites for transmission to end-users.

Over-the-Top ("OTT") Services. We have developed and launched a comprehensive OTT Streaming Video on Demand and live linear service platform solution currently utilized by DISH Network's Sling TV service, which launched in 2015. We have continued to develop and enhance the platform for Sling TV to improve the customer experience. We also have continued to explore new ways to leverage this technology for other business opportunities.

Our Customers

The primary customer of our EchoStar Technologies segment is DISH Network. DISH Network accounted for 90.5%, 87.9% and 88.7% of the EchoStar Technologies segment's revenue for the years ended December 31, 2016, 2015 and 2014, respectively. See Note 19 in the notes to consolidated financial statements in Item 15 of this report for further discussion of our related party transactions with DISH Network. We also currently sell our digital set-top boxes to other international DTH satellite and cable providers, including Bell TV, a DTH satellite services provider in Canada, and Dish Mexico, to whom we also provide video broadcast services.

The number of potential new customers for our set-top box business in our EchoStar Technologies segment is small and may be limited as prospective customers that have been competitors of DISH Network may continue to view us as a competitor due to our common ownership with DISH Network. Our customers face emerging competition from other providers of digital media and potential government action preventing them from using security systems in connection with set-top boxes. In particular, programming offered over the internet has become more prevalent as the speed and quality of broadband networks have improved.

Our Competition

The video delivery and broadcast and OTT industries are highly competitive. Market leadership changes frequently as a result of new products, designs and pricing, and we face substantial competition. Many of our primary competitors, such as Arris Group, Inc., Cisco Systems, Inc., Samsung Electronics Co., Ltd., and Technicolor S.A., have established longstanding relationships with their customers. In addition, a number of rapidly growing companies have recently entered the market with offerings similar to our existing and contemplated products. The entry of these new competitors may result in increased pricing pressure in the market. In the video delivery industry, we may also face competition from international developers of digital set-top box systems that may be able to develop and manufacture products and services at costs that are substantially lower than our costs. Furthermore, we depend heavily on our ability to successfully bring advanced technologies to the market, including internet delivery of video content and our Slingbox unit's placeshifting functionality.

We believe our use of proprietary technology, together with our in-house engineering expertise, enables us to innovate and bring new features and enhancements quickly to our customers. In addition, our end-to-end video solutions may allow us to provide a more cost-effective solution for a pay-TV operator who may have to negotiate hardware, middleware and a conditional access system separately. We have a long-standing relationship with DISH Network and provide them with technologically advanced set-top boxes, including advanced hybrid satellite and internet protocol over-the-top delivery solutions, Slingbox unit's placeshifting functionality, and whole-home DVR features.

Our Manufacturers

Although we design, engineer and distribute digital set-top boxes and other products, we are not directly engaged in the manufacturing process. Rather, we outsource the manufacturing of our products to third parties who manufacture our products according to specifications supplied by us. We depend on a few manufacturers, and in some cases a single manufacturer, for the production of digital set-top boxes and related products. Although there can be no assurance, we do not believe that the loss of any single manufacturer would materially impact our business. Sanmina-SCI Corporation, Shanghai DD&TT Electronic Enterprise Co., LTD and Jabil Circuit, Inc. currently manufacture the majority of our digital set-top boxes and accessories.

ECHOSTAR SATELLITE SERVICES SEGMENT

Our Services

Our ESS segment is a global provider of satellite service operations and video delivery solutions. We operate our business using our owned and leased in-orbit satellites. We provide satellite services on a full-time and occasional-use basis primarily to DISH Network (our largest customer), Dish Mexico, U.S. government service providers, internet service providers, broadcast news organizations, programmers and private enterprise customers. We also manage satellite operations for several satellites owned by third parties. Our satellite capacity is currently used by our customers for a variety of applications:

- ***DTH Services***. We provide satellite capacity to satellite TV providers, broadcasters and programmers who use our satellites to deliver programming. Our satellites are also used for the transmission of live sporting events, internet access, disaster recovery, and satellite news gathering services.

- ***Government Services***. We provide satellite services and technical services to U.S. government service providers. We believe the U.S. government may increase its use of commercial satellites for homeland security, emergency response, continuing education, distance learning, and training.

- ***Network Services***. We provide satellite capacity and terrestrial network services to companies. These networks are dedicated private networks that allow delivery of video and data services for corporate communications. Our satellites can be used for point-to-point or point to multi-point communications.

Our Customers

We provide satellite capacity on our satellite fleet primarily to DISH Network, Dish Mexico, U.S. government service providers, internet service providers, broadcast news organizations, programmers and private enterprise customers. For the years ended December 31, 2016, 2015 and 2014, DISH Network accounted for approximately 85.7%, 86.3% and 84.1% of our total ESS segment revenue. We have entered into certain commercial agreements with DISH Network pursuant to which we are obligated to provide DISH Network with satellite services at fixed prices for varying lengths of time depending on the satellite. See Note 19 in the notes to consolidated financial statements in Item 15 of this report for further discussion of our related party transactions with DISH Network. DISH Network's capacity requirements have been driven by the addition of new channels and migration of programming to high-definition TV and video on demand services. The services that we provide to DISH Network are critical to its nationwide delivery of content to its customers across the U.S. While we expect to continue to provide satellite services to DISH Network, its satellite capacity requirements may change for a variety of reasons, including its ability to construct and launch its own satellites. Any termination or reduction in the services we provide to DISH Network may cause us to have unused capacity on our satellites and require that we aggressively pursue alternative sources of revenue for this business.

We currently have available satellite capacity. Our other satellite service sales generally are characterized by shorter-term contracts or spot market sales. Revenue growth in our ESS segment depends largely on our ability to continuously make additional satellite capacity available for sale. We continue to pursue expanding our business offerings by providing value added services such as telemetry, tracking and control services to third parties, which leverages the ground monitoring networks and personnel currently within our ESS segment.

The agreements with DISH Network for the EchoStar I and EchoStar VIII satellites expired pursuant to their terms effective November 2015. In addition, our agreement with SES Americom Colorado, Inc. ("SES") for satellite services on the AMC-16 satellite terminated according to its terms in February 2016. The loss of capacity and/or service provided on these three satellites has, and is expected to continue to, adversely impact our revenue, results of operations and cash flow.

As of December 31, 2016 and 2015, our ESS segment had contracted revenue backlog attributable to satellites currently in orbit of approximately $1.16 billion and $1.41 billion, respectively. Of the total contracted revenue backlog as of December 31, 2016, we expect to recognize approximately $365.1 million of revenue in 2017.

Our Competition

In the fixed satellite services market, our ESS segment competes against larger, well-established satellite service companies, such as Intelsat S.A. ("Intelsat"), SES S.A., Telesat, and Eutelsat Communications S.A. ("Eutelsat"), in an industry that is characterized by long-term contracts and high costs for customers to change service providers. Therefore, it is difficult to displace customers from their current relationships with our competitors. Intelsat, SES S.A. and other competitors maintain key North American and other international orbital slots that may further limit competition and competitive pricing.

While we believe that there may be opportunities to capture new business as a result of market trends such as the increased communications demands of homeland security initiatives, there can be no assurance that we will be able to effectively compete against our competitors due to their significant resources and operating history.

OTHER BUSINESS OPPORTUNITIES

Our industry is evolving with the increase in worldwide demand for broadband internet access for information, entertainment and commerce. In addition to fiber and wireless systems, other technologies such as geostationary high throughput satellites, low-earth orbit ("LEO") networks, balloons, and High Altitude Platform Systems have begun to play significant roles in enabling global broadband access, networks and services. We intend to use our expertise, technologies, capital, investments, global presence, relationships and other capabilities to continue to provide broadband internet systems, equipment, networks and services for information, entertainment and commerce in North America and internationally for consumers, enterprises and governments.

We continue to selectively explore opportunities to pursue partnerships, joint ventures and strategic acquisitions, domestically and internationally, that we believe may allow us to increase our existing market share, expand into new markets and new customers, broaden our portfolio of services, products and intellectual property, and strengthen our relationships with our customers. We may allocate significant resources for long-term initiatives that may not have a short or medium-term or any positive impact on our revenue, results of operations, or cash flow.

In 2012, we acquired the right to use various frequencies at the 45 degree west longitude orbital location ("Brazilian Authorization") from ANATEL, the Brazilian communications regulatory agency. The Brazilian Authorization provides us the rights to utilize Ku-band spectrum, Ka-band spectrum and S-band spectrum. We are exploring options for the Ka-band and S-band spectrums. In April 2014, we entered into an agreement with Space Systems Loral, LLC ("SS/L") for the construction of the EchoStar XXIII satellite, a high powered broadcast satellite service ("BSS") satellite. The EchoStar XXIII satellite will be deployed at the 45 degree west longitude orbital location. Due to anomalies experienced by our launch provider, the expected launch date of our EchoStar XXIII satellite was delayed and we currently expect to launch the EchoStar XXIII satellite in the first quarter of 2017. We have regulatory obligations to meet certain in-service milestones by the second quarter of 2017 for our Brazilian license at 45 west longitude for the Ka-, Ku- and S-band frequency bands. We currently expect to meet our regulatory milestone for the Ku-band. We have sought an extension of the S- and Ka-band milestones, which may or may not be granted, and, if granted, may be subject to penalties, additional conditions or other requirements.

In December 2013, we acquired 100% of Solaris Mobile, which is based in Dublin, Ireland and licensed by the European Union and its member states ("EU") to provide MSS and CGC services covering the entire EU using S-band spectrum. Solaris Mobile changed its name to EchoStar Mobile Limited ("EchoStar Mobile") in the first quarter of 2015. We are in the process of developing commercial services utilizing the operable payload we own on the EUTELSAT 10A satellite, along with our EchoStar XXI S-band satellite. The EchoStar XXI satellite will provide space segment capacity to EchoStar Mobile. We believe we are in a unique position to deploy a European wide MSS/CGC network and maximize the long-term value of our S-band spectrum in Europe and other regions within the scope of our licenses. Due to anomalies experienced by our launch provider, the expected launch of our EchoStar XXI satellite was delayed and we currently expect to launch the EchoStar XXI satellite in the second or third quarter of 2017. We had regulatory obligations to meet certain milestones by the fourth quarter of 2016 regarding the operations of the EchoStar XXI satellite across the EU. We have notified the regulators in the EU of our delay and we intend to seek extensions of certain of these requirements to the extent we determine necessary. Although we anticipate being able to receive them, any such necessary extensions may be subject to additional conditions, penalties or other requirements.

We are tracking closely the developments in next-generation satellite businesses, and we are seeking to utilize our services, technologies and expertise to find new commercial opportunities for our business. In June 2015, we made an equity investment in WorldVu Satellites Limited ("OneWeb"), a global LEO satellite service company. In addition, our Hughes segment entered into an agreement with OneWeb to provide certain equipment and services in connection with the ground systems for OneWeb's LEO satellites.

Capital expenditures associated with the construction and launch of the EchoStar XXIII and EchoStar XXI satellites are included in "All Other and Eliminations" in our segment reporting.

OUR SATELLITE FLEET

Our operating satellite fleet consists of both owned and leased satellites detailed in the table below as of December 31, 2016.

Satellites	Segment	Launch Date	Nominal Degree Orbital Location (Longitude)	Depreciable Life (In Years)
Owned:				
SPACEWAY 3 (1)	Hughes	August 2007	95 W	12
EchoStar XVII	Hughes	July 2012	107 W	15
EchoStar I (2)(3)(4)	ESS	December 1995	77 W	—
EchoStar III (4)	ESS	October 1997	61.5 W	12
EchoStar VI (4)	ESS	July 2000	96.2 W	12
EchoStar VII (2)(3)	ESS	February 2002	119 W	3
EchoStar VIII (2)(4)	ESS	August 2002	77 W	12
EchoStar IX (2)(4)	ESS	August 2003	121 W	12
EchoStar X (2)(3)	ESS	February 2006	110 W	7
EchoStar XI (2)(3)	ESS	July 2008	110 W	9
EchoStar XII (2)(4)(5)	ESS	July 2003	61.5 W	2
EchoStar XIV (2)(3)	ESS	March 2010	119 W	11
EchoStar XVI (2)	ESS	November 2012	61.5W	15
EUTELSAT 10A ("W2A") (6)	Other	April 2009	10 E	—
Capital Leases:				
Nimiq 5 (2)	ESS	September 2009	72.7 W	15
QuetzSat-1 (2)	ESS	September 2011	77 W	10
Eutelsat 65 West A	Hughes	March 2016	65 W	15
Operating Lease:				
AMC-15	ESS	October 2004	105 W	—

(1) Depreciable life represents the remaining useful life as of June 8, 2011, the date EchoStar completed its acquisition of Hughes Communications, Inc. and its subsidiaries.
(2) See Note 19 in the notes to consolidated financial statements in Item 15 of this report for discussion of related party transactions with DISH Network.
(3) Depreciable life represents the remaining useful life as of March 1, 2014, the effective date of our receipt of the satellites from DISH Network as part of the Satellite and Tracking Stock Transaction (See Note 4 in the notes to consolidated financial statements in Item 15 of this report).
(4) Fully depreciated assets.
(5) Depreciable life represents the remaining useful life as of June 30, 2013, the date the EchoStar XII satellite was impaired.
(6) The Company acquired the S-band payload on this satellite, which prior to the acquisition in December 2013, experienced an anomaly at the time of the launch. As a result, the S-band payload is not fully operational.

Construction in progress included the following owned and leased satellites under construction or undergoing in-orbit testing as of December 31, 2016.

Satellites	Segment	Expected Launch Date
EchoStar XIX	Other (3)	Fourth quarter of 2016 (1)
EchoStar XXI	Other	Second or third quarter of 2017
EchoStar XXIII	Other	First quarter of 2017
EchoStar 105/SES-11	ESS	Second quarter of 2017
Telesat T19V ("63 West") (2)	Hughes	Second quarter of 2018

(1) This satellite was launched in December 2016 and is expected to be placed into service late in the first quarter of 2017.
(2) We entered into a satellite services agreement for certain capacity on this satellite once launched, but are not party to the construction contract.
(3) EchoStar contributed the EchoStar XIX satellite to its Hughes segment in February 2017.

Recent Developments

EchoStar XIX. The EchoStar XIX satellite was launched in December 2016 and we expect the satellite to be placed into service late in the first quarter of 2017. We expect the EchoStar XIX satellite to provide additional capacity for the Hughes broadband services to our customers in North America and added capacity in Mexico and certain Latin American countries and to add capability for aeronautical, enterprise and international broadband services. EchoStar contributed the EchoStar XIX satellite to its Hughes segment in February 2017.

Eutelsat 65 West A. The Eutelsat 65 West A satellite was launched in March 2016 and our Hughes segment began to offer consumer broadband services in Brazil using our leased Ka-band payload on the satellite in July 2016.

EchoStar XXI and EchoStar XXIII. Due to anomalies experienced by our launch providers, the launch dates of our EchoStar XXI and EchoStar XXIII satellites were delayed with expected launch dates in the second or third quarter of 2017 and the first quarter of 2017, respectively. We are in the process of evaluating the implications of these delays, including, without limitation, potential increased costs, regulatory and contractual milestone compliance and other satellite resource allocations. We had regulatory obligations to meet certain milestones by the fourth quarter of 2016 regarding the operations of the EchoStar XXI satellite across the European Union. We have notified the regulators in the EU of our delay and we intend to seek extensions of certain of these requirements to the extent we determine necessary. Although we anticipate being able to receive them, any such necessary extensions may be subject to additional conditions, penalties or other requirements. We also have regulatory obligations to meet certain in-service milestones by the second quarter of 2017 for our Brazilian license at 45 degree west longitude for the Ka-, Ku- and S-band frequency bands. We currently expect to meet our regulatory milestone for the Ku-band. We have sought an extension of the S- and Ka-band milestones, which may or may not be granted, and, if granted, may be subject to penalties, additional conditions or other requirements.

EchoStar 105/SES-11. Due to anomalies experienced by our launch provider, the expected launch date of our EchoStar 105/SES-11 satellite has been delayed until the second quarter of 2017. Our Ku-band payload on the EchoStar 105/SES-11 satellite will replace our current capacity on the AMC-15 satellite.

AMC-15 and AMC-16. In August 2014, in connection with the execution of agreements related to the EchoStar 105/SES-11 satellite, we entered into amendments that extend the terms of our existing agreements with SES Americom Colorado, Inc. (“SES”) for satellite services on the AMC-15 and AMC-16 satellites. As amended, the term of our agreement for satellite services on certain transponders on the AMC-15 satellite was extended from December 2014 through a certain period following the in-service date of the EchoStar 105/SES-11 satellite and is being accounted for as an operating lease. The amended agreement for the AMC-16 satellite services extended the term for the satellite’s entire communications capacity, subject to available power, for one year following expiration of the initial term in February 2015 and the agreement terminated according to its terms in February 2016.

Satellite Anomalies and Impairments

Our satellites may experience anomalies from time to time, some of which may have a significant adverse impact on their remaining useful lives, the commercial operation of the satellites or our operating results. We are not aware of any anomalies with respect to our owned or leased satellites that have had any such material adverse effect during the year ended December 31, 2016. There can be no assurance, however, that anomalies will not have any such adverse impacts in the future. In addition, there can be no assurance that we can recover critical transmission capacity in the event one or more of our in-orbit satellites were to fail.

We historically have not carried in-orbit insurance on our satellites because we assessed that the cost of insurance was uneconomical relative to the risk of failures. Therefore, we generally bear the risk of any in-orbit failures. Pursuant to the terms of the agreements governing certain portions of our indebtedness, we are required, subject to certain limitations on coverage, to maintain in-orbit insurance for our SPACEWAY 3, EchoStar XVI, and EchoStar XVII satellites. Based on economic analysis of the current insurance market we have elected to obtain, subject to certain limitations on coverage, launch and in-orbit insurance for our EchoStar XIX, EchoStar XXI and EchoStar XXIII satellites and our interest in the EchoStar 105/SES-11 satellite. All other satellites, either in orbit or under construction, are not covered by launch or in-orbit insurance. We will continue to assess circumstances going forward and make insurance decisions on a case by case basis.

We evaluate our satellites for impairment and test for recoverability whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Certain of the anomalies previously disclosed, may be considered to represent a significant adverse change in the physical condition of a particular satellite. However, based on the redundancy designed within each satellite, certain of these anomalies are not necessarily considered to be significant events that would require a test of recoverability.

GOVERNMENT REGULATIONS

We are subject to comprehensive regulation by the FCC for our domestic, as well as some international, satellite and telecommunications operations and equipment businesses. We are also regulated by other U.S. federal agencies, state and local authorities, the International Telecommunication Union ("ITU"), and certain foreign governments, including the EU. In addition, we are also subject to the export control laws and regulations and trade sanctions laws and regulations of the U.S. and other countries with respect to the export of telecommunications equipment and services. Depending upon the circumstances, noncompliance with applicable legislation or regulations could result in suspension or revocation of our licenses or authorizations, the termination or loss of contracts or the imposition of contractual damages, civil fines or criminal penalties.

The following summary of regulations and legislation is not intended to describe all present and proposed government regulation and legislation affecting our business. Government regulations that are currently the subject of judicial or administrative proceedings, draft legislation or administrative proposals could impact us and our industries to varying degrees. The FCC and other regulators from time to time initiate proceedings that could adversely impact our satellite operations, including spectrum usage. We cannot predict either the outcome of these proceedings or proposals or any potential impact they might have on the industry or on our operations. Under its Spectrum Frontiers proceeding, the FCC enabled the use of one of the frequency bands we utilize, the Ka-band, on a shared basis with 5G services, which could limit our flexibility to change the way we use the Ka-band in the future. The FCC has also opened a proceeding on non-geostationary satellites, which may adversely impact our ability to use certain spectrum for user terminals.

FCC Regulations Applicable to Our Operations

FCC Jurisdiction over Satellite and Terrestrial Operations. Non-governmental, including commercial entities, that use radio frequencies to provide communications services to, from or within the U.S. are subject to the jurisdiction of the FCC under the Communications Act of 1934, as amended (the "Communications Act"). The Communications Act gives the FCC regulatory jurisdiction over many areas relating to communications operations, including:

- the assignment of satellite radio frequencies and orbital locations to specific services and companies, the licensing of satellites and earth stations, and the granting of related authorizations;
- approval for the relocation of satellites to different orbital locations, the replacement of a satellite with another new or existing satellite, and the authorization of specific earth stations to communicate with such newly relocated satellites;
- ensuring compliance with the terms and conditions of assignments, licenses, authorizations, and approvals;
- avoiding harmful interference with other radio frequency emitters; and
- ensuring compliance with other applicable provisions of the Communications Act and FCC rules and regulations.

All satellite licenses issued by the FCC are subject to expiration unless extended by the FCC. The term of each of our U.S. direct broadcast satellite ("DBS") licenses is 10 years, and our U.S. fixed satellite services ("FSS") licenses generally have 15 year terms. We hold licenses and authorizations for satellite and earth stations as well as other services, including terrestrial wireless services. To obtain and operate under such FCC licenses and authorizations, we must satisfy legal, technical qualification requirements and other conditions including, among other things, satisfaction of certain technical and ongoing due diligence obligations, implementation bonds, annual regulatory fees and various reporting requirements. A license must be obtained prior to launching or operating a satellite.

FCC Jurisdiction over Set-Top Box Operations. Our digital set-top boxes and similar devices must also comply with FCC technical standards and requirements, including accessibility and other requirements. The FCC has specific Part 15 regulations for television broadcast receivers and television interface devices. We anticipate that we will no longer be subject to these regulations following the consummation of the Share Exchange.

Telecommunications Regulation. Many of the services we provide are also subject to FCC regulation as telecommunications services. For certain services in the U.S., we are required to contribute fees, computed as a percentage of our revenue from telecommunications services to the Universal Service Fund ("USF") to support mechanisms that subsidize the provision of services to low-income consumers, high-cost areas, schools, libraries, and rural health care providers. Current FCC rules permit us to pass this USF contribution through to our customers. The FCC also requires broadband internet access and internet telephony service providers to comply with the requirements of the Federal Communications Assistance for Law Enforcement Act ("CALEA"). CA

LEA generally requires telecommunications carriers to ensure that law enforcement agencies are able to conduct lawfully-authorized surveillance of users of their services. In addition, as a provider of interconnected voice over internet protocol services ("VOIP"), we are required to abide by a number of rules related to telephony service, including rules dealing with the protection of customer information and the processing of emergency calls.

State and Local Regulation

We are also regulated by state and local authorities. While the FCC has preempted many state and local regulations that would impair the installation and use of VSATs and other consumer satellite dishes, our businesses nonetheless are subject to state and local regulation, including, among others, obtaining regulatory authorizations and zoning regulations that affect the ability to install these consumer satellite earth station antennas.

International Regulation

Foreign Administrations' Jurisdiction Over Satellite and Terrestrial Operations. Some of our satellites and earth stations are licensed in foreign jurisdictions. We also have terrestrial authorizations in foreign jurisdictions. In order to provide service to a foreign location from a U.S. satellite, we are required to obtain approvals from the FCC and foreign administrative agencies. The laws and regulations addressing access to satellite and terrestrial systems vary from country to country. In most countries, a license is required to provide our services and to operate satellite earth stations. Such licenses may impose certain conditions, including implementation and operation of the satellite system in a manner consistent with certain milestones (such as for contracting, satellite design, construction, launch, and implementation of service), that the satellite or its launch be procured through a national entity, that the satellite control center be located in national territory, that a license be obtained prior to launching or operating the satellite, or that a license be obtained before interconnecting with the local switched telephone network. Some countries may have restrictions on the services we provide and how we provide them. In addition, certain countries may limit the rates that can be charged for the services we provide or impose other service terms or restrictions.

The ITU Frequency and Orbital Location Registration. The orbital location and frequencies for our satellites are subject to the frequency registration and coordination process of the ITU. The ITU Radio Regulations define the international rules, regulations, and rights for a satellite and associated earth stations to use specific radio frequencies at a specific orbital location. These rules, which include deadlines for the bringing of satellite networks into use, differ depending on the type of service to be provided and the frequencies to be used by the satellite. On our behalf, various countries have made, and may in the future make, additional filings for the frequency assignments at particular orbital locations that are used or to be used by our current satellite networks and potential future satellite networks we may build or acquire. In the event the international coordination process that is triggered by ITU filings under applicable rules is not successfully completed, or that the requests for modification of the BSS plan regarding the allocation of orbital locations and frequencies are not granted by the ITU, we will have to operate the applicable satellite(s) on a non-interference basis, which could have an adverse impact on our business operations. If we cannot do so, we may have to cease operating such satellite(s) at the affected orbital locations. We cannot be sure of the successful outcome of these ITU coordination processes. We make commercially reasonable efforts to cooperate with the filing nation in the preparation of ITU filings, coordination of our operations in accordance with the relevant ITU Radio Regulations, and responses to relevant ITU inquiries.

Registration in the UN Registry of Space Objects. The U.S. and other jurisdictions in which we license satellites are generally parties to the United Nations ("UN") Convention on the Registration of Objects Launched into Outer Space ("UN Convention"). The UN Convention requires a satellite's launching state to register the satellite as a space object. The act of registration carries liability for the registering country in the event that the satellite causes third party damage. Administrations may place certain requirements on satellite licensees in order to procure the necessary launch or operational authorizations that accompany registration of the satellite. In some jurisdictions, these authorizations are separate and distinct, with unique requirements, from the authorization to use a set of frequencies to provide satellite services.

Telecommunications Regulation. Many of the services we provide are also are subject the regulation of other countries as telecommunications services. For certain services, we may be required to contribute fees to a universal service or other fund to support mechanisms that subsidize the provision of services to designated groups. Many countries also impose requirements on telecommunications carriers to ensure that law enforcement agencies are able to conduct lawfully-authorized surveillance of users of their services. In addition, we are subject to a number of other rules, including rules related to telephony service such as the protection of customer information and processing of emergency calls.

Export Control Regulation

In the operation of our business, we must comply with all applicable export control and trade sanctions laws and regulations of the U.S. and other countries. Applicable U.S. laws and regulations include the Arms Export Control Act, the International Traffic in Arms Regulations ("ITAR"), the Export Administration Regulations ("EAR"), and the trade sanctions laws and regulations administered by the U.S. Department of the Treasury's Office of Foreign Assets Control ("OFAC").

The export of certain hardware, technical data, and services relating to satellites and the supply of certain ground control equipment, technical data and services to non-U.S. persons or to destinations outside the U.S. is regulated by the U.S. Department of Commerce's Bureau of Industry and Security ("BIS") under the EAR. In addition, BIS regulates our export of satellite communications network equipment to non-U.S. persons or to destinations outside of the U.S. The export of other items is regulated by the U.S. Department of State's Directorate of Defense Trade Controls ("DDTC") under the ITAR and are subject to strict export control and prior approval requirements. In addition, we cannot provide certain equipment or services to certain countries subject to U.S. trade sanctions unless we first obtain the necessary authorizations from OFAC. We are also subject to the Foreign Corrupt Practices Act and other similar foreign regulations, which generally prohibits companies and their intermediaries from making improper payments or giving or promising to give anything of value to foreign government officials and other individuals for the purpose of obtaining or retaining business or gaining a competitive advantage.

Environmental Regulation

We are subject to the requirements of federal, state, local, and foreign environmental and occupational safety and health laws and regulations. These include laws regulating air emissions, waste-water discharge and waste management, most significantly the Resource Conservation and Recovery Act ("RCRA") and the Emergency Planning and Community Right-to-Know Act ("EPCRA"). Under the RCRA, our Hughes segment is considered a small quantity generator.

As required by the EPCRA, we file annual reports with regulatory agencies covering four areas: Emergency Planning, Emergency Release, Hazardous Chemical Storage, and Toxic Chemical Release Inventory. We maintain small quantities of hazardous materials on our premises and, therefore, have relatively modest reporting requirements under the EPCRA. We are also subject to the requirements of other environmental and occupational safety and health laws and regulations. Additionally, we review SARA Title III regulatory requirements and annually report quantities of onsite material storage using Tier II, state DEQ (Department of Environmental Quality) reporting systems.

Our environmental compliance costs to date have not been material, and we currently have no reason to believe that such costs will become material in the foreseeable future. We do not expect capital or other expenditures for environmental compliance to be material in 2017. However, environmental requirements are complex, change frequently, and have become more stringent over time. Accordingly, we cannot provide assurance that these requirements will not change or become more stringent in the future in a manner that could have a material adverse effect on our business.

PATENTS AND TRADEMARKS

We currently rely on a combination of patent, trade secret, copyright and trademark law, together with licenses, non-disclosure and confidentiality agreements and technical measures, to establish and protect proprietary rights in our products. We hold U.S. and foreign patents covering various aspects of our products and services. The duration of each of our U.S. patents is generally 20 years from the earliest filing date to which the patent has priority. We have granted licenses to use our trademarks and service-marks to affiliates and resellers worldwide, and we typically retain the right to monitor the use of those marks and impose significant restrictions on their use in efforts to ensure a consistent brand identity. We protect our proprietary rights in our software through software licenses that, among other things, require that the software source code be maintained as confidential information and that prohibit any reverse-engineering of that code.

We believe that our patents are important to our business. We also believe that, in some areas, the improvement of existing products and the development of new products, as well as reliance upon trade secrets and unpatented proprietary know-how, are important in establishing and maintaining a competitive advantage. We believe, to a certain extent, that the value of our products and services are dependent upon our proprietary software, hardware, and other technology remaining trade secrets and/or subject to copyright protection. Generally, we enter into non-disclosure and invention assignment agreements with our employees, subcontractors, and certain customers and other business partners. Please see Item 3. — Legal Proceedings of this report for more information.

RESEARCH AND DEVELOPMENT AND ENGINEERING

We have a skilled and multi-disciplined engineering organization that develops our products and services. Our in-house technological capability includes a wide range of skills required to develop systems, hardware, software, and firmware used in our products and services. In addition, we have pioneered numerous advances in the area of wireless communication systems, techniques and methodologies, television broadcasting, video placeshifting, video copy protection, and digital video recording.

With respect to hardware development, we have skill sets that include complex digital designs, radio frequency and intermediate frequency analog designs, advanced application-specific integrated circuit designs, and sophisticated consumer and system level packaging designs. We also have extensive experience in developing products for high-volume, low-cost manufacturing for the consumer industry, including satellite TV set-top receivers and dual mode satellite and wireless handsets.

As a complement to our hardware development, we have extensive experience in designing reliable, real time, embedded software systems as part of our communication systems and services offerings. For example, our broadband product line for the enterprise market supports an extensive range of protocols for data communications. Our engineers have also developed many large turnkey systems for our customers by designing the overall solution, implementing the various subsystems, deploying the entire network and user terminals, integrating and verifying the operational system, and ultimately training the customers' technicians and operators.

Costs incurred in research and development activities generally are expensed as incurred. A significant portion of our research and development costs are incurred in connection with the specific requirements of a customer's order. In such instances, the amounts for these customer funded development efforts are included in cost of sales. Cost of sales includes research and development costs incurred in connection with customer's orders of approximately $67.8 million, $59.2 million and $68.4 million for the years ended December 31, 2016, 2015 and 2014, respectively. In addition, we incurred other research and development expenses of approximately $76.0 million, $78.3 million and $60.9 million for the years ended December 31, 2016, 2015 and 2014, respectively.

GEOGRAPHIC AREA DATA AND TRANSACTIONS WITH MAJOR CUSTOMERS

For principal geographic area data and transactions with major customers for 2016, 2015 and 2014, see Note 17 in the notes to consolidated financial statements in Item 15 of this report. See Item 1A. — Risk Factors for information regarding risks related to our foreign operations.

EMPLOYEES

As of December 31, 2016, we had approximately 4,000 employees and generally consider relations with them to be good. Other than approximately 170 of our employees located in Italy and Brazil, none are represented by a union. Approximately 1,800 of our employees are expected to transfer to DISH Network upon consummation of the Share Exchange.

WHERE YOU CAN FIND MORE INFORMATION

We are subject to the informational requirements of the Securities Exchange Act of 1934, as amended, and accordingly file an annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements, and other information with the Securities and Exchange Commission ("SEC"). The public may read and copy any materials filed with the SEC at the SEC's Public Reference Room at 100 F Street, NE, Washington, D.C. 20549. Please call the SEC at (800) SEC-0330 for further information on the operation of the Public Reference Room. As an electronic filer, our public filings are also maintained on the SEC's internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that website is http://www.sec.gov.

WEBSITE ACCESS

Our annual report on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, may also be accessed free of charge through our website as soon as reasonably practicable after we have electronically filed such material with, or furnished it to, the SEC. The address of that website is http://www.echostar.com.

We have adopted a written code of ethics that applies to all of our directors, officers, and employees, including our principal executive officer and senior financial officers, in accordance with the Sarbanes-Oxley Act of 2002 and the rules of the SEC promulgated thereunder. Our code of ethics is available on our corporate website at http://www.echostar.com. In the event that we make changes in, or provide waivers of, the provisions of this code of ethics that the SEC requires us to disclose, we intend to disclose these events on our website.

EXECUTIVE OFFICERS OF THE REGISTRANT
(furnished in accordance with Item 401(b) of Regulation S-K, pursuant to General Instruction G(3) of Form 10-K)

The following table and information below sets forth the name, age and position with EchoStar of each of our executive officers, the period during which each executive officer has served as such, and each executive officer's business experience during at least the past five years:

Name	Age	Position
Charles W. Ergen	63	Chairman
Michael T. Dugan	68	Chief Executive Officer, President and Director
David J. Rayner	59	Executive Vice President, Chief Financial Officer, Chief Operating Officer and Treasurer
Anders N. Johnson	59	Chief Strategy Officer and President, EchoStar Satellite Services L.L.C.
Pradman P. Kaul	70	President, Hughes Communications, Inc. and Director
Vivek Khemka	44	President, EchoStar Technologies L.L.C.
Kranti K. Kilaru	51	Executive Vice President, Business Systems
Dean A. Manson	50	Executive Vice President, General Counsel and Secretary

Charles W. Ergen. Mr. Ergen has served as our executive Chairman since November 2009 and Chairman of the Board of Directors since our formation in 2007. Mr. Ergen served as our Chief Executive Officer from our formation in 2007 until November 2009. Mr. Ergen serves as executive Chairman and has been Chairman of the Board of Directors of DISH Network since its formation and, during the past five years, has held executive officer and director positions with DISH Network and its subsidiaries. He has been serving as the Chief Executive Officer of DISH Network since March 2015.

Michael T. Dugan. Mr. Dugan has served as our Chief Executive Officer and President since November 2009. Mr. Dugan has also served as a member of our Board of Directors since our formation in 2007. Mr. Dugan served as a senior advisor to EchoStar from January 1, 2008 until November 2009. From May 2004 to December 2007, he was a director of DISH Network, and from 1990 to 2004 served in several executive roles at DISH Network, including as President, Chief Operating Officer, Chief Technical Officer and senior advisor from time to time.

David J. Rayner. Mr. Rayner has served as our Executive Vice President, Chief Financial Officer, and Treasurer since December 2012. In September 2016, Mr. Rayner also was appointed as our Chief Operating Officer. From November 2011 to November 2012, Mr. Rayner served as Chief Financial Officer of Tendril Networks, Inc., a Boulder, Colorado software company. Mr. Rayner served as our Chief Financial Officer from June 2010 to November 2011 and served as our Chief Administrative Officer from January 2008 to June 2010. Prior to that, Mr. Rayner served as Executive Vice President of Installation and Service Networks of DISH Network and previously as Chief Financial Officer of DISH Network. Before joining DISH Network in December 2004, Mr. Rayner served as Senior Vice President and Chief Financial Officer of Time Warner Telecom in Denver, beginning in June 1998.

Anders N. Johnson. Mr. Johnson has served as President of EchoStar Satellite Services L.L.C. since June 2011. In September 2016, Mr. Johnson also was appointed as our Chief Strategy Officer. Before joining EchoStar, Mr. Johnson was most recently at SES World Skies where he served as Senior Vice President of Strategic Satellite Development. Mr. Johnson joined SES GLOBAL after the combination of GE Americom and SES GLOBAL in 2001. Prior to SES GLOBAL, Mr. Johnson worked at GE Capital beginning in 1985 in a variety of executive level roles in Satellite Services, Aviation Services, and Transportation & Industrial Financing.

Pradman P. Kaul. Mr. Kaul has served as President of Hughes Communications, Inc. ("Hughes Communications") since its formation in February 2006, and as President of Hughes Network Systems, LLC, a wholly owned subsidiary of Hughes Communications ("HNS" and, together with Hughes Communications, "Hughes") since 2000. Mr. Kaul has also served as a member of our Board of Directors since August 2011 as well as a member of the board of directors of Hughes Communications from February 2006 until June 2011. Previously, Mr. Kaul served as the Chief Operating Officer, Executive Vice President and Director of Engineering of HNS.

Vivek Khemka. Mr. Khemka has been serving as President of EchoStar Technologies L.L.C. pursuant to a Professional Services Agreement between EchoStar and DISH Network and oversees all day to day operations of our EchoStar Technologies segment. Mr. Khemka, who is employed by DISH Network, has served as Executive Vice President and Chief Technology Officer of DISH Network since December 2015. Mr. Khemka previously served as Senior Vice President of Product Management of DISH Network from March 2013 to December 2015 and as Vice President of Customer Technology of DISH Network from December 2011 to March 2013. Before joining DISH Network in 2009, Mr. Khemka held various positions at Danaher, Motorola and McKinsey & Co. Following consummation of the Share Exchange, Mr. Khemka will no longer serve as an executive officer of EchoStar.

Kranti K. Kilaru. Mr. Kilaru has served as our Executive Vice President, Business Systems since July 2013. Mr. Kilaru served as Senior Vice President of our systems engineering group from April 2005 to July 2013. Mr. Kilaru joined EchoStar Technologies L.L.C. in 1989.

Dean A. Manson. Mr. Manson has served as our Executive Vice President, General Counsel and Secretary since November 2011. Mr. Manson also serves as Executive Vice President, General Counsel and Secretary of Hughes Communications. Mr. Manson joined Hughes in 2000 from the law firm of Milbank, Tweed, Hadley & McCloy, where he focused on international project finance and corporate transactions, and was appointed General Counsel of Hughes in 2004.

There are no arrangements or understandings between any executive officer and any other person pursuant to which any executive officer was selected as such. Pursuant to the Bylaws of EchoStar, executive officers serve at the discretion of the Board of Directors.

Item 1A. RISK FACTORS

The risks and uncertainties described below are not the only ones facing us. If any of the following events occur, our business, financial condition, results of operation, prospects or ability to fund a share repurchase program, invest capital in our business or return capital to our shareholders could be materially and adversely affected.

GENERAL RISKS AFFECTING OUR BUSINESS

We currently derive a significant portion of our revenue from our primary customer, DISH Network. If the Share Exchange is not consummated, the loss of, or a significant reduction in, orders from, or a decrease in selling prices of digital set-top boxes, broadband equipment and services, provision of satellite services and digital broadcast services, and/or other products, components or services to DISH Network would significantly reduce our revenue and materially adversely impact our results of operations.

DISH Network accounted for 52.3%, 53.5% and 57.3% of our total revenue for the years ended December 31, 2016, 2015 and 2014, respectively. DISH Network is currently our primary customer of digital set-top boxes, digital broadcast operation services and our satellite services. DISH Network is also a wholesale distributor of the Hughes satellite internet service, and in connection with such wholesale distribution, purchases certain broadband equipment from us to support the sale of the Hughes service. In addition, DISH Network has no obligations to continue to purchase our products and only certain obligations to continue to purchase certain of our services. Therefore, our relationship with DISH Network could be terminated or substantially curtailed with little or no advance notice. Any material reduction in or termination of our sales to DISH Network or reduction in the prices it pays for the products and services it purchases from us could have a material adverse effect on our business, results of operations, and financial position.

DISH Network is involved in several legal proceedings relating to products, components and services purchased from us. Adverse decisions against DISH Network in these proceedings could decrease the number of products, components and/or services we provide to DISH Network, which could have a material adverse effect on our business, results of operations, and financial position.

In addition, because a significant portion of our revenue is derived from DISH Network, our success also depends to a significant degree on the continued success of DISH Network in attracting new subscribers and marketing programming packages and other services and features to subscribers that will result in the purchase of new digital set-top boxes, and in particular, new digital set-top boxes at the high-end of our product range that incorporate high-definition, multiple tuners, and other advanced technology.

In addition, the timing of orders for digital set-top boxes from DISH Network could vary significantly depending on equipment promotions offered to its subscribers, changes in technology, and its use of remanufactured digital set-top boxes, which may cause our revenue to vary significantly quarter over quarter and could expose us to the risks of inventory shortages or excess inventory. These inventory risks are particularly acute during product end-of-life transitions in which a new generation of digital set-top boxes is being deployed and inventory of older generation digital set-top boxes is at a higher risk of obsolescence. This in turn could cause our operating results to fluctuate significantly.

There are a relatively small number of potential new customers for our digital set-top boxes and digital broadcast operations, and we expect this customer concentration to continue for the foreseeable future. If we lose DISH Network as a customer, it may be difficult for us to replace, in whole or in part, our historical revenue from DISH Network as we have had limited success in attracting such potential new customers in the past. Furthermore, because of the maturing and competitive nature of the digital set-top box business, the limited number of potential new customers, and the short-term nature of our purchase orders with DISH Network, we have experienced, and could in the future continue to experience, downward pricing pressure on our digital set-top boxes sold to DISH Network, which in turn would adversely affect our gross margins and profitability. Historically, many potential customers have perceived us as a competitor due to our affiliation with DISH Network. There can be no assurance that we will be successful in entering into any commercial relationships with potential new customers who are competitors of DISH Network (particularly if we continue to be perceived as affiliated with DISH Network as a result of common ownership and certain shared services). If we do not develop relationships with new customers, we may not be able to expand our customer base or maintain or increase our revenue.

Our strategic initiatives may not be successfully implemented, may not elicit the expected customer response in the market and may result in competitive reactions.

We have identified a number of strategic initiatives that we intend to pursue which are discussed in more detail in Item 1. — Business of this Annual Report on Form 10-K. The successful implementation of those strategic initiatives requires an investment of time, talent and money and is dependent upon a number of factors some of which are not within our control. Those factors include the ability to execute such initiatives in the market, the response of existing and potential new customers, and the actions or reactions of competitors. We may allocate significant resources for long-term initiatives that may not have a short or medium term or any positive impact on our revenue, results of operations, or cash flow. If we fail to properly execute or deliver products or services that address customers' expectations, it may have an adverse effect on our ability to retain and attract customers and may increase our costs and reduce our revenue. Similarly, competitive actions or reactions to our initiatives or advancements in technology or competitive products or services could impair our ability to execute those strategic initiatives or advancements. In addition, new strategic initiatives may face barriers to entering existing markets with established competitors. There can be no assurance that we will successfully implement these strategic initiatives or that, if successfully pursued, they will have the desired effect on our business or results of operations.

We could face decreased demand and increased pricing pressure to our products and services due to competition.

Our business operates in an intensely competitive, consumer-driven and rapidly changing environment and competes with a growing number of companies that provide products and services to consumers. Risks to our business from competition include, but are not limited to, the following:

- The digital set-top box market is intensely competitive, and market leadership changes frequently as a result of new products, designs, pricing and regulations. We currently face competition from well-established companies, from new, rapidly growing companies, and from digital video providers who have developed their own digital set-top boxes, and in the future we may face competition from new and existing companies that do not currently compete in the market for set-top boxes. If we do not distinguish our products, particularly our retail products, through distinctive, technologically advanced features and design, as well as build and strengthen our brand recognition, our business could be harmed as we may not be able to effectively compete on price alone against new low cost market entrants. Increased pricing pressure may also make it particularly difficult for us to make profitable sales in international markets where new competitors are present and in which we have not previously made sales of set-top boxes. In addition, it can be difficult to acquire additional market share in the digital set-top box market because gaining additional market share would require displacing well-established companies who have had long-term contracts with major cable operators in the U.S., which results in relatively high costs for cable operators to change set-top box providers making it more difficult for us to displace potential customers from their current relationships with our competitors. Any of these competitive threats, alone or in combination with others, could significantly harm our business, operating results and financial condition if the Share Exchange is not consummated.
- Our EchoStar Satellite Services segment ("ESS") competes against larger, well-established satellite service companies, such as Intelsat, SES, Telesat, and Eutelsat. Because the satellite services industry is relatively mature, our growth strategy depends largely on our ability to displace current incumbent providers, which often have the benefit of long-term contracts with customers. These long-term contracts and other factors result in relatively high costs for customers to change service providers, making it more difficult for us to displace customers from their current relationships with our competitors. In addition, the supply of satellite capacity available in the market has increased in recent years, which makes it more difficult for us to sell our services in certain markets and to price our capacity at acceptable levels. Competition may cause downward pressure on prices and further reduce the utilization of our capacity, both of which could have an adverse effect on our financial performance. Our ESS segment also competes with both fiber optic cable and terrestrial delivery systems, which may have a cost advantage, particularly in point-to-point applications where such delivery systems have been installed, and with new delivery systems being developed, which may have lower latency and other advantages.
- In our consumer market, we face competition primarily from DSL, fiber and cable internet service providers. Also, other telecommunications, satellite and wireless broadband companies have launched or are planning the launch of consumer internet access services in competition with our service offerings in North America and Brazil. Some of these competitors offer consumer services and hardware at lower prices than ours. In addition, terrestrial alternatives do not require our external dish, which may limit customer acceptance of our products. We may be unsuccessful in competing effectively against DSL, fiber and cable internet service providers and other satellite broadband providers, which could harm our business, operating results and financial condition.

- In our enterprise network communications market, we face competition from providers of terrestrial-based networks, such as fiber, DSL, cable modem service, multiprotocol label switching and internet protocol-based virtual private networks, which may have advantages over satellite networks for certain customer applications. Although we also sell terrestrial services to this market, we may not be as cost competitive and it may become more difficult for us to compete. The network communications industry is characterized by competitive pressures to provide enhanced functionality for the same or lower price with each new generation of technology. Terrestrial-based networks are offered by telecommunications carriers and other large companies, many of which have substantially greater financial resources and greater name recognition than us. As the prices of our products decrease, we will need to sell more products and/or reduce the per-unit costs to improve or maintain our results of operations. The costs of a satellite network may exceed those of a terrestrial-based network or other networks, especially in areas that have experienced significant DSL and cable internet build-out. It may become more difficult for us to compete with terrestrial and other providers as the number of these areas increases and the cost of their network and hardware services declines. Terrestrial networks also have a competitive edge because of lower latency for data transmission.

The average selling price and gross margins of our digital set-top boxes have been decreasing and may decrease even further, which could negatively impact our financial position and results of operations.

The average selling price and gross margins of our digital set-top boxes have been decreasing and may decrease even further if the Share Exchange is not consummated due to, among other things, an increase in the sales of lower-priced digital set-top boxes to DISH Network, increased competitive pricing pressure and production costs. Furthermore, our ability to increase the average selling prices of our digital set-top boxes is limited and our average selling price may decrease even further in response to competitive pricing pressures, new product introductions by us or our competitors, lack of demand for our new product introductions or other factors. If we are unable to increase or at least maintain the average selling prices of our digital set-top boxes, or if such selling prices further decline, and we are unable to respond in a timely manner by developing and introducing new products and continually reducing our product costs, our revenue and gross margin may be negatively affected, which will harm our financial position and results of operations if the Share Exchange is not consummated.

If significant numbers of television viewers are unwilling to pay for pay-TV services that utilize digital set-top boxes, we may not be able to sustain our current revenue level if the Share Exchange is not consummated.

We are substantially dependent upon the ability of our customers to promote the delivery of pay-TV services, including, among others, premium programming packages and services that utilize technology incorporated into our digital set-top boxes, such as HD technology and IPTV, to generate future revenue. Our customers face emerging competition from other providers of digital media and potential government action preventing them from using security systems in connection with set-top boxes. In particular, programming offered over the internet has become more prevalent as the speed and quality of broadband networks have improved.

Our customers may be unsuccessful in promoting value-added services or may promote alternative packages, such as free programming packages, in lieu of promoting packages that utilize our high-end digital set-top box offerings. If our customers are unable to develop and effectively market compelling reasons for their subscribers to continue to purchase their pay-TV services that utilize our more advanced digital set-top boxes, it will be difficult for us to sustain our historical revenue. Furthermore, as technologies develop, other means of delivering information and entertainment to television viewers have evolved and contributed to, and will likely continue to evolve and contribute to, increasing consumer demand for online platforms that provide for the distribution and viewing of movies, television and other video programming that competes with our customers' pay-TV services. To the extent that these online platforms and other new technologies compete successfully against our customers for viewers, the ability of our existing customer base to attract and retain subscribers may be adversely affected. As a result, demand for our satellite television digital set-top boxes could decline, and we may not be able to sustain our current revenue levels.

We may have available satellite capacity in our ESS segment, and our results of operations may be materially adversely affected if we are not able to provide satellite services on this capacity to third parties, including DISH Network.

We have available satellite capacity in our ESS segment. While we are currently evaluating various opportunities to make profitable use of our available satellite capacity (including, but not limited to, supplying satellite capacity for new international ventures), there can be no assurance that we can successfully develop these business opportunities. If we are unable to utilize our available satellite capacity for providing satellite services to third parties, including DISH Network, our margins could be negatively impacted, and we may be required to record impairments related to our satellites.

The failure to adequately anticipate the need for satellite capacity or the inability to obtain satellite capacity for our Hughes segment could harm our results of operations.

Our Hughes segment has made substantial contractual commitments for satellite capacity based on our existing customer contracts and backlog. If our existing customer contracts were to be terminated prior to their respective expiration dates, we may be committed to maintaining excess satellite capacity for which we will have insufficient revenue to cover our costs, which would have a negative impact on our margins and results of operations. Alternatively, we may not have sufficient satellite capacity to meet demand. We have satellite capacity commitments, generally for two to five year terms, with third parties to cover different geographical areas or support different applications and features; therefore, we may not be able to quickly or easily adjust our capacity to changes in demand. We generally only purchase satellite capacity based on existing contracts and bookings. Therefore, capacity for certain types of coverage in the future may not be readily available to us, and we may not be able to satisfy certain needs of our customers, which could result in a loss of possible new business and could negatively impact the margins for those services. At present, until the launch and operation of additional satellites, there is limited availability of capacity on the frequencies we use in North America, including within our own fleet of satellites. Our ability to provide additional capacity for subscriber growth in our North American consumer market could also be adversely affected by regulations in the U.S. recently adopted by the FCC that enable the use of a portion of the frequency bands, including without limitation, the Ka-band, where we operate our broadband gateway earth stations, for 5G mobile terrestrial services, which could limit our flexibility to change the way in which we use the Ka-band in the future. In addition, the FSS industry has seen consolidation in the past decade, and today, the main FSS providers in North America and a number of smaller regional providers own and operate the current satellites that are available for our capacity needs. The failure of any of these FSS providers to replace existing satellite assets at the end of their useful lives or a downturn in their industry as a whole could reduce or interrupt the satellite capacity available to us. If we are not able to renew our capacity leases at economically viable rates, or if capacity is not available due to problems experienced by these FSS providers, our business and results of operations could be adversely affected.

We are dependent upon third-party providers for components, manufacturing, installation services, and customer support services, and our results of operations may be materially adversely affected if any of these third-party providers fail to appropriately deliver the contracted goods or services.

We are dependent upon third-party services and products provided to us, including the following:

- ***Components***. A limited number of suppliers manufacture, and in some cases a single supplier manufactures, some of the key components required to build our products. These key components may not be continually available and we may not be able to forecast our component requirements sufficiently in advance, which may have a detrimental effect on supply. If we are required to change suppliers for any reason, we would experience a delay in manufacturing our products if another supplier is not able to meet our requirements on a timely basis. In addition, if we are unable to obtain the necessary volumes of components on favorable terms or prices on a timely basis, we may be unable to produce our products at competitive prices and we may be unable to satisfy demand from our customers. Our reliance on a single or limited group of suppliers, particularly foreign suppliers, and our reliance on subcontractors, involves several risks. These risks include a potential inability to obtain an adequate supply of required components, reduced control over pricing, quality, and timely delivery of these components, and the potential bankruptcy, lack of liquidity or operational failure of our suppliers. We do not generally maintain long-term agreements with any of our suppliers or subcontractors for our products. An inability to obtain adequate deliveries or any other circumstances requiring us to seek alternative sources of supply could affect our ability to ship our products on a timely basis, which could damage our relationships with current and prospective customers and harm our business, resulting in a loss of market share, and reduced revenue and income.
- ***Commodity Price Risk***. Fluctuations in pricing of raw materials can affect our product costs. To the extent that component pricing does not decline or increases, whether due to inflation, increased demand, decreased supply or other factors, we may not be able to pass on the impact of increasing raw materials prices, component prices or labor and other costs, to our customers, and we may not be able to operate profitably. Such changes could have an adverse impact on our product costs.
- ***Manufacturing***. While we develop and manufacture prototypes for certain of our products, we use contract manufacturers to produce a significant portion of our hardware. If these contract manufacturers fail to provide products that meet our specifications in a timely manner, then our customer relationships and revenue may be harmed.
- ***Installation and customer support services*** . Some of our products and services, such as our North American and international operations, utilize a network of third-party installers to deploy our hardware. In addition, a portion of our customer support and management is provide

d by offshore call centers. A decline in levels of service or attention to the needs of our customers could adversely affect our reputation, renewal rates and ability to win new business.

- ***Other services.*** Some of our products rely on third parties to provide services necessary for the operation of functionalities of the products, such as third party cloud computing services. The failure of these services could disrupt the operation of certain functionalities of our products, which could harm our customer relationship and result in a loss of sales. In addition, if the agreements for the provision of these services are terminated or not renewed, we could face difficulties replacing these service providers, which would adversely affect our ability to obtain and retain customers and result in reduced revenue and income.

Our foreign operations expose us to regulatory risks and restrictions not present in our domestic operations.

Our sales outside the U.S. accounted for approximately 14.2%, 14.6% and 14.1% of our revenue for the years ended December 31, 2016, 2015 and 2014, respectively. Collectively, we expect our foreign operations to continue to represent a significant portion of our business. Over the last 10 years, we have sold products in over 100 countries. Our foreign operations involve varying degrees of risk and uncertainties inherent in doing business abroad. Such risks include:

- ***Complications in complying with restrictions on foreign ownership and investment and limitations on repatriation.*** We may not be permitted to own our operations in some countries and may have to enter into partnership or joint venture relationships. Many foreign legal regimes restrict our repatriation of earnings to the U.S. from our subsidiaries and joint venture entities. Applicable law in such foreign countries may also limit our ability to distribute or access our assets in certain circumstances. In such event, we will not have access to the cash flow and assets of our subsidiaries and joint ventures.
- ***Difficulties in following a variety of laws and regulations related to foreign operations***. Our international operations are subject to the laws and regulations of many different jurisdictions that may differ significantly from U.S. laws and regulations. For example, local political or intellectual property law may hold us responsible for the data that is transmitted over our network by our customers. In addition, we are subject to the Foreign Corrupt Practices Act and similar anti-bribery laws in other jurisdictions that generally prohibit companies and their intermediaries from making improper payments or giving or promising to give anything of value to foreign officials and other individuals for the purpose of obtaining or retaining business or gaining a competitive advantage. Our policies mandate compliance with these laws. However, we operate in many parts of the world that have experienced corruption to some degree. Compliance with these laws may lead to increased operations costs or loss of business opportunities. Violations of these laws could result in fines or other penalties or sanctions, which could have a material adverse impact on our business, financial condition, and results of operations.
- ***Restrictions on space station landing/terrestrial rights***. Satellite market access and landing rights and terrestrial wireless rights are dependent on the national regulations established by foreign governments, including, but not limited to obtaining national authorizations or approvals and meeting other regulatory, coordination and registration requirements for satellites. Because regulatory schemes vary by country, we may be subject to laws or regulations in foreign countries of which we are not presently aware. Non-compliance with these requirements may result in the loss of the authorizations and licenses to conduct business in these countries, as well as fines or other financial and non-financial penalties for non-compliance with regulations. If that were to be the case, we could be subject to sanctions and/or other actions by a foreign government that could materially and adversely affect our ability to operate in that country. There is no assurance that any current regulatory approvals held by us are, or will remain, sufficient in the view of foreign regulatory authorities, or that any additional necessary approvals will be granted on a timely basis or at all, in all jurisdictions in which we wish to operate new satellites, or that applicable restrictions in those jurisdictions will not be unduly burdensome. Violations of laws or regulations may result in various sanctions including fines, loss of authorizations and the denial of applications for new authorizations or for the renewal of existing authorizations, and the failure to obtain or comply with the authorizations and regulations governing our international operations could have a material adverse effect on our ability to generate revenue and our overall competitive position.
- ***Financial and legal constraints and obligations***. Operating pursuant to foreign licenses subjects us to certain financial constraints and obligations, including, but not limited to: (a) tax liabilities that may or may not be dependent on revenue; (b) the burden of creating and maintaining additional entities, branches, facilities and/or staffing in foreign jurisdictions; and (c) legal regulations requiring that we make certain satellite capacity available for "free," which may impact our revenue. In addition, if we need to pursue legal remedies against our customers or our business partners located outside of the U.S., it may be difficult for us to enforce our rights against them.
- ***Compliance with applicable export control laws and regulations in the U.S. and other countries*** . We must comply with all applicable export control and trade sanctions laws and regulations of the U.S. and other countries. U.S. laws and regulations applicable to us include the Arms Export Control Act, ITAR, EAR and the trade sanctions laws and regulations administered by OFAC. The export of certain hardware, technical data and services

relating to satellites is regulated by BIS under EAR. Other items are controlled for export by the DDTC under ITAR. We cannot provide equipment or services to certain countries subject to U.S. trade sanctions unless we first obtain the necessary authorizations from OFAC. Violations of these laws or regulations could result in significant sanctions including fines, more onerous compliance requirements, debarments from export privileges, or loss of authorizations needed to conduct aspects of our international business. A violation of ITAR or the other regulations enumerated above could materially adversely affect our business, financial condition and results of operations.

- ***Changes in exchange rates between foreign currencies and the U.S. dollar***. We conduct our business and incur cost in the local currency of a number of the countries in which we operate. Accordingly, our applicable results of operations are reported in the relevant local currency and then translated to U.S. dollars at the applicable currency exchange rate for inclusion in our financial statements. In addition, we sell our products and services and acquire supplies and components from countries that historically have been, and may continue to be, susceptible to recessions or currency devaluation. These fluctuations in currency exchange rates, recessions and currency devaluations have affected, and may in the future affect, revenue, profits and cash earned on international sales.
- ***Greater exposure to the possibility of economic instability, the disruption of operations from labor and political disturbances, expropriation or war***. As we conduct operations throughout the world, we could be subject to regional or national economic downturns or instability, acts of terrorism, labor or political disturbances or conflicts of various sizes, including wars. Any of these disruptions could detrimentally affect our sales in the affected region or country or lead to damage to, or expropriation of, our property or danger to our personnel.
- ***Competition with large or state-owned enterprises and/or regulations that effectively limit our operations and favor local competitors***. Many of the countries in which we conduct business have traditionally had state owned or state granted monopolies on telecommunications services that favor an incumbent service provider. We face competition from these favored and entrenched companies in countries that have not deregulated. The slower pace of deregulation in these countries, particularly in Asia and Latin America, has adversely affected the growth of our business in these regions.
- ***Customer credit risks***. Customer credit risks are exacerbated in foreign operations because there is often little information available about the credit histories of customers in certain of the foreign countries in which we operate.

We may experience loss from some of our customer contracts.

We provide access to our telecommunications networks to customers that use a variety of platforms such as satellite, wireless 3G and 4G, cable, fiber optic and DSL. These customer contracts may require us to provide services at a fixed price for the term of the contract. To facilitate the provision of this access, we may enter into contracts with terrestrial platform providers. Our agreements with these subcontractors may allow for prices to be changed during the term of the contracts. We assume greater financial risk on these customer contracts than on other types of contracts because if we do not estimate costs accurately and there is an increase in our subcontractors' prices, our net profit may be significantly reduced or there may be a loss on the contracts.

We may experience significant financial losses on our existing investments.

We have entered into certain strategic transactions and investments. These investments involve a high degree of risk and could diminish our financial condition or our ability to fund a share repurchase program, invest capital in our business or return capital to our shareholders. The overall sustained economic uncertainty, as well as financial, operational and other difficulties encountered by certain companies in which we have invested increases the risk that the actual amounts realized in the future on our debt and equity investments will differ significantly from the fair values currently assigned to them. In addition, the companies in which we invest or with whom we partner may not be able to compete effectively or there may be insufficient demand for the services and products offered by these companies. These investments could also expose us to significant financial losses and may restrict our ability to make other investments or limit alternative uses of our capital resources. If our investments suffer losses, our financial condition could be materially adversely affected.

We may pursue acquisitions, capital expenditures and other strategic transactions to complement or expand our business, which may not be successful and we may lose a portion or all of our investment in these acquisitions and transactions.

Our future success may depend on the existence of, and our ability to capitalize on, opportunities to acquire or develop other businesses or technologies or partner with other companies that could complement, enhance or expand our current business, services or products or that may otherwise offer us growth opportunities. We may pursue acquisitions, joint ventures or other business combination or development activities to complement or expand our business. Any such acquisitions, transactions or investments that we are able to identify and complete which may become substantial over time, involve a high degree of risk, including, but not limited to, the following:

- the diversion of our management's attention from our existing business to integrate the operations and personnel of the acquired or combined business, technology or joint venture;
- the ability and capacity of our management team to carry out all of our business plans, including with respect to our existing businesses and any businesses we acquire or embark on in the future;
- possible adverse effects on our and our targets' and partners' business, financial condition or operating results during the integration process;
- exposure to significant financial losses if the transactions, investments and/or the underlying ventures are not successful; and/or we are unable to achieve the intended objectives of the transaction or investment;
- the inability to obtain in the anticipated time frame, or at all, any regulatory approvals required to complete proposed acquisitions, transactions or investments;
- the risks associated with complying with regulations applicable to the acquired or developed business or technologies which may cause us to incur substantial expenses;
- the inability to realize anticipated benefits or synergies from an acquisition; and
- the disruption of relationships with employees, vendors or customers.

New acquisitions, investments, joint ventures and other transactions may require the commitment of significant capital that may otherwise be directed to investments in our existing businesses or be distributed to shareholders. Commitment of this capital may cause us to defer or suspend any share repurchases or capital expenditures that we otherwise may have made.

We may not be able to generate cash to meet our debt service needs or fund our operations.

As of December 31, 2016, our total indebtedness was approximately $3.66 billion. Our ability to make payments on or to refinance our indebtedness and to fund our operations will depend on our ability to generate cash in the future, which is subject in part to general economic, financial, competitive, legislative, regulatory and other factors that are beyond our control. We may need to raise additional debt in order to fund ongoing operations or to capitalize on business opportunities. We may not be able to generate sufficient cash flow from operations and future borrowings may not be available in amounts sufficient to enable us to service our indebtedness or to fund our operations or other liquidity needs. If we are unable to generate sufficient cash, we may be forced to take actions such as revising or delaying our strategic plans, reducing or delaying capital expenditures, selling assets, restructuring or refinancing our debt or seeking additional equity capital. We may not be able to implement any of these actions on satisfactory terms, or at all. The indentures governing our indebtedness limit our ability to dispose of assets and use the proceeds from such dispositions. Therefore, we may not be able to consummate those dispositions on satisfactory terms, or at all, or to use those proceeds in a manner we may otherwise prefer.

In addition, conditions in the financial markets could make it difficult for us to access capital markets at acceptable terms or at all. Instability or other conditions in the equity markets could make it difficult for us to raise equity financing without incurring substantial dilution to our existing shareholders. In addition, sustained or increased economic weaknesses or pressures or new economic conditions may limit our ability to generate sufficient internal cash to fund investments, capital expenditures, acquisitions, and other strategic transactions. We cannot predict with any certainty whether or not we will be impacted by economic conditions. As a result, these conditions make it difficult for us to accurately forecast and plan future business activities because we may not have access to funding sources necessary for us to pursue organic and strategic business development opportunities.

Covenants in our indentures restrict our business in many ways.

The indentures governing the Hughes Satellite Systems Corporation ("HSS"), a subsidiary of EchoStar, 6 1/2% Senior Secured Notes due 2019 (the "2019 Senior Secured Notes"), 7 5/8% Senior Notes due 2021 (the "2021 Senior Unsecured Notes"), 5.250% Senior Secured Notes due August 1, 2026 (the "2026 Senior Secured Notes") and 6.625% Senior Unsecured Notes due August 1, 2026 (the "2026 Senior Unsecured Notes" and together with the 2026 Senior Secured Notes, the "2026 Notes") contain various covenants, subject to certain exceptions, that limit our ability and/or our restricted subsidiaries' ability to, among other things:

- incur additional debt;

- pay dividends or make distributions on HSS' capital stock or repurchase HSS' capital stock;
- make certain investments;
- create liens or enter into sale and leaseback transactions;
- enter into transactions with affiliates;
- merge or consolidate with another company;
- transfer and sell assets; and
- allow to exist certain restrictions on the ability of certain of HSS' subsidiaries to pay dividends, make distributions, make other payments, or transfer assets to HSS or its subsidiaries.

Failure to comply with these and certain other financial covenants, if not cured or waived, may result in an event of default under the indentures, which could have a material adverse effect on our business, financial condition, results of operations or prospects. If an event of default occurs and is continuing under the respective indenture, the trustee under that indenture or the requisite holders of the notes under that indenture may declare all such notes to be immediately due and payable and, in the case of the indentures governing any of our secured notes, could proceed against the collateral that secures the applicable secured notes. We and certain of our subsidiaries have pledged a significant portion of our assets as collateral to secure the 2019 Senior Secured Notes and the 2026 Senior Secured Notes. If we do not have enough cash to service our debt or fund other liquidity needs, we may be required to take actions such as requesting a waiver from the holders of the notes, reducing or delaying capital expenditures, selling assets, restructuring or refinancing all or part of the existing debt, or seeking additional equity capital. We cannot assure you that any of these remedies can be implemented on commercially reasonable terms or at all, which could result in the trustee declaring the notes to be immediately due and payable and/or foreclosing on the collateral.

We rely on key personnel and the loss of their services may negatively affect our businesses.

We believe that our future success will depend to a significant extent upon the performance of Mr. Charles W. Ergen, our Chairman, and certain other key executives. The loss of Mr. Ergen or of certain other key executives or of the ability of Mr. Ergen or certain other key executives to devote sufficient time and effort to our business could have a material adverse effect on our business, financial condition and results of operations. Although most of our key executives have agreements limiting their ability to work for or consult with competitors, under certain circumstances, we generally do not have employment agreements with them. To the extent Mr. Ergen or other officers are performing services to both DISH Network and us, their attention may be diverted away from our business and therefore adversely affect our business.

Pursuant to the terms of our preferred tracking stock and related agreements and policies, we could be required to use assets attributed to one group to pay liabilities attributed to the other group if the Share Exchange is not consummated.

Even though we attribute, for financial reporting purposes, all of our consolidated assets, liabilities, revenue, expenses and cash flows to either the EchoStar Group or the Hughes Retail Group (see Note 4 in the notes to consolidated financial statements in Item 15 of this report for definitions and a further discussion of the preferred tracking stock, the EchoStar Group and the Hughes Retail Group) and prepare separate attributed financial information for the Hughes Retail Group, we retain legal title to all of our assets and our capitalization will not limit our legal responsibility, or that of our subsidiaries, for the liabilities included in our financial statements and such attributed financial information. As such, the assets attributed to one group are potentially subject to the liabilities attributed to the other group, even if those liabilities arise from lawsuits, contracts or indebtedness that are attributed to such other group. Although the policy statement (the "Policy Statement") regarding the relationships between the EchoStar Group and the Hughes Retail Group with respect to matters such as the attribution and allocation of costs, tax liabilities and benefits, attribution of assets, corporate opportunities and similar items generally requires that all changes in the attribution of assets from one group to the other group will be made on a fair value basis as determined in accordance with certain guiding principles, these policies and our articles of incorporation generally do not prevent us from satisfying liabilities of one group with assets of the other group, and our creditors are not limited by our tracking stock capitalization from proceeding against any assets they could have proceeded against if we did not have a tracking stock capitalization.

We may be subject to risks relating to the referendum of the United Kingdom's membership of the European Union.

In June 2016, the United Kingdom (the "U.K.") held a referendum in which voters approved an exit from the European Union and its member states ("EU"), commonly referred to as the "Brexit." As a result of the referendum, it is expected that the U.K. government will begin negotiating the terms of the U.K.'s future relationship with the EU. Although it is unknown what those terms will be, it is possible that there will be greater restrictions on imports and exports between the U.K. and EU countries.

Additionally, with the U.K. no longer being a part of the EU, we anticipate that there may be certain regulatory changes that may impact the regulatory regime under which we operate in both the U.K. and the EU. These and other changes, implications and consequences of the Brexit may adversely affect our business and results of operations.

A natural disaster could diminish our ability to provide service to our customers.

Natural disasters could damage or destroy our ground stations, resulting in a disruption of service to our customers. We currently have backup systems and technology in place to safeguard our antennas and protect our ground stations during natural disasters such as tornadoes, but the possibility still exists that our ground facilities could be impacted during a major natural disaster. If a future natural disaster impairs or destroys any of our ground facilities, we may be unable to provide service to our customers in the affected area for a period of time which may adversely affect our business and results of operations.

We may have additional tax liabilities.

We are subject to income taxes in the United States and foreign jurisdictions. Significant judgments are required in determining our provisions for income taxes. In the course of preparing our tax provisions and returns, we must make calculations where the ultimate tax determination may be uncertain. Our tax returns are subject to examination by the Internal Revenue Service ("IRS"), state, and foreign tax authorities. There can be no assurance as to the outcome of these examinations. If the ultimate determination of taxes owed is for an amount in excess of amounts previously accrued, our operating results, cash flows, and financial condition could be adversely affected.

RISKS RELATED TO OUR SATELLITES

Our owned and leased satellites in orbit are subject to significant operational and environmental risks that could limit our ability to utilize these satellites.

Satellites are subject to significant operational risks while in orbit. These risks include malfunctions, commonly referred to as anomalies, which have occurred and may occur in the future in our satellites and the satellites of other operators as a result of various factors, such as satellite design and manufacturing defects, problems with the power systems or control systems of the satellites and general failures resulting from operating satellites in the harsh environment of space.

Although we work closely with the satellite manufacturers to determine and eliminate the cause of anomalies in new satellites and provide for redundancies of many critical components in the satellites, we may not be able to prevent anomalies from occurring and may experience anomalies in the future, whether of the types described above or arising from the failure of other systems or components.

Any single anomaly or series of anomalies could materially and adversely affect our ability to utilize the satellite, our operations and revenue as well as our relationships with current customers and our ability to attract new customers. In particular, future anomalies may result in, among other things, the loss of individual transponders/beams on a satellite, a group of transponders/beams on that satellite or the entire satellite, depending on the nature of the anomaly. Anomalies may also reduce the expected capacity or useful life of a satellite, thereby reducing the revenue that could be generated by that satellite, or create additional expenses due to the need to provide replacement or back-up satellites or satellite capacity earlier than planned.

The loss of a satellite or other satellite malfunctions or anomalies could have a material adverse effect on our financial performance, which we may not be able to mitigate by using available capacity on other satellites. There can be no assurance that we can recover critical transmission capacity in the event one or more of our in-orbit satellites were to fail. In addition, the loss of a satellite or other satellite malfunctions or anomalies could affect our ability to comply with FCC and other regulatory obligations and our ability to fund the construction or acquisition of replacement satellites for our in-orbit fleet in a timely fashion, or at all. There can be no assurance that anomalies will not impact the remaining useful life and/or the commercial operation of any of the satellites in our fleet. In addition, there can be no assurance that we can recover critical transmission capacity in the event one or more of our in-orbit satellites were to fail.

Meteoroid events pose a potential threat to all in-orbit satellites. The probability that meteoroids will damage those satellites increases significantly when the Earth passes through the particulate stream left behind by comets. Occasionally, increased solar activity also poses a potential threat to all in-orbit satellites.

Some decommissioned spacecraft are in uncontrolled orbits, which pass through the geostationary belt at various points and present hazards to operational spacecraft, including our satellites. We may be required to perform maneuvers to avoid collisions and these maneuvers may prove unsuccessful or could reduce the useful life of the satellite through the expenditure of fuel to perform these maneuvers. The loss, damage or destruction of any of our satellites as a result of an electrostatic storm, collision with space debris, malfunction or other event could have a material adverse effect on our business, financial condition and results of operations.

We historically have not carried in-orbit insurance on many of our satellites because we assessed that the cost of insurance was uneconomical relative to the risk of failures. If one or more of our in-orbit uninsured satellites fail, we could be required to record significant impairment charges for the satellite.

Our satellites have minimum design lives ranging from 12 to 15 years, but could fail or suffer reduced capacity before then.

Generally, the minimum design life of each of our satellites ranges from 12 to 15 years. We can provide no assurance, however, as to the actual operational lives of our satellites, which may be shorter or longer than their design lives. Our ability to earn revenue depends on the continued operation of our satellites, each of which has a limited useful life. A number of factors affect the useful lives of the satellites, including, among other things, the quality of their design and construction, the durability of their component parts, the ability to continue to maintain proper orbit and control over the satellite's functions, the efficiency of the launch vehicle used, and the remaining on-board fuel following orbit insertion. In addition, continued improvements in satellite technology may make obsolete our existing satellites, or any satellites we may acquire in the future, prior to the end of their design lives.

In the event of a failure or loss of any of our satellites, we may relocate another satellite and use it as a replacement for the failed or lost satellite, which could have a material adverse effect on our business, financial condition and results of operations. Additionally, such relocation would require governmental approval. We cannot be certain that we could obtain such governmental approval. In addition, we cannot guarantee that another satellite will be available for use as a replacement for a failed or lost satellite, or that such relocation can be accomplished without a substantial utilization of fuel. Any such utilization of fuel would reduce the operational life of the replacement satellite.

Our satellites under construction are subject to risks related to construction and launch that could limit our ability to utilize these satellites.

Satellite construction and launch are subject to significant risks, including delays, anomalies, launch failure and incorrect orbital placement. Certain launch vehicles that may be used by us have either unproven track records or have experienced launch failures in the past. The risks of launch delay, launch anomalies and launch failure are usually greater when the launch vehicle does not have a track record of previous successful flights. Launch anomalies and failures can result in significant delays in the deployment of satellites because of the need both to construct replacement satellites, which can take more than three years, and to obtain other launch opportunities. Such significant delays could materially and adversely affect our business, expenses and results of operations, our ability to meet regulatory or contractual required milestones, the availability and our use of other or replacement satellite resources and our ability to provide services to customers as capacity becomes full on existing satellites. In addition, significant delays in a satellite program could give customers who have purchased or reserved capacity on that satellite a right to terminate their service contracts relating to the satellite. We may not be able to accommodate affected customers on other satellites until a replacement satellite is available. A customer's termination of its service contracts with us as a result of a launch delay or failure would reduce our contracted backlog and our ability to generate revenue. One of our launch services providers is a Russian Federation state-owned company. Recent ongoing political events have created uncertainty as to the stability of U.S. and Russian Federation relations. This could add to risks relative to scheduling uncertainties and timing. Historically, we have not always carried launch insurance for the launch of our satellites. If a launch delay, anomaly or failure were to occur, it could result in the revocation of the applicable license to operate the satellite, undermine our ability to implement our business strategy or develop or pursue existing or future business opportunities with applicable licenses and otherwise have a material adverse effect on our business, expenses, assets, revenue, results of operations and ability to fund future satellite procurement and launch opportunities. In addition, the occurrence of launch anomalies and failures, whether on our satellites or those of others, may significantly reduce our ability to place launch insurance for our satellites or make launch insurance uneconomical.

Our use of certain satellites is often dependent on satellite coordination agreements, which may be difficult to obtain.

Satellite transmissions and the use of frequencies often are dependent on coordination with other satellite systems operated by U.S. or foreign satellite operators, including governments, and it can be difficult to determine the outcome of these coordination agreements with these other entities and governments. The impact of a coordination agreement may result in the loss of rights to the use of certain frequencies or access to certain markets. The significance of such a loss would vary and it can therefore be difficult to determine which portion of our revenue will be impacted.

Furthermore, the satellite coordination process is conducted under the guidance of the ITU radio regulations and the national regulations of the satellites involved in the coordination process. These rules and regulations could be amended and could therefore materially adversely affect our business, financial condition and results of operations.

We may face interference from other services sharing satellite spectrum.

The FCC and other regulators have adopted rules or may adopt rules in the future that allow non-geostationary orbit satellite services to operate on a co-primary basis in the same frequency band as DBS and FSS. The FCC has also authorized the use of multichannel video and data distribution service ("MVDDS") in the DBS band. Several MVDDS systems are now being commercially deployed. Despite regulatory provisions designed to protect DBS and FSS operations from harmful interference, there can be no assurance that operations by other satellites or terrestrial communication services in the DBS and FSS bands will not interfere with our DBS and FSS operations and adversely affect our business.

Our dependence on outside contractors could result in delays related to the design, manufacture and launch of our new satellites, which could in turn adversely affect our operating results.

There are a limited number of manufacturers that are able to design and build satellites according to the technical specifications and standards of quality we require, including Airbus Defence and Space, Boeing Satellite Systems, Lockheed Martin, SS/L and Thales Alenia Space. There are also a limited number of launch service providers that are able to launch such satellites, including International Launch Services, Arianespace, Lockheed Martin Commercial Launch Services and Space Exploration. The loss of any of our manufacturers or launch service providers could increase the cost and result in the delay of the design, construction or launch of our satellites. Even if alternate suppliers for such services are available, we may have difficulty identifying them in a timely manner or we may incur significant additional expense in changing suppliers, and this could result in difficulties or delays in the design, construction or launch of our satellites. Any delays in the design, construction or launch of our satellites could have a material adverse effect on our business, financial condition and results of operations.

RISKS RELATED TO OUR PRODUCTS AND TECHNOLOGY

If we are unable to properly respond to technological changes, our business could be significantly harmed.

Our business and the markets in which we operate are characterized by rapid technological changes, evolving industry standards and frequent product and service introductions and enhancements. If we or our suppliers are unable to properly respond to or keep pace with technological developments, fail to develop new technologies, or if our competitors obtain or develop proprietary technologies that are perceived by the market as being superior to ours, our existing products and services may become obsolete and demand for our products and services may decline. Even if we keep up with technological innovation, we may not meet the demands of the markets we serve. Furthermore, after we have incurred substantial research and development costs, one or more of the technologies under our development, or under development by one or more of our strategic partners, could become obsolete prior to its introduction. If we are unable to respond to or keep pace with technological advances on a cost-effective and timely basis, or if our products, applications or services are not accepted by the market, then our business, financial condition and results of operations would be adversely affected.

Our response to technological developments depends, to a significant degree, on the work of technically skilled employees. Competition for the services of such employees is intense. Although we strive to attract, retain and motivate these employees, we may not succeed in these respects.

We have made and will continue to make significant investments in research, development, and marketing for new products, services and related technologies, as well as entry into new business areas. Investments in new technologies and business areas are inherently speculative and commercial success thereof depends on numerous factors including innovativeness, quality of service and support, and effectiveness of sales and marketing. We may not achieve revenue or profitability from such investments for a number of years, if at all. Moreover, even if such products, services, technologies and business areas become profitable, their operating margins may be minimal.

Our future growth depends on growing demand for advanced technologies.

Future demand and effective delivery for our products will depend significantly on the growing demand for advanced technologies, such as broadband internet connectivity and, if the Share Exchange is not consummated, Ultra HDTV, 3D TV, whole-home HD DVR features, mobile internet delivery of video content, and on digital television operators developing and building infrastructure to provide these advanced technologies. If the deployment of, or demand for, advanced technologies is not as widespread or as rapid as we or our customers expect, our revenue growth will be negatively impacted.

Our business depends on certain intellectual property rights and on not infringing the intellectual property rights of others. The loss of our intellectual property rights or our infringement of the intellectual property rights of others could have a significant adverse impact on our business.

We rely on our patents, copyrights, trademarks and trade secrets, as well as licenses and other agreements with our vendors and other parties, to use our technologies, conduct our operations and sell our products and services. Legal challenges to our intellectual property rights and claims by third parties of intellectual property infringement could require that we enter into royalty or licensing agreements on unfavorable terms, incur substantial monetary liability or be enjoined preliminarily or permanently from further use of the intellectual property in question or from the continuation of our businesses as currently conducted, which could require us to change our business practices or limit our ability to compete effectively or could otherwise have an adverse effect on our business, financial condition, results of operations or prospects. Even if we believe any such challenges or claims are without merit, they can be time-consuming and costly to defend and may divert management’s attention and resources away from our business.

Moreover, due to the rapid pace of technological change, we rely in part on technologies developed or licensed by third parties, and if we are unable to obtain or continue to obtain licenses or other required intellectual property rights from these third parties on reasonable terms, our business, financial position and results of operations could be adversely affected. Technology licensed from third parties may have undetected errors that impair the functionality or prevent the successful integration of our products or services. As a result of any such changes or loss, we may need to incur additional development costs to ensure continued performance of our products or suffer delays until replacement technology, if available, can be obtained and integrated.

In addition, we work with third parties such as vendors, contractors and suppliers for the development and manufacture of components that are integrated into our products and our products may contain technologies provided to us by these third parties. We may have little or no ability to determine in advance whether any such technology infringes the intellectual property rights of others. Our vendors, contractors and suppliers may not be required to indemnify us in the event that a claim of infringement is asserted against us, or they may be required to indemnify us only up to a maximum amount, above which we would be responsible for any further costs or damages. Legal challenges to these intellectual property rights may impair our ability to use the products and technologies that we need in order to operate our business and may materially and adversely affect our business, financial condition and results of operations.

We are, and may become, party to various lawsuits which, if adversely decided, could have a significant adverse impact on our business, particularly lawsuits regarding intellectual property.

We are, and may become, subject to various legal proceedings and claims, which arise in the ordinary course of our business. Many entities, including some of our competitors, have or may in the future obtain patents and other intellectual property rights that cover or affect products or services related to those that we offer. In general, if a court determines that one or more of our products or services infringes valid intellectual property rights held by others, we may be required to cease developing or marketing those products or services, to obtain licenses from the holders of the intellectual property at a material cost, or to redesign those products or services in such a way as to avoid infringement. If those intellectual property rights are held by a competitor, we may be unable to license the necessary intellectual property rights at any price, which could adversely affect our competitive position.

We may not be aware of all patents and other intellectual property rights that our products and services may potentially infringe. In addition, patent applications in the U.S. and foreign countries are confidential until the Patent and Trademark Office either publishes the application or issues a patent (whichever arises first) and, accordingly, our products may infringe claims contained in pending patent applications of which we are not aware. Further, the process of determining definitively whether a patent claim is valid and whether a particular product infringes a valid patent claim often involves expensive and protracted litigation, even if we are ultimately successful on the merits.

We cannot estimate the extent to which we may be required in the future to obtain licenses with respect to intellectual property rights held by others and the availability and cost of any such licenses. Those costs, and their impact on our results of operations, could be material. Damages in patent infringement cases can be substantial, and in certain circumstances, can be trebled. To the extent that we are required to pay unanticipated royalties to third parties, these increased costs of doing business could negatively affect our liquidity and operating results. We are currently defending multiple patent infringement actions and may assert our own actions against parties we suspect of infringing our patents and trademarks. We cannot be certain the courts will conclude these companies do not own the rights they claim, that these rights are not valid, or that our products and services do not infringe on these rights. We also cannot be certain that we will be able to obtain licenses from these persons on commercially reasonable terms or, if we were unable to obtain such licenses, that we would be able to redesign our products and services to avoid infringement. The legal costs associated with defending patent suits and pursuing patent claims against others may be borne by us if we are not awarded reimbursement through the legal process. See further discussion under Item 1. - Business — Patents and Trademarks and Item 3. - Legal Proceedings of this Annual Report on Form 10-K.

Future litigation or governmental proceedings could result in material adverse consequences, including judgments or settlements.

We may become involved in lawsuits, regulatory inquiries, consumer claims and governmental and other legal proceedings arising from of our business, including new products and services that we may offer. Some of these proceedings may raise difficult and complicated factual and legal issues and can be subject to uncertainties and complexities. The timing of the final resolutions to lawsuits, regulatory inquiries, and governmental and other legal proceedings is typically uncertain. Additionally, the possible outcomes of, or resolutions to, these proceedings could include adverse judgments, settlements or liabilities, any of which could require substantial payments or have other adverse impacts on our revenue, results of operations or cash flow.

If the encryption and related security technology used in our products is compromised, sales of our products may decline.

Our customers use encryption and related security technology obtained from us or our suppliers in the products that they purchase from us to control access to their programming content and to protect their data and products from unauthorized access to the features or functionalities of such products. Such encryption and related security technology has been compromised in the past and may be compromised in the future even though we continue to respond with significant investment in security measures, such as updates in security software, that are intended to make signal theft more difficult. It has been our prior experience that security measures may only be effective for short periods of time or not at all. We cannot ensure that we will be successful in reducing or controlling theft of our customers' programming content. As a result, sales of our products may decline, our reputation and customer relationship could be damaged and we may incur additional costs or financial liability in the future if security of our customers' system is compromised.

We rely on network and information systems and other technologies and a disruption, cyber-attack, failure or destruction of such networks, systems or technologies may disrupt or harm our business and damage our reputation, which could have a material adverse effect on our financial condition and operating results.

The capacity, reliability and security of our information technology hardware and software infrastructure are important to the operation of our business, which would suffer in the event of system disruptions or failures, such as computer hackings, cyber-attacks, computer viruses or other destructive or disruptive software, process breakdowns, denial of service attacks or other malicious activities. Security breaches, attacks, unauthorized access and other malicious activities have significantly increased in recent years, and some of them have involved sophisticated and highly targeted attacks on computer networks. Our networks, systems and technologies and those of our third-party service providers and our customers may also be vulnerable to such security breaches, attacks, malicious activities and unauthorized access, resulting in misappropriation, misuse, leakage, corruption, unscheduled downtime, falsification and accidental or intentional release or loss of information maintained on our and our third party service providers' information technology systems and networks, including but not limited to customer, personnel and vendor data. If such risks were to materialize, we could be exposed to significant costs and interruptions, delays or malfunctions in our operations, any of which could damage our reputation and credibility and have a material adverse effect on our business, financial condition and results of operations. We may also be required to expend significant resources to protect against these threats or to alleviate problems, including reputational harm and litigation, caused by any breaches. Although we have significantly invested in and continue to implement generally recognized security measures, these measures may prove to be inadequate and we could be subject to regulatory penalties, fines, sanctions, enforcement actions, remediation obligations, and/or private litigation by parties whose information was improperly accessed, disclosed or misused which could have a material adverse effect on our business, financial condition and results of operations. Furthermore, the amount and scope of insurance that we maintain against losses resulting from these events may not be sufficient to compensate us adequately for any disruptions to our business or otherwise cover our losses, including reputational harm and negative publicity as well as any litigation liability. In addition, our ability to expand and update our information technology infrastructure in response to our growth and changing needs is important to the continued implementation of our new service offering initiatives. A security breach or attack could impact our ability to expand or upgrade our technology infrastructure which could have adverse consequences, including the delayed implementation of new offerings, product or service interruptions, and the diversion of development resources.

If our products contain defects, we could be subject to significant costs to correct such defects and our product and network service contracts could be delayed or cancelled, which could adversely affect our revenue.

The products and the networks we deploy are highly complex, and some may contain defects when first introduced or when new versions or enhancements are released, despite testing and our quality control procedures. For example, our products may contain software “bugs” that can unexpectedly interfere with their operation. Defects may also occur in components and products that we purchase from third parties. In addition, many of our products and network services are designed to interface with our customers’ existing networks, each of which has different specifications and utilize multiple protocol standards. Our products and services must interoperate with the other products and services within our customers’ networks, as well as with future products and services that might be added to these networks, to meet our customers’ requirements. There can be no assurance that we will be able to detect and fix all defects in the products and networks we sell. The occurrence of any defects, errors or failures in our products or network services could result in: (i) additional costs to correct such defects; (ii) cancellation of orders and lost revenue; (iii) a reduction in revenue backlog; (iv) product returns or recalls; (v) diversion of our resources; (vi) the issuance of credits to customers and other losses to us, our customers or end-users; (vii) liability for harm to persons and property caused by defects in or failures of our products or services; and (viii) harm to our reputation if we fail to detect or effectively address such issues through design, testing or warranty repairs. Any of these occurrences could also result in the loss of or delay in market acceptance of our products and services and loss of sales, which would harm our reputation and our business and materially adversely affect our revenue and profitability.

RISKS RELATED TO THE REGULATION OF OUR BUSINESS

Our business is subject to risks of adverse government regulation.

Our business is subject to varying degrees of regulation in the U.S. by the FCC, and other federal, state and local entities, and in foreign countries by similar entities and internationally by the ITU. These regulations are subject to the administrative and political process and do change, for political and other reasons, from time to time. For example, the FCC recently adopted an order in its “Spectrum Frontiers” proceeding under which a portion of the Ka-band, in which we operate our broadband gateway earth stations, has been enabled for 5G mobile terrestrial services, which could limit our flexibility to change the way in which we use Ka-band in the future. Other countries in which we currently, or may in the future, operate are also considering regulations that could limit access to the Ka-band or other frequency bands. The FCC has also opened a proceeding on non-geostationary satellites, which may adversely impact our ability to use certain spectrum for user terminals. Moreover, a substantial number of foreign countries in which we have, or may in the future make, an investment, regulate, in varying degrees, the ownership of satellites and other telecommunication facilities/networks and foreign investment in telecommunications companies. Violations of laws or regulations may result in various sanctions including fines, loss of authorizations and the denial of applications for new authorizations or for the renewal of existing authorizations. Further material changes in law and regulatory requirements may also occur, and there can be no assurance that our business and the business of our subsidiaries and affiliates will not be adversely affected by future legislation, new regulation or deregulation. The failure to obtain or comply with the authorizations and regulations governing our operations could have a material adverse effect on our ability to generate revenue and our overall competitive position and could result in our suffering serious harm to our reputation.

Our business depends on regulatory authorizations issued by the FCC and state and foreign regulators that can expire, be revoked or modified, and applications for licenses and other authorizations that may not be granted.

Generally all satellite, earth stations and other licenses granted by the FCC and most other countries are subject to expiration unless renewed by the regulatory agency. Our satellite licenses are currently set to expire at various times. In addition, we occasionally receive special temporary authorizations that are granted for limited periods of time (e.g., 180 days or less) and subject to possible renewal. Generally, our licenses and special temporary authorizations have been renewed on a routine basis, but there can be no assurance that this will continue. There can be no assurance that the FCC or other regulators will continue granting applications for new licenses or for the renewal of existing ones. If the FCC or other regulators were to cancel, revoke, suspend, or fail to renew any of our licenses or authorizations, or fail to grant our applications for FCC or other licenses, it could have a material adverse effect on our business, financial condition and results of operations. Specifically, loss of a frequency authorization would reduce the amount of spectrum available to us, potentially reducing the amount of services we provide to our customers. The significance of such a loss of authorizations would vary based upon, among other things, the orbital location, the frequency band and the availability of replacement spectrum. In addition, the legislative and executive branches of the U.S. government and foreign governments often consider legislation and regulatory requirements that could affect us, as could the actions that the FCC and foreign regulatory bodies take. We cannot predict the outcomes of these legislative or regulatory proceedings or their effect on our business.

In addition, third parties have or may oppose some of our license applications and pending and future requests for extensions, modifications, waivers and approvals of our licenses. Even if we have fully complied with all of the required reporting, filing and other requirements in connection with our authorizations, it is possible a regulator could decline to grant certain of our applications or requests for authority, or could revoke, terminate, condition or decline to modify, extend or renew certain of our authorizations or licenses.

Our ability to sell our digital set-top boxes to certain operators if the Share Exchange is not consummated depends on our ability to obtain licenses to use the conditional access systems utilized by these operators.

Our commercial success in selling our digital set-top boxes to cable television and other operators depends significantly on our ability to obtain licenses to use the conditional access systems deployed by these operators in our digital set-top boxes. In many cases, the intellectual property rights to these conditional access systems are owned by the set-top box manufacturer that currently provides the system operator with its set-top boxes. We cannot assure you that we will be able to obtain required licenses on commercially favorable terms, or at all. If we do not obtain the necessary licenses, we may be delayed or prevented from pursuing the development of some potential products with cable or other television operators. If the Share Exchange is not consummated, our failure to obtain a license to use the conditional access systems that we may require to develop or commercialize our digital set-top boxes with cable television or other operators, in turn, would harm our ability to grow our customer base and our financial condition, revenue and results of operation.

We may face difficulties in accurately assessing and collecting contributions towards the Universal Service Fund.

Because our customer contracts often include both telecommunications services, which create obligations to contribute to the USF, and other goods and services, which do not, it can be difficult to determine what portion of our revenue forms the basis for our required contribution to the USF and the amount that we can recover from our customers. If the FCC, which oversees the USF, or a court or other governmental entity were to determine that we computed our USF contribution obligation incorrectly or passed the wrong amount onto our customers, we could become subject to additional assessments, liabilities, or other financial penalties. In addition, the FCC is considering substantial changes to its USF contribution and distribution rules. These changes could impact our future contribution obligations and those of third parties that provide communication services to our business. Any such change to the USF contribution rules could adversely affect our costs of providing service to our customers. In addition, changes to the USF distribution rules could intensify the competition we face by offering subsidies to competing firms and/or technologies.

RISKS RELATED TO THE PENDING SHARE EXCHANGE

There are risks and uncertainties associated with the pending Share Exchange.

There are a number of risks and uncertainties associated with the pending Share Exchange including, among others, the potential failure to satisfy the conditions to closing, including the conditions related to obtaining required governmental approvals. To the extent that the market price of our Class A common stock reflects an assumption that the Share Exchange will be consummated in the time frame and the manner currently anticipated, any delay or failure to close could cause a decline in such market price. Similarly, any delay or failure to complete the Share Exchange could negatively impact our relationships with DISH Network, other customers, suppliers and employees and could adversely affect our business.

Pending completion of the Share Exchange, the attention of our management may be focused on the transaction and related matters, and diverted from our day-to-day business operations, including from other opportunities that might benefit us. In addition, pursuant to the Share Exchange Agreement, prior to closing of the Share Exchange, we have agreed to conduct the transferring businesses in the ordinary course and not to undertake certain actions without the written consent of DISH Network. These restrictions could prevent us from pursuing certain beneficial business opportunities.

If we successfully complete the Share Exchange, thus divesting the transferring businesses, our revenues will decrease accordingly and our business will be subject to concentration of the risks that affect our retained businesses. In addition, we have incurred, and will continue to incur, significant transaction costs, expenses and fees for professional services in connection with the pending Share Exchange, which are payable by us regardless of whether the Share Exchange is consummated.

We might not be able to engage in certain strategic transactions because we have agreed to certain restrictions to comply with U.S. federal income tax requirements for a tax-free split-off.

To preserve the intended tax-free treatment of the Share Exchange, we will undertake upon closing of the Share Exchange to comply with certain restrictions under current U.S. federal income tax laws for split-offs, including (i) refraining from engaging in certain transactions that would result in a fifty percent or greater change by vote or by value in our stock ownership, (ii) continuing to own and manage our historic businesses, and (iii) limiting sales or redemptions of our and our subsidiary Hughes Satellite Systems Corporation's common stock. If these restrictions, among others, are not followed, the Share Exchange could be taxable to us and possibly our stockholders. In addition, we could be required to indemnify DISH Network for any tax liability incurred by DISH Network as a result of our non-compliance with these restrictions.

OTHER RISKS

We are controlled by one principal stockholder who is our Chairman.

Charles W. Ergen, our Chairman, beneficially owns approximately 43.3% of our total equity securities (assuming conversion of only the Class B common stock held by Mr. Ergen into Class A common stock and giving effect to the exercise of options held by Mr. Ergen that are either currently exercisable or may become exercisable within 60 days of February 15, 2017) and possesses approximately 63.6% of the total voting power of all classes of shares (assuming no conversion of the Class B common stock and no conversion of the preferred tracking stock and giving effect to the exercise of options held by Mr. Ergen that are either currently exercisable or may become exercisable within 60 days of February 15, 2017). Mr. Ergen's beneficial ownership excludes 1,640 shares of our Class A common stock and 14,493,094 shares of our Class A common stock issuable upon conversion of shares of our Class B common stock, in each case, currently held by certain trusts established by Mr. Ergen for the benefit of his family. These trusts beneficially own approximately 23.6% of our total equity securities (assuming conversion of only the Class B common stock held by such trusts into Class A common stock) and possess approximately 27.6% of our total voting power of all classes of shares (assuming no conversion of the Class B common stock and no conversion of the preferred tracking stock). Thus, Mr. Ergen has the ability to elect a majority of our directors and to control all other matters requiring the approval of our stockholders. As a result of Mr. Ergen's voting power, we are a "controlled company" as defined in the Nasdaq listing rules and, therefore, are not subject to Nasdaq requirements that would otherwise require us to have (i) a majority of independent directors; (ii) a nominating committee composed solely of independent directors; (iii) compensation of our executive officers determined by a majority of the independent directors or a compensation committee composed solely of independent directors; and (iv) director nominees selected, or recommended for the Board's selection, either by a majority of the independent directors or a nominating committee composed solely of independent directors.

We have potential conflicts of interest with DISH Network due to our common ownership.

Questions relating to conflicts of interest may arise between DISH Network and us in a number of areas relating to our past and ongoing relationships. Areas in which conflicts of interest between DISH Network and us could arise include, but are not limited to, the following:

- ***Cross officerships, directorships and stock ownership***. We have certain overlap in our directors, executive officers and Chairman position with DISH Network, which may lead to conflicting interests. Our board of directors includes persons who are officers or members of the board of directors of DISH Network, including Charles W. Ergen, who serves as the Chairman of and is employed by both companies. Our Chairman, the members of our board of directors and executive officers who overlap with DISH Network also have fiduciary duties to DISH Network's shareholders. Mr. Vivek Khemka, who remains employed as DISH Network's Executive Vice President and Chief Technology Officer, currently also provides services to us pursuant to a Professional Services Agreement as President - EchoStar Technologies L.L.C. Therefore, these individuals may have actual or apparent conflicts of interest with respect to matters involving or affecting each company. For example, there is potential for a conflict of interest when we or DISH Network look at acquisitions and other corporate opportunities that may be suitable for both companies. In addition, many of our directors and officers own DISH Network stock and options to purchase DISH Network stock, certain of which they acquired or were granted prior to the Spin-off, including Mr. Ergen. Furthermore, until consummation of the Share Exchange, DISH Network holds shares of preferred tracking stock in us and HSS that in the aggregate represents an 80.0% economic interest in our residential retail satellite broadband business. These ownership interests could create actual, apparent or potential conflicts of interest when these individuals are faced with decisions that could have different implications for our company and DISH Network.

- ***Intercompany agreements with DISH Net***We have entered into various agreements with DISH Network. Pursuant to certain agreements, DISH Network provides us certain professional services, for which we pay DISH Network an amount equal to DISH Network's cost plus a fixed margin. Certain other intercompany agreements cover matters such as tax sharing and our responsibility for certain liabilities previously undertaken by DISH Network for certain of our businesses. We have also entered into certain commercial agreements with DISH Network. The terms of certain of these agreements were established while we were a wholly-owned subsidiary of DISH Network and were not the result of arm's length negotiations. The allocation of assets, liabilities, rights, indemnifications and other obligations between DISH Network and us under the separation and ancillary agreements we entered into with DISH Network did not necessarily reflect what two unaffiliated parties might have agreed to. Had these agreements been negotiated with unaffiliated third parties, their terms may have been more favorable, or less favorable, to us. In addition, DISH Network or its affiliates will continu us or our subsidiaries or other affiliates, including in connection with the consummation of the Share Exchange transaction. Although the terms of any such transactions will be established based upon negotiations between DISH Network an audit committee and committee of the non-interlocking directors or in certain instances non-interlocking management, there can be no assurance that the terms of any such transactions will be as favorable to us or our subsidiaries or affiliates as may otherwise be obtained in negotiations between unaffiliated third parties. d us and, when appropriate, subject to the approval of audit committee and committee of the non-interlocking directors or in certain instances non-interlocking management, there can be no assurance that the terms of any such transactions will be as favorable to us or our subsidiaries or affiliates as may otherwise be obtained in negotiations between unaffiliated third parties. e to enter into transactions with us or our subsidiaries or other affiliates, including in connection with the consummation of the Share Exchange transaction. 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- ***Competition for business opportunities***. DISH Network retains its interests in various companies that have subsidiaries or controlled affiliates that own or operate domestic or foreign services that may compete with services offered by our businesses. In addition, pursuant to a distribution agreement, DISH Network has the right, but not the obligation, to market, sell and distribute our Hughes segment's satellite broadband internet service under the dishNET brand which could compete with sales by our Hughes segment. DISH Network also has a distribution agreement with ViaSat, a competitor of our Hughes segment, to sell services similar to those offered by our Hughes segment. We may also compete with DISH Network when we participate in auctions for spectrum or orbital slots for our satellites.

We may not be able to resolve any potential conflicts of interest with DISH Network and, even if we do so, the resolution may be less favorable to us than if we were dealing with an unaffiliated party.

Except for certain arrangements with Sling TV Holding L.L.C. ("Sling TV Holding," formerly DISH Digital Holding L.L.C.) that we entered into with DISH Network, which, subject to certain exceptions, limits DISH Network's and our ability to operate an internet protocol television ("IPTV") service other than that operated by Sling TV Holding, we do not have any agreements not to compete with DISH Network. However, many of our potential customers who compete with DISH Network have historically perceived us as a competitor due to our affiliation with DISH Network. There can be no assurance that we will be successful in entering into any commercial relationships with potential customers who are competitors of DISH Network (particularly if we continue to be perceived as affiliated with DISH Network as a result of common ownership, certain shared management services and other arrangements with DISH Network).

It may be difficult for a third party to acquire us, even if doing so may be beneficial to our shareholders, because of our capital structure.

Certain provisions of our articles of incorporation and bylaws may discourage, delay or prevent a change in control of our company that a shareholder may consider favorable. These provisions include the following:

- a capital structure with multiple classes of common stock: a Class A that entitles the holders to one vote per share; a Class B that entitles the holders to ten votes per share; a Class C that entitles the holders to one vote per share, except upon a change in control of our company in which case the holders of Class C are entitled to ten votes per share and a non-voting Class D; and, if the Share Exchange is not consummated, a class of preferred stock, the Hughes Retail Tracking Stock, that entitles the holders to one-tenth of one vote per share;
- a provision that authorizes the issuance of “blank check” preferred stock, which could be issued by our board of directors to increase the number of outstanding shares and thwart a takeover attempt;
- a provision limiting who may call special meetings of shareholders; and
- a provision establishing advance notice requirements for nominations of candidates for election to our board of directors or for proposing matters that can be acted upon by shareholders at shareholder meetings.

In addition, Charles W. Ergen owns a majority of our common stock, including Class B common stock, which results in Mr. Ergen having the power to elect all of our directors and control shareholder decision on matters on which all classes of our common stock vote together.

In addition, pursuant to our articles of incorporation we have a significant amount of authorized and unissued stock that would allow our board of directors to issue shares to persons friendly to current management, thereby protecting the continuity of management, or which could be used to dilute the stock ownership of persons seeking to obtain control of us.

The preferred tracking stock in our capital structure may create conflicts of interest for our board of directors and management, and our board of directors may make decisions that could adversely affect only one group of holders.

If the Share Exchange is not consummated, our preferred tracking stock capital structure could give rise to occasions when the interests of holders of stock of one group might diverge or appear to diverge from the interests of holders of stock of the other group and our board of directors or officers could make decisions that could adversely affect only one group of holders. Nevada law requires that our board of directors and officers act in good faith and with a view to the interest of the company and are not required to consider, as a dominant factor, the effect of a proposed corporate action upon any particular group of stockholders. Decisions deemed to be in the interest of our company may not always align with the best interest of a particular group of our stockholders when considered independently. Examples include, but are not limited to:

- decisions as to the terms of any business relationships that may be created between the EchoStar Group and the Hughes Retail Group and the terms of any reattributions of assets between the groups;
- decisions as to the allocation of corporate opportunities between the groups, especially where the opportunities might meet the strategic business objectives of both groups;
- decisions as to operational and financial matters that could be considered detrimental to one group but beneficial to the other;
- decisions as to the internal or external financing attributable to businesses or assets attributed to either of our groups;
- decisions as to the payment of dividends on our common stock or preferred tracking stock; and
- decisions as to the disposition of assets of either of our groups.

In addition, as our preferred tracking stock is currently held by DISH Network, if the Share Exchange is not consummated questions relating to conflicts of interest may also arise between DISH Network and us due to our common ownership and Chairman. Provisions of Nevada law and our articles of incorporation may protect decisions of our board of directors and officers that have a disparate impact on one group of holders. Our stockholders may have limited or no legal remedies under Nevada law with respect to such decisions even if the actions of our directors or officers adversely affect the market value of our common stock.

If the Share Exchange is not consummated, our board of directors has the ability to change our attribution policies at any time without a vote of our common stockholders.

Our board of directors has adopted the Policy Statement. Our board of directors may at any time change or make exceptions to the Policy Statement with only the consent of holders of a majority of the outstanding shares of our preferred tracking stock. Because these policies relate to matters concerning the day-to-day management of our company as opposed to significant corporate actions, such as a merger involving the Company or a sale of substantially all of our assets, no approval from the holders of our Class A common stock is required with respect to the changes or exceptions to these policies. A decision to change, or make exceptions to the Policy Statement or adopt additional policies could disadvantage one group of shareholders while advantaging another.

If the Share Exchange is not consummated, the preferred tracking stock results in, and may result in further, vote dilution for existing holders of common stock.

Each share of preferred tracking stock is entitled to one-tenth (1/10th) of one vote per share. This voting right will cause a reduction in the relative voting power of our exiting common stock holders. Additionally, if the Share Exchange is not consummated, we may be required to register some or all of the outstanding shares of the preferred tracking stock. Following such registration, these shares of preferred tracking stock may be converted or exchanged into shares of EchoStar Class A common stock. Such conversion may result in further reducing the relative voting power of our existing common stock holders. As a result of the dilutive effect of the preferred tracking stock, the ability of existing holders of common stock to elect our directors or to control all other matters requiring the approval of our stockholders may be reduced.

We generally may dispose of assets of the Hughes Retail Group without shareholder approval.

Nevada law requires stockholder approval only for a sale or other disposition of all or substantially all of the assets of the Company, taken as a whole, and our amended articles of incorporation do not require a separate class vote in the case of a sale of a significant amount of assets of any of our groups. As long as the assets attributed to the Hughes Retail Group proposed to be disposed of represent less than substantially all of our assets, we may approve sales and other dispositions of any amounts of the assets of such group without any shareholder approval. Based on the current composition of the Hughes Retail Group and our Company, if the Share Exchange is not consummated, we believe that a sale of all or substantially all of the assets of the Hughes Retail Group would not be considered a sale of substantially all of our assets requiring stockholder approval. Our board of directors would determine how best to proceed in any such sale consistent with its fiduciary duties to all of our shareholders. Ultimately, however, our board of directors is not required under Nevada law to select the option that would result in the highest value to any particular group of stockholders.

If the Share Exchange is not consummated, the market value of our common stock could be adversely affected by events involving the assets and businesses attributed to only the Hughes Retail Group.

Because we are the issuer of common stock and preferred tracking stock, events relating to the assets and businesses attributed to the Hughes Retail Group, such as earnings announcements or announcements of new products or services, or acquisitions or dispositions that the market does not view favorably, may cause an adverse reaction to our common stock. This could occur even if the triggering event is not material to us as a whole.

Our articles of incorporation designate the Eighth Judicial District Court of Clark County of the State of Nevada as the sole and exclusive forum for certain types of actions and proceedings that may be initiated by our stockholders, which could limit our stockholders' ability to obtain a favorable judicial forum for disputes with us or our directors, officers, employees or agents.

Our articles of incorporation provide that, unless we consent in writing to an alternative forum, the Eighth Judicial District Court of Clark County of the State of Nevada will be the sole and exclusive forum for any and all actions, suits or proceedings, whether civil, administrative or investigative or that asserts any claim or counterclaim brought in our name or on our behalf, asserting a claim of breach of a fiduciary duty owed by any of our directors, officers, employees or agents to us or our stockholders, arising or asserting a claim arising pursuant to any provision of the Nevada Restated Statutes Chapters 78 or 92A, our articles of incorporation or our bylaws, interpreting, applying, enforcing or determining the validity of our articles of incorporation or bylaws or asserting a claim that is governed by the internal affairs doctrine. Any person purchasing or otherwise acquiring any interest in any shares of our capital stock shall be deemed to have notice of and to have consented to this provision of our articles of incorporation. This choice of forum provision may limit our stockholders' ability to bring certain claims, including claims against our directors, officers or employees, in a judicial forum that the stockholder finds favorable and therefore the choice of forum provision may discourage lawsuits with respect to such claims. Stockholders who do bring a claim in the Eighth Judicial District Court of Clark County could face additional litigation costs in pursuing any such claim, particularly if they do not reside in or near Nevada. The Eighth Judicial District Court of Clark County may also reach different judgments or results than would other courts, including courts where a stockholder considering an action may be located or would otherwise choose to bring the action, and such judgments or results may be more favorable to us than to our stockholders. Alternatively, if a court were to find this provision of our articles of incorporation inapplicable to, or unenforceable in respect of, one or more of the specified types of actions or proceedings, we may incur additional costs associated with resolving such matters in other jurisdictions, which could have a material adverse effect on our business, financial condition or results of operations.

Changes in United States Generally Accepted Accounting Principles ("GAAP") could adversely affect our reported financial results and may require significant changes to our internal accounting systems and processes.

We prepare our consolidated financial statements in conformity with GAAP. These principles are subject to interpretation by the Financial Accounting Standards Board ("FASB"), the SEC and various bodies formed to interpret and create appropriate accounting principles and guidance.

The FASB is currently working together with the International Accounting Standards Board to converge certain accounting principles and facilitate more comparable financial reporting between companies that are required to follow GAAP and those that are required to follow International Financial Reporting Standards. In connection with this initiative, the FASB issued new accounting standards for revenue recognition and accounting for leases. For information regarding new accounting standards, please refer to Note 2 in the notes to consolidated financial statements in Item 15 of this report under the heading "New Accounting Pronouncements." These and other such standards may result in different accounting principles, which may significantly impact our reported results or could result in volatility of our financial results. In addition, we may need to significantly change our customer and vendor contracts, accounting systems and processes. The cost and effect of these changes may adversely impact our results of operations.

We may face other risks described from time to time in periodic and current reports we file with the SEC.

Item 1B. UNRESOLVED STAFF COMMENTS

None.

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Item 2. PROPERTIES

Our principal executive offices are located at 100 Inverness Terrace East, Englewood, Colorado 80112-5308 and our telephone number is (303) 706-4000. The following table sets forth certain information concerning our principal properties related to our Hughes segment ("Hughes"), EchoStar Technologies segment ("ETC"), EchoStar Satellite Services segment ("ESS") and to our other operations and administrative functions ("Other") as of December 31, 2016. We operate various facilities in the U.S. and abroad. We believe that our facilities are well maintained and are sufficient to meet our current and projected needs.

Location (3) (4)	Segment(s)	Leased/ Owned	Function
San Diego, California	Hughes	Leased	Engineering and sales offices
Gaithersburg, Maryland	Hughes	Leased	Manufacturing and testing facilities, engineering and logistics and administrative offices
Southfield, Michigan (1)	Hughes	Leased	Shared hub
Las Vegas, Nevada (1)	Hughes	Leased	Shared hub, antennae yards, gateway, backup network operation and control center for Hughes corporate headquarters
Barueri, Brazil (1)	Hughes	Leased	Shared hub and warehouse
Sao Paulo, Brazil	Hughes	Leased	Hughes Brazil corporate headquarters, sales offices, and warehouse
Bangalore, India (2)	Hughes	Leased	Office space
Gurgaon, India (1) (2)	Hughes	Leased	Administrative offices, shared hub, operations, warehouse, and development center
New Delhi, India	Hughes	Leased	Hughes India corporate headquarters
Mexico City, Mexico	Hughes	Leased	Sales office, gateways
Milton Keynes, United Kingdom	Hughes	Leased	Hughes Europe corporate headquarters and operations
American Fork, Utah (5)	Hughes/ETC	Leased	Office space, engineering and operations
Germantown, Maryland (1)	Hughes	Owned	Hughes corporate headquarters, engineering offices, network operations and shared hubs
Griesheim, Germany (1)	Hughes	Owned	Shared hub, operations, administrative offices and warehouse
Atlanta, Georgia	ETC	Leased	Engineering offices
Foster City, California (5)	ETC	Leased	Engineering offices
Superior, Colorado (5)	ETC	Leased	Engineering offices
Kharkov, Ukraine (5)	ETC	Leased	Engineering office
Bangalore, India (5)	ETC/Hughes	Leased	Engineering office and office space
Gilbert, Arizona (1) (5)	ETC/ESS	Owned	Digital broadcast operations center
Mustang Ridge, Texas (1) (5)	ETC/ESS	Owned	Micro digital broadcast operations center
Cheyenne, Wyoming (1) (5)	ETC/ESS	Owned	Digital broadcast operations center
Black Hawk, South Dakota (1)	Hughes/ESS	Owned	Spacecraft autotrack operations center
Englewood, Colorado (5)	Hughes/ETC/ ESS/Other	Owned	Corporate headquarters, engineering offices, gateways

(1) We perform network services and customer support functions 24 hours a day, 365 days a year at these locations.
(2) These properties are used by subsidiaries that are less than wholly-owned by the Company.
(3) In addition to the above properties, we have multiple gateways throughout the Western part of the U.S., Mexico and Canada that support the SPACEWAY 3, EchoStar XVII, and EchoStar XIX satellites as well as multiple regional broadcast operations centers.
(4) In addition to the above properties, we lease rack and roof top space in 210 designated market areas throughout the U.S. as well as San Juan, Puerto Rico to collect and broadcast local channels that are used by the ETC segment.
(5) These properties or a portion thereof will be transferred in connection with, and upon consummation of, the pending Share Exchange. Hughes and ESS may enter into agreements with DISH Network for continued use of all or a portion of some of these facilities. See Note 20 in the notes to consolidated financial statements in Item 15 for further discussion of the Share Exchange.

Item 3. LEGAL PROCEEDINGS

For a discussion of legal proceedings, see Note 16 in the notes to consolidated financial statements in Item 15 of this report.

Item 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

Item 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market Price of and Dividends on the Registrant's Common Equity and Related Stockholder Matters

Market Information. Our Class A common stock is quoted on the Nasdaq Global Select Market ("Nasdaq") under the symbol "SATS." The high and low closing sale prices of our Class A common stock during 2016 and 2015 on Nasdaq (as reported by Nasdaq) are set forth below.

2016	High	Low
First Quarter	$ 45.89	$ 33.39
Second Quarter	$ 43.94	$ 37.25
Third Quarter	$ 43.83	$ 36.91
Fourth Quarter	$ 53.35	$ 43.60

2015	High	Low
First Quarter	$ 55.31	$ 49.36
Second Quarter	$ 52.70	$ 47.95
Third Quarter	$ 49.29	$ 41.93
Fourth Quarter	$ 46.39	$ 36.63

Holders. As of February 15, 2017, there were approximately 8,919 holders of record of our Class A common stock, not including stockholders who beneficially own Class A common stock held in nominee or street name. As of February 15, 2017, 33,193,945 of the 47,687,039 outstanding shares of our Class B common stock were held by Charles W. Ergen, our Chairman, and the remaining 14,493,094 were held in trusts established for the benefit of Mr. Ergen's family. There is currently no established trading market for our Class B common stock.

Dividends. We have not paid any cash dividends on our common stock in the past two years. We currently do not intend to declare dividends on our common stock. Payment of any future dividends will depend upon our earnings, capital requirements, and other factors the board of directors considers appropriate. We currently intend to retain our earnings, if any, to support future growth and expansion although we may repurchase shares of our common stock from time to time. See further discussion under Item 7. — Management's Discussion and Analysis of Financial Condition and Results of Operations — Liquidity and Capital Resources in this Annual Report on Form 10-K.

Securities Authorized for Issuance Under Equity Compensation Plans. See Item 12. — Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters in this Annual Report on Form 10-K.

Purchases of Equity Securities by the Issuer and Affiliated Purchasers

Pursuant to a stock repurchase program approved by our board of directors, we are authorized to repurchase up to $500.0 million of our outstanding shares of Class A common stock through December 31, 2017. For the years ended December 31, 2016, 2015 and 2014, we did not repurchase any common stock under this program.

Item 6. SELECTED FINANCIAL DATA

The accompanying consolidated financial statements for 2016 have been prepared in accordance with generally accepted accounting principles in the United States (“GAAP”) included in our consolidated financial statements in Item 15 of this report. Certain prior period amounts have been reclassified to conform to the current period presentation.

The following tables present selected information relating to our consolidated financial condition and results of operations for the past five years. The selected financial data should be read in conjunction with our consolidated financial statements and related notes thereto, and “Management’s Discussion and Analysis of Financial Condition and Results of Operations” included elsewhere in this report. Historical financial data presented below may not be indicative of future financial condition. See Note 20 in the notes to consolidated financial statements in Item 15 of this report for further discussion of the Share Exchange transaction.

	For the Years Ended December 31,				
Statements of Operations Data:	**2016**	**2015**	**2014 (1)**	**2013**	**2012**
	(In thousands, except per share amounts)				
Total revenue	$ 3,056,730	$ 3,143,714	$ 3,445,578	$ 3,282,452	$ 3,121,704
Total costs and expenses	2,692,332	2,787,681	3,117,488	3,178,865	3,021,818
Operating income	$ 364,398	$ 356,033	$ 328,090	$ 103,587	$ 99,886
Net income attributable to EchoStar common stock	$ 181,673	$ 163,700	$ 165,268	$ 2,525	$ 211,048
Basic weighted-average common shares outstanding	93,795	92,397	91,190	89,405	87,150
Diluted weighted-average common shares outstanding	94,410	93,466	92,616	90,952	87,959
Basic earnings per share	$ 1.94	$ 1.77	$ 1.81	$ 0.03	$ 2.42
Diluted earnings per share	$ 1.92	$ 1.75	$ 1.78	$ 0.03	$ 2.40

	As of December 31,				
Balance Sheet Data:	**2016**	**2015**	**2014 (1)**	**2013**	**2012**
	(In thousands)				
Cash, cash equivalents and current marketable securities	$ 3,093,659	$ 1,536,578	$ 1,688,156	$ 1,620,652	$ 1,547,565
Total assets (2) (3)	$ 9,008,859	$ 7,209,486	$ 7,214,936	$ 6,657,088	$ 6,549,957
Total debt and capital lease obligations (3)	$ 3,660,186	$ 2,192,365	$ 2,328,625	$ 2,377,513	$ 2,438,223
Total stockholders’ equity	$ 4,006,805	$ 3,781,642	$ 3,623,638	$ 3,226,231	$ 3,150,227

	For the Years Ended December 31,				
Cash Flow Data:	**2016**	**2015**	**2014 (1)**	**2013**	**2012**
	(In thousands)				
Net cash flows from:					
Operating activities	$ 803,343	$ 776,451	$ 840,131	$ 450,507	$ 505,149
Investing activities	$ (632,267)	$ (275,311)	$ (887,590)	$ (570,289)	$ (346,781)
Financing activities	$ 1,475,689	$ (120,257)	$ (35,096)	$ 18,326	$ (43,976)

(1) In March 2014, we issued preferred tracking stock to DISH Network in exchange for five satellites and $11.4 million in cash. Please see Note 4 in the notes to consolidated financial statements in Item 15 of this report. As a result, our results of operations for the years ended December 31, 2016, 2015 and 2014 are not comparable to our results of operations for the years ended December 31, 2013 and 2012.

(2) In 2015, we prospectively adopted Accounting Standard Update No. 2015-17, Balance Sheet Classification of Deferred Taxes. As a result, our total assets as of December 31, 2016 and 2015 is not comparable to our total assets as reported in prior years.

(3) In March 2016, we retrospectively adopted Accounting Standard Update No. 2015-03, Simplifying the Presentation of Debt Issuance Costs. As a result, our total assets and total debt and capital lease obligations for all dates presented reflect the application of this Update.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

Unless the context indicates otherwise, as used herein, the terms "we," "us," "EchoStar," the "Company" and "our" refer to EchoStar Corporation and its subsidiaries. References to "$" are to United States dollars. The following management's discussion and analysis of our financial condition and results of operations should be read in conjunction with the consolidated financial statements and notes to our financial statements included elsewhere in this Annual Report on Form 10-K. This management's discussion and analysis is intended to help provide an understanding of our financial condition, changes in our financial condition and our results of operations. Many of the statements in this management's discussion and analysis are forward-looking statements that involve assumptions and are subject to risks and uncertainties that are often difficult to predict and beyond our control. Actual results could differ materially from those expressed or implied by such forward-looking statements. See "Disclosure Regarding Forward-Looking Statements" in this Annual Report on Form 10-K for further discussion. For a discussion of additional risks, uncertainties and other factors that could impact our results of operations or financial condition, see the caption "Risk Factors" in Item 1A of this Annual Report on Form 10-K. Further, such forward-looking statements speak only as of the date of this Annual Report on Form 10-K and we undertake no obligation to update them.

EXECUTIVE SUMMARY

EchoStar is a global provider of satellite service operations, video delivery solutions, digital set-top boxes, broadband satellite technologies and broadband services for home and small office customers. We deliver innovative network technologies, managed services, and various communications solutions for enterprise and government customers. We currently operate in three business segments, which are differentiated primarily by their operational focus: Hughes, EchoStar Technologies, and EchoStar Satellite Services ("ESS"). These segments are consistent with the way decisions regarding the allocation of resources are made, as well as how operating results are reviewed by our chief operating decision maker ("CODM"), who for EchoStar is the Company's Chief Executive Officer.

Our segment operating results do not include real estate and other activities, costs incurred in certain satellite development programs and other business development activities, expenses of various corporate departments, and our centralized treasury operations, including income from our investment portfolio and interest expense on our debt. These activities are accounted for in "All Other and Eliminations."

On January 31, 2017, we entered into the Share Exchange Agreement. The Share Exchange Agreement provides that EchoStar and its subsidiaries will receive all of the shares of the EchoStar Tracking Stock and Hughes Retail Preferred Track in exchange for 100% of the equity interests of certain EchoStar subsidiaries that will hold our EchoStar Technologies businesses. Following consummation of the Share Exchange, EchoStar will no longer operate the EchoStar Technologies business segment and the EchoStar Tracking Stock and HSS Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and terms of, such tracking stock will terminate and be of no further effect. See "Pending Share Exchange" in Item 1. Business and "Risks Related to the Pending Share Exchange" in Item 1A. Risk Factors of this Annual Report on Form 10-K.

Highlights from our financial results are as follows:

Consolidated Results of Operations for the Year Ended December 31, 2016

- Revenue of $3.06 billion
- Operating income of $364.4 million
- Net income of $180.7 million
- Net income attributable to EchoStar common stock of $181.7 million and basic earnings per share of common stock of $1.94
- EBITDA of $883.5 million (see reconciliation of this non-GAAP measure on page 52)

Consolidated Financial Condition as of December 31, 2016

- Total assets of $9.01 billion
- Total liabilities of $5.00 billion

- Total stockholders’ equity of $4.01 billion
- Cash, cash equivalents and current marketable investment securities of $3.09 billion

Hughes Segment

Our Hughes segment is a global provider of broadband satellite technologies and broadband services for home and small office customers. We deliver network technologies, managed services, equipment, and communications solutions for domestic and international consumers and enterprise and government customers. In addition, our Hughes segment provides and installs gateway and terminal equipment and provides satellite ground segment systems and terminals for other satellite systems, including mobile system operators.

We continue to focus our efforts on growing our Hughes segment consumer revenue by maximizing utilization of our existing satellites while planning for new satellites to be launched. Our consumer revenue growth depends on our success in adding new subscribers and driving higher average revenue per subscriber across our wholesale and retail channels.

Our Hughes segment currently uses its two owned satellites, the SPACEWAY 3 satellite and the EchoStar XVII satellite, and additional satellite capacity acquired from multiple third-party providers, to provide satellite broadband internet access and communications services to our customers. We currently provide HughesNet Gen4 satellite broadband internet services to our consumer market customers in North America on the EchoStar XVII satellite. In December 2016, we launched our EchoStar XIX satellite, a next-generation, high throughput geostationary satellite, which will provide significant capacity for continued subscriber growth. The EchoStar XIX satellite employs a multi-spot beam, bent pipe Ka-band architecture and will provide additional capacity for the Hughes broadband services to our customers in North America and added capacity in Mexico and certain Latin American countries and is expected to add capability for aeronautical, enterprise and international broadband services. Capital expenditures associated with the construction and launch of the EchoStar XIX satellite are included in “All Other and Eliminations” in our segment reporting. EchoStar contributed the EchoStar XIX satellite to its Hughes segment in February 2017.

In addition to our broadband consumer service offerings, our Hughes segment also provides network technologies, managed services, hardware, equipment and satellite services to large enterprise and government customers globally. Examples of such customers include lottery agencies, gas station operators and companies with multi-branch networks that rely on satellite or terrestrial networks for critical communication across wide geographies. Most of our enterprise customers have contracts with us for the services they purchase.

Developments toward the launch of next-generation satellite systems including low-earth orbit (“LEO”) and geostationary systems could provide additional opportunities to drive the demand for our network equipment and services. The growth of our enterprise and equipment businesses relies heavily on global economic conditions and the competitive landscape for pricing relative to competitors and alternative technologies.

We continue our efforts to grow our consumer satellite services business outside of the U.S. In April 2014, we entered into a satellite services agreement pursuant to which Eutelsat do Brasil provides us Ka-band capacity into Brazil on the EUTELSAT 65 West A satellite for a 15-year term. That satellite was launched in March 2016 and we began delivering high-speed consumer satellite broadband services in Brazil in July 2016. In September 2015, we entered into satellite services agreements pursuant to which affiliates of Telesat Canada (“Telesat”) will provide to us the Ka-band capacity on a satellite to be located at the 63 degree west longitude orbital location for a 15-year term. We expect the satellite to be launched in the second quarter of 2018 and plan to provide service in additional markets across South America once that capacity is available for commercial use.

As of December 31, 2016, 2015 and 2014, our Hughes segment had approximately 1,036,000, 1,035,000 and 977,000 broadband subscribers, respectively. These broadband subscribers include customers that subscribe to our HughesNet broadband services through retail, wholesale and small/medium enterprise service channels. Gross subscriber additions increased by approximately 19,000 in the fourth quarter of 2016 when compared to the third quarter of 2016 primarily due to an increase in additions in our retail channel due to the launch of our broadband service in Brazil in the second quarter of 2016 offset partially by a decrease in additions in our wholesale channel due to our lack of free capacity due to satellite beams servicing certain areas reaching capacity. Our average monthly subscriber churn percentage for the fourth quarter of 2016 decreased as compared to the third quarter of 2016. As a result of higher gross subscriber additions and a decrease in churn, net subscribers for the quarter ended December 31, 2016 increased by approximately 30,000 when compared to the third quarter of

2016 with increases in retail and decreases in wholesale subscribers. Subscriber additions and churn include only subscribers through our retail and wholesale channels.

As of December 31, 2016 and 2015, our Hughes segment had approximately $1.52 billion and $1.44 billion, respectively, of contracted revenue backlog. We define Hughes contracted revenue backlog as our expected future revenue under customer contracts that are non-cancelable, excluding agreements with customers in our consumer market. The increase in contracted revenue backlog is primarily due to an increase in customer contracts from our international markets as a result of future commitments to provide satellite services and gateway and network management services on the EchoStar XIX satellite. Of the total contracted revenue backlog as of December 31, 2016, we expect to recognize approximately $436.5 million of revenue in 2017.

EchoStar Technologies Segment

Our EchoStar Technologies segment designs, develops and distributes secure end-to-end video technology solutions including digital set-top boxes and related products and technology, primarily for satellite TV service providers and telecommunication companies. The primary customer for our digital set-top boxes is DISH Network Corporation and its subsidiaries ("DISH Network"), and we also sell our digital set-top boxes to Bell TV, a direct-to-home satellite service provider in Canada, and Dish Mexico, S. de R.L. de C.V. ("Dish Mexico"), a joint venture that we entered into in 2008.

We have depended on DISH Network for a substantial portion of our EchoStar Technologies segment revenue and if the Share Exchange is not consummated we expect that DISH Network will continue to be the primary source of revenue for our EchoStar Technologies segment. In addition, our equipment revenue from DISH Network depends on the timing of orders for set-top boxes and related accessories from DISH Network based on its actual and projected subscriber growth. Therefore, the results of operations of our EchoStar Technologies segment are, and, if the Share Exchange is not consummated, are likely to continue to be, closely linked to the performance of DISH Network's pay-TV service. Our EchoStar Technologies segment offers multiple set-top boxes with different price points depending on their capabilities and functionalities. The revenue and associated margins we earn on sales are determined largely through the receiver agreement, effective January 2012, between us and DISH Network (the "2012 Receiver Agreement") which could result in prices reflecting, among other things, the set-top boxes and other equipment that meet DISH Network's current sales and marketing priorities, the product and service alternatives available from other equipment suppliers, our ability to respond to DISH Network's requirements, and our ability to differentiate ourselves from other equipment suppliers on bases other than pricing. In addition, products containing new technologies and features typically have higher initial prices, which reduce over time as a result of manufacturing efficiencies. , If the Share Exchange is not consummated, volume of unit sales could continue to reduce over time as a result of continued demand decreases or as DISH Network increases the deployment of refurbished units as opposed to new units purchased from us.

Our EchoStar Technologies segment also provides digital broadcast operations, including satellite uplinking/downlinking, transmission services, signal processing, conditional access management, and other services, primarily to DISH Network and Dish Mexico. In addition, we provide our TV Anywhere technology through Slingbox units directly to consumers via retail outlets and online, as well as to the pay-TV operator market. Our EchoStar Technologies segment also includes our over-the-top ("OTT"), Streaming Video on Demand ("SVOD") platform business, which licenses technology and provides services to DISH Network's Sling TV service ("Sling TV") (see Note 19 in the notes to consolidated financial statements in Item 15 of this report).

During the second quarter of 2015, our EchoStar Technologies segment contributed several of its European subsidiaries to SmarDTV SA ("SmarDTV"), a Swiss subsidiary of Kudelski SA that offers set-top boxes and conditional access modules, in exchange for a 22.5% interest in the equity and subordinated debt of SmarDTV. We and SmarDTV also entered into a services agreement pursuant to which our EchoStar Technologies segment purchases certain engineering services from SmarDTV. Following consummation of the Share Exchange, EchoStar will no longer own its interest in the equity and subordinated debt of SmarDTV and will no longer purchase engineering services from SmarDTV.

The number of potential new customers for our set-top box business in our EchoStar Technologies segment is small and may be limited as prospective customers that have been competitors of DISH Network may continue to view us as a competitor due to our common ownership with DISH Network. Our customers face emerging competition from other providers of digital media and potential government action preventing them from using security systems in connection with set-top boxes. In particular, programming offered over the internet has become more prevalent as the speed and quality of broadband networks have improved.

In July 2016 we made the decision not to proceed with our direct to consumer security and home automation solution product offering and associated services which we had introduced earlier in the year. We have completed the process of shutting down all activities, services and operations related to this product offering.

EchoStar Satellite Services Segment

Our ESS segment is a global provider of satellite service operations and video delivery solutions. We operate our business using our owned and leased in-orbit satellites. We provide satellite services on a full-time and occasional-use basis primarily to DISH Network (our largest customer), Dish Mexico, U.S. government service providers, internet service providers, broadcast news organizations, programmers and private enterprise customers.

We depend on DISH Network for a significant portion of the revenue for our ESS segment, and we expect that DISH Network will continue to be the primary source of revenue for our ESS segment. Therefore, the results of operations of our ESS segment are linked to changes in DISH Network's satellite capacity requirements. DISH Network's capacity requirements have been driven by the addition of new channels and migration of programming to high-definition TV and video on demand services. The services that we provide to DISH Network are critical to its nationwide delivery of content to its customers across the U.S. While we expect to continue to provide satellite services to DISH Network, its satellite capacity requirements may change for a variety of reasons, including its ability to construct and launch its own satellites. Any termination or reduction in the services we provide to DISH Network may cause us to have unused capacity on our satellites and require that we aggressively pursue alternative sources of revenue for this business.

In August 2014, we entered into: (i) a construction contract with Airbus Defence and Space SAS for the construction of the EchoStar 105/SES-11 satellite with C-band, Ku-band and Ka-band payloads; (ii) an agreement with SES Satellite Leasing Limited for the procurement of the related launch services; and (iii) an agreement with SES Americom Inc. ("SES") pursuant to which we will transfer the title to the C-band and Ka-band payloads to SES Satellite Leasing Limited at launch and transfer the title to the Ku-band payload to SES following in-orbit testing of the satellite. Simultaneously, SES will provide to us satellite service on the entire Ku-band payload on the EchoStar 105/SES-11 satellite for an initial ten-year term, with an option for us to renew the agreement on a year-to-year basis. Due to anomalies experienced by our launch provider, the expected launch date of the EchoStar 105/SES-11 satellite has been delayed. We currently expect to launch the EchoStar 105/SES-11 satellite in the second quarter of 2017. Our Ku-band payload on the EchoStar 105/SES-11 satellite will replace and augment our current capacity on the AMC-15 satellite. As a result of this launch delay, we have incurred and expect to incur additional costs related to the lease of the AMC-15 satellite.

Revenue growth in our ESS segment depends largely on our ability to continuously make additional satellite capacity available for sale. Once the EchoStar 105/SES-11 satellite is launched and placed into operation, we expect periodic revenue from the satellite to exceed the amount currently generated by the AMC-15 satellite. As a result of the launch delay, we expect a delay in revenue generated from the EchoStar 105/SES-11 satellite.

We continue to pursue expanding our business offerings by providing value added services such as telemetry, tracking, and control services to third parties, which leverages the ground monitoring networks and personnel currently within our ESS segment.

As of December 31, 2016 and 2015, our ESS segment had contracted revenue backlog attributable to satellites currently in orbit of approximately $1.16 billion and $1.41 billion, respectively. The decrease is primarily driven by the fixed-term nature of the satellite services agreements with DISH Network. Of the total contracted revenue backlog as of December 31, 2016, we expect to recognize approximately $365.1 million of revenue in 2017.

New Business Opportunities

Our industry is evolving with the increase in worldwide demand for broadband internet access for information, entertainment and commerce. In addition to fiber and wireless systems, other technologies such as geostationary high throughput satellites, low-earth orbit ("LEO") networks, balloons, and High Altitude Platform Systems have begun to play significant roles in enabling global broadband access, networks and services. We intend to use our expertise, technologies, capital, investments, global presence, relationships and other capabilities to continue to provide broadband internet systems, equipment, networks and services for information, entertainment and commerce in North America and internationally for consumers, enterprises and governments.

We continue to selectively explore opportunities to pursue partnerships, joint ventures and strategic acquisitions, domestically and internationally, that we believe may allow us to increase our existing market share, expand into new markets and new customers, broaden our portfolio of services, products and intellectual property, and strengthen our relationships with our customers. We may allocate significant resources for long-term initiatives that may not have a short or medium-term or any positive impact on our revenue, results of operations, or cash flow.

In 2012, we acquired the right to use various frequencies at the 45 degree west longitude orbital location ("Brazilian Authorization") from ANATEL, the Brazilian communications regulatory agency. The Brazilian Authorization provides us the rights to utilize Ku-band spectrum, Ka-band spectrum and S-band spectrum. We are exploring options for the Ka-band and S-band spectrums. In April 2014, we entered into an agreement with Space Systems Loral, LLC ("SS/L") for the construction of the EchoStar XXIII satellite, a high powered broadcast satellite service ("BSS") satellite. The EchoStar XXIII satellite will be deployed at the 45 degree west longitude orbital location. Due to anomalies experienced by our launch provider, the expected launch date of our EchoStar XXIII satellite was delayed and we currently expect to launch the EchoStar XXIII satellite in the first quarter of 2017. We have regulatory obligations to meet certain in-service milestones by the second quarter of 2017 for our Brazilian license at 45 west longitude for the Ka-, Ku- and S-band frequency bands. We currently expect to meet our regulatory milestone for the Ku-band. We have sought an extension of the S- and Ka-band milestones, which may or may not be granted, and, if granted, may be subject to penalties, additional conditions or other requirements.

In December 2013, we acquired 100% of Solaris Mobile, which is based in Dublin, Ireland and licensed by the European Union and its member states ("EU") to provide mobile satellite services ("MSS") and complementary ground component ("CGC") services covering the entire EU using S-band spectrum. Solaris Mobile changed its name to EchoStar Mobile Limited ("EchoStar Mobile") in the first quarter of 2015. We are in the process of developing commercial services utilizing the operable payload we own on the EUTELSAT 10A satellite, along with our EchoStar XXI S-band satellite. The EchoStar XXI satellite will provide space segment capacity to EchoStar Mobile. We believe we are in a unique position to deploy a European wide MSS/CGC network and maximize the long-term value of our S-band spectrum in Europe and other regions within the scope of our licenses. Due to anomalies experienced by our launch provider, the expected launch of our EchoStar XXI satellite was delayed and we currently expect to launch the EchoStar XXI satellite in the second or third quarter of 2017. We had regulatory obligations to meet certain milestones by the fourth quarter of 2016 regarding the operations of the EchoStar XXI satellite across the EU. We have notified the regulators in the EU of our delay and we intend to seek extensions of certain of these requirements to the extent we determine necessary. Although we anticipate being able to receive them, any such necessary extensions may be subject to additional conditions, penalties or other requirements.

We are tracking closely the developments in next-generation satellite businesses, and we are seeking to utilize our services, technologies and expertise to find new commercial opportunities for our business. In June 2015, we made an equity investment in WorldVu Satellites Limited ("OneWeb"), a global LEO satellite service company. In addition, our Hughes segment entered into an agreement with OneWeb to provide certain equipment and services in connection with the ground systems for OneWeb's LEO satellites.

Capital expenditures associated with the construction and launch of the EchoStar XXIII and EchoStar XXI satellites are included in "All Other and Eliminations" in our segment reporting.

RESULTS OF OPERATIONS

Basis of Presentation

The following discussion and analysis of our consolidated results of operations is presented on a historical basis.

Prior to 2015, our OTT, SVOD platform business, including certain assets distributed to us in August 2014 in connection with the Exchange Agreement with Sling TV Holding (see Notes 6 and 19 in the notes to consolidated financial statements in Item 15 of this report), was managed separately from our existing operating segments and was reported within "All Other and Eliminations." In the first quarter of 2015, we assigned management responsibility for our OTT, SVOD platform business to our EchoStar Technologies segment, where it continues to be managed and reported as a separate reporting unit. All prior period amounts have been retrospectively adjusted to present operations of our OTT, SVOD platform business in our EchoStar Technologies segment.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

Year Ended December 31, 2016 Compared to the Year Ended December 31, 2015

	For the Years Ended December 31,		Variance	
Statements of Operations Data (1)	**2016**	**2015**	**Amount**	**%**
	(Dollars in thousands)			
Revenue:				
Services and other revenue - DISH Network	$ 888,603	$ 918,301	$ (29,698)	(3.2)
Services and other revenue - other	1,109,597	1,103,928	5,669	0.5
Equipment revenue - DISH Network	711,289	763,184	(51,895)	(6.8)
Equipment revenue - other	347,241	358,301	(11,060)	(3.1)
Total revenue	3,056,730	3,143,714	(86,984)	(2.8)
Costs and Expenses:				
Cost of sales - services and other	844,498	856,065	(11,567)	(1.4)
% of Total services and other revenue	**42.3%**	**42.3%**		
Cost of sales - equipment	891,108	948,655	(57,547)	(6.1)
% of Total equipment revenue	**84.2%**	**84.6%**		
Selling, general and administrative expenses	385,634	374,116	11,518	3.1
% of Total revenue	**12.6%**	**11.9%**		
Research and development expenses	76,024	78,287	(2,263)	(2.9)
% of Total revenue	**2.5%**	**2.5%**		
Depreciation and amortization	495,068	528,158	(33,090)	(6.3)
Impairment of long-lived assets	—	2,400	(2,400)	(100.0)
Total costs and expenses	2,692,332	2,787,681	(95,349)	(3.4)
Operating income	364,398	356,033	8,365	2.3
Other Income (Expense):				
Interest income	21,249	10,429	10,820	*
Interest expense, net of amounts capitalized	(123,630)	(122,066)	(1,564)	1.3
Loss from partial redemption of debt	—	(5,044)	5,044	(100.0)
Gains (losses) and impairment on marketable investment securities, net	9,767	(17,669)	27,436	*
Equity in earnings of unconsolidated affiliates, net	13,310	1,895	11,415	*
Other, net	1,750	(2,006)	3,756	*
Total other expense, net	(77,554)	(134,461)	56,907	(42.3)
Income before income taxes	286,844	221,572	65,272	29.5
Income tax provision, net	(106,152)	(72,201)	(33,951)	47.0
Net income	180,692	149,371	31,321	21.0
Less: Net loss attributable to noncontrolling interest in HSS Tracking Stock	(944)	(5,603)	4,659	(83.2)
Less: Net income attributable to other noncontrolling interests	1,706	1,617	89	5.5
Net income attributable to EchoStar	$ 179,930	$ 153,357	$ 26,573	17.3
Other Data:				
EBITDA (2)	$ 883,531	$ 865,353	$ 18,178	2.1
Subscribers, end of period	1,036,000	1,035,000	1,000	0.1

* Percentage is not meaningful.
(1) An explanation of our key metrics is included on pages 70 and 71 under the heading "Explanation of Key Metrics and Other Items."
(2) A reconciliation of EBITDA to "Net income," the most directly comparable GAAP measure in the accompanying financial statements, is included on page 52. For further information on our use of EBITDA, see "Explanation of Key Metrics and Other Items" on page 71.

Services and other revenue — DISH Network. "Services and other revenue — DISH Network" totaled $888.6 million for the year ended December 31, 2016, a decrease of $29.7 million, or 3.2%, compared to the same period in 2015.

Services and other revenue — DISH Network from our Hughes segment for the year ended December 31, 2016 increased by $4.0 million, or 4.3%, to $98.5 million compared to the same period in 2015. The increase was primarily attributable to an increase in the average revenue per subscriber as a result of an increase in wholesale subscribers receiving higher end service plans pursuant to our Distribution Agreement with dishNET Satellite Broadband L.L.C. ("dishNET"), partially offset by a decrease in wholesale subscribers.

Services and other revenue — DISH Network from our EchoStar Technologies segment for the year ended December 31, 2016 increased by $39.5 million, or 10.2%, to $428.5 million compared to the same period in 2015. The increase was primarily due to an increase of $48.2 million in revenue earned for engineering support services related to Sling TV and other projects. The increase was partially offset by a decrease of $9.0 million in revenue earned for support services related to receiver developments in 2015.

Services and other revenue — DISH Network from our ESS segment for the year ended December 31, 2016 decreased by $73.9 million, or 17.5%, to $349.6 million compared to the same period in 2015. The decrease was mainly due to a decrease of $74.1 million in revenue as a result of the termination of the satellite services provided to DISH Network from the EchoStar I and EchoStar VIII satellites effective in November 2015.

Services and other revenue — other. "Services and other revenue — other" totaled $1.11 billion for the year ended December 31, 2016, an increase of $5.7 million, or 0.5%, compared to the same period in 2015.

Services and other revenue — other from our Hughes segment for the year ended December 31, 2016 increased by $16.7 million, or 1.6%, to $1.05 billion compared to the same period in 2015. The increase was primarily attributable to an increase of $28.6 million in sales of broadband services to our domestic consumer customers as a result of an increase in retail subscribers and the average revenue per subscriber. This increase was partially offset by a decrease of $10.8 million of broadband services to our international enterprise customers attributable to an unfavorable foreign exchange impact and non-renewal of certain service contracts.

Services and other revenue — other from our EchoStar Technologies segment for the year ended December 31, 2016 decreased by $1.4 million, or 14.0%, to $8.8 million compared to the same period in 2015. The decrease was primarily attributable to a decrease in the sales volume of our paid Sling mobile applications due to our offering of a free mobile application in 2016.

Services and other revenue — other from our ESS segment for the year ended December 31, 2016 decreased by $9.0 million, or 13.4%, to $58.1 million compared to the same period in 2015. The decrease was primarily attributable to a decrease in sales of transponder services due to a decrease in the number of transponders available for use in providing service as our lease of the AMC-16 satellite ended in February 2016.

Equipment revenue — DISH Network. "Equipment revenue — DISH Network" totaled $711.3 million for the year ended December 31, 2016, a decrease of $51.9 million, or 6.8%, compared to the same period in 2015.

Equipment revenue — DISH Network from our Hughes segment for the year ended December 31, 2016 decreased by $1.9 million, or 17.8%, to $8.8 million compared to the same period in 2015. The decrease in revenue was primarily due to the decrease in the unit sales of broadband equipment to dishNET.

Equipment revenue — DISH Network from our EchoStar Technologies segment for the year ended December 31, 2016 decreased by $50.0 million, or 6.6%, to $702.4 million compared to the same period in 2015. The decrease in revenue was primarily due to a decrease in revenue of set-top boxes and related accessories. The decrease in revenue of set-top boxes was primarily due to an 8.8% decrease in the volume of unit sales, partially offset by a 3.3% increase in the weighted average price of the set-top boxes sold. The decrease in revenue of related accessories was primarily due to a 6.6% decrease in the volume of unit sales and a 0.9% decrease in the weighted average price of related accessories.

Equipment revenue — other. "Equipment revenue — other" totaled $347.2 million for the year ended December 31, 2016, a decrease of $11.1 million, or 3.1%, compared to the same period in 2015.

Equipment revenue — other from our Hughes segment for the year ended December 31, 2016 increased by $26.2 million, or 12.4%, to $237.9 million compared to the same period in 2015. The increase was mainly due to an increase of $40.7 million in sales of broadband equipment to our domestic enterprise and government customers, partially offset by a decrease of $14.7 million in revenue from our international and telecom systems customers.

Equipment revenue — other from our EchoStar Technologies segment for the year ended December 31, 2016 decreased by $37.1 million, or 25.3%, to $109.4 million compared to the same period in 2015. The decrease was attributable to a decrease in the weighted average price of set-top boxes and related accessories of 19.7% and 8.1%, respectively, sold primarily to our international customers and a decrease in the volume of unit sales of set-top boxes and related accessories of 10.0% and 12.9%, respectively, sold primarily to our international customers.

Cost of sales — services and other. "Cost of sales — services and other" totaled $844.5 million for the year ended December 31, 2016, a decrease of $11.6 million, or 1.4%, compared to the same period in 2015.

Cost of sales — services and other from our Hughes segment for the year ended December 31, 2016 decreased by $2.2 million, or 0.5%, to $454.5 million compared to the same period in 2015. The decrease was primarily attributable to the decrease of Ku-band space segment costs as customers either terminated services or migrated to the Ka-band platform offset by the increase in service costs as a result of the increase in sales of broadband services to our domestic consumer customers.

Cost of sales — services and other from our EchoStar Technologies segment for the year ended December 31, 2016 increased by $41.6 million, or 14.7%, to $323.9 million compared to the same period in 2015. The increase was primarily due to an increase in engineering support costs related to Sling TV and other projects.

Cost of sales — services and other from our ESS segment for the year ended December 31, 2016 decreased by $6.0 million, or 8.6%, to $64.2 million compared to the same period in 2015. The decrease was primarily due to a decrease in cost of sales of transponder services as a result of a decrease in the number of leased transponders available for use in providing service as our lease of the AMC-16 satellite ended in February 2016.

Cost of sales — services and other from All Other and Eliminations for the year ended December 31, 2016 decreased by $45.0 million, or 95.7%, to $2.0 million compared to the same period in 2015. The decrease was primarily due to a decrease in cost of sales relating to the EchoStar XV satellite for services provided from DISH Network as a result of the termination of the satellite service agreement effective in November 2015.

Cost of sales — equipment. "Cost of sales — equipment" totaled $891.1 million for the year ended December 31, 2016, a decrease of $57.5 million, or 6.1%, compared to the same period in 2015.

Cost of sales — equipment from our Hughes segment for the year ended December 31, 2016 increased by $9.3 million, or 4.8%, to $204.4 million compared to the same period in 2015. The increase was primarily attributable to an increase of $20.3 million in equipment costs related to the increase in sales volume of broadband equipment to our domestic enterprise and government customers, partially offset by a decrease of $12.3 million in equipment costs related to the decrease in sales to our international and telecom systems customers.

Cost of sales — equipment from our EchoStar Technologies segment for the year ended December 31, 2016 decreased by $66.8 million, or 8.9%, to $686.7 million compared to the same period in 2015. The decrease was primarily attributable to a decrease in equipment costs as a result of the decrease in the volume of unit sales of set-top boxes and related accessories sold to DISH Network. The decrease was also attributable to decreases in the volume of unit sales and the weighted average cost of set-top boxes and related accessories sold to our international customers.

Selling, general and administrative expenses. "Selling, general and administrative expenses" totaled $385.6 million for the year ended December 31, 2016, an increase of $11.5 million, or 3.1%, compared to the same period in 2015. The increase was primarily due to $14.1 million in restructuring charges as a result of our decision not to proceed with our direct-to-consumer security and home automation solution product offering and associated services within our EchoStar Technologies segment and an increase of $6.7 million and $3.8 million in marketing and promotional costs from our EchoStar Technologies segment and Hughes segment, respectively, offset partially by a decrease of $8.0 million due to litigation settlements recorded in 2015 and a decrease of $6.6 million of stock-based compensation cost.

Research and development expenses. "Research and development expenses" totaled $76.0 million for the year ended December 31, 2016, a decrease of $2.3 million, or 2.9%, compared to the same period in 2015. The decrease was primarily related to a decrease in research and development expense of $7.1 million in our EchoStar Technologies segment, partially offset by an increase in research and development expense of $4.8 million in our Hughes segment. Our research and development activities vary based on the activity level and scope of other engineering and customer related development contracts.

Depreciation and amortization. "Depreciation and amortization" expenses totaled $495.1 million for the year ended December 31, 2016, a decrease of $33.1 million, or 6.3%, compared to the same period in 2015. The decrease was primarily related to certain of our fully amortized other intangible assets in our Hughes segment and All Other & Eliminations and the fully depreciated EchoStar IX satellite as of October 2015 in our ESS segment. The decrease was also attributable to a decrease in depreciation expense in our EchoStar Technologies segment as a result of our fully depreciated machinery and equipment in 2016.

Impairment of long-lived assets. "Impairment of long-lived assets" totaled zero for the year ended December 31, 2016. In 2015, the $2.4 million loss was attributable to the impairment of certain building and equipment in our EchoStar Technologies segment.

Interest income. "Interest income" totaled $21.2 million for the year ended December 31, 2016, an increase of $10.8 million compared to the same period in 2015. The increase was primarily attributable to the increase in our short term investments from proceeds from the issuance of long-term debt in the third quarter of 2016 and an increase in yield percentage.

Interest expense, net of amounts capitalized. "Interest expense, net of amounts capitalized" totaled $123.6 million for the year ended December 31, 2016, an increase of $1.6 million or 1.3%, compared to the same period in 2015. The increase was mainly attributable to an increase of $38.1 million related to the issuance of 5.250% Senior Secured Notes due August 1, 2026 (the "2026 Senior Secured Notes") and 6.625% Senior Unsecured Notes due August 1, 2026 (the "2026 Senior Unsecured Notes" and together with the 2026 Senior Secured Notes, the "2026 Notes") in the third quarter of 2016. The increase was partially offset by an increase in capitalized interest of $30.6 million related to the construction of the EchoStar XIX, EchoStar XXI, EchoStar XXIII, and EchoStar 105/SES-11 satellites, and payments for satellite services on the EUTELSAT 65 West A and 63 West satellites, a decrease of $3.2 million relating to the partial redemption of the outstanding principal amount of HSS' 6 1/2 Senior Secured Notes due 2019 (the "2019 Senior Secured Notes") in the second quarter of 2015, and a decrease of $2.8 million relating to the accounting impact of two of our satellites that are treated as capital leases.

Loss from partial redemption of debt. "Loss from partial redemption of debt" totaled zero for the year ended December 31, 2016. In 2015, the $5.0 million loss was related to the partial redemption of the 2019 Senior Secured Notes in the second quarter of 2015 which included a $3.3 million redemption premium and a $1.7 million write off of related unamortized financing costs.

Gains (losses) and impairment on marketable investment securities, net. "Gains (losses) and impairment on marketable investment securities, net" totaled $9.8 million in gains for the year ended December 31, 2016 compared to $17.7 million in losses for the same period in 2015. The change of $27.4 million was primarily due to an other than temporary impairment loss of $11.2 million on certain strategic equity securities in 2015, an increase of $10.5 million in gains on our trading securities in 2016, and an increase of $5.6 million in realized gains on our securities classified as available-for-sale in 2016.

Equity in earnings of unconsolidated affiliates, net. "Equity in earnings of unconsolidated affiliates, net" totaled $13.3 million for the year ended December 31, 2016, an increase of $11.4 million compared to the same period in 2015. The increase was primarily related to an increase in earnings from our investment in Dish Mexico.

Other, net. "Other, net" totaled $1.8 million in income for the year ended December 31, 2016 compared to $2.0 million of expense for the year ended December 31, 2015. The change of $3.8 million was primarily related to (i) $13.5 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016, (ii) an unfavorable foreign exchange impact of $7.7 million in 2015, (iii) a decrease of $8.8 million related to a protective put associated with our trading securities in 2016 when compared to the same period in 2015, (iv) a $4.5 million non-recurring reduction of the capital lease obligation for the AMC-15 and AMC-16 satellites recorded in the first quarter of 2015 as a result of anomalies that previously affected the operation of these satellites, (v) a gain of $1.7 million on the exchange of accounts receivable for certain trading securities in the second quarter of 2015, and (vi) proceeds of $1.3 million from a domain name auction in 2015.

Income tax provision, net. Income tax expense was $106.2 million for the year ended December 31, 2016, an increase of $34.0 million or 47.0%, compared to the same period in 2015. Our effective income tax rate was 37.0% and 32.6% for the year ended December 31, 2016 and 2015, respectively. The variations in our current year effective tax rate from the U.S. federal statutory rate for the year ended December 31, 2016 were primarily due to state income taxes and various permanent tax differences, partially offset by research and experimentation credits. The variations in our effective tax rate from the U.S. federal statutory rate for the year ended December 31, 2015 were primarily due to research and experimentation tax credits.

Net income attributable to EchoStar. "Net income attributable to EchoStar" was $179.9 million for the year ended December 31, 2016, an increase of $26.6 million or 17.3%, compared to the same period in 2015. The increase was primarily due to (i) an increase in capitalized interest of $30.6 million related to the construction of the EchoStar XIX, EchoStar XXI, EchoStar XXIII, and EchoStar 105/SES-11 satellites, and payments for satellite services on the EUTELSAT 65 West A and 63 West satellites, (ii) an increase of $27.4 million in gains on marketable investments, net of losses and impairments, (iii) $13.5 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016, (iv) an increase of $11.4 million in equity in earnings of unconsolidated affiliates, net, (v) an increase of $10.8 million in interest income primarily attributable to the increase in our short term investments from proceeds from the issuance of long-term debt in the third quarter of 2016 and an increase in yield percentage, (vi) an unfavorable foreign exchange impact of $7.7 million in 2015, (vii) a $5.0 million loss related to the partial redemption of the 2019 Senior Secured Notes in the second quarter of 2015, (viii) a decrease in interest expense of $3.2 million relating to the partial redemption of the outstanding principal amount of the 2019 Senior Secured Notes in the second quarter of 2015 and (ix) a decrease of $2.8 million in interest expense relating to the accounting impact of two of our satellites that are treated as capital leases. The increase was partially offset by (i) an increase of $38.1 million in interest expense related to the 2026 Notes in the third quarter of 2016, (ii) an increase of $34.0 million in income tax expense in 2016, (iii) a decrease of $8.8 million related to a protective put associated with our trading securities in 2016, and (iv) a $4.5 million non-recurring reduction of the capital lease obligation for the AMC-15 and AMC-16 satellites recorded in the first quarter of 2015 as a result of anomalies that previously affected the operation of these satellites.

Earnings before interest, taxes, depreciation and amortization ("EBITDA"). EBITDA was $883.5 million for the year ended December 31, 2016, an increase of $18.2 million, or 2.1%, compared to the same period in 2015. The increase was primarily due to (i) an increase of $27.4 million in gains on marketable investments, net of losses and impairments, (ii) $13.5 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016, (iii) an increase of $11.4 million in equity in earnings of unconsolidated affiliates, net, (iv) an unfavorable foreign exchange impact of $7.7 million in 2015, and (v) a $5.0 million loss related to the partial redemption of the 2019 Senior Secured Notes in the second quarter of 2015. The increases were partially offset by (i) a decrease in operating income, excluding depreciation and amortization, of $24.7 million for the year ended December 31, 2016, (ii) a decrease of $8.8 million related to a protective put associated with our trading securities in 2016, (iii) an increase of $4.7 million in net income attributable to the noncontrolling interest in HSS Tracking Stock and other noncontrolling interests in 2016 when compared to the same period in 2015, (iv) $4.5 million non-recurring reduction of the capital lease obligation for the AMC-15 and AMC-16 satellites recorded in the first quarter of 2015 as a result of anomalies that previously affected the operation of these satellites, and (v) a gain of $1.7 million on the exchange of accounts receivable for certain trading securities in the second quarter of 2015. EBITDA is a non-GAAP financial measure and is described under Explanation of Key Metrics and Other Items below.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

The following table reconciles EBITDA to Net income, the most directly comparable GAAP measure in the accompanying financial statements.

	For the Years Ended December 31,		Variance	
	2016	2015	Amount	%
	(Dollars in thousands)			
Net income	$ 180,692	$ 149,371	$ 31,321	21.0
Interest income and expense, net	102,381	111,637	(9,256)	(8.3)
Income tax provision, net	106,152	72,201	33,951	47.0
Depreciation and amortization	495,068	528,158	(33,090)	(6.3)
Net (income) loss attributable to noncontrolling interest in HSS Tracking Stock and other noncontrolling interests	(762)	3,986	(4,748)	*
EBITDA	$ 883,531	$ 865,353	$ 18,178	2.1

* Percentage is not meaningful.

Segment Operating Results and Capital Expenditures

Year Ended December 31, 2016 Compared to the Year Ended December 31, 2015

	Hughes	EchoStar Technologies	EchoStar Satellite Services	All Other and Eliminations	Consolidated Total
	(In thousands)				
For the Year Ended December 31, 2016					
Total revenue	$ 1,392,361	$ 1,249,197	$ 407,660	$ 7,512	$ 3,056,730
Capital expenditures	$ 322,362	$ 69,744	$ 58,925	$ 247,223	$ 698,254
EBITDA	$ 427,802	$ 89,549	$ 339,496	$ 26,684	$ 883,531
For the Year Ended December 31, 2015					
Total revenue	$ 1,347,340	$ 1,298,198	$ 490,591	$ 7,585	$ 3,143,714
Capital expenditures	$ 285,499	$ 50,593	$ 101,215	$ 266,213	$ 703,520
EBITDA	$ 396,684	$ 106,745	$ 412,607	$ (50,683)	$ 865,353

Hughes Segment

	For the Years Ended December 31,		Variance	
	2016	2015	Amount	%
	(Dollars in thousands)			
Total revenue	$ 1,392,361	$ 1,347,340	$ 45,021	3.3
Capital expenditures	$ 322,362	$ 285,499	$ 36,863	12.9
EBITDA	$ 427,802	$ 396,684	$ 31,118	7.8

Revenue

Hughes segment total revenue for the year ended December 31, 2016 increased by $45.0 million, or 3.3%, compared to the same period in 2015. The increase was primarily due to an increase of $40.7 million in sales of broadband equipment to our domestic enterprise and government customers and an increase of $28.6 million in sales of broadband services to our domestic consumer customers. These increases were partially offset by a decrease of $25.5 million in revenue of broadband equipment and services to our international and telecom systems customers.

Capital Expenditures

Hughes segment capital expenditures for the year ended December 31, 2016 increased by $36.9 million, or 12.9%, compared to the same period in 2015, primarily due to an increase in expenditures on the 63 West satellite. The increase was partially offset by a decrease in capital expenditures on satellite ground infrastructures related to the EchoStar XIX and EchoStar XXI satellites. Capital expenditures associated with the construction and launch of the EchoStar XIX satellite are included in "All Other and Eliminations" in our segment reporting.

EBITDA

Hughes segment EBITDA for the year ended December 31, 2016 was $427.8 million, an increase of $31.1 million, or 7.8%, compared to the same period in 2015. The increase was primarily attributable to a $37.9 million increase in total gross margin and an unfavorable foreign exchange impact of $3.6 million in 2015. These increases were partially offset by an increase of $4.8 million in research and development expenses and an increase of $3.8 million in marketing and promotional costs.

EchoStar Technologies Segment

	For the Years Ended December 31,		Variance	
	2016	2015	Amount	%
	(Dollars in thousands)			
Total revenue	$ 1,249,197	$ 1,298,198	$ (49,001)	(3.8)
Capital expenditures	$ 69,744	$ 50,593	$ 19,151	37.9
EBITDA	$ 89,549	$ 106,745	$ (17,196)	(16.1)

Revenue

EchoStar Technologies segment total revenue for the year ended December 31, 2016 decreased by $49.0 million, or 3.8%, compared to the same period in 2015, primarily resulting from a decrease of $50.0 million in equipment revenue from DISH Network, a decrease of $37.1 million in equipment revenue - other and a decrease of $1.4 million in service revenue - other, partially offset by an increase of $39.5 million in service revenue from DISH Network.

Capital Expenditures

EchoStar Technologies segment capital expenditures for the year ended December 31, 2016 increased by $19.2 million, or 37.9%, compared to the same period in 2015, primarily due to an increase of $36.2 million in expenditures related to the support of our OTT, SVOD platform business, partially offset by a decrease of $15.5 million in expenditures related to our digital broadcast centers.

EBITDA

EchoStar Technologies segment EBITDA for the year ended December 31, 2016 was $89.5 million, a decrease of $17.2 million, or 16.1%, compared to the same period in 2015. The decrease in EBITDA for our EchoStar Technologies segment was primarily driven by a decrease of $23.8 million in gross margin, an increase of $14.1 million in restructuring charges as a result of our decision not to proceed with our direct-to-consumer security and home automation solution product offering and associated services in the third quarter of 2016, and an increase in losses of $1.7 million in equity of a certain unconsolidated affiliate. These decreases were offset partially by a decrease of $7.1 million in research and development expenses in 2016, a decrease of $5.0 million in a litigation settlement recorded in 2015, a decrease of $4.8 million in selling, general and administrative expenses in 2016 and an unfavorable foreign exchange impact of $4.3 million in 2015.

EchoStar Satellite Services Segment

	For the Years Ended December 31,		Variance	
	2016	2015	Amount	%
	(Dollars in thousands)			
Total revenue	$ 407,660	$ 490,591	$ (82,931)	(16.9)
Capital expenditures	$ 58,925	$ 101,215	$ (42,290)	(41.8)
EBITDA	$ 339,496	$ 412,607	$ (73,111)	(17.7)

Revenue

ESS segment total revenue for the year ended December 31, 2016 decreased by $82.9 million, or 16.9%, compared to the same period in 2015, primarily due to a decrease of $74.1 million in revenue as a result of the termination of the satellite services provided to DISH Network from the EchoStar I and EchoStar VIII satellites effective in November 2015 and a decrease of $9.0 million primarily attributable to a decrease in sales of transponder services.

Capital Expenditures

ESS segment capital expenditures for the year ended December 31, 2016 decreased by $42.3 million, or 41.8%, compared to the same period in 2015, primarily related to a decrease in expenditures on the EchoStar 105/SES-11 satellite.

EBITDA

ESS segment EBITDA for the year ended December 31, 2016 was $339.5 million, a decrease of $73.1 million, or 17.7%, compared to the same period in 2015. The decrease in EBITDA for our ESS segment was primarily due to a decrease of $76.9 million in gross margin and $4.5 million non-recurring reduction of the capital lease obligation for the AMC-15 and AMC-16 satellites recorded in the first quarter of 2015 as a result of anomalies that previously affected the operation of these satellites. The decrease in EBITDA was partially offset by $7.5 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016.

All Other and Eliminations

All Other and Eliminations accounts for certain items and activities in our consolidated financial statements that have not been assigned to our operating segments. These include without limitation real estate and other activities, costs incurred in satellite development programs and other business development activities, expenses of various corporate departments, and our centralized treasury activities, including without limitation income from our investment portfolio and interest expense on our debt.

	For the Years Ended December 31,		Variance	
	2016	2015	Amount	%
	(Dollars in thousands)			
Total revenue	$ 7,512	$ 7,585	$ (73)	(1.0)
Capital expenditures	$ 247,223	$ 266,213	$ (18,990)	(7.1)
EBITDA	$ 26,684	$ (50,683)	$ 77,367	*

* Percentage is not meaningful.

Capital Expenditures

For the year ended December 31, 2016, All Other and Eliminations capital expenditures decreased by $19.0 million, or 7.1%, compared to the same period in 2015, primarily related to a decrease of $71.9 million in satellite expenditures on the EchoStar XXIII satellite, partially offset by an increase of $55.3 million in satellite expenditures on the EchoStar XIX satellite. The EchoStar XIX satellite will be used to provide additional capacity for the Hughes broadband services in North America and certain Latin American countries and was contributed to the Hughes segment in the first quarter of 2017. The EchoStar XXI satellite is intended to be used by EchoStar Mobile in providing mobile satellite services in the European Union and the EchoStar XXIII satellite will be deployed at the 45 degree west longitude orbital location providing services in Brazil.

EBITDA

For the year ended December 31, 2016, All Other and Eliminations EBITDA was $26.7 million in income compared to $50.7 million in loss for the same period in 2015. The change of $77.4 million in EBITDA was primarily related to (i) a decrease of $44.2 million in cost of sales relating to the EchoStar XV satellite for services provided from DISH Network as a result of the termination of the satellite service agreement effective in November 2015, (ii) an increase of $13.2 million in equity in earnings of unconsolidated affiliates, net in 2016 when compared to the same period in 2015, (iii) an other than temporary impairment loss of $11.2 million on certain strategic equity securities in 2015, (iv) $6.0 million for a provision recorded in the first half of 2015 in connection with FCC regulatory fees, which was reversed in the first quarter of 2016, and (v) an increase of $5.6 million in realized gains on our securities classified as available-for-sale in 2016. The increases were partially offset by an increase of $4.6 million in net loss attributable to the noncontrolling interest in HSS Tracking Stock.

Year Ended December 31, 2015 Compared to the Year Ended December 31, 2014

Statements of Operations Data (1)	For the Years Ended December 31, 2015	For the Years Ended December 31, 2014	Variance Amount	Variance %
	(Dollars in thousands)			
Revenue:				
Services and other revenue - DISH Network	$ 918,301	$ 828,612	$ 89,689	10.8
Services and other revenue - other	1,103,928	1,096,938	6,990	0.6
Equipment revenue - DISH Network	763,184	1,145,979	(382,795)	(33.4)
Equipment revenue - other	358,301	374,049	(15,748)	(4.2)
Total revenue	3,143,714	3,445,578	(301,864)	(8.8)
Costs and Expenses:				
Cost of sales - services and other	856,065	838,918	17,147	2.0
% of Total services and other revenue	**42.3%**	**43.6%**		
Cost of sales - equipment	948,655	1,288,998	(340,343)	(26.4)
% of Total equipment revenue	**84.6%**	**84.8%**		
Selling, general and administrative expenses	374,116	372,010	2,106	0.6
% of Total revenue	**11.9%**	**10.8%**		
Research and development expenses	78,287	60,886	17,401	28.6
% of Total revenue	**2.5%**	**1.8%**		
Depreciation and amortization	528,158	556,676	(28,518)	(5.1)
Impairment of long-lived assets	2,400	—	2,400	*
Total costs and expenses	2,787,681	3,117,488	(329,807)	(10.6)
Operating income	356,033	328,090	27,943	8.5
Other Income (Expense):				
Interest income	10,429	9,102	1,327	14.6
Interest expense, net of amounts capitalized	(122,066)	(171,349)	49,283	(28.8)
Loss from partial redemption of debt	(5,044)	—	(5,044)	*
Gains (losses) and impairment on marketable investment securities, net	(17,669)	41	(17,710)	*
Equity in earnings of unconsolidated affiliates, net	1,895	8,198	(6,303)	(76.9)
Other, net	(2,006)	4,251	(6,257)	*
Total other expense, net	(134,461)	(149,757)	15,296	(10.2)
Income before income taxes	221,572	178,333	43,239	24.2
Income tax provision, net	(72,201)	(30,784)	(41,417)	*
Net income	149,371	147,549	1,822	1.2
Less: Net loss attributable to noncontrolling interest in HSS Tracking Stock	(5,603)	(6,714)	1,111	(16.5)
Less: Net income attributable to other noncontrolling interests	1,617	1,389	228	16.4
Net income attributable to EchoStar	$ 153,357	$ 152,874	$ 483	0.3
Other Data:				
EBITDA (2)	$ 865,353	$ 902,581	$ (37,228)	(4.1)
Subscribers, end of period	1,035,000	977,000	58,000	5.9

* Percentage is not meaningful.

(1) An explanation of our key metrics is included on pages 70 and 71 under the heading "Explanation of Key Metrics and Other Items."

(2) A reconciliation of EBITDA to "Net income," the most directly comparable GAAP measure in the accompanying financial statements, is included on page 60. For further information on our use of EBITDA, see "Explanation of Key Metrics and Other Items" on page 71.

Services and other revenue — DISH Network. "Services and other revenue — DISH Network" totaled $918.3 million for the year ended December 31, 2015, an increase of $89.7 million or 10.8%, compared to the same period in 2014.

Services and other revenue — DISH Network from our Hughes segment for the year ended December 31, 2015 increased by $13.7 million, or 16.9%, to $94.4 million compared to the same period in 2014. The increase was primarily attributable to an increase in wholesale subscribers receiving services pursuant to our Distribution Agreement with dishNET.

Services and other revenue — DISH Network from our EchoStar Technologies segment for the year ended December 31, 2015 increased by $59.6 million, or 18.1%, to $389.0 million compared to the same period in 2014. The increase was primarily due to an increase of $57.0 million in revenue earned for engineering services related to Sling TV Holding and other projects and satellite uplink/downlink services.

Services and other revenue — DISH Network from our ESS segment for the year ended December 31, 2015 increased by $16.2 million, or 4.0%, to $423.5 million compared to the same period in 2014. The increase was mainly due to an increase of $26.9 million in revenue recognized from certain satellite services provided to DISH Network for the five satellites transferred to us from DISH Network as part of the Satellite and Tracking Stock Transaction. See Note 4 in the notes to consolidated financial statements in Item 15 of this report for further discussion related to the Satellite and Tracking Stock Transaction. The increase was partially offset by a decrease of $9.0 million in services provided to DISH Network on the EchoStar VIII and EchoStar XII satellites.

Services and other revenue — other. "Services and other revenue — other" totaled $1.10 billion for the year ended December 31, 2015 an increase of $7.0 million, or 0.6%, compared to the same period in 2014.

Services and other revenue — other from our Hughes segment for the year ended December 31, 2015 increased by $26.2 million, or 2.6%, to $1.03 billion compared to the same period in 2014. The increase was primarily attributable to an increase of $54.2 million in sales of broadband services to our domestic consumer customers, partially offset by a decrease of $24.7 million of broadband services to our international customers, primarily due to weakening foreign exchange rates in certain markets.

Services and other revenue — other from our EchoStar Technologies segment for the year ended December 31, 2015 decreased by $10.6 million, or 51.1%, to $10.2 million compared to the same period in 2014. The decrease was primarily attributable to a decrease of $6.1 million in revenue from system integration services and $4.7 million in revenue from certain non-recurring engineering projects and services.

Services and other revenue — other from our ESS segment for the year ended December 31, 2015 decreased by $10.0 million, or 13.0%, to $67.1 million compared to the same period in 2014. The decrease was primarily attributable to a decrease in sales of transponder services in 2015 compared to the same period in 2014 due to a decrease in transponders available for sale.

Equipment revenue — DISH Network. "Equipment revenue — DISH Network" totaled $763.2 million for the year ended December 31, 2015, a decrease of $382.8 million, or 33.4%, compared to the same period in 2014.

Equipment revenue — DISH Network from our Hughes segment for the year ended December 31, 2015 decreased by $21.2 million, or 66.3%, to $10.8 million compared to the same period in 2014. The decrease was primarily due to the decrease in the volume of unit sales of broadband equipment to dishNET. Sales of broadband equipment to dishNET have been decreasing as a result of a decrease in the unit sales of broadband equipment to dishNET.

Equipment revenue — DISH Network from our EchoStar Technologies segment for the year ended December 31, 2015 decreased by $361.6 million, or 32.5%, to $752.4 million compared to the same period in 2014. The decrease in revenue was primarily due to a decrease in the sales of set-top boxes and related accessories. The decrease in revenue of set-top boxes was due to a 41.8% decrease in the volume of unit sales and a 2.1% decrease in the weighted average price of the set-top boxes sold. The decrease in revenue of related accessories was due to a 10.1% decrease in the volume of unit sales and an 8.6% decrease in the weighted average price of related accessories sold.

Equipment revenue — other. "Equipment revenue — other" totaled $358.3 million for the year ended December 31, 2015, a decrease of $15.7 million or 4.2%, compared to the same period in 2014.

Equipment revenue — other from our Hughes segment for the year ended December 31, 2015 increased by $0.9 million, or 0.4%, to $211.7 million compared to the same period in 2014. The increase was mainly due to an increase of $5.8 million in sales of broadband equipment to our international customers and domestic enterprise customers, partially offset by a decrease of $5.5 million in sales of broadband equipment to our domestic consumer customers and government projects.

Equipment revenue — other from our EchoStar Technologies segment for the year ended December 31, 2015 decreased by $16.5 million, or 10.1%, to $146.6 million compared to the same period in 2014. The decrease was attributable to an 11.4% decrease in the volume of unit sales of related accessories, a 7.5% decrease in the weighted average price of set-top boxes sold primarily to our international customers and a 6.7% decrease in the weighted average price of related accessories.

Cost of sales — services and other. "Cost of sales — services and other" totaled $856.1 million for the year ended December 31, 2015, an increase of $17.1 million, or 2.0%, compared to the same period in 2014.

Cost of sales — services and other from our Hughes segment for the year ended December 31, 2015 decreased by $26.7 million, or 5.5%, to $456.7 million compared to the same period in 2014. The decrease was primarily attributable to a decrease of $19.2 million in service costs of our broadband services provided to our international customers primarily due to lower in-country costs denominated in local currency and a decrease of $3.7 million in the cost of sales related to our domestic broadband services due to the decrease of third party space segment costs as customers either terminated services or migrated to our platform.

Cost of sales — services and other from our EchoStar Technologies segment for the year ended December 31, 2015 increased by $35.8 million, or 14.5%, to $282.2 million compared to the same period in 2014. The increase was primarily due to an increase in support costs related to engineering and uplink services provided in 2015 compared to the same period in 2014.

Cost of sales — services and other from our ESS segment for the year ended December 31, 2015 increased by $13.5 million, or 23.8%, to $70.2 million compared to the same period in 2014. The increase was primarily due to an increase in cost of sales related to the commencement of the AMC-15 and AMC-16 satellite operating leases in the fourth quarter of 2014 and the first quarter of 2015, respectively.

Cost of sales — equipment. "Cost of sales — equipment" totaled $948.7 million for the year ended December 31, 2015, a decrease of $340.3 million, or 26.4%, compared to the same period in 2014.

Cost of sales — equipment from our Hughes segment for the year ended December 31, 2015 decreased by $13.9 million, or 6.6%, to $195.1 million compared to the same period in 2014. The decrease was primarily attributable to a decrease in equipment costs related to the decrease in sales volume of broadband equipment to DISH Network related to our Distribution Agreement with dishNET, partially offset by an increase in the cost of sales of broadband equipment to our domestic enterprise customers.

Cost of sales — equipment from our EchoStar Technologies segment for the year ended December 31, 2015 decreased by $326.4 million, or 30.2%, to $753.5 million compared to the same period in 2014. The decrease was primarily attributable to a decrease in equipment costs related to the decrease in the volume of sales of set-top boxes and related accessories sold to DISH Network and a decrease in the volume of sales of set-top boxes and related accessories to our international customers.

Research and development expenses. "Research and development expenses" totaled $78.3 million for the year ended December 31, 2015, an increase of $17.4 million, or 28.6%, compared to the same period in 2014. The increase was primarily related to an increase in research and development expense of $6.2 million and $11.2 million in our Hughes segment and EchoStar Technologies segment, respectively. The Company's research and development activities vary based on the activity level and scope of other engineering and customer related development contracts.

Depreciation and amortization. "Depreciation and amortization" expenses totaled $528.2 million for the year ended December 31, 2015, a decrease of $28.5 million, or 5.1%, compared to the same period in 2014. The decrease was primarily attributable to a decrease of $15.0 million in amortization expense from certain of our fully amortized other intangible assets, a decrease in depreciation expense of $18.5 million relating to the fully depreciated EchoStar VIII and EchoStar XII satellites and a decrease in depreciation expense of $3.5 million relating to the expiration of the capital lease for the AMC-15 satellite in December 2014. The decreases were partially offset by increases in depreciation of $7.9 million from our ESS segment, primarily due to the depreciation of the five satellites we received from DISH Network as part of the Satellite and Tracking Stock Transaction.

Impairment of long-lived assets. "Impairment of long-lived assets" totaled $2.4 million for the year ended December 31, 2015, an increase of $2.4 million compared to the same period in 2014, due to the impairment of certain building and equipment in our EchoStar Technologies segment.

Interest expense, net of amounts capitalized. "Interest expense, net of amounts capitalized" totaled $122.1 million for the year ended December 31, 2015, a decrease of $49.3 million, or 28.8%, compared to the same period in 2014. The decrease was primarily due to higher capitalized interest of $40.0 million related to the construction of the EchoStar XIX, EchoStar XXI, EchoStar XXIII, EchoStar 105/SES-11 and EUTELSAT 65 West A satellites, and a decrease in interest expense of $7.7 million relating to the partial redemption of $110.0 million of the principal amount of 2019 Senior Secured Notes in the second quarter of 2015, the expiration of capital leases for the AMC-15 and AMC-16 satellites, and interest expense relating to two of our satellites that are accounted for as capital leases.

Loss from partial redemption of debt. "Loss from partial redemption of debt" totaled $5.0 million for the year ended December 31, 2015. In 2015, the $5.0 million loss was related to the partial redemption of the 2019 Senior Secured Notes in the second quarter of 2015 which included a $3.3 million redemption premium and a $1.7 million write off of related unamortized financing costs.

Gains (losses) and impairment on marketable investment securities, net. "Gains (losses) and impairment on marketable investment securities, net" totaled $17.7 million in losses for the year ended December 31, 2015, an increase in loss of $17.7 million compared to the same period in 2014. The increase in loss was primarily due to other than temporary impairment losses of $11.2 million on certain strategic equity securities in our available-for-sale securities portfolio and an increase of $6.5 million in losses on our trading securities.

Equity in earnings of unconsolidated affiliates, net. "Equity in earnings of unconsolidated affiliates, net" totaled $1.9 million in earnings for the year ended December 31, 2015, a decrease of $6.3 million, or 76.9%, compared to the same period in 2014. The decrease in earnings is primarily due to a $10.3 million non-recurring adjustment to increase our equity in earnings of unconsolidated affiliates to reflect an increase from 24.0% to 49.0% in our interest in Dish Mexico's inception-to-date net income in 2014 and a net decrease of $6.2 million in our equity of earnings of certain unconsolidated affiliates in 2015. The decreases were partially offset by a $10.2 million equity in the net loss of Sling TV Holding in 2014. See Note 6 in the notes to consolidated financial statements in Item 15 of this report for further discussion of the agreement.

Other, net. "Other, net" totaled $2.0 million in expenses for the year ended December 31, 2015 compared to $4.3 million in income for the same period in 2014. The decrease of $6.3 million was primarily related to a loss of $6.8 million attributable to FCC regulatory fees, a gain of $5.8 million in 2014 related to our investment in TerreStar Networks Inc. ("TerreStar"), an increase of $4.7 million in foreign exchange losses and a loss of $2.6 million related to the deconsolidation of certain of our European subsidiaries in connection with our investment in SmarDTV. The decrease was partially offset by a $4.8 million gain on an instrument related to our trading securities, a $4.5 million reduction of the capital lease obligation for the AMC-15 and AMC-16 satellites in the first quarter of 2015 and a gain of $1.7 million on the exchange of accounts receivable for certain trading securities in the second quarter of 2015.

Income tax provision, net. Income tax expense was $72.2 million for the year ended December 31, 2015 compared to $30.8 million for the same period in 2014. Our effective income tax rate was 32.6% for the year ended December 31, 2015 compared to 17.3% for the same period in 2014. The variation in our current year effective tax rate from the U.S. federal statutory rate was primarily due to research and experimentation tax credits. For the same period in 2014, the variation in our effective tax rate from the U.S. federal statutory rate was primarily due to research and experimentation tax credits and a lower state effective tax rate.

Net income attributable to EchoStar. "Net income attributable to EchoStar" was $153.4 million for the year ended December 31, 2015, an increase of $0.5 million, or 0.3%, compared to the same period in 2014. The increase was primarily due to a decrease in interest expense of $49.3 million related to capitalization of interest expense associated with the construction of certain of our satellites, the partial redemption of the 2019 Senior Secured Notes, the expiration of capital leases for the AMC-15 and AMC-16 satellites, and interest expense relating to two of our satellites that are accounted for as capital leases, and an increase in operating income, including depreciation and amortization, of $27.9 million. The increases were partially offset by an increase of $41.4 million in income tax expense, an other-than-temporary impairment loss of $11.2 million on certain strategic equity securities in our marketable investment securities, offset partially by a $4.8 million gain on an instrument related to our trading securities, a $10.3 million non-recurring adjustment to increase our equity in earnings of unconsolidated affiliates to reflect an increase from 24.0% to 49.0% in our interest in Dish Mexico's inception-to-date net income in 2014, a loss of $6.8 million attributable to FCC regulatory fees, a gain of $5.8 million in 2014 related to our investment in TerreStar and a loss of $5.0 million from the partial redemption of the 2019 Senior Secured Notes.

Earnings before interest, taxes, depreciation and amortization ("EBITDA"). EBITDA was $865.4 million for the year ended December 31, 2015, a decrease of $37.2 million, or 4.1%, compared to the same period in 2014. Gross margin, which we define as total revenue less total cost of sales, increased by $21.3 million. There was also a $4.8 million gain on an instrument related to our trading securities, as well as a $4.5 million reduction of the capital lease obligation for the AMC-15 and AMC-16 satellites in the first quarter of 2015. These increases in EBITDA were more than offset by increases in research and development expenses of $17.4 million, $16.1 million of non-recurring gains from 2014, an other-than-temporary impairment loss of $11.2 million on certain strategic equity securities, a loss of $6.8 million attributable to FCC regulatory fees, an increase of $4.7 million in foreign exchange losses, and a loss of $5.0 million from the partial redemption of the 2019 Senior Secured Notes. EBITDA is a non-GAAP financial measure and is described under Explanation of Key Metrics and Other Items below. The following table reconciles EBITDA to Net income, the most directly comparable GAAP measure in the accompanying financial statements.

	For the Years Ended December 31,		Variance	
	2015	2014	Amount	%
	(Dollars in thousands)			
Net income	$ 149,371	$ 147,549	$ 1,822	1.2
Interest income and expense, net	111,637	162,247	(50,610)	(31.2)
Income tax provision, net	72,201	30,784	41,417	*
Depreciation and amortization	528,158	556,676	(28,518)	(5.1)
Net (income) loss attributable to noncontrolling interest in HSS Tracking Stock and other noncontrolling interests	3,986	5,325	(1,339)	(25.1)
EBITDA	$ 865,353	$ 902,581	$ (37,228)	(4.1)

* Percentage is not meaningful.

Segment Operating Results and Capital Expenditures

Year Ended December 31, 2015 Compared to the Year Ended December 31, 2014

	Hughes	EchoStar Technologies	EchoStar Satellite Services	All Other and Eliminations	Consolidated Total
			(In thousands)		
For the Year Ended December 31, 2015					
Total revenue	$ 1,347,340	$ 1,298,198	$ 490,591	$ 7,585	$ 3,143,714
Capital expenditures	$ 285,499	$ 50,593	$ 101,215	$ 266,213	$ 703,520
EBITDA	$ 396,684	$ 106,745	$ 412,607	$ (50,683)	$ 865,353
For the Year Ended December 31, 2014					
Total revenue	$ 1,327,718	$ 1,627,366	$ 484,455	$ 6,039	$ 3,445,578
Capital expenditures	$ 218,607	$ 48,616	$ 28,734	$ 384,069	$ 680,026
EBITDA	$ 356,871	$ 154,786	$ 419,442	$ (28,518)	$ 902,581

Hughes Segment

	For the Years Ended December 31,		Variance	
	2015	2014	Amount	%
	(Dollars in thousands)			
Total revenue	$ 1,347,340	$ 1,327,718	$ 19,622	1.5
Capital expenditures	$ 285,499	$ 218,607	$ 66,892	30.6
EBITDA	$ 396,684	$ 356,871	$ 39,813	11.2

Revenue

Hughes segment total revenue for the year ended December 31, 2015 increased by $19.6 million, or 1.5%, compared to the same period in 2014. The increase was primarily due to an increase of $70.5 million in revenue related to sales of broadband services to our consumer markets and dishNET. These increases were partially offset by a decrease of $24.7 million of broadband services to our international customers primarily due to weakening foreign exchange rates in certain markets and a decrease of $21.2 million in sales of broadband equipment to dishNET.

Capital Expenditures

Hughes segment capital expenditures for the year ended December 31, 2015 increased by $66.9 million, or 30.6%, compared to the same period in 2014, primarily as a result of an increase in expenditures on satellite ground infrastructures and the EUTELSAT 65 West A satellite.

EBITDA

Hughes segment EBITDA for the year ended December 31, 2015 was $396.7 million, an increase of $39.8 million, or 11.2%, compared to the same period in 2014. The increase was primarily driven by an increase of $66.6 million in gross margin primarily related to an increase in sales of broadband services to our consumer market and dishNET, offset partially by a decrease in broadband services to our international market, $11.3 million increase in selling, general and administrative expenses, and a $6.2 million increase in research and development expenses.

EchoStar Technologies Segment

	For the Years Ended December 31,		Variance	
	2015	2014	Amount	%
	(Dollars in thousands)			
Total revenue	$ 1,298,198	$ 1,627,366	$ (329,168)	(20.2)
Capital expenditures	$ 50,593	$ 48,616	$ 1,977	4.1
EBITDA	$ 106,745	$ 154,786	$ (48,041)	(31.0)

Revenue

EchoStar Technologies segment total revenue for the year ended December 31, 2015 decreased by $329.2 million, or 20.2%, compared to the same period in 2014, primarily resulting from a decrease of $361.6 million in equipment revenue from DISH Network, a decrease of $16.5 million in equipment revenue - other and a decrease of $10.6 million in service revenue — other, partially offset by an increase of $59.6 million in service revenue from DISH Network.

Capital Expenditures

EchoStar Technologies segment capital expenditures for the year ended December 31, 2015 increased by $2.0 million, or 4.1%, compared to the same period in 2014, primarily due to increased expenditures related to the support of our OTT, SVOD platform business of $5.3 million and engineering services of $0.7 million, partially offset by a decrease in expenditures related to our digital broadcast centers of $5.0 million.

EBITDA

EchoStar Technologies segment EBITDA for the year ended December 31, 2015 was $106.7 million, a decrease of $48.0 million, or 31.0%, compared to the same period in 2014. The decrease in EBITDA for our EchoStar Technologies segment was primarily driven by a decrease of $38.6 million in gross margin primarily as a result of the decrease in sales of set-top boxes and related accessories to DISH Network. The decrease in EBITDA was also the result of an increase of $11.2 million in research and development expense, a loss of $2.6 million related to the deconsolidation of certain of our European subsidiaries in connection with our investment in SmarDTV and an impairment loss of $2.4 million on certain building and equipment. The decreases were partially offset by a $9.4 million decrease in selling, general and administrative expenses.

EchoStar Satellite Services Segment

	For the Years Ended December 31,		Variance	
	2015	2014	Amount	%
	(Dollars in thousands)			
Total revenue	$ 490,591	$ 484,455	$ 6,136	1.3
Capital expenditures	$ 101,215	$ 28,734	$ 72,481	*
EBITDA	$ 412,607	$ 419,442	$ (6,835)	(1.6)

* Percentage is not meaningful.

Revenue

ESS segment total revenue for the year ended December 31, 2015 increased by $6.1 million, or 1.3%, compared to the same period in 2014, primarily due to an increase of $16.2 million in service revenue primarily related to satellite services provided to DISH Network on the five satellites we received as part of the Satellite and Tracking Stock Transaction, partially offset by a decrease of $10.0 million in service revenue — other attributable to a decrease in sales of transponder services due to a decrease in transponders available for sale.

Capital Expenditures

ESS segment capital expenditures for the year ended December 31, 2015 increased by $72.5 million, compared to the same period in 2014, primarily related to the increase in expenditures on the EchoStar 105/SES-11 satellite.

EBITDA

ESS segment EBITDA for the year ended December 31, 2015 was $412.6 million, a decrease of $6.8 million, or 1.6%, compared to the same period in 2014. The decrease in EBITDA for our ESS segment was primarily due to an increase in cost of sales — services of $13.5 million primarily related to the commencement of the AMC-15 and AMC-16 satellite operating leases in the fourth quarter of 2014 and the first quarter of 2015, respectively, partially offset by an increase in service revenue.

Item 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS - Continued

All Other and Eliminations

All Other and Eliminations accounts for certain items and activities in our consolidated financial statements that have not been assigned to our operating segments. These include without limitation real estate and other activities, costs incurred in satellite development programs and other business development activities, expenses of various corporate departments, and our centralized treasury activities, including without limitation income from our investment portfolio and interest expense on our debt.

	For the Years Ended December 31,		Variance	
	2015	2014	Amount	%
	(Dollars in thousands)			
Total revenue	$ 7,585	$ 6,039	$ 1,546	25.6
Capital expenditures	$ 266,213	$ 384,069	$ (117,856)	(30.7)
EBITDA	$ (50,683)	$ (28,518)	$ (22,165)	77.7

Capital Expenditures

For the year ended December 31, 2015, All Other and Eliminations capital expenditures decreased by $117.9 million, or 30.7%, compared to the same period in 2014, primarily related to a $105.8 million refund relating to the cancellation of an existing launch services agreement and a decrease in satellite expenditures on the EchoStar XIX satellite of $149.0 million and the EchoStar XXI satellite of $43.5 million, partially offset by the increase in satellite expenditures on the EchoStar XXIII satellite of $73.5 million. The EchoStar XIX satellite is expected to be used in the operations of our Hughes segment in providing satellite broadband services, the EchoStar XXI satellite is intended to be used by EchoStar Mobile in providing MSS in the EU, and the EchoStar XXIII satellite will be deployed at the 45 degree west longitude orbital location providing services in Brazil.

EBITDA

For the year ended December 31, 2015, All Other and Eliminations EBITDA was a loss of $50.7 million, compared a loss of $28.5 million for the same period in 2014. The $22.2 million decrease in EBITDA was primarily related to $16.1 million of non-recurring gains from 2014, an other-than-temporary impairment loss of $11.2 million on certain strategic equity securities in our marketable investment securities, offset partially by a $4.8 million gain on an instrument related to our trading securities, and a loss of $5.0 million from the partial redemption of the 2019 Senior Secured Notes. The decreases were partially offset by a decrease of $6.9 million in cost of sales relating to termination of satellite services on the EchoStar XV satellite from DISH Network in November 2015.

LIQUIDITY AND CAPITAL RESOURCES

Cash, Cash Equivalents and Current Marketable Investment Securities

We consider all liquid investments purchased with an original maturity of 90 days or less to be cash equivalents. See Item 7A. — Quantitative and Qualitative Disclosures about Market Risk in this Annual Report on Form 10-K for further discussion regarding our marketable investment securities.

As of December 31, 2016, our cash, cash equivalents and current marketable investment securities totaled $3.09 billion compared to $1.54 billion as of December 31, 2015, an increase of $1.56 billion.

As of December 31, 2016 and 2015, we held $522.5 million and $612.3 million, respectively, of various debt and equity instruments including corporate bonds, corporate equity securities, government bonds and mutual funds.

The following discussion highlights our cash flow activities for the years ended December 31, 2016, 2015 and 2014.

Cash flows from operating activities. We typically reinvest the cash flow from operating activities in our business. For the years ended December 31, 2016, 2015 and 2014, we reported net cash inflows from operating activities of $803.3 million, $776.5 million and $840.1 million, respectively.

Net cash inflows from operating activities for the year ended December 31, 2016 increased by $26.9 million compared to the same period in 2015. The increase in cash inflows was primarily attributable to a decrease in cash outflows of $20.1 million resulting from timing differences in operating assets and liabilities and higher net income of $6.8 million adjusted to exclude: (i) "Depreciation and amortization;" (ii) "Impairment of long-lived assets;" (iii) "Loss from partial redemption of debt;" (iv) "Equity in earnings of unconsolidated affiliates, net;" (v) "Losses (gains) and impairment on marketable investment securities, net;" (vi) "Stock-based compensation;" (vii) "Deferred tax provision;" and "Other, net."

Net cash inflows from operating activities for the year ended December 31, 2015 decreased by $63.7 million compared to the same period in 2014. The decrease was primarily attributable to a decrease of $98.8 million resulting from timing differences in operating assets and liabilities, partially offset by higher net income of $35.1 million adjusted to exclude: (i) "Depreciation and amortization;" (ii) "Impairment of long-lived assets;" (iii) "Loss from partial redemption of debt;" (iv) "Equity in earnings of unconsolidated affiliates, net;" (v) "Losses (gains) and impairment on marketable investment securities, net;" (vi) "Stock-based compensation;" (vii) "Deferred tax provision;" and (viii)"Other, net."

Cash flows from investing activities. Our investing activities generally include purchases and sales of marketable investment securities, capital expenditures, acquisitions, and strategic investments. For the years ended December 31, 2016, 2015 and 2014, we reported net cash outflows from investing activities of $632.3 million, $275.3 million and $887.6 million, respectively.

Net cash outflows from investing activities for the year ended December 31, 2016 increased by $357.0 million compared to the same period in 2015. The increase in cash outflows primarily related to an increase of $440.7 million in purchases of marketable investment securities, net of sales and maturities. The increase in cash outflows was partially offset by a $64.7 million investment in WorldVu and SmarDTV in the second quarter of 2015, a decrease of $9.1 million in restricted cash relating to a release in funds for certain satellite slots as a result of a FCC settlement in 2016, an decrease of $5.3 million in capital expenditures, net of related refunds, in 2016 when compared to the same period in 2015 and the acquisition of a regulatory authorization in the first quarter of 2015 of $3.4 million.

Net cash outflows from investing activities for the year ended December 31, 2015 decreased by $612.3 million compared to the same period in 2014. The decrease in cash outflows primarily related to a decrease of $691.0 million in purchases of marketable investment securities, net of sales and maturities, a cash receipt of $105.8 million refund relating to the cancellation of an existing launch services agreement and capital contributions of $18.6 million to certain investees in 2014, partially offset by an increase in cash outflows primarily related to a $129.2 million increase in capital expenditures in 2015 when compared to the same period in 2014, a $64.7 million investment in WorldVu and SmarDTV in the second quarter of 2015, and the acquisition of a regulatory authorization in the first quarter of 2015 of $3.4 million.

Cash flows from financing activities. Our financing activities generally include proceeds related to the issuance of debt and cash used for the repurchase, redemption or payment of debt and capital lease obligations, and the proceeds from Class A common stock options exercised and stock issued under our stock incentive plans and employee stock purchase plan. For the years ended December 31, 2016, 2015 and 2014, we reported net cash inflows from financing activities of $1.48 billion, net cash outflows from financing activities of $120.3 million, net cash outflows from financing activities of $35.1 million, respectively.

Net cash inflows from financing activities increased by $1.60 billion for the year ended December 31, 2016 compared to the same period in 2015. The increase in cash inflows was primarily due to the proceeds of $1.5 billion from the issuance of the 2026 Notes in the third quarter of 2016, the partial redemption of the 2019 Senior Secured Notes of $110.0 million and related premium of $3.3 million in the second quarter of 2015, a decrease of $7.7 million in capital lease obligation payments relating to the expiration of the capital lease for the AMC-16 satellite, effective February 2015, partially offset by a decrease of $11.3 million in net proceeds from Class A common stock options exercised and stock issued under our stock incentive plans and employee stock purchase plan, payments of debt issuance costs of $7.1 million, and a decrease of $3.1 million in excess tax benefits recognized on the exercise of stock options.

Net cash outflows from financing activities increased by $85.2 million for the year ended December 31, 2015 compared to the same period in 2014. The increase in cash outflows was primarily due to the partial redemption of the 2019 Senior Secured Notes of $110.0 million and related premium of $3.3 million in the second quarter of 2015, and proceeds of $11.4 million, net of offering costs of $3.9 million from the issuance of our preferred tracking stock received in 2014, partially offset by a decrease of $22.7 million in capital lease obligation payments relating to the expiration of the capital lease for the AMC-16 satellite, effective February 2015, and an increase of $11.2 million in excess tax benefits recognized on the exercise of stock options.

Obligations and Future Capital Requirements

Contractual Obligations and Off-Balance Sheet Arrangements

The following table summarizes our contractual obligations at December 31, 2016:

	Payments Due in the Year Ending December 31,						
	Total	**2017**	**2018**	**2019**	**2020**	**2021**	**Thereafter**
	(In thousands)						
Long-term debt	$ 3,390,000	$ —	$ —	$ 990,000	$ —	$ 900,000	$ 1,500,000
Capital lease obligations	302,007	37,307	36,927	40,370	44,733	46,131	96,539
Interest on long-term debt and capital lease obligations	1,487,583	252,999	248,428	212,318	175,799	136,673	461,366
Satellite-related obligations	732,004	220,421	135,987	63,499	60,479	45,308	206,310
Operating lease obligations	87,558	34,974	14,920	11,484	8,425	7,385	10,370
Purchase and other obligations	105,923	105,923	—	—	—	—	—
Total	$ 6,105,075	$ 651,624	$ 436,262	$ 1,317,671	$ 289,436	$ 1,135,497	$ 2,274,585

"Satellite-related obligations" primarily include payments pursuant to agreements for the construction of the EchoStar XIX, EchoStar XXI, EchoStar XXIII, and EchoStar 105/SES-11 satellites; payments pursuant to launch services contracts and regulatory authorizations; executory costs for our capital lease satellites; costs under satellite service agreements; and in-orbit incentives relating to certain satellites; as well as commitments for long-term satellite operating leases and satellite service arrangements.

Our "Purchase and other obligations" primarily consists of binding purchase orders for digital set-top boxes and related components. Our purchase obligations can fluctuate significantly from period to period due to, among other things, management's control of inventory levels, and can materially impact our future operating asset and liability balances, and our future working capital requirements.

The table above does not include amounts related to deferred tax liabilities, unrecognized tax positions and certain other amounts recorded in our noncurrent liabilities as the timing of any payments is uncertain. The table also excludes long-term deferred revenue and other long-term liabilities that do not require future cash payments.

In certain circumstances, the dates on which we are obligated to pay our contractual obligations could change.

Off-Balance Sheet Arrangements

Other than the transactions described below, we generally do not engage in off-balance sheet financing activities or use derivative financial instruments for hedge accounting or speculative purposes.

As of December 31, 2016, we had $32.9 million of letters of credit and insurance bonds. Of this amount, $12.0 million was secured by restricted cash, $1.4 million was related to insurance bonds, and $19.5 million was issued under credit arrangements available to our foreign subsidiaries. Certain letters of credit are secured by assets of our foreign subsidiaries.

As of December 31, 2016, we had foreign currency forward contracts with a notional value of $3.0 million in place to partially mitigate foreign currency exchange risk. From time to time, we may enter into foreign currency forward contracts, or take other measures, to mitigate risks associated with foreign currency denominated assets, liabilities, commitments and anticipated foreign currency transactions.

Satellite Insurance

We historically have not carried in-orbit insurance on our satellites because we assessed that the cost of insurance was uneconomical relative to the risk of failures. Therefore, we generally bear the risk of any in-orbit failures. Pursuant to the terms of the agreements governing certain portions of our indebtedness, we are required, subject to certain limitations on coverage, to maintain in-orbit insurance for our SPACEWAY 3, EchoStar XVI, and EchoStar XVII satellites. Based on economic analysis of the current insurance market we have elected to obtain, subject to certain limitations on coverage, launch and in-orbit insurance for our EchoStar XIX, EchoStar XXI and EchoStar XXIII satellites and our interest in the EchoStar 105/SES-11 satellite. All other satellites, either in orbit or under construction, are not covered by launch or in-orbit insurance. We will continue to assess circumstances going forward and make insurance decisions on a case by case basis.

Future Capital Requirements

We primarily rely on our existing cash and marketable investment securities balances, as well as cash flow generated through our operations to fund our business. There can be no assurance that we will have positive cash flows from operations. Furthermore, if we experience negative cash flows, our existing cash and marketable investment securities balances may be reduced.

We currently depend on DISH Network for a substantial portion of our revenue and our cash flow from operations. If the Share Exchange is not consummated, to the extent that DISH Network's gross new subscriber activations decrease or DISH Network experiences a net loss of subscribers, sales of our digital set-top boxes and related components to DISH Network may continue to decline, which in turn could have a material adverse effect on our financial position and results of operations. If the Share Exchange is consummated, we expect to no longer generate cash flow from our EchoStar Technologies segment.

We have a significant amount of outstanding indebtedness. As of December 31, 2016, our total indebtedness was $3.66 billion, of which $302.0 million related to capital lease obligations. For a discussion of the terms of our indebtedness, see Note 11 in the notes to consolidated financial statements in Item 15 of this report Our liquidity requirements will be significant, primarily due to our debt service requirements. In addition, our future capital expenditures are likely to increase if we make acquisitions or additional investments in infrastructure or joint ventures necessary to support and expand our business, or if we decide to purchase one or more additional satellites. Other aspects of our business operations may also require additional capital. We periodically evaluate various strategic initiatives, the pursuit of which could also require us to invest or raise significant additional capital, which may not be available on acceptable terms or at all.

We anticipate that our existing cash and marketable investment securities are sufficient to fund the currently anticipated operations of our business through the next twelve months.

Satellites

As our satellite fleet ages, we will be required to evaluate replacement alternatives such as acquiring, leasing or constructing additional satellites, with or without customer commitments for capacity. We may also construct or lease additional satellites in the future to provide satellite services at additional orbital locations or to improve the quality of our satellite services.

Stock Repurchases

Pursuant to a stock repurchase program approved by our board of directors, we are authorized to repurchase up to $500.0 million of our outstanding shares of Class A common stock through December 31, 2017. For the years ended December 31, 2016, 2015 and 2014, we did not repurchase any common stock under this program.

Critical Accounting Policies and Estimates

The preparation of consolidated financial statements in conformity with GAAP requires us to make certain estimates, judgments and assumptions that affect the reported amounts of assets and liabilities at the date of the balance sheets, the reported amounts of revenue and expenses for each reporting period, and certain information disclosed in the notes to consolidated financial statements in Item 15 of this report. We base our estimates, judgments, and assumptions on historical experience and on various other factors that we believe to be relevant under the circumstances. Actual results may differ from previously estimated amounts, and such differences may be material to our consolidated financial statements. We review our estimates and assumptions periodically, and the effects of revisions are reflected in the period they occur or prospectively if the revised estimate affects future periods. The following represent what we believe are the critical accounting policies that may involve a high degree of estimation, judgment and complexity. For a summary of our significant accounting policies, including those discussed below, see Note 2 in the notes to consolidated financial statements in Item 15 of this report.

Marketable Securities and Other Investments

We hold investments in debt and equity securities of various companies, including marketable investments in publicly traded securities and non-marketable investments in securities of privately held companies. Our marketable investment securities ordinarily are accounted for as available-for-sale; accordingly, we report those securities at fair value on a recurring basis and generally recognize unrealized gains and losses in other comprehensive income (loss). Except in unusual circumstances, the estimated fair values of our marketable investment securities are determined by reference to quoted prices for identical securities or based primarily on other observable market inputs. Our investments in non-marketable securities typically are strategic investments in privately held companies and may be highly speculative. We account for such investments using the equity method when we exercise significant influence over the investee; otherwise, we account for such investments using the cost method.

All of our investments are subject to quarterly evaluations to determine whether an other-than-temporary impairment has occurred, in which case we record an impairment loss in determining net income. For our marketable investment securities, our impairment evaluation considers factors such as the length of time the security has been in a continuous unrealized loss position, the magnitude of the unrealized loss, current market conditions, company-specific information, and whether we have the intent and ability to hold the investment in the foreseeable future. Generally, it is not practicable to estimate fair value of our cost method and equity method investments on a recurring basis. Our impairment evaluation for such investments considers whether events or changes in circumstances have occurred that may have a significant adverse effect on the fair value of the investment. As part of our evaluation, we review available information such as recent company financial statements, business plans and current economic conditions for factors that may indicate an impairment of our investments. When we determine that an investment is impaired and the impairment is other than temporary, we adjust the carrying amount of the investment to its estimated fair value and recognize an impairment loss in earnings. In these circumstances, our fair value estimates may reflect significant unobservable inputs.

Our periodic investment impairment evaluations require us to make significant estimates, judgments and assumptions about uncertain future events. In some cases, there may be limited or no observable market data to support significant assumptions in our estimates. As a result of weakening economic conditions, or other future events and changes in circumstances affecting our investments, we may subsequently determine that an investment is impaired or that an existing impairment is other than temporary. Such events and changes in circumstances could result in our recognition of material investment impairment losses in the future.

Impairment of Long-lived Assets

We evaluate our long-lived assets other than goodwill and intangible assets with indefinite lives for impairment whenever events and changes in circumstances indicate that their carrying amounts may not be recoverable. The carrying amount of a long-lived asset or asset group is considered to not be recoverable when the estimated future undiscounted cash flows from such asset or asset group is less than its carrying amount. In that event, an impairment loss is recorded in the determination of operating income based on the amount by which the carrying amount exceeds the estimated fair value of the long-lived asset or asset group. Fair value is determined primarily using discounted cash flow techniques reflecting the estimated cash flows and discount rate that would be assumed by a market participant for the asset or asset group under review. Our discounted cash flow estimates typically include assumptions based on unobservable inputs and may reflect probability-weighting of alternative scenarios. Estimated losses on long-lived assets to be disposed of by sale may be determined in a similar manner, except that fair value estimates are reduced for estimated selling costs. Changes in estimates of future cash flows, discount rates and other assumptions could result in recognition of additional impairment losses in future periods.

Impairment of Goodwill and Indefinite-lived Intangible Assets

We test our goodwill for impairment annually and more frequently when events or changes in circumstances indicate that an impairment may have occurred. There are two steps to the goodwill impairment test. Step one compares the fair value of a reporting unit with its carrying amount, including goodwill. If the reporting unit's carrying amount exceeds its estimated fair value, it is necessary to perform the second step of the impairment test, which compares the implied fair value of reporting unit goodwill with the carrying amount of such goodwill to determine the amount of impairment loss. We may bypass the two-step quantitative impairment test when we determine based on a qualitative assessment that it is more likely than not that the fair value of a reporting unit exceeds its carrying amount including goodwill.

As of December 31, 2016, our goodwill consisted primarily of goodwill assigned to reporting units of the Hughes segment. We test such goodwill annually in our second fiscal quarter. Based on our qualitative assessment of impairment of the goodwill assigned to the Hughes segment in the second quarter of each of 2016 and 2015, we determined that no further testing of goodwill for impairment was necessary as it was more likely than not that the fair values of the Hughes segment reporting units exceeded their corresponding carrying amounts. Depending on our assessment of future events and changes in circumstances, we may be required to perform the two-step quantitative impairment test in the future. We may determine that some or all of our goodwill is impaired in connection with future impairment tests.

Our indefinite-lived intangible assets consist primarily of regulatory authorizations for the use of spectrum in specified orbital locations. We test these intangible assets annually in our fourth fiscal quarter, or more frequently if events or changes in circumstances indicate that an impairment may have occurred. We recognize an impairment loss in the determination of operating income when we determine that the carrying amount of an intangible asset exceeds its estimated fair value. Fair value is determined primarily using discounted cash flow techniques reflecting the estimated cash flows and discount rate that we believe would be assumed by market participants. Our cash flow projections typically include significant assumptions based on unobservable inputs. Changes in economic conditions, laws and regulations, technology, competition and other factors could affect the assumptions reflected in our fair value estimates and may result in future intangible asset impairments. We may bypass the quantitative impairment test when we determine based on a qualitative assessment that it is not more likely than not that an indefinite-lived intangible asset is impaired.

Revenue Recognition

Our Hughes segment enters into contracts to design, develop, and deliver telecommunication networks to customers in our enterprise and mobile satellite systems markets. Those contracts require significant effort to develop and construct the network over an extended time period. Revenue from such contracts is recognized using the percentage-of-completion method. Depending on the nature of the arrangement, we measure progress toward completion using the cost-to-cost method or the units-of-delivery method. Under the cost-to-cost method, revenue reflects the ratio of costs incurred to estimated total costs at completion. Under the units-of-delivery method, revenue and related costs are recognized as products are delivered based on the expected profit for the entire agreement. Profit margins on long-term contracts are based on estimates of total revenue and costs at completion. We review and revise our estimates periodically and recognize related adjustments in the period in which the revisions are made. Estimated losses on contracts are recorded in the period in which they are identified. Changes in our periodic estimates for these contracts could result in significant adjustments to our revenue or costs, which could be material to our consolidated results of operations.

Income Taxes

We record deferred tax assets and liabilities for the estimated future tax effects of temporary differences between the tax bases of assets and liabilities and their corresponding carrying amounts reported in our consolidated balance sheets, as well as for operating loss and tax credit carryforwards. Determining necessary valuation allowances for deferred tax assets requires us to make assessments about the timing of future events, including the probability of expected future taxable income and available tax planning opportunities. We periodically evaluate the need for valuation allowances based on both historical evidence, including trends, and future expectations. Our future operating results and other events and circumstances could have a significant effect on the realization of tax benefits. Those future events and circumstances could require significant adjustments to our valuation allowances in future periods, which could be material to our consolidated results of operations.

Management evaluates the recognition and measurement of uncertain tax positions based on applicable tax law, regulations, case law, administrative rulings and pronouncements, and the facts and circumstances surrounding the tax position. Changes in our estimates related to the recognition and measurement of the amount recorded for uncertain tax positions could result in significant adjustments to our income tax provision or benefit in future periods, which could be material to our consolidated results of operations.

Contingent Liabilities

We record an accrual for litigation and other loss contingencies when we determine that a loss is probable and the amount of the loss can be reasonably estimated. Legal fees and other costs of defending litigation are charged to expense as incurred. A significant amount of management judgment is required in determining whether an accrual should be recorded for a loss contingency and the amount of such accrual. Estimates generally are developed in consultation with legal counsel and are based on an analysis of potential outcomes. Due to the inherent uncertainty in determining the likelihood of potential outcomes and the potential financial statement impact of such outcomes, it is possible that upon further development or resolution of a contingent matter, charges related to existing loss contingencies could be recorded in future periods, which could be material to our consolidated results of operations and financial position.

New Accounting Pronouncements

For a discussion of new accounting pronouncements, see Note 2 in the notes to consolidated financial statements in Item 15 of this report. We are continuing to assess the impact of adopting the recently issued accounting pronouncements on our consolidated financial statements and related disclosures.

Seasonality

For our Hughes segment, service revenue is generally not impacted by seasonal fluctuations other than those associated with fluctuations related to sales and promotional activities. However, like many communications infrastructure equipment vendors, a higher amount of our hardware revenue occurs in the second half of the year due to our customers' annual procurement and budget cycles. Large enterprises and operators often allocate their capital expenditure budgets at the beginning of their fiscal year (which often coincides with the calendar year). The typical sales cycle for large complex system procurements is six to 12 months, which often results in the customer expenditure occurring towards the end of the year. Customers often seek to expend the budgeted funds prior to the end of the year and the next budget cycle.

For our EchoStar Technologies segment, we are affected by seasonality to the extent it impacts our customers as a result of their sales and promotion activities, which can vary from year to year. Although the seasonal impacts have not been significant, historically, the first half of the year generally produces fewer new subscribers for the pay-TV industry than the second half of the year. However, we cannot provide assurance that this trend will continue in the future.

Our ESS segment is not generally affected by seasonal impacts.

Inflation

Inflation has not materially affected our operations during the past three years. We believe that our ability to increase the prices charged for our products and services in future periods will depend primarily on competitive pressures or contractual terms.

EXPLANATION OF KEY METRICS AND OTHER ITEMS

Services and other revenue — DISH Network. "Services and other revenue — DISH Network" primarily includes revenue associated with satellite and transponder services, satellite uplinking/downlinking, signal processing, conditional access management, telemetry, tracking and control, development of web-based applications for set-top boxes, professional services, facilities rental revenue and other services provided to DISH Network. "Services and other revenue — DISH Network" also includes subscriber wholesale service fees for the Hughes service sold to dishNET.

Services and other revenue — other. "Services and other revenue — other" primarily includes the sales of enterprise and consumer broadband services, as well as maintenance and other contracted services. "Services and other revenue — other" also includes revenue associated with satellite and transponder services, satellite uplinking/downlinking and other services provided to customers other than DISH Network.

Equipment revenue — DISH Network. "Equipment revenue — DISH Network" primarily includes sales of digital set-top boxes and related components, including Slingbox products and related hardware products, and sales of satellite broadband equipment and related equipment, primarily related to the Hughes service, to DISH Network.

Equipment revenue — other. "Equipment revenue — other" primarily includes sales of digital set-top boxes and related components to Bell TV, Dish Mexico and other domestic and international customers, including sales of Slingbox products and related hardware products, and sales of broadband equipment and networks to customers in our enterprise and consumer markets.

Cost of sales — services and other. "Cost of sales — services and other" primarily includes the cost of broadband services provided to our enterprise and consumer customers, and to DISH Network, as well as the cost of providing maintenance and other contracted services. "Cost of sales — services and other" also includes the costs associated with satellite and transponder services, satellite uplinking/downlinking, signal processing, conditional access management, telemetry, tracking and control, product support and development of applications for set-top boxes, professional services, facilities rental costs, and other services provided to our customers, including DISH Network.

Cost of sales — equipment. "Cost of sales — equipment" principally includes costs associated with digital set-top boxes and related components sold to DISH Network, Bell TV, Dish Mexico and other domestic and international customers, including costs associated with Slingbox products and related hardware products. "Cost of sales — equipment" also includes the cost of broadband equipment and networks sold to customers in our enterprise and consumer markets, and to DISH Network.

Selling, general and administrative expenses. "Selling, general and administrative expenses" primarily includes selling and marketing costs and employee-related costs associated with administrative services (e.g., information systems, human resources and other services), including stock-based compensation expense. It also includes professional fees (e.g. legal, information systems and accounting services) and other items associated with facilities and administrative services provided by DISH Network and other third parties.

Research and development expenses. "Research and development expenses" primarily includes costs associated with the design and development of products to support future growth and provide new technology and innovation to our customers.

Impairment of long-lived assets. "Impairment of long-lived assets" includes our impairment losses related to our property and equipment, goodwill and other intangible assets.

Interest income. "Interest income" primarily includes interest earned on our cash, cash equivalents and marketable investment securities, including premium amortization and discount accretion on debt securities.

Interest expense, net of amounts capitalized. "Interest expense, net of amounts capitalized" primarily includes interest expense associated with our debt and capital lease obligations (net of capitalized interest), and amortization of debt issuance costs.

Loss from partial redemption of debt. "Loss from partial redemption of debt" primarily includes the loss from the partial redemption of the 2019 Senior Secured Notes representing the redemption premium that the Company paid to the holders of its 2019 Senior Secured Notes and the write-off of related unamortized debt issuance costs.

Gains (losses) and impairment on marketable investment securities, net. "Gains (losses) and impairment on marketable investment securities, net" primarily includes gains, net of any losses, on the sale or exchange of investments and other-than-temporary impairment on certain of our marketable investment securities.

Equity in earnings of unconsolidated affiliates, net. "Equity in earnings of unconsolidated affiliates, net" includes earnings or losses from our investments accounted for under the equity method.

Other, net. "Other, net" primarily includes foreign exchange gains and losses, dividends received from our marketable investment securities, and other non-operating income or expense items that are not appropriately classified elsewhere in our consolidated statements of operations and comprehensive income (loss).

Earnings before interest, taxes, depreciation and amortization ("EBITDA"). EBITDA is defined as "Net income" excluding "Interest expense, net of amounts capitalized," "Interest income," "Income tax provision, net," and "Depreciation and amortization." EBITDA is not a measure determined in accordance with GAAP. This non-GAAP measure is reconciled to "Net income" in our discussion of "Results of Operations" above. EBITDA should not be considered in isolation or as a substitute for operating income, net income or any other measure determined in accordance with GAAP. EBITDA is used by our management as a measure of operating efficiency and overall financial performance for benchmarking against our peers and competitors. Management believes EBITDA provides meaningful supplemental information regarding the underlying operating performance of our business. Management also believes that EBITDA is useful to investors because it is frequently used by securities analysts, investors, and other interested parties to evaluate the performance of companies in our industry.

Subscribers. "Subscribers" include customers that subscribe to our Hughes segment's HughesNet broadband services, through retail, wholesale and small/medium enterprise service channels.

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Market Risks Associated with Financial Instruments and Foreign Currency

Our investments and debt are exposed to market risks, discussed below.

Cash, Cash Equivalents and Current Marketable Investment Securities

As of December 31, 2016, our cash, cash equivalents and current marketable investment securities had a fair value of $3.09 billion. Of this amount, a total of $3.00 billion was invested in: (a) cash; (b) commercial paper and corporate notes with an overall average maturity of less than one year and rated in one of the four highest rating categories by at least two nationally recognized statistical rating organizations; (c) debt instruments of the U.S. government and its agencies; and/or (d) instruments with similar risk, duration and credit quality characteristics to the commercial paper and corporate obligations described above. The primary purpose of these investing activities has been to preserve principal until the cash is required to, among other things, fund operations, make strategic investments and expand the business. Consequently, the size of this portfolio fluctuates significantly as cash is received and used in our business. The value of this portfolio may be negatively impacted by credit losses; however, this risk is mitigated through diversification that limits our exposure to any one issuer.

Interest Rate Risk

A change in interest rates would not affect the fair value of our cash, or materially affect the fair value of our cash equivalents due to their maturities of less than 90 days. A change in interest rates would affect the fair value of our current marketable debt securities portfolio; however, we normally hold these investments to maturity. Based on our current non-strategic investment portfolio of $3.00 billion as of December 31, 2016, a hypothetical 10% change in average interest rates during 2016 would not have a material impact on the fair value of our cash, cash equivalents and debt securities portfolio due to the limited duration of our investments.

Our cash, cash equivalents and current marketable debt securities had an average annual rate of return for the year ended December 31, 2016 of 1.0%. A change in interest rates would affect our future annual interest income from this portfolio, since funds would be re-invested at different rates as the instruments mature. A hypothetical 10% decrease in average interest rates during 2016 would have resulted in a decrease of approximately $2.0 million in annual interest income.

Strategic Marketable Investment Securities

As of December 31, 2016, we held current strategic investments in the publicly traded common stock of several companies with a fair value of $94.8 million. These investments, which are held for strategic and financial purposes, are concentrated in a small number of companies, are highly speculative and have experienced and continue to experience volatility. The fair value of these investments can be significantly impacted by the risk of adverse changes in securities markets generally, as well as risks related to the performance of the companies whose securities we have invested in, risks associated with specific industries, and other factors. These investments are subject to significant fluctuations in fair value due to the volatility of the securities markets and of the underlying businesses. In general, our strategic marketable investment securities portfolio is not significantly impacted by interest rate fluctuations as it currently consists solely of equity securities, the value of which is more closely related to factors specific to the underlying business. A hypothetical 10% adverse change in the market price of our public strategic equity investments would result in a decrease of approximately $9.5 million in the fair value of these investments.

Restricted cash and marketable investment securities and investments in unconsolidated entities

Restricted cash and marketable investment securities

As of December 31, 2016, we had $12.9 million of restricted cash and marketable investment securities invested in: (a) cash; (b) debt instruments of the U.S. government and its agencies; (c) commercial paper and corporate notes with an overall average maturity of less than one year and rated in one of the four highest rating categories by at least two nationally recognized statistical rating organizations; (d) mutual funds; and (e) instruments with similar risk, duration and credit quality characteristics to the commercial paper described above. Based on our investment portfolio as of December 31, 2016, a hypothetical 10% increase in average interest rates would not have a material impact on the fair value of our restricted cash and marketable investment securities.

Investments in unconsolidated entities

As of December 31, 2016, we had $197.2 million of noncurrent equity instruments that we hold for strategic business purposes and account for under the cost or equity methods of accounting. The fair value of these instruments is not readily determinable. We periodically review these investments and estimate fair value when there are indications of impairment. A hypothetical adverse change equal to 10% of the carrying amount of these equity instruments would result in a decrease of approximately $19.7 million in the value of these investments.

Our ability to realize value from our strategic investments in companies that are privately held depends on the success of those companies' businesses and their ability to obtain sufficient capital to execute their business plans. Because private markets are not as liquid as public markets, there is also increased risk that we will not be able to sell these investments, or that when we desire to sell them we will not be able to obtain fair value for them.

Foreign Currency Exchange Risk

We generally conduct our business in U.S. dollars. Our international business is conducted in a variety of foreign currencies with our largest exposures being to the Brazilian real, the Indian rupee, and the British pound. This exposes us to fluctuations in foreign currency exchange rates. Transactions in foreign currencies are converted into U.S. dollars using exchange rates in effect on the dates of the transactions.

Our objective in managing our exposure to foreign currency changes is to reduce earnings and cash flow volatility associated with foreign exchange rate fluctuations. Accordingly, we may enter into foreign currency forward contracts, or take other measures, to mitigate risks associated with foreign currency denominated assets, liabilities, commitments and anticipated foreign currency transactions. As of December 31, 2016, we had $6.5 million of net foreign currency denominated receivables and payables outstanding, and foreign currency forward contracts with a notional value of $3.0 million in place to partially mitigate foreign currency exchange risk. The estimated fair values of the foreign exchange contracts were not material as of December 31, 2016. The impact of a hypothetical 10% adverse change in exchange rates on the carrying amount of the net assets and liabilities of our foreign subsidiaries would be an estimated loss to the cumulative translation adjustment of $36.6 million as of December 31, 2016.

Derivative Financial Instruments

We generally do not use derivative financial instruments for speculative purposes and we generally do not apply hedge accounting treatment to our derivative financial instruments. We evaluate our derivative financial instruments from time to time but there can be no assurance that we will not enter into additional foreign currency forward contracts, or take other measures, in the future to mitigate our foreign exchange risk.

Item 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Our consolidated financial statements are included in Item 15 of this report beginning on page 4.

Item 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

Not applicable.

Item 9A. CONTROLS AND PROCEDURES

Disclosure Controls and Procedures

Under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, we evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Securities Exchange Act of 1934, as amended) as of the end of the period covered by this report. Based upon that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report such that the information required to be disclosed in our SEC reports is recorded, processed, summarized and reported within the time periods specified in the SEC rules and forms, and is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

There has been no change in our internal control over financial reporting (as defined in Rule 13a-15(f) and Rule 15d-15(f) under the Securities Exchange Act of 1934, as amended) that occurred during our fiscal quarter ended December 31, 2016 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting. We continue to review our internal control over financial reporting, and may from time to time make changes aimed at enhancing its effectiveness and to ensure that our systems evolve with our business.

Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles in the United States ("GAAP").

Our internal control over financial reporting includes those policies and procedures that:

(i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect our transactions and dispositions of our assets;

(ii) provide reasonable assurance that our transactions are recorded as necessary to permit preparation of our financial statements in accordance with GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and our directors; and

(iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on our financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with policies or procedures may deteriorate.

Our management conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission. Based on this evaluation, our management has concluded that our internal control over financial reporting was effective as of December 31, 2016.

The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report which appears in Item 15(a) of this Annual Report on Form 10-K.

Item 9B. OTHER INFORMATION

None.

PART III

Item 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this Item with respect to the identity and business experience of our directors and corporate governance will be set forth in our Proxy Statement for the 2017 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2016, under the caption “Election of Directors,” which information is hereby incorporated herein by reference.

The information required by this Item with respect to the identity and business experience of our executive officers is set forth on pages 15-16 of this report under the caption “Executive Officers of the Registrant.”

The information required by this Item with respect to our code of ethics is contained in Part I of this Form 10-K under the caption “Item 1. — Business — Website Access.”

Item 11. EXECUTIVE COMPENSATION

The information required by this Item will be set forth in our Proxy Statement for the 2017 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2016, under the caption “Executive Compensation and Other Information,” which information is hereby incorporated herein by reference.

Item 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information required by this Item will be set forth in our Proxy Statement for the 2017 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2016, under the captions “Election of Directors,” “Equity Security Ownership” and “Equity Compensation Plan Information,” which information is hereby incorporated herein by reference.

Item 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

The information required by this Item will be set forth in our Proxy Statement for the 2017 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2016, under the caption “Certain Relationships and Related Party Transactions,” which information is hereby incorporated herein by reference.

Item 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

The information required by this Item will be set forth in our Proxy Statement for the 2017 Annual Meeting of Shareholders, which will be filed no later than 120 days after December 31, 2016, under the caption “Principal Accountant Fees and Services,” which information is hereby incorporated herein by reference.

PART IV

Item 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

(a) The following documents are filed as part of this report:

(1) Consolidated Financial Statements

(2) Financial Statement Schedules

(3) Exhibits

2.1*	Form of Separation Agreement between EchoStar Corporation and DISH Network Corporation (incorporated by reference to Exhibit 2.1 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).
2.2*	Agreement and Plan of Merger between EchoStar Corporation, EchoStar Satellite Services L.L.C., Broadband Acquisition Corporation and Hughes Communications, Inc. dated as of February 13, 2011 (incorporated by reference to Exhibit 2.1 to the Current Report on Form 8-K of Hughes Communications, Inc., filed February 15, 2011, Commission File No. 1-33040). ****
3.1*	Articles of Incorporation of EchoStar Corporation (incorporated by reference to Exhibit 3.1 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807), as amended by the Amendment to the Articles of Incorporation of EchoStar Corporation (incorporated by reference to Exhibit 3.1 to EchoStar Corporation's Current Report on Form 8-K filed January 25, 2008, Commission File No. 001-33807).
3.2*	Certificate of Amendment to Articles of Incorporation of EchoStar Corporation, dated as of May 4, 2016 (incorporated by reference to Exhibit 3.1 to the Current Report on Form 8-K of EchoStar Corporation, filed May 5, 2016, Commission File No. 001-33807).
3.3*	Bylaws of EchoStar Corporation (incorporated by reference to Exhibit 3.2 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).
3.4*	EchoStar Corporation Certificate of Designation Establishing the Voting Powers, Designations, Preferences, Limitations, Restrictions, and Relative Rights of the Hughes Retail Preferred Tracking Stock (incorporated by reference to Exhibit 3.1 to EchoStar Corporation's Current Report on Form 8-K filed March 3, 2014, Commission File No. 001-33807)

4.1*	Specimen Class A Common Stock Certificate of EchoStar Corporation (incorporated by reference to Exhibit 3.2 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).
4.2*	Indenture relating to the EH Holding Corporation (currently known as Hughes Satellite Systems Corporation) 6 1/2% Senior Secured Notes due 2019, dated as of June 1, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Current Report on Form 8-K filed June 2, 2011, Commission File No. 001-33807).
4.3*	Indenture relating to the EH Holding Corporation (currently known as Hughes Satellite Systems Corporation) 7 5/8% Senior Unsecured Notes due 2021, dated as of June 1, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Current Report on Form 8-K filed June 2, 2011, Commission File No. 001-33807).
4.4*	Supplemental Indenture relating to the 6 1/2% Senior Secured Notes due 2019 of EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), dated as of June 8, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Current Report on Form 8-K filed June 9, 2011, Commission File No. 001-33807).
4.5*	Supplemental Indenture relating to the 7 5/8% Senior Unsecured Notes due 2021 of EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), dated as of June 8, 2011, by and among EH Holding Corporation, the guarantors listed on the signature page thereto, and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Current Report on Form 8-K filed June 9, 2011, Commission File No. 001-33807).
4.6*	Registration Rights Agreement, dated as of June 1, 2011, among EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), the guarantors listed on the signature page thereto and Deutsche Bank Securities Inc. (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Current Report on Form 8-K filed June 2, 2011, Commission File No. 001-33807).
4.7*	Security Agreement, dated as of June 8, 2011, among EH Holding Corporation (currently known as Hughes Satellite Systems Corporation), the guarantors listed on the signature pages thereto, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Current Report on Form 8-K filed June 9, 2011, Commission File No. 001-33807).
4.8*	Second Supplemental Indenture, dated as of March 28, 2014, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantors listed on the signature pages thereto, and Wells Fargo Bank, National Association, as collateral agent and trustee (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).
4.9*	Second Supplemental Indenture, dated as of March 28, 2014, by and among Hughes Satellite Systems Corporation, the guarantors and the supplemental guarantors listed on the signature pages thereto, and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).
4.10*	Joinder Agreement, dated as of March 28, 2014, to the Security Agreement dated as of June 8, 2011, by and among EchoStar XI Holding L.L.C., EchoStar XIV Holding L.L.C., and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).
4.11*	Form of Note for 6 1/2% Senior Secured Notes due 2019 (included as part of Exhibit 4.2).
4.12*	Form of Note for 7 5/8% Senior Unsecured Notes due 2021 (included as part of Exhibit 4.3).
4.13*	Indenture, relating to the 5.250% Senior Secured Notes, dated as of July 27, 2016, among Hughes Satellite Systems Corporation, the guarantors party thereto, U.S. Bank National Association, as trustee, and Wells Fargo Bank, National Association, as collateral agent (incorporated by reference to Exhibit 4.1 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).

4.14*	Indenture, relating to the 6.625% Senior Unsecured Notes, dated as of July 27, 2016, among Hughes Satellite Systems Corporation, the guarantors party thereto and U.S. Bank National Association, as trustee (incorporated by reference to Exhibit 4.2 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).
4.15*	Registration Rights Agreement, dated as of July 27, 2016, among Hughes Satellite Systems Corporation, the guarantors party thereto and Deutsche Bank Securities Inc. (incorporated by reference to Exhibit 4.3 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).
4.16*	Additional Secured Party Joinder, dated as of July 27, 2016, among U.S. Bank National Association, as trustee, Wells Fargo Bank, National Association, as collateral agent and Hughes Satellite Systems Corporation (incorporated by reference to Exhibit 4.4 to EchoStar Corporation's Current Report on Form 8-K filed on July 27, 2016, Commission File No. 001-33807).
4.17*	Form of 5.250% Senior Secured Note due 2026 (included as part of Exhibit 4.13)
4.18*	Form of 5.250% Senior Secured Note due 2026 (included as part of Exhibit 4.13)
10.1*	Form of Tax Sharing Agreement between EchoStar Corporation and DISH Network Corporation (incorporated by reference to Exhibit 10.2 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).
10.2*	Form of Employee Matters Agreement between EchoStar Corporation and DISH Network Corporation (incorporated by reference to Exhibit 10.3 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).**
10.3*	Form of Intellectual Property Matters Agreement between EchoStar Corporation, EchoStar Acquisition L.L.C., Echosphere L.L.C., DISH DBS Corporation, EIC Spain SL, EchoStar Technologies L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.4 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).
10.4*	Agreement to Form NagraStar L.L.C., dated as of June 23, 1998, by and between Kudelski S.A., DISH Network Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.28 to the Annual Report on Form 10-K of DISH Network Corporation for the year ended December 31, 1998, filed March 17, 1999, Commission File No. 000-26176).
10.5*	Satellite Service Agreement, dated as of March 21, 2003, between SES Americom, Inc., DISH Network L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of DISH Network Corporation for the quarter ended March 31, 2003, filed May 6, 2003, Commission File No. 000-26176).***
10.6*	Amendment No. 1 to Satellite Service Agreement dated July 10, 2003 between SES Americom Inc., DISH Network L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of DISH Network Corporation for the quarter ended September 30, 2003, filed November 10, 2003, Commission File No. 000-26176).***
10.7*	Amendment No. 3 to Satellite Service Agreement, dated February 19, 2004, between SES Americom, Inc., DISH Network L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.3 to the Quarterly Report on Form 10-Q of DISH Network Corporation for the quarter ended March 31, 2004, filed May 6, 2004, Commission File No. 000-26176). ***
10.8*	Amendment No. 4 to Satellite Service Agreement, dated October 21, 2004, between SES Americom, Inc., DISH Network L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.23 to the Annual Report on Form 10-K of DISH Network Corporation for the year ended December 31, 2004, filed March 16, 2005, Commission File No. 000-26176).***
10.9*	Amendment No. 5 to Satellite Service Agreement, dated November 19, 2004, between SES Americom, Inc., DISH Network L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.25 to the Annual Report on Form 10-K of DISH Network Corporation for the year ended December 31, 2004, filed March 16, 2005, Commission File No. 000-26176). ***

10.10*	Amendment No. 6 to Satellite Service Agreement, dated December 20, 2004, between SES Americom, Inc., DISH Network L.L.C. and DISH Network Corporation (incorporated by reference to Exhibit 10.26 to the Annual Report on Form 10-K of DISH Network Corporation for the year ended December 31, 2004, filed March 16, 2005, Commission File No. 000-26176).***
10.11*	Form of EchoStar Corporation 2008 Class B CEO Stock Option Plan (incorporated by reference to Exhibit 10.25 to Amendment No. 1 of EchoStar Corporation's Form 10 filed December 12, 2007, Commission File No. 001-33807).**
10.12*	Form of Satellite Capacity Agreement between EchoStar Corporation and DISH Network L.L.C. (incorporated by reference from Exhibit 10.28 to Amendment No. 2 to EchoStar Corporation's Form 10 filed December 26, 2007, Commission File No. 001-33807).
10.13*	QuetzSat-1 Satellite Service Agreement, dated November 24, 2008, between SES Latin America S.A. and EchoStar 77 Corporation, a subsidiary of EchoStar Corporation (incorporated by reference to Exhibit 10.24 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807). ***
10.14*	QuetzSat-1 Satellite Service Agreement, dated November 24, 2008, between EchoStar 77 Corporation, a subsidiary of EchoStar Corporation, and DISH Network L.L.C. (incorporated by reference to Exhibit 10.25 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807). ***
10.15*	Amended and Restated EchoStar Corporation 2008 Employee Stock Purchase Plan (incorporated by reference to EchoStar Corporation's Definitive Proxy Statement on Form 14, filed March 31, 2009, Commission File No. 001-33807).**
10.16*	Amended and Restated EchoStar Corporation 2008 Stock Incentive Plan (the "2008 Stock Incentive Plan") (incorporated by reference to EchoStar Corporation's Definitive Proxy Statement on Form 14, filed September 18, 2014, Commission File No. 001-33807).**
10.17*	Amended and Restated EchoStar Corporation 2008 Non-Employee Director Stock Option Plan (the "2008 Non-Employee Director Stock Option Plan") (incorporated by reference to EchoStar Corporation's Definitive Proxy Statement on Form 14, filed March 31, 2009, Commission File No. 001-33807).**
10.18*	NIMIQ 5 Whole RF Channel Service Agreement, dated September 15, 2009, between Telesat Canada and EchoStar Corporation (incorporated by reference to Exhibit 10.30 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).***
10.19*	NIMIQ 5 Whole RF Channel Service Agreement, dated September 15, 2009, between EchoStar Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.31 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).***
10.20*	Allocation Agreement, dated August 4, 2009, between EchoStar Corporation and DISH Network Corporation (incorporated by reference from Exhibit 10.4 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2009, filed November 9, 2004, Commission File No. 001-33807).
10.21*	Form A Amendment to form of Satellite Capacity Agreement between EchoStar Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.34 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).
10.22*	Form B Amendment to Form of Satellite Capacity Agreement between EchoStar Satellite Services L.L.C. and DISH Network L.L.C. (incorporated by reference to Exhibit 10.35 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).
10.23*	EchoStar XVI Satellite Transponder Service Agreement between EchoStar Satellite Operating Corporation and DISH Network L.L.C., effective December 21, 2009 (incorporated by reference to Exhibit 10.36 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2009, filed March 1, 2010, Commission File No. 001-33807).***

10.24*	Contract between Hughes Network Systems, LLC and Space Systems/Loral, Inc. for the Hughes Jupiter Satellite Program dated June 8, 2009 (incorporated by reference to Exhibit 10.1 to the Quarterly Report on Form 10-Q of Hughes Communications, Inc., filed August 7, 2009, Commission File No. 001-33040). ***
10.25*	Employment Agreement, dated as of April 23, 2005 between Hughes Network Systems, LLC and Pradman Kaul (incorporated by reference to Exhibit 10.3 to the Registration Statement on Form S-1 of Hughes Communications, Inc., filed December 5, 2005, Commission File No. 333-130136).**
10.26*	Amendment to Employment Agreement, dated as of April 1, 2016, between 2010 between Hughes Communications, Inc. and Pradman Kaul (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of EchoStar Corporation, filed April 6, 2016, Commission File No. 001-33807).**
10.27*	Amendment to Employment Agreement, dated as of December 23, 2010 between Hughes Communications, Inc. and Pradman Kaul (incorporated by reference to Exhibit 10.29 to the Annual Report on Form 10-K of Hughes Communications, Inc., filed March 7, 2011, Commission File No. 001-33040).**
10.28*	Cost Allocation Agreement, dated April 29, 2011, between EchoStar Corporation and DISH Network Corporation (incorporated by reference to Exhibit 10.2 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended June 30, 2011, filed August 9, 2011, Commission File No. 001-33807).
10.29*	Settlement and Patent License between TiVo Inc. and DISH Network Corporation and EchoStar Corporation, dated as of April 29, 2011 (incorporated by reference to Exhibit 10.9 to EchoStar Corporation's Quarterly Report on Form 10-Q/A for the quarter ended June 30, 2011, filed February 21, 2012, Commission File No. 001-33807).***
10.30*	Receiver Agreement dated January 1, 2012 between Echosphere L.L.C and EchoStar Technologies L.L.C. ("2012 Receiver Agreement") (incorporated by reference to Exhibit 10.1 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, filed May 7, 2012, Commission File No. 001-33807).***
10.31*	Second Amendment to 2012 Receiver Agreement, (incorporated by reference to Exhibit 10.31 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).
10.32(H)	Third Amendment to 2012 Receiver Agreement, dated November 4, 2016.
10.33*	Broadcast Agreement dated January 1, 2012 between EchoStar Broadcasting Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.2 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2012, filed May 7, 2012, Commission File No. 001-33807). ***
10.34(H)	First Amendment to Broadcast Agreement, dated November 4, 2016.
10.35*	First Amendment to EchoStar XVI Satellite Transponder Service Agreement, dated as of December 21, 2012 between EchoStar Satellite Operating Corporation and DISH Network L.L.C. (incorporated by reference to Exhibit 10.47 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2012, filed February 20, 2013, Commission File No. 001-33807).***
10.36*	Transaction Agreement, dated as of February 20, 2014, by and among EchoStar Corporation, Hughes Satellite Systems Corporation, Alpha Company LLC, DISH Network, L.L.C., DISH Operating L.L.C. and EchoStar XI Holding L.L.C. (incorporated by reference to Exhibit 10.1 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).***
10.37*	Investor Rights Agreement, dated as of February 20, 2014, by and among EchoStar Corporation, Hughes Satellite Systems Corporation, DISH Operating L.L.C. and DISH Network L.L.C. (incorporated by reference to Exhibit 10.2 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).***
10.38*	Form of Satellite Transponder Service Agreement by and between EchoStar Satellite Operating Corporation and DISH Operating L.L.C (incorporated by reference to Exhibit 10.3 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended March 31, 2014, filed May 9, 2014, Commission File No. 001-33807).

10.39*	Form of Restricted Stock Unit Agreement for 2008 Stock Incentive Plan — Executive or Director (incorporated by reference to Exhibit 10.1 to EchoStar Corporation's Quarterly Report on Form 10-Q for the quarter ended September 30, 2015, filed November 6, 2015, Commission File No. 001-33807).**
10.40*	Form of Stock Option Agreement for 2008 Stock Incentive Plan (1999) (incorporated by reference to Exhibit 10.39 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
10.41*	Form of Stock Option Agreement for 2008 Stock Incentive Plan — Employee (2008) (incorporated by reference to Exhibit 10.40 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
10.42*	Form of Stock Option Agreement for 2008 Stock Incentive Plan — Executive (2008) (incorporated by reference to Exhibit 10.41 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2105, filed February 24, 2016, Commission File No. 001-33807).**
10.43*	Form of Stock Option Agreement for 2008 Stock Incentive Plan — Employee (2014) (incorporated by reference to Exhibit 10.42 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
10.44*	Form of Stock Option Agreement for 2008 Stock Incentive Plan — Executive (2014) (incorporated by reference to Exhibit 10.43 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
10.45*	Form of Non-Employee Director Stock Option Agreement for 2008 Non-Employee Director Stock Option Plan (incorporated by reference to Exhibit 10.44 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807). **
10.46*	Form of Restricted Stock Unit Agreement for 2008 Stock Incentive Plan — Executive or Director (2011) (incorporated by reference to Exhibit 10.45 to EchoStar Corporation's Annual Report on Form 10-K for the year ended December 31, 2015, filed February 24, 2016, Commission File No. 001-33807).**
10.47*	Echostar Corporation Executive Officer Bonus Incentive Plan, dated as of May 4, 2016 (incorporated by reference to Exhibit 10.1 to the Current Report on Form 8-K of EchoStar Corporation, filed May 5, 2016, Commission File No. 001-33807).**
21(H)	Subsidiaries of EchoStar Corporation.
23(H)	Consent of KPMG LLP, Independent Registered Public Accounting Firm.
24(H)	Powers of Attorney of Charles W. Ergen, R. Stanton Dodge, Anthony M. Federico, Pradman P. Kaul, Tom A. Ortolf and C. Michael Schroeder.
31.1(H)	Section 302 Certification of Chief Executive Officer.
31.2(H)	Section 302 Certification of Chief Financial Officer.
32.1(I)	Section 906 Certifications of Chief Executive Officer and Chief Financial Officer.
99.1(H)	Unaudited Condensed Attributed Financial Information and Notes for Hughes Retail Group
101.SCH	XBRL Taxonomy Extension Schema.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase.
101.DEF	XBRL Taxonomy Extension Definition Linkbase.
101.LAB	XBRL Taxonomy Extension Label Linkbase.

101.PRE	XBRL Taxonomy Extension Presentation Linkbase.

(H) Filed herewith.
(I) Furnished herewith
* Incorporated by reference.
** Constitutes a management contract or compensatory plan or arrangement.
*** Certain portions of the exhibit have been omitted and separately filed with the Securities and Exchange Commission with a request for confidential treatment.
**** Schedules and exhibits have been omitted pursuant to Item 601(b)(2) of Regulation S-K. We agree to furnish supplementally to the Securities and Exchange Commission a copy of any omitted schedule or exhibit upon request, subject to our right to request confidential treatment of any requested schedule or exhibit.

Item 16. FORM 10-K SUMMARY

None.

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SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

ECHOSTAR CORPORATION

By: */s/ David J. Rayner*
David J. Rayner
Executive Vice President,
Chief Financial Officer,
Chief Operating Officer, and
Treasurer

Date: February 24, 2017

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Michael T. Dugan Michael T. Dugan	Chief Executive Officer, President and Director *(Principal Executive Officer)*	February 24, 2017
/s/ David J. Rayner David J. Rayner	Executive Vice President, Chief Financial Officer, Chief Operating Officer and Treasurer *(Principal Financial and Accounting Officer)*	February 24, 2017
* Charles W. Ergen	Chairman	February 24, 2017
* R. Stanton Dodge	Director	February 24, 2017
* Anthony M. Federico	Director	February 24, 2017
* Pradman P. Kaul	Director	February 24, 2017
* Tom A. Ortolf	Director	February 24, 2017
* C. Michael Schroeder	Director	February 24, 2017
* William David Wade	Director	February 24, 2017

* By: */s/ Dean A. Manson*
Dean A. Manson
Attorney-in-Fact

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

Consolidated Financial Statements:

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
EchoStar Corporation:

We have audited the accompanying consolidated balance sheets of EchoStar Corporation and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations and comprehensive income (loss), changes in stockholders' equity, and cash flows for each of the years in the three-year period ended December 31, 2016, and the financial statement schedules I and II listed in Item 15. We also have audited EchoStar Corporation's internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). EchoStar Corporation's management is responsible for these consolidated financial statements and financial statement schedules, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedules and an opinion on EchoStar Corporation's internal control over financial reporting based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audits of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of EchoStar Corporation and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles. Also in our opinion, the related financial statement schedules, when considered in relation to the basic consolidated financial statements taken as a whole, present fairly, in all material respects, the information set forth therein. Also in our opinion, EchoStar Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016 based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the COSO .

/s/ KPMG LLP

Denver, Colorado
February 24, 2017

ECHOSTAR CORPORATION
CONSOLIDATED BALANCE SHEETS
(In thousands, except share amounts)

	As of December 31,	
	2016	2015
Assets		
Current Assets:		
Cash and cash equivalents	$ 2,571,143	$ 924,240
Marketable investment securities, at fair value	522,516	612,338
Trade accounts receivable, net of allowance for doubtful accounts of $13,400 and $12,485, respectively	209,788	179,240
Trade accounts receivable - DISH Network, net of allowance for doubtful accounts of zero	278,615	277,159
Inventory	72,444	67,010
Prepaids and deposits	57,919	56,949
Other current assets	10,862	16,723
Total current assets	3,723,287	2,133,659
Noncurrent Assets:		
Restricted cash and marketable investment securities	12,926	21,002
Property and equipment, net of accumulated depreciation of $3,407,470 and $2,998,074, respectively	3,669,303	3,412,990
Regulatory authorizations, net	544,633	543,812
Goodwill	510,630	510,630
Other intangible assets, net	88,454	132,653
Investments in unconsolidated entities	197,219	209,264
Other receivable - DISH Network	90,586	90,966
Other noncurrent assets, net	171,821	154,510
Total noncurrent assets	5,285,572	5,075,827
Total assets	$ 9,008,859	$ 7,209,486
Liabilities and Stockholders' Equity		
Current Liabilities:		
Trade accounts payable	$ 189,815	$ 213,671
Trade accounts payable - DISH Network	5,032	24,682
Current portion of long-term debt and capital lease obligations	37,307	35,698
Deferred revenue and prepayments	62,956	61,881
Accrued compensation	58,106	42,767
Accrued interest	46,504	8,596
Accrued royalties	23,199	22,531
Accrued expenses and other	108,519	117,005
Total current liabilities	531,438	526,831
Noncurrent Liabilities:		
Long-term debt and capital lease obligations, net of unamortized debt issuance costs	3,622,879	2,156,667
Deferred tax liabilities, net	754,020	650,392
Other noncurrent liabilities	93,717	93,954
Total noncurrent liabilities	4,470,616	2,901,013
Total liabilities	5,002,054	3,427,844
Commitments and Contingencies (Note 16)		
Stockholders' Equity:		
Preferred Stock, $.001 par value, 20,000,000 shares authorized:		
Hughes Retail Preferred Tracking Stock, $.001 par value, 13,000,000 shares authorized, 6,290,499 issued and outstanding at each of December 31, 2016 and 2015	6	6
Common stock, $.001 par value, 4,000,000,000 shares authorized:		
Class A common stock, $.001 par value, 1,600,000,000 shares authorized, 52,243,465 shares issued and 46,711,147 shares outstanding at December 31, 2016 and 51,087,839 shares issued and 45,555,521 shares outstanding at December 31, 2015	52	51
Class B common stock, $.001 par value, 800,000,000 shares authorized, 47,687,039 shares issued and outstanding at each of December 31, 2016 and 2015	48	48
Class C common stock, $.001 par value, 800,000,000 shares authorized, none issued and outstanding at each of December 31, 2016 and 2015	—	—
Class D common stock, $.001 par value, 800,000,000 shares authorized, none issued and outstanding at each of December 31, 2016 and 2015	—	—
Additional paid-in capital	3,828,677	3,776,451
Accumulated other comprehensive loss	(124,803)	(117,233)
Accumulated earnings	314,247	134,317
Treasury stock, at cost	(98,162)	(98,162)
Total EchoStar stockholders' equity	3,920,065	3,695,478
Noncontrolling interest in HSS Tracking Stock	73,910	74,854
Other noncontrolling interests	12,830	11,310
Total stockholders' equity	4,006,805	3,781,642

Total liabilities and stockholders’ equity	$ 9,008,859	$ 7,209,486

The accompanying notes are an integral part of these consolidated financial statements.

ECHOSTAR CORPORATION
CONSOLIDATED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(In thousands, except per share amounts)

	For the Years Ended December 31,		
	2016	2015	2014
Revenue:			
Services and other revenue - DISH Network	$ 888,603	$ 918,301	$ 828,612
Services and other revenue - other	1,109,597	1,103,928	1,096,938
Equipment revenue - DISH Network	711,289	763,184	1,145,979
Equipment revenue - other	347,241	358,301	374,049
Total revenue	3,056,730	3,143,714	3,445,578
Costs and Expenses:			
Cost of sales - services and other (exclusive of depreciation and amortization)	844,498	856,065	838,918
Cost of sales - equipment (exclusive of depreciation and amortization)	891,108	948,655	1,288,998
Selling, general and administrative expenses	385,634	374,116	372,010
Research and development expenses	76,024	78,287	60,886
Depreciation and amortization	495,068	528,158	556,676
Impairment of long-lived assets	—	2,400	—
Total costs and expenses	2,692,332	2,787,681	3,117,488
Operating income	364,398	356,033	328,090
Other Income (Expense):			
Interest income	21,249	10,429	9,102
Interest expense, net of amounts capitalized	(123,630)	(122,066)	(171,349)
Loss from partial redemption of debt	—	(5,044)	—
Gains (losses) on marketable investment securities, net	9,767	(6,443)	41
Other-than-temporary impairment loss on available-for-sale securities	—	(11,226)	—
Equity in earnings of unconsolidated affiliates, net	13,310	1,895	8,198
Other, net	1,750	(2,006)	4,251
Total other expense, net	(77,554)	(134,461)	(149,757)
Income before income taxes	286,844	221,572	178,333
Income tax provision, net	(106,152)	(72,201)	(30,784)
Net income	180,692	149,371	147,549
Less: Net loss attributable to noncontrolling interest in HSS Tracking Stock	(944)	(5,603)	(6,714)
Less: Net income attributable to other noncontrolling interests	1,706	1,617	1,389
Net income attributable to EchoStar	179,930	153,357	152,874
Less: Net loss attributable to Hughes Retail Preferred Tracking Stock (Note 4)	(1,743)	(10,343)	(12,394)
Net income attributable to EchoStar common stock	$ 181,673	$ 163,700	$ 165,268
Weighted-average common shares outstanding - Class A and B common stock:			
Basic	93,795	92,397	91,190
Diluted	94,410	93,466	92,616
Earnings per share - Class A and B common stock:			
Basic	$ 1.94	$ 1.77	$ 1.81
Diluted	$ 1.92	$ 1.75	$ 1.78
Comprehensive Income (Loss)			
Net income	$ 180,692	$ 149,371	$ 147,549
Other comprehensive income (loss), net of tax:			
Foreign currency translation adjustments	(11,315)	(62,731)	(31,935)
Recognition of foreign currency translation loss in net income	—	1,889	—
Unrealized gains (losses) on available-for-sale securities and other	9,149	(12,046)	(9,462)
Recognition of other-than-temporary loss on available-for-sale securities in net income	—	11,226	—
Recognition of realized gains on available-for-sale securities in net income	(5,590)	(35)	(41)
Total other comprehensive loss, net of tax	(7,756)	(61,697)	(41,438)
Comprehensive income	172,936	87,674	106,111
Less: Comprehensive loss attributable to noncontrolling interest in HSS Tracking Stock	(944)	(5,603)	(6,714)
Less: Comprehensive income attributable to other noncontrolling interests	1,520	1,297	1,152
Comprehensive income attributable to EchoStar	$ 172,360	$ 91,980	$ 111,673

The accompanying notes are an integral part of these consolidated financial statements.

ECHOSTAR CORPORATION
CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(In thousands)

	Class A and B Common Stock	Hughes Retail Preferred Tracking Stock	Additional Paid-In Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Earnings (Deficit)	Treasury Stock	Noncontrolling Interest in HSS Tracking Stock	Other Noncontrolling Interests	Total
Balance, January 1, 2014	$ 96	$ —	$ 3,502,005	$ (14,655)	$ (171,914)	$ (98,162)	$ —	$ 8,861	$ 3,226,231
Issuances of Class A common stock:									
Exercise of stock options	2	—	16,708	—	—	—	—	—	16,710
Employee benefits	—	—	10,316	—	—	—	—	—	10,316
Employee Stock Purchase Plan	—	—	12,147	—	—	—	—	—	12,147
Stock-based compensation	—	—	14,683	—	—	—	—	—	14,683
Issuance of Hughes Retail Preferred Tracking Stock (Note 4)	—	6	163,510	—	—	—	87,171	—	250,687
Sling TV Holding exchange (Note 6)	—	—	8,843	—	—	—	—	—	8,843
EchoStar XXI option payment, net (Note 19)	—	—	(9,569)	—	—	—	—	—	(9,569)
Excess tax benefit from stock option exercises	—	—	(7,252)	—	—	—	—	—	(7,252)
R&D tax credits utilized by DISH Network	—	—	(5,269)	—	—	—	—	—	(5,269)
Net income (loss)	—	—	—	—	152,874	—	(6,714)	1,389	147,549
Unrealized losses on available-for sale securities, net and other	—	—	—	(9,503)	—	—	—	—	(9,503)
Foreign currency translation adjustment	—	—	—	(31,698)	—	—	—	(237)	(31,935)
Balance, December 31, 2014	98	6	3,706,122	(55,856)	(19,040)	(98,162)	80,457	10,013	3,623,638
Issuances of Class A common stock:									
Exercise of stock options	1	—	24,840	—	—	—	—	—	24,841
Employee benefits	—	—	10,711	—	—	—	—	—	10,711
Employee Stock Purchase Plan	—	—	13,888	—	—	—	—	—	13,888
Stock-based compensation	—	—	21,839	—	—	—	—	—	21,839
Excess tax benefit from stock option exercises	—	—	3,929	—	—	—	—	—	3,929
R&D tax credits utilized by DISH Network	—	—	(3,048)	—	—	—	—	—	(3,048)
Other, net	—	—	(1,830)	—	—	—	—	—	(1,830)
Net income (loss)	—	—	—	—	153,357	—	(5,603)	1,617	149,371
Unrealized losses on available-for-sale securities, net and other	—	—	—	(855)	—	—	—	—	(855)
Foreign currency translation adjustment	—	—	—	(60,522)	—	—	—	(320)	(60,842)
Balance, December 31, 2015	99	6	3,776,451	(117,233)	134,317	(98,162)	74,854	11,310	3,781,642
Issuances of Class A common stock:									
Exercise of stock options	1	—	13,065	—	—	—	—	—	13,066
Employee benefits	—	—	11,126	—	—	—	—	—	11,126
Employee Stock Purchase Plan	—	—	14,367	—	—	—	—	—	14,367
Stock-based compensation	—	—	15,234	—	—	—	—	—	15,234
Excess tax benefit from stock option exercises	—	—	848	—	—	—	—	—	848
R&D tax credits utilized by DISH Network	—	—	(1,600)	—	—	—	—	—	(1,600)
Other, net	—	—	(814)	—	—	—	—	—	(814)
Net income (loss)	—	—	—	—	179,930	—	(944)	1,706	180,692
Foreign currency translation adjustment				(11,129)	—	—	—	(186)	(11,315)
Unrealized losses on available-for-sale securities, net and other	—	—	—	3,559	—	—	—	—	3,559
Balance, December 31, 2016	$ 100	$ 6	$ 3,828,677	$ (124,803)	$ 314,247	$ (98,162)	$ 73,910	$ 12,830	$ 4,006,805

The accompanying notes are an integral part of these consolidated financial statements.

ECHOSTAR CORPORATION
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	For the Years Ended December 31,		
	2016	2015	2014
Cash Flows from Operating Activities:			
Net income	$ 180,692	$ 149,371	$ 147,549
Adjustments to reconcile net income to net cash flows from operating activities:			
Depreciation and amortization	495,068	528,158	556,676
Impairment of long-lived assets	—	2,400	—
Loss from partial redemption of debt	—	5,044	—
Losses (gains) and impairment on marketable investment securities, net	(9,767)	17,669	(41)
Equity in earnings of unconsolidated affiliates, net	(13,310)	(1,895)	(8,198)
Stock-based compensation	15,234	21,839	14,683
Deferred tax provision	98,148	56,132	31,742
Dividends received from unconsolidated entities	15,000	5,000	7,400
Proceeds from sale of trading securities	7,140	380	17,053
Changes in current assets and current liabilities, net:			
Trade accounts receivable, net	(26,942)	(38,452)	(17,073)
Trade accounts receivable - DISH Network	(1,456)	(25,490)	104,051
Inventory	(4,814)	(4,906)	2,608
Other current assets	2,263	6,499	9,930
Trade accounts payable	(24,571)	37,228	(22,230)
Trade accounts payable - DISH Network	(19,650)	(7,792)	(26,508)
Accrued expenses and other	55,998	1,477	26,469
Changes in noncurrent assets and noncurrent liabilities, net	9,459	1,616	(8,305)
Other, net	24,851	22,173	4,325
Net cash flows from operating activities	803,343	776,451	840,131
Cash Flows from Investing Activities:			
Purchases of marketable investment securities	(921,247)	(536,430)	(1,523,514)
Sales and maturities of marketable investment securities	1,001,166	1,057,034	1,353,157
Expenditures for property and equipment	(722,341)	(809,270)	(680,026)
Refunds and other receipts related to capital expenditures	24,087	105,750	—
Changes in restricted cash and marketable investment securities	8,076	(2,057)	(2,808)
Investments in unconsolidated entities	(1,636)	(64,655)	(18,569)
Acquisition of regulatory authorization	—	(3,428)	—
Expenditures for externally marketed software	(23,252)	(22,327)	(22,955)
Other, net	2,880	72	7,125
Net cash flows from investing activities	(632,267)	(275,311)	(887,590)
Cash Flows from Financing Activities:			
Proceeds from issuance of long-term debt	1,500,000	—	—
Payments of debt issuance costs	(7,097)	—	—
Repayment of 6 1/2% Senior Secured Notes Due 2019 and related premium	—	(113,300)	—
Repayment of debt and capital lease obligations	(40,364)	(44,804)	(63,122)
Net proceeds from Class A common stock options exercised and stock issued under the Employee Stock Purchase Plan	27,432	38,729	28,857
Net proceeds from issuance of Tracking Stock (Note 4)	—	—	7,526
Excess tax benefit from stock option exercises	848	3,929	(7,252)
Other, net	(5,130)	(4,811)	(1,105)
Net cash flows from financing activities	1,475,689	(120,257)	(35,096)
Effect of exchange rates on cash and cash equivalents	138	(5,696)	(2,511)
Net increase (decrease) in cash and cash equivalents	1,646,903	375,187	(85,066)
Cash and cash equivalents, beginning of period	924,240	549,053	634,119
Cash and cash equivalents, end of period	$ 2,571,143	$ 924,240	$ 549,053
Supplemental Disclosure of Cash Flow Information:			
Cash paid for interest (including capitalized interest)	$ 172,707	$ 179,114	$ 188,087
Capitalized interest	$ 94,395	$ 63,808	$ 23,774
Cash paid for income taxes	$ 11,700	$ 6,394	$ 14,221
Employee benefits paid in Class A common stock	$ 11,126	$ 10,711	$ 10,316
Property and equipment financed under capital lease obligations	$ 7,652	$ 8,604	$ 3,312
Increase (decrease) in capital expenditures included in accounts payable, net	$ 3,054	$ (7,123)	$ 11,436
Noncash assets contributed to SmarDTV (Note 6)	$ —	$ 6,651	$ —

Net noncash assets transferred from DISH Network in exchange for Tracking Stock (Note 4)	$ —	$ —	$ 386,691
Noncash assets received from Sling TV Holding (Note 6)	$ —	$ —	$ 34,075
Reduction of capital lease obligation for AMC-15 and AMC-16 satellites	$ —	$ 4,500	$ —

The accompanying notes are an integral part of these consolidated financial statements.

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

Note 1. Organization and Business Activities

Principal Business

EchoStar Corporation (which, together with its subsidiaries, is referred to as “EchoStar,” the “Company,” “we,” “us” and/or “our”) is a holding company that was organized in October 2007 as a corporation under the laws of the State of Nevada. We are a global provider of satellite service operations, video delivery solutions, digital set-top boxes, broadband satellite technologies and broadband services for home and small office customers. We deliver innovative network technologies, managed services, and various communications solutions for enterprise and government customers. Our Class A common stock is publicly traded on the Nasdaq Global Select Market (“Nasdaq”) under the symbol “SATS.”

On January 31, 2017, we and certain subsidiaries of EchoStar entered into a Share Exchange Agreement (the “Share Exchange Agreement”) with DISH Network Corporation and certain of its subsidiaries. The Share Exchange Agreement provides, among other things, that EchoStar and its subsidiaries will receive all of the shares of the EchoStar Tracking Stock and HSS Tracking Stock in exchange for 100% of the equity interests of certain EchoStar subsidiaries that will hold our EchoStar Technologies businesses (collectively, the “Share Exchange”). Following consummation of the Share Exchange, EchoStar will no longer operate the EchoStar Technologies business segment and the EchoStar Tracking Stock and HSS Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and terms of, such tracking stock will terminate and be of no further effect. The Share Exchange is expected to be consummated three business days after the satisfaction or waiver of all of the closing conditions to the transaction (other than conditions that by their nature are to be satisfied at the closing, but subject to the satisfaction of those conditions at such time), but no earlier than February 28, 2017. The closing conditions to the transaction involving third parties or governmental approvals have been satisfied (other than those that by their nature are to be satisfied at the closing). While we currently expect the Share Exchange to be consummated on or about February 28, 2017, no assurance can be given that the Share Exchange will be consummated on the terms or within the time frame disclosed, or at all. See Note 20 for further discussion of the Share Exchange transaction and Note 4 for more information regarding the tracking stock.

We currently operate in the following three business segments:

- ***Hughes*** — which provides broadband satellite technologies and broadband services to home and small office customers and network technologies, managed services and communication solutions to domestic and international consumers and enterprise and government customers. The Hughes segment also provides managed services, hardware, and satellite services to large enterprises and government customers, and designs, provides and installs gateway and terminal equipment to customers for other satellite systems. In addition, our Hughes segment provides satellite ground segment systems and terminals to mobile system operators.
- ***EchoStar Technologies*** — which designs, develops and distributes secure end-to-end video technology solutions including digital set-top boxes and related products and technology, primarily for satellite TV service providers and telecommunication companies. Our EchoStar Technologies segment also provides digital broadcast operations, including satellite uplinking/downlinking, transmission services, signal processing, conditional access management, and other services, primarily to DISH Network Corporation and its subsidiaries (“DISH Network”) and Dish Mexico, S. de R.L. de C.V. (“Dish Mexico”), a joint venture we entered into in 2008. In addition, we provide our TV Anywhere technology through Slingbox® units directly to consumers via retail outlets and online, as well as to the pay-TV operator market. Beginning in 2015, this segment also includes our over-the-top (“OTT”), Streaming Video on Demand (“SVOD”) platform business, which primarily provides support services to DISH Network’s Sling TV™ service (“Sling TV”).
- ***EchoStar Satellite Services (“ESS”)*** — which uses certain of our owned and leased in-orbit satellites and related licenses to provide satellite service operations and video delivery solutions on a full-time and occasional-use basis primarily to DISH Network, Dish Mexico, United States (“U.S.”) government service providers, internet service providers, broadcast news organizations, programmers, and private enterprise customers. We also manage satellite operations for several satellites owned by third parties.

Our operations also include real estate and other activities that have not been assigned to our operating segments, including costs incurred in certain satellite development programs and other business development activities, expenses of various corporate departments, and our centralized treasury operations, including income from our investment portfolio and interest expense on our debt.

In 2008, DISH Network completed its distribution to us of its digital set-top box business, certain infrastructure, and other assets and related liabilities, including certain of its satellites, uplink and satellite transmission assets, and real estate (the "Spin-off"). Since the Spin-off, EchoStar and DISH Network have operated as separate publicly-traded companies. However, as a result of the Satellite and Tracking Stock Transaction, described in Note 4 below, DISH Network owns preferred tracking stock in EchoStar Corporation and one of our subsidiaries representing an aggregate 80.0% economic interest in the residential retail satellite broadband business of our Hughes segment. The tracking stock is an equity security and the rights of DISH Network, as the holder of the tracking stock, in our assets are subject to the claims of our creditors. In addition, a substantial majority of the voting power of the shares of EchoStar and DISH Network is owned beneficially by Charles W. Ergen, our Chairman, and by certain trusts established by Mr. Ergen for the benefit of his family.

Note 2. Summary of Significant Accounting Policies

Principles of Consolidation and Basis of Presentation

We consolidate all entities in which we have a controlling financial interest. We are deemed to have a controlling financial interest in variable interest entities where we are the primary beneficiary. We are deemed to have a controlling financial interest in other entities when we own more than 50 percent of the outstanding voting shares and other shareholders do not have substantive rights to participate in management. For entities we control but do not wholly own, we record a noncontrolling interest within stockholders' equity for the portion of the entity's equity attributed to the noncontrolling ownership interests. As of December 31, 2016 and 2015, noncontrolling interests consist primarily of HSS Tracking Stock owned by DISH Network, as described in Note 4 below. All significant intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles in the United States ("GAAP") requires us to make certain estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the balance sheets, the reported amounts of revenue and expense for each reporting period, and certain information disclosed in the notes to our consolidated financial statements. Estimates are used in accounting for, among other things, amortization periods for deferred subscriber acquisition costs, revenue recognition using the percentage-of-completion method, allowances for doubtful accounts, allowances for sales returns and rebates, warranty obligations, self-insurance obligations, deferred taxes and related valuation allowances, uncertain tax positions, loss contingencies, fair value of financial instruments, fair value of stock-based compensation awards, fair value of assets and liabilities acquired in business combinations, lease classifications, asset impairment testing, useful lives and methods for depreciation and amortization of long-lived assets, and certain royalty obligations. We base our estimates and assumptions on historical experience, observable market inputs and on various other factors that we believe to be relevant under the circumstances. Due to the inherent uncertainty involved in making estimates, actual results may differ from previously estimated amounts, and such differences may be material to our consolidated financial statements. Changing economic conditions may increase the inherent uncertainty in the estimates and assumptions indicated above. We review our estimates and assumptions periodically and the effects of revisions are reflected in the period they occur or prospectively if the revised estimate affects future periods.

Foreign Currency

The functional currency for certain of our foreign operations is determined to be the local currency. Accordingly, we translate assets and liabilities of these foreign entities from their local currencies to U.S. dollars using period-end exchange rates and translate income and expense accounts at monthly average rates. The resulting translation adjustments are recorded in other comprehensive income (loss) as "Foreign currency translation adjustments" in our consolidated statements of operations and comprehensive income (loss). We have not recorded deferred income taxes related to our foreign currency translation adjustments.

Gains and losses resulting from re-measurement of monetary assets and liabilities denominated in foreign currencies into the functional currency are recognized in "Other, net" in our consolidated statements of operations and comprehensive income (loss). We recognized net foreign currency transaction losses of $0.5 million, $7.7 million and $3.0 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Cash and Cash Equivalents

We consider all liquid investments purchased with an original maturity of 90 days or less to be cash equivalents. Cash equivalents as of December 31, 2016 and 2015 primarily consisted of money market funds, government bonds, corporate notes, and commercial paper. The amortized cost of these investments approximates their fair value.

Marketable Investment Securities

We classify our marketable investment securities as available for sale, except in uncommon instances where we have designated certain securities as trading securities. We report all marketable investment securities at fair value in our consolidated balance sheets. We recognize periodic changes in the fair value of trading securities and realized gains and losses on sale of available-for-sale securities in “Gains (losses) on marketable investment securities,” a component of net income, in our consolidated statements of operations and comprehensive income (loss). For available-for-sale securities, we recognize periodic changes in the difference between fair value and amortized cost in other comprehensive income (loss). Realized gains and losses upon sale of available-for-sale securities are reclassified from other comprehensive income (loss) and recognized in net income on the trade date. We use the first-in, first-out (“FIFO”) method to determine the cost basis on sales of marketable investment securities. Interest and dividend income from marketable investment securities is reported in “Interest income” and “Other, net,” respectively, in our consolidated statements of operations and comprehensive income (loss). Dividend income is recognized on the ex-dividend date.

We evaluate our available-for-sale securities portfolio on a quarterly basis to determine whether declines in the fair value of these securities are other than temporary. Our evaluation consists of reviewing, among other things:

- the fair value of each security compared to its amortized cost;
- the length of time and the extent to which the fair value of a security has been lower than amortized cost;
- the historical volatility of the price of each security;
- any market and company-specific factors related to each security; and
- our intent and ability to hold the investment to recovery.

Where the fair value of a debt security has declined below its amortized cost, we consider the decline to be other than temporary if any of the following factors apply:

- we intend to sell the security,
- it is more likely than not that we will be required to sell the security before maturity or recovery, or
- we do not expect to recover the security’s entire amortized cost basis, even if there is no intent to sell the security.

Declines in the fair value of available-for-sale securities that are determined to be other than temporary are reclassified from other comprehensive income (loss) and recognized in net income, thus establishing a new cost basis for the investment.

Investments in Unconsolidated Entities — Cost and Equity Method

We use the equity method to account for equity investments in entities that we do not control but have the ability to significantly influence the operating decisions of the investee. We use the cost method when we do not have the ability to significantly influence the operating decisions of the investee.

Generally, our equity investments accounted for using either the equity method or cost method are not publicly traded and it is not practicable to regularly estimate the fair value of such investments. We evaluate these equity investments on a quarterly basis to determine whether an event or changes in circumstances has occurred that may have a significant adverse effect on the fair value of the investment. As part of our evaluation, we review available information such as business plans and current financial statements of these companies for factors that may indicate an impairment of our investments. Such factors may include, but are not limited to, unprofitable operations, negative cash flow, material litigation, violations of debt covenants, bankruptcy and changes in business strategy. When we determine that an investment is impaired, and the impairment is other than temporary, we adjust the carrying amount of the investment to its estimated fair value and recognize the impairment loss in net income.

Generally, equity method investments are initially recorded at cost and subsequently adjusted for our proportionate share of the net earnings or loss of the investee, which is reported in “Equity in earnings of unconsolidated affiliates, net” in our consolidated statements of operations and comprehensive income (loss). The carrying amount of our investments may include a component of goodwill if the cost of our investment exceeds the fair value of the underlying identifiable assets and liabilities of the investee. Dividends received from equity method investees reduce the carrying amount of the investment. We defer, to the extent of our ownership interest in the investee, recognition of intra-entity profits on sales of equipment to the investee until the investee has charged the cost of the equipment to expense in a subsequent sale to a third party or through depreciation. In these circumstances, we report the gross amounts of revenue and cost of sales in the statement of operations and include the intra-entity profit eliminations within “Equity in earnings of unconsolidated affiliates, net.”

Accounts Receivable

We estimate allowances for uncollectible accounts receivable based upon past collection experience and consideration of other relevant factors. Past experience may not be indicative of future collections and therefore additional adjustments could be recognized in the future to reflect differences between estimated and actual collections.

Inventory

Inventory is stated at the lower of cost, determined using the FIFO method, or net realizable value. Cost of inventory consists primarily of materials, direct labor and indirect overhead incurred in the procurement and manufacturing of our products. We use standard costing methodologies in determining the cost of certain of our finished goods and work-in-process inventories. We determine net realizable value using our best estimates of future use or recovery, considering the aging and composition of inventory balances, the effects of technological and/or design changes, forecasted future product demand based on firm or near-firm customer orders, and alternative means of disposition of excess or obsolete items. We recognize losses within operating income when we determine that the cost of inventory and commitments to purchase inventory exceed net realizable value.

Property and Equipment

Property and equipment is stated at cost, less accumulated depreciation. The cost of our satellites includes construction costs, including the present value of in-orbit incentives payable to the satellite manufacturer, launch costs, capitalized interest, and related insurance premiums. Depreciation is recorded on a straight-line basis over lives ranging from one to 40 years. Repair and maintenance costs are charged to expense when incurred. Costs of renewals and betterments are capitalized.

Impairment of Long-lived Assets

We review our long-lived assets for recoverability whenever events or changes in circumstances indicate that their carrying amounts may not be recoverable. The evaluation is performed at the lowest level for which identifiable cash flows are largely independent of the cash flows of other assets and liabilities. For assets held and used in operations, the asset is not recoverable if the carrying amount of the asset exceeds its undiscounted estimated future net cash flows. When an asset is not recoverable, we adjust the carrying amount of such asset to its estimated fair value and recognize the impairment loss in net income. Assets to be disposed of by sale are reported at the lower of the carrying amount or fair value less costs to sell.

Goodwill

Goodwill represents the excess of the cost of acquired businesses over the estimated fair value assigned to the identifiable assets acquired and liabilities assumed. We do not amortize goodwill, but test goodwill for impairment annually, or more frequently if circumstances indicate impairment may exist. Our goodwill as of December 31, 2016 and 2015 consists primarily of goodwill assigned to reporting units of our Hughes segment. We test Hughes goodwill for impairment in the second fiscal quarter. There are two steps to the goodwill impairment test. Step one compares the fair value of a reporting unit with its carrying amount, including goodwill. We typically estimate fair value of the reporting units using discounted cash flow techniques, which includes significant assumptions about prospective financial information, terminal value and discount rates (Level 3 inputs). If the reporting unit’s carrying amount exceeds its estimated fair value, it is necessary to perform the second step of the impairment test, which compares the implied fair value of reporting unit goodwill with the carrying amount of such goodwill to determine the amount of impairment loss. We may bypass the two-step goodwill impairment test if we determine, based on a qualitative assessment, that it is more likely than not that the fair value of a reporting unit exceeds its carrying amount including goodwill.

Regulatory Authorizations and Other Intangible Assets

At acquisition and periodically thereafter, we evaluate our intangible assets to determine whether their useful lives are finite or indefinite. We consider our intangible assets to have indefinite lives when no significant legal, regulatory, contractual, competitive, economic, or other factors limit the useful life.

Intangible assets that have finite lives are amortized over their estimated useful lives, ranging from approximately one to 30 years. When we expect to incur significant costs to renew or extend finite-lived intangible assets, we amortize the total initial and estimated renewal costs over the combined initial and expected renewal terms. In such instances, actual renewal costs are capitalized when they are incurred. We test intangible assets with finite lives for impairment whenever events or changes in circumstances indicate that the carrying amount of the asset may not be recoverable, as discussed above under “Impairment of Long-lived Assets.”

We do not amortize our indefinite-lived intangible assets, but test those assets for impairment annually or more frequently if circumstances indicate that it is more likely than not that the asset may be impaired. Costs incurred to maintain or renew indefinite-lived intangible assets are expensed as incurred.

Our indefinite-lived intangible assets include Federal Communications Commission (“FCC”) authorizations and certain other contractual or regulatory rights to use spectrum at specified orbital locations (collectively “Regulatory Authorizations”). We have determined that our FCC authorizations generally have indefinite useful lives due to the following:

- FCC authorizations are non-depleting assets;
- renewal satellite applications generally are authorized by the FCC subject to certain conditions, without substantial cost under a stable regulatory, legislative, and legal environment;
- expenditures required to maintain the authorization are not significant; and
- we intend to use these authorizations indefinitely.

Our non-FCC Regulatory Authorizations consist primarily of authorizations in Europe and Brazil that we acquired in 2013 and 2012, respectively. We have determined that those Regulatory Authorizations have finite lives due to uncertainties about the ability to extend or renew their terms.

Income Taxes

We recognize a provision or benefit for income taxes currently payable or receivable and for income tax amounts deferred to future periods. Deferred tax assets and liabilities are recorded for the estimated future tax effects of differences that exist between the financial reporting carrying amount and tax basis of assets and liabilities. Deferred tax assets are offset by valuation allowances when we determine it is more likely than not that such deferred tax assets will not be realized in the foreseeable future. We determine deferred tax assets and liabilities separately for each taxing jurisdiction and report the net amount for each jurisdiction as a noncurrent asset or liability in our consolidated balance sheets.

From time to time, we engage in transactions where the income tax consequences are uncertain. We recognize tax benefits when, in management’s judgment, a tax filing position is more likely than not to be sustained if challenged by the tax authorities. For tax positions that meet the more-likely-than-not threshold, we may not recognize a portion of a tax benefit depending on management’s assessment of how the tax position will ultimately be settled. Unrecognized tax benefits generally are netted against the deferred tax assets associated with our net operating loss carryforwards. We adjust our estimates periodically based on ongoing examinations by and settlements with various taxing authorities, as well as changes in tax laws, regulations and precedent. We classify interest and penalties, if any, associated with our unrecognized tax benefits as a component of income tax provision or benefit.

Fair Value Measurements

We determine fair value based on the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants. Market or observable inputs are the preferred source of values, followed by unobservable inputs or assumptions based on hypothetical transactions in the absence of market inputs. We utilize the highest level of inputs available according to the following hierarchy in determining fair value:

- Level 1, defined as observable inputs being quoted prices in active markets for identical assets;
- Level 2, defined as observable inputs other than quoted prices included in Level 1, including quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar instruments in markets that are not active; and model-derived valuations in which significant inputs and significant value drivers are observable in active markets; and
- Level 3, defined as unobservable inputs for which little or no market data exists, consistent with characteristics of the asset or liability that would be considered by market participants in a transaction to purchase or sell the asset or liability.

Transfers between levels in the fair value hierarchy are considered to occur at the beginning of the quarterly accounting period. There were no transfers between levels for each of the years ended December 31, 2016 or 2015.

As of December 31, 2016 and 2015, the carrying amounts of our cash and cash equivalents, trade accounts receivable, net of allowance for doubtful accounts, accounts payable and accrued liabilities were equal to or approximated fair value due to their short-term nature or proximity to current market rates.

Fair values of our marketable investment securities are based on a variety of observable market inputs. For our investments in publicly traded equity securities and U.S. government securities, fair value ordinarily is determined based on a Level 1 measurement that reflects quoted prices for identical securities in active markets. Fair values of our investments in other marketable debt securities generally are based on Level 2 measurements, as the markets for such debt securities are less active. Trades of identical debt securities on or near the measurement date are considered a strong indication of fair value. Matrix pricing techniques that consider par value, coupon rate, credit quality, maturity and other relevant features also may be used to determine fair value of our investments in marketable debt securities.

Fair values for our 2019 Senior Secured Notes, 2021 Senior Unsecured Notes and 2026 Notes (see Note 11) are based on quoted market prices in less active markets and are categorized as Level 2 measurements. The fair values of our other debt are Level 2 measurements and are estimated to approximate their carrying amounts based on the proximity of their interest rates to current market rates. As of December 31, 2016 and 2015, the fair values of our in-orbit incentive obligations, based on measurements categorized within Level 2 of the fair value hierarchy, approximated their carrying amounts of $74.1 million and $79.3 million, respectively. We use fair value measurements from time to time in connection with asset impairment testing and the assignment of purchase consideration to assets and liabilities of acquired companies. Those fair value measurements typically include significant unobservable inputs and are categorized within Level 3 of the fair value hierarchy.

Revenue Recognition

Revenue from the sale of equipment and services generally is recognized when persuasive evidence of an arrangement exists, prices are fixed or determinable, collectibility is reasonably assured, and the goods have been delivered or services have been rendered. If any of these criteria are not met, revenue recognition is deferred until such time as all of the criteria are met. Revenue from equipment sales generally is recognized upon shipment to customers. Revenue from recurring services generally is recognized ratably over the service term. Upfront fees collected in connection with services to consumer subscribers in our Hughes segment are deferred and recognized as revenue over the estimated subscriber life. We may offer rebates to qualifying new consumer subscribers in our Hughes segment. We reduce related revenue at inception of the subscriber contract based on an estimate of the number of rebates that will be redeemed. Our estimates are based on historical experience and actual sales during the promotion. Services and other revenue includes revenue from leases of satellite capacity and equipment. We typically determine based on applicable criteria that our leasing arrangements are operating leases and recognize related revenue on a straight-line basis over the lease term.

In situations where customer offerings represent an arrangement for both services and equipment, revenue elements with standalone value to the customer are separated for revenue recognition purposes based on their selling prices if sold separately. We determine selling prices under a hierarchy that considers vendor-specific objective evidence ("VSOE"), third-party evidence and estimated selling prices. Typically, we derive VSOE from service renewal rates and optional equipment prices specified in customer contracts or we estimate prices based on the gross margin that we ordinarily realize in transactions with similarly situated customers.

In addition to equipment and service offerings, our Hughes segment also enters into contracts to design, develop, and deliver complex telecommunication networks to customers in its enterprise and mobile satellite systems markets. Those contracts require significant effort to develop and construct the network over an extended time period. Revenue from such contracts is recognized using the percentage-of-completion method. Depending on the nature of the arrangement, we measure progress toward contract completion using the cost-to-cost method or the units-of-delivery method. Under the cost-to-cost method, revenue reflects the ratio of costs incurred to estimated total costs at completion multiplied by the total estimated contract revenue. Under the units-of-delivery method, revenue and related costs are recognized as products are delivered based on the expected profit for the entire agreement. Profit margins on long-term contracts are based on estimates of revenue and costs at completion. We review and revise our estimates periodically and recognize related adjustments in the period in which the revisions are made. Estimated losses on contracts are recorded in the period in which they are identified.

We report revenue net of sales taxes imposed on our goods and services in our consolidated statements of operations and comprehensive income (loss). Since we primarily act as an agent for the governmental authorities, the amount charged to the customer is collected and remitted directly to the appropriate jurisdictional entity.

Debt Issuance Costs

Costs of issuing debt generally are deferred and amortized utilizing the effective interest method with amortization included in "Interest expense, net of amounts capitalized" in our consolidated statements of operations and comprehensive income (loss). We report unamortized debt issuance costs as a reduction of the related long-term debt in our consolidated balance sheets.

Cost of Sales - Services and Equipment

Cost of sales - services primarily consists of costs of digital broadcast operations, satellite capacity and services, hub infrastructure, customer care, wireline and wireless capacity, and direct labor costs associated with the services provided. Costs of sales - services generally are charged to expense as incurred. Cost of sales - equipment primarily consists of inventory costs, including freight and royalties. Cost of sales - equipment generally is recognized as products are delivered to customers and related revenue is recognized.

Research and Development

Costs incurred in research and development activities generally are expensed as incurred. A significant portion of our research and development costs are incurred in connection with the specific requirements of a customer's order. In such instances, the amounts for these customer funded development efforts are included in cost of sales.

Cost of sales includes research and development costs incurred in connection with customer's orders of approximately $67.8 million, $59.2 million and $68.4 million for the years ended December 31, 2016, 2015 and 2014, respectively. In addition, we incurred other research and development expenses of approximately $76.0 million, $78.3 million and $60.9 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Subscriber Acquisition Costs

Subscriber Acquisition Costs ("SAC") consists of costs paid to third-party dealers and customer service representative commissions on new service activations and hardware upgrades and, in certain cases, the cost of hardware and installation services provided to non-wholesale consumer customers at the inception of service or hardware upgrade. SAC is deferred when a customer enters into a service agreement and is subsequently amortized over the service agreement term in proportion to when the related service revenue is recognized. We monitor the recoverability of deferred SAC and are entitled to an early termination fee if the subscriber cancels service prior to the end of the service agreement term. The recoverability of deferred SAC is reasonably assured through the monthly service fee charged to customers, our ability to recover the equipment, and/or our ability to charge an early termination fee. Deferred SAC is included in “Other noncurrent assets, net” in our consolidated balance sheets.

Capitalized Software Costs

Costs related to the procurement and development of software for internal-use and externally marketed software are capitalized and amortized using the straight-line method over the estimated useful life of the software, not in excess of five years. Capitalized costs of internal-use software are included in “Property and equipment, net” and capitalized costs of externally marketed software are included in “Other noncurrent assets, net” in our consolidated balance sheets. Externally marketed software generally is installed in the equipment we sell to customers. We conduct software program reviews for externally marketed capitalized software costs at least annually, or as events and circumstances warrant such a review, to determine if capitalized software development costs are recoverable and to ensure that costs associated with programs that are no longer generating revenue are expensed. As of December 31, 2016 and 2015, the net carrying amount of externally marketed software was $76.3 million and $62.8 million, respectively, of which $50.1 million and $32.6 million, respectively, is under development and not yet placed in service. We capitalized costs related to the development of externally marketed software of $23.3 million, $22.4 million and $23.1 million for the years ended December 31, 2016, 2015 and 2014, respectively. We recorded amortization expense relating to the development of externally marketed software of $9.7 million, $8.4 million and $5.4 million for the years ended December 31, 2016, 2015 and 2014, respectively. The weighted average useful life of our externally marketed software was approximately three years as of December 31, 2016.

Stock-based Compensation Expense

Stock-based compensation expense is recognized based on the fair value of stock awards ultimately expected to vest. Forfeitures are estimated at the time of grant and revised, if necessary, in subsequent periods if actual forfeitures differ from those estimates. Compensation expense for awards with service conditions only is recognized on a straight-line basis over the requisite service period for the entire award. Compensation expense for awards subject to performance conditions is recognized only when satisfaction of the performance condition is probable.

Advertising Costs

Advertising costs are expensed as incurred and are included in “Selling, general and administrative expenses” in our consolidated statements of operations and comprehensive income (loss). We incurred advertising expense of $56.3 million, $49.9 million and $50.8 million for the years ended December 31, 2016, 2015 and 2014, respectively.

New Accounting Pronouncements

In May 2014, the Financial Accounting Standards Board (“FASB”) issued Accounting Standards Update (“ASU”) No. 2014-09, Revenue from Contracts with Customers (“ASU 2014-09”). It outlines a single comprehensive model, codified in Topic 606 of the FASB Accounting Standards Codification, for entities to use in accounting for revenue arising from contracts with customers and supersedes most current revenue recognition guidance, including industry-specific guidance. The core principle of the revenue model is that “an entity recognizes revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.” In August 2015, the FASB issued ASU No. 2015-14, which deferred the mandatory effective date of ASU 2014-09 by one year. As a result, public entities are required to adopt the new revenue standard in annual periods beginning after December 15, 2017 and in interim periods within those annual periods. The standard may be applied either retrospectively to prior periods or as a cumulative-effect adjustment as of the date of adoption. Early adoption is permitted, but not before annual periods beginning after December 15, 2016. In March 2016, the FASB issued ASU No. 2016-08, Principal versus Agent Considerations, which clarifies the implementation guidance on principal versus agent considerations. In April 2016, the FASB issued ASU No. 2016-10, Identifying Performance Obligations and Licensing, which amends guidance on identifying performance obligations and accounting for licenses of intellectual property. In May 2016, the FASB issued ASU No. 2016-12, Narrow-Scope Improvements and Practical Expedients, which addresses collectibility, noncash consideration, completed contracts at transition, a practical expedient for contract modifications at transition, and an accounting policy election related to the presentation of sales taxes and other similar taxes collected from customers. In January 2017, the FASB issued ASU No. 2016-20, Technical Corrections to Topic 606, which clarifies, but does not fundamentally change, certain aspects of the new revenue standard. We have not selected the transition method that we will apply upon adoption. We continue to evaluate the impact of the new standard and available adoption methods on our consolidated financial statements. We are in the process of evaluating arrangements with customers and identifying differences in accounting between new and existing standards.

In February 2015, the FASB issued Accounting Standards Update No. 2015-02, Consolidation (Topic 810): Amendments to the Consolidation Analysis ("ASU 2015-02"). This standard amends the consolidation guidance for variable interest entities and general partners' investments in limited partnerships and similar entities. ASU 2015-02 was effective for annual periods beginning after December 15, 2015 and interim periods within those annual periods, and required either a retrospective or a modified retrospective approach as of the beginning of the fiscal year of adoption. We adopted ASU 2015-02 in the first quarter of 2016. The adoption of the standard did not impact our consolidated financial statements.

In April 2015, the FASB issued Accounting Standards Update No. 2015-03, Simplifying the Presentation of Debt Issuance Costs ("ASU 2015-03"). This standard requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of debt liability, consistent with debt discounts or premiums. ASU 2015-03 was effective for annual periods beginning after December 15, 2015 and interim periods within those annual periods, and required a retrospective approach to adoption. We adopted ASU 2015-03 in the first quarter of 2016. Upon adoption, we presented unamortized debt issuance cost previously reported in "Other noncurrent assets, net" with a carrying amount of $31.3 million as of December 31, 2015, as a reduction of our "Long-term debt and capital lease obligations, net of unamortized debt issuance costs."

In January 2016, the FASB issued Accounting Standards Update No. 2016-01, Recognition and Measurement of Financial Assets and Financial Liabilities ("ASU 2016-01"). This update substantially revises standards for the recognition, measurement and presentation of financial instruments, including requiring all equity investments to be measured at fair value with changes in the fair value recognized through net income. It also amends certain disclosure requirements associated with the fair value of financial instruments. ASU 2016-01 is effective for annual periods beginning after December 15, 2017, including interim periods within those annual periods, with early adoption permitted for certain requirements. We are assessing the impact of adopting this new accounting standard on our consolidated financial statements and related disclosures.

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, Leases ("ASU 2016-02"). This standard requires lessees to recognize assets and liabilities for all leases with lease terms more than 12 months, including leases classified as operating leases. The standard also modifies the definition of a lease and the criteria for classifying leases as operating leases or financing leases. ASU 2016-02 is effective for annual periods beginning after December 15, 2018 and interim periods within those periods. Early adoption is permitted. We are assessing the impact of adopting this new accounting standard on our consolidated financial statements and related disclosures.

In March 2016, the FASB issued Accounting Standards Update No. 2016-09, Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09"), which simplifies the accounting for share-based payment awards. This update requires all excess tax benefits and deficiencies to be recognized as income tax expense or benefit and permits an entity to make an entity-wide policy election to either estimate forfeitures or recognize forfeitures as they occur. ASU 2016-09 is effective for annual periods beginning after December 15, 2016 and interim periods within those periods. The update specifies requirements for retrospective, modified retrospective or prospective application for the various amendments contained in the update. Upon adoption of this standard as of January 1, 2017, we recorded a $14.5 million deferred tax asset and a corresponding credit to retained earnings for excess tax benefits that had not previously been recognized because the related tax deductions had not reduced taxes payable. We will not change our accounting policy which is to estimate forfeitures.

In June 2016, the FASB issued Accounting Standards Update No. 2016-13, Measurement of Credit Losses on Financial Instruments ("ASU 2016-13"), which introduces an approach based on expected losses to estimate credit losses on certain types of financial instruments. It also modifies the impairment model for available-for-sale debt securities and provides for a simplified accounting model for purchased financial assets with credit deterioration since their origination. ASU 2016-13 is effective for annual periods beginning after December 15, 2019 and interim periods within those periods. Early adoption is permitted. We are assessing the impact of adopting this new accounting standard on our consolidated financial statements and related disclosures.

In October 2016, the FASB issued Accounting Standards Update No. 2016-16, Intra-Entity Transfers of Assets Other Than Inventory ("ASU 2016-16"), which improves the accounting for the income tax consequences of intra-entity transfers of assets other than inventory. ASU 2016-16 is effective for annual periods beginning after December 15, 2017 and interim periods within those periods. Early adoption is permitted. We are assessing the impact of adopting this new accounting standard on our consolidated financial statements and related disclosures.

In November 2016, the FASB issued Accounting Standards No. 2016-18, Statement of Cash Flows (Topic 230): Restricted Cash ("ASU 2016-18"). This standard clarifies the guidance on the classification and presentation of restricted cash in the statement of cash flows, along with other cash-flow-related issues. ASU 2016-18 is effective for annual periods beginning after December 15, 2017 and interim periods within those periods. Early adoption is permitted, which must apply the guidance retrospectively to all periods presented. We are assessing the impact of adopting this new accounting standard on our consolidated financial statements and related disclosures.

In January 2017, the FASB issued Accounting Standards No. 2017-04, Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment ("ASU 2017-04"). The standard simplifies the accounting for goodwill impairment by removing Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. A goodwill impairment will now be the amount by which a reporting unit's carrying amount, including goodwill, exceeds its fair value, not to exceed the carrying amount of goodwill. ASU 2017-04 is effective for annual or any interim goodwill impairment tests in fiscal years beginning after December 15, 2019 and to be applied on a prospective basis. Early adoption is permitted for interim or annual goodwill impairment tests performed on testing dates after January 1, 2017. We will apply this new accounting standard in future periods if we determine that the carrying amount of any reporting units including goodwill exceeds fair value of the reporting unit.

Note 3. Earnings per Share

We present basic earnings per share ("EPS") and diluted EPS for our Class A and Class B common stock. The EchoStar Tracking Stock (see Note 4 for definitions and a further discussion of the preferred tracking stock, the EchoStar Group and the Hughes Retail Group) is a participating security that shares in our consolidated earnings and therefore, we apply the two-class method to calculate EPS. Under the two-class method, we allocate net income or loss attributable to EchoStar between common stock and the EchoStar Tracking Stock considering both dividends declared on each class of stock and the participation rights of each class of stock in undistributed earnings. Based on the 51.89% economic interest in the Hughes Retail Group, represented by the EchoStar Tracking Stock, we allocate undistributed earnings to the EchoStar Tracking Stock based on 51.89% of the attributed net income or loss of the Hughes Retail Group. Moreover, because the reported amount of "Net income attributable to EchoStar" in our consolidated statements of operations and comprehensive income (loss) excludes DISH Network's 28.11% economic interest (represented by the HSS Tracking Stock) in the net loss of the Hughes Retail Group (reported as a noncontrolling interest), the amount of consolidated net income or loss allocated to holders of Class A and Class B common stock effectively excludes an aggregate 80.0% of the attributed net loss of the Hughes Retail Group.

Basic EPS for our Class A and Class B common stock excludes potential dilution and is computed by dividing "Net income attributable to EchoStar common stock" by the weighted-average number of common shares outstanding for the period. Diluted EPS reflects the potential dilution that could occur if shares of common stock were issued pursuant to our stock-based compensation awards. The potential dilution from common stock awards was computed using the treasury stock method based on the average market value of our Class A common stock during the period. The calculation of our diluted weighted-average common shares outstanding excluded options to purchase shares of our Class A common stock, whose effect would be anti-dilutive, of 3.5 million, 2.3 million and 2.3 million shares for the years ended December 31, 2016, 2015 and 2014, respectively. The calculation also excluded 0.7 million shares of our Class A common stock that were issuable pursuant to our performance based stock incentive plans contingent upon meeting a company-specific performance measure by March 31, 2015, that was not achieved and which resulted in the expiration of such awards as of March 31, 2015.

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The following table presents basic and diluted EPS amounts for all periods and the corresponding weighted-average shares outstanding used in the calculations.

	For the Years Ended December 31,		
	2016	2015	2014
	(In thousands, except per share amounts)		
Net income attributable to EchoStar	$ 179,930	$ 153,357	$ 152,874
Less: Net loss attributable to EchoStar Tracking Stock	(1,743)	(10,343)	(12,394)
Net income attributable to EchoStar common stock	$ 181,673	$ 163,700	$ 165,268
Weighted-average common shares outstanding :			
Class A and B common stock:			
Basic	93,795	92,397	91,190
Dilutive impact of stock awards outstanding	615	1,069	1,426
Diluted	94,410	93,466	92,616
Earnings per share:			
Class A and B common stock:			
Basic	$ 1.94	$ 1.77	$ 1.81
Diluted	$ 1.92	$ 1.75	$ 1.78

Note 4. Hughes Retail Preferred Tracking Stock

On January 31, 2017, we entered into the Share Exchange Agreement. The Share Exchange Agreement provides, among other things, that EchoStar and its subsidiaries will receive all of the shares of the EchoStar Tracking Stock (as defined below) and HSS Tracking Stock (as defined below) in exchange for 100% of the equity interests of certain EchoStar subsidiaries that will hold our EchoStar Technologies businesses. Following consummation of the Share Exchange, the EchoStar Tracking Stock and HSS Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and terms of, such tracking stock will terminate and be of no further effect. See Note 20 for further discussion of the Share Exchange.

Satellite and Tracking Stock Transaction

In February 2014, EchoStar entered into agreements with certain subsidiaries of DISH Network pursuant to which, effective March 1, 2014, (i) EchoStar issued shares of its newly authorized Hughes Retail Preferred Tracking Stock (the “EchoStar Tracking Stock”) and Hughes Satellite Systems Corporation (“HSS”), a subsidiary of EchoStar, also issued shares of its newly authorized Hughes Retail Preferred Tracking Stock (the “HSS Tracking Stock” and together with the EchoStar Tracking Stock, the “Tracking Stock”) to DISH Network in exchange for five satellites (EchoStar I, EchoStar VII, EchoStar X, EchoStar XI, and EchoStar XIV), including the assumption of related in-orbit incentive obligations, and $11.4 million in cash and (ii) DISH Network began receiving certain satellite services on these five satellites from us (the “Satellite and Tracking Stock Transaction”). The Tracking Stock tracks the economic performance of the residential retail satellite broadband business of our Hughes segment, including certain operations, assets and liabilities attributed to such business (collectively, the “Hughes Retail Group” or “HRG”). The Satellite and Tracking Stock Transaction was consistent with the long-term strategy of the Company to increase the scale of its satellite services business, which provides high-margin revenues, while continuing to benefit from the growth of the satellite broadband business. As a result of the additional satellites received in the Satellite and Tracking Stock Transaction, EchoStar increased short-term cash flow that it believes has better positioned it to achieve its strategic objectives.

EchoStar and HSS have adopted policy statements (the “Policy Statements”) setting forth management and allocation policies for purposes of attributing all of the business and operations of EchoStar to either the Hughes Retail Group or the “EchoStar Group,” which is defined as all other operations of EchoStar, including all existing and future businesses, other than the Hughes Retail Group. Among other things, the Policy Statements govern how assets, liabilities, revenue and expenses are attributed or allocated between HRG and the EchoStar Group. Such attributions and allocations generally do not affect the amounts reported in our consolidated financial statements, except for the attribution of stockholders’ equity and net income or loss between the holders of Tracking Stock and common stock. The Policy Statements also do not significantly affect the way that management assesses operating performance and allocates resources within our Hughes segment.

We provide unaudited attributed financial information for HRG and the EchoStar Group in an exhibit to our periodic reports on Form 10-Q and Annual Report on Form 10-K. Set forth below is information about certain terms of the Tracking Stock and the initial recording of the Satellite and Tracking Stock Transaction in our consolidated financial statements, as well as the purpose and effect of the transaction on the Company and the Company's Class A common stock.

Description of the Tracking Stock

Tracking stock is a type of capital stock that the issuing company intends to reflect or "track" the economic performance of a particular business component within the company, rather than reflect the economic performance of the company as a whole. The Tracking Stock is intended to track the economic performance of the Hughes Retail Group. The shares of the Tracking Stock issued to DISH Network represent an aggregate 80.0% economic interest in the Hughes Retail Group (the shares issued as EchoStar Tracking Stock represent a 51.89% economic interest in the Hughes Retail Group and the shares issued as HSS Tracking Stock represent a 28.11% economic interest in the Hughes Retail Group). In addition to the remaining 20.0% economic interest in the Hughes Retail Group, EchoStar retains all economic interest in the wholesale satellite broadband business and other businesses of EchoStar. The 80.0% economic interest was determined at the time of issuance based on the estimated fair value of the consideration received from DISH Network in exchange for the Tracking Stock, consisting of the five satellites and $11.4 million in cash, relative to the estimated fair value of the Hughes Retail Group. The allocation of economic interest represented by the Tracking Stock of 51.89% issued as EchoStar Tracking Stock and 28.11% issued as HSS Tracking Stock reflected the relative assignment to HSS Tracking Stock and EchoStar Tracking Stock of the aggregate increase in equity resulting from DISH Network's contribution of the satellites and cash. The tracking stock structure and the allocation of the tracking stock economic interest between EchoStar and HSS was advantageous to EchoStar from an economic and tax perspective by allowing the Company to increase cash flow by using the value of the Hughes Retail Group to purchase the satellites from DISH Network.

While DISH Network, as the holder of the Tracking Stock, holds an aggregate 80.0% economic interest in the Hughes Retail Group, the Hughes Retail Group is not a separate legal entity and therefore cannot own assets, issue securities or enter into legally binding agreements. Holders of the Tracking Stock have no direct claim to the assets of the Hughes Retail Group; rather, holders of the Tracking Stock are stockholders of its respective issuer (EchoStar or HSS) and are subject to all risks and liabilities of the issuer.

The EchoStar Tracking Stock is a series of preferred stock consisting of 13,000,000 authorized shares with a par value of $0.001 per share, of which 6,290,499 shares were issued to DISH Network on March 1, 2014. The HSS Tracking Stock is a series of HSS preferred stock consisting of 300 authorized shares with a par value of $0.001 per share, of which 81.128 shares were issued to DISH Network on March 1, 2014. Following the issuance of the shares of the EchoStar Tracking Stock and the HSS Tracking Stock, DISH Network held 6.5% and 7.5% of the aggregate number of outstanding shares of EchoStar and HSS capital stock, respectively. As of December 31, 2016, DISH Network held 6.3% and 7.5% of the aggregate number of outstanding shares of EchoStar and HSS capital stock, respectively.

Holders of shares of the Tracking Stock vote with holders of the outstanding shares of common stock of its respective issuer, as a single class, with respect to any and all matters presented to stockholders for their action or consideration. Each share of the Tracking Stock is entitled to one tenth (1/10th) of one vote, which resulted in a relative loss of voting power for our Class A and Class B common stockholders. In the event of a liquidation of EchoStar, holders of shares of EchoStar Class A common stock, EchoStar Class B common stock and the EchoStar Tracking Stock are entitled to receive their respective proportionate interests in the net assets of EchoStar, if any, remaining for distribution upon liquidation, pro rata based upon the aggregate market value of outstanding shares of the EchoStar Tracking Stock (determined by an independent appraisal to the extent such shares are not then listed or quoted on any U.S. national or regional securities exchange or quotation system) as compared to the aggregate market value of outstanding shares of EchoStar Class A common stock and EchoStar Class B common stock. Similarly, in the event of a liquidation of HSS, holders of shares of HSS common stock and HSS Tracking Stock are entitled to receive their respective proportionate interests in the net assets of HSS, if any, remaining for distribution upon liquidation, pro rata based upon the aggregate market value of outstanding shares of HSS Tracking Stock as compared to the aggregate market value of outstanding shares of HSS common stock. Market values of HSS Tracking Stock and HSS common stock are to be determined by an independent appraisal to the extent such shares are not then listed or quoted on any U.S. national or regional securities exchange or quotation system.

Should our board of directors, or the board of directors of HSS, make a future determination to pay a dividend on any shares of capital stock, the respective board of directors may, in its sole discretion, declare dividends only on shares of common stock, only on shares of the Tracking Stock or on shares of both the common stock and the Tracking Stock of the respective company. No dividend or other distribution may be paid on any shares of EchoStar Tracking Stock unless a dividend or distribution in an equivalent amount is paid on shares of HSS Tracking Stock and no dividend or other distribution may be paid on any shares of HSS Tracking Stock unless a dividend or distribution in an equivalent amount is paid on shares of EchoStar Tracking Stock.

EchoStar and HSS may each, at its option, redeem all of the outstanding shares of its Tracking Stock in exchange for shares of common stock in an HRG Holding Company (as defined below), which EchoStar is required to establish pursuant to the Investor Rights Agreement discussed below.

Investor Rights Agreement

In connection with the Satellite and Tracking Stock Transaction, EchoStar, HSS and DISH Network entered into an agreement (the “Investor Rights Agreement”) setting forth certain rights and obligations of the parties with respect to the Tracking Stock. Among other provisions, the Investor Rights Agreement provides: (i) certain information and consultation rights for DISH Network; (ii) certain transfer restrictions on the Tracking Stock and certain rights and obligations to offer and sell under certain circumstances (including a right of first offer in favor of EchoStar), an obligation to sell the Tracking Stock to us in connection with a change of control of DISH Network and a right to require us to repurchase the Tracking Stock in connection with a change of control of EchoStar, in each case subject to certain terms and conditions; (iii) certain protective covenants afforded to holders of the Tracking Stock; and (iv) a requirement for EchoStar to establish a holding company subsidiary (an “HRG Holding Company”) that is directly or indirectly wholly owned by EchoStar and that will hold the Hughes Retail Group.

In addition, the Investor Rights Agreement provides that DISH Network may, at any time on or after September 1, 2016, require EchoStar to use its commercially reasonable efforts to register some or all of the outstanding shares of the Tracking Stock under the Securities Act of 1933, as amended, subject to certain terms and conditions (including our right, upon the receipt of a demand for registration, to offer to repurchase all of the Tracking Stock). In connection with any demand for registration, DISH Network may require any outstanding shares of the HSS Tracking Stock to be exchanged for shares of the EchoStar Tracking Stock with an equivalent economic interest in the Hughes Retail Group. In the event that a registration of shares of Tracking Stock is effected, EchoStar is required to use its reasonable best efforts to amend the terms of the Tracking Stock so that the Tracking Stock will be convertible or exchangeable for shares of EchoStar Class A common stock with equivalent market value.

Initial Recording of the Satellite and Tracking Stock Transaction

EchoStar and DISH Network are entities under common control. In accordance with accounting principles that apply to transfers of assets between entities under common control, EchoStar and HSS recorded the net assets received from DISH Network in the Satellite and Tracking Stock Transaction at their historical carrying amounts as reflected in DISH Network’s consolidated financial statements as of February 28, 2014, the day prior to the effective date of the Satellite and Tracking Stock Transaction. DISH Network transferred the EchoStar I, EchoStar VII, and EchoStar X satellites to HSS and transferred the EchoStar XI and EchoStar XIV satellites to EchoStar. The historical carrying amounts of net assets transferred to EchoStar and HSS at the date of transfer were as follows:

	EchoStar(1)	HSS	Total
		(In thousands)	
Cash	$ —	$ 11,404	$ 11,404
Property and equipment, net	349,243	82,837	432,080
Current liabilities	(3,479)	(3,076)	(6,555)
Noncurrent liabilities	(30,121)	(8,713)	(38,834)
Transferred net assets	$ 315,643	$ 82,452	$ 398,095

(1) All of the net assets received by EchoStar as part of the Satellite and Tracking Stock Transaction were immediately transferred to HSS and are being used by our ESS segment.

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The transferred net assets increased EchoStar stockholders' equity and HSS shareholders' equity by amounts that reflect the carrying amounts of net assets that would be distributed to holders of the Tracking Stock and common stock in a hypothetical liquidation, which would be in proportion to the relative market values (as defined in applicable agreements) of each class of stock. The amounts credited to equity were reduced by direct costs of the Tracking Stock issuance and deferred income tax liabilities arising from differences between the financial reporting carrying amounts and the tax bases of the transferred satellites.

The net amounts credited to EchoStar stockholders' equity for the EchoStar Tracking Stock (primarily additional paid-in capital) and the noncontrolling interest in the HSS Tracking Stock were as follows:

	EchoStar Stockholders	Noncontrolling Interest	Total
		(In thousands)	
Transferred net assets	$ 315,643	$ 82,452	$ 398,095
Offering costs, net of tax	(2,302)	(610)	(2,912)
Deferred income taxes	(114,525)	(29,971)	(144,496)
Reallocation based on relative liquidation values	(35,300)	35,300	—
Net increase in stockholders' equity	$ 163,516	$ 87,171	$ 250,687

Note 5. Other Comprehensive Income (Loss) and Related Tax Effects

We have not recognized any tax effects on foreign currency translation adjustments because they are not expected to result in future taxable income or deductions. We have not recognized any tax effects on unrealized gains or losses on available-for-sale securities because such gains or losses would affect the amount of existing capital loss carryforwards for which the related deferred tax asset has been fully offset by a valuation allowance.

Accumulated other comprehensive loss includes cumulative foreign currency translation losses of $135.4 million, $124.3 million and $63.8 million as of December 31, 2016, 2015 and 2014, respectively.

Reclassifications out of accumulated other comprehensive loss for the years ended December 31, 2016, 2015 and 2014 were as follows:

Accumulated Other Comprehensive Loss Components	Affected Line Item in our Consolidated Statements of Operations	For the Years Ended December 31, 2016	2015	2014
			(In thousands)	
Recognition of realized gains on available-for-sale securities in net income (1)	Gains (losses) on marketable investment securities, net	$ (5,590)	$ (35)	$ (41)
Recognition of other-than-temporary impairment loss on available-for-sale securities in net income (2)	Other-than-temporary impairment loss on available-for-sale securities	—	11,226	—
Recognition of foreign currency translation losses in net income (3)	Other, net	—	1,889	—
Total reclassifications, net of tax and noncontrolling interests		$ (5,590)	$ 13,080	$ (41)

(1) When available-for-sale securities are sold, the related unrealized gains and losses that were previously recognized in other comprehensive income (loss) are reclassified and recognized as "Gains (losses) on marketable investment securities, net" in our consolidated statements of operations and comprehensive income (loss).
(2) We recorded other-than-temporary impairment losses on shares of certain common stock included in our strategic equity securities.
(3) As a result of the deconsolidation of several of our European subsidiaries in connection with our investment in SmarDTV SA in May 2015, the related cumulative translation adjustments that were previously recognized in other comprehensive income (loss) were reclassified and recognized as a loss within "Other income (expense)" in our consolidated statements of operations and comprehensive income (loss). See Note 6 for further discussion.

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Note 6. Investment Securities

Our marketable investment securities, restricted cash and cash equivalents, and investments in unconsolidated entities consisted of the following:

	As of December 31,	
	2016	2015
	(In thousands)	
Marketable investment securities—current, at fair value:		
Corporate bonds	$ 402,670	$ 562,236
Strategic equity securities	94,816	38,864
Other	25,030	11,238
Total marketable investment securities—current	522,516	612,338
Restricted marketable investment securities (1)	12,203	13,227
Total	534,719	625,565
Restricted cash and cash equivalents (1)	723	7,775
Investments in unconsolidated entities—noncurrent:		
Cost method	81,174	81,174
Equity method	116,045	128,090
Total investments in unconsolidated entities—noncurrent	197,219	209,264
Total marketable investment securities, restricted cash and cash equivalents, and investments in unconsolidated entities	$ 732,661	$ 842,604

(1) Restricted marketable investment securities and restricted cash and cash equivalents are included in "Restricted cash and marketable investment securities" in our consolidated balance sheets.

Marketable Investment Securities

Our marketable investment securities portfolio consists of various debt and equity instruments, which generally are classified as available-for-sale or trading securities depending on our investment strategy for those securities. The value of our investment portfolio depends on the value of such securities and other instruments comprising the portfolio.

Corporate Bonds

Our corporate bond portfolio includes debt instruments issued by individual corporations, primarily in the industrial and financial services industries.

Strategic Equity Securities

Our strategic investment portfolio consists of investments in shares of common stock of public companies, which are highly speculative and have experienced and continue to experience volatility. We did not receive any dividend income for the years ended December 31, 2016, 2015 and 2014.

As of December 31, 2016 and 2015, our strategic equity securities included shares of common stock of one of our customers that we received in satisfaction of certain milestone payments that were required to be paid to us under an existing long-term contract. "Gains (losses) on marketable investment securities, net" for the years ended December 31, 2016 and 2015 included gains of $0.6 million and losses of $6.5 million, respectively, related to trading securities that we held as of December 31, 2016 and 2015, respectively. The fair values of our trading securities were $7.2 million and $10.3 million as of December 31, 2016 and 2015, respectively.

Other

Our other current marketable investment securities portfolio includes investments in various debt instruments, including U.S. government bonds, commercial paper and mutual funds.

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Restricted Cash and Marketable Investment Securities

As of December 31, 2016 and 2015, our restricted marketable investment securities, together with our restricted cash, included amounts required as collateral for our letters of credit or surety bonds.

Unrealized Gains (Losses) on Available-for-Sale Securities

The components of our available-for-sale securities are summarized in the table below.

	Amortized Cost	Unrealized Gains	Unrealized Losses	Estimated Fair Value
	(In thousands)			
As of December 31, 2016				
Debt securities:				
Corporate bonds	$ 402,472	$ 285	$ (87)	$ 402,670
Other (including restricted)	32,488	3	(23)	32,468
Equity securities - strategic	77,149	13,120	(2,652)	87,617
Total available-for-sale securities	$ 512,109	$ 13,408	$ (2,762)	$ 522,755
As of December 31, 2015				
Debt securities:				
Corporate bonds	$ 562,849	$ 10	$ (623)	$ 562,236
Other (including restricted)	24,495	—	(30)	24,465
Equity securities - strategic	20,855	7,748	(82)	28,521
Total available-for-sale securities	$ 608,199	$ 7,758	$ (735)	$ 615,222

As of December 31, 2016, restricted and non-restricted available-for-sale securities included debt securities of $426.7 million with contractual maturities of one year or less and $8.4 million with contractual maturities greater than one year. We may realize proceeds from certain investments prior to their contractual maturity as a result of our ability to sell these securities prior to their contractual maturity.

Available-for-Sale Securities in a Loss Position

The following table reflects the length of time that our available-for-sale securities have been in an unrealized loss position. We do not intend to sell these securities before they recover or mature, and it is more likely than not that we will hold these securities until they recover or mature. We believe that changes in the estimated fair values of these securities are primarily related to temporary market conditions.

	As of December 31,			
	2016		2015	
	Fair Value	Unrealized Losses	Fair Value	Unrealized Losses
	(In thousands)			
Less than 12 months	$ 154,826	$ (2,760)	$ 364,160	$ (609)
12 months or more	1,571	(2)	149,889	(126)
Total	$ 156,397	$ (2,762)	$ 514,049	$ (735)

Sales of Available-for-Sale Securities

We recognized gains from the sales of our available-for-sale securities of $5.6 million, de minimis and $0.1 million for the years ended December 31, 2016, 2015 and 2014, respectively. We recognized de minimis losses from the sales of our available-for-sale securities for each of the years ended December 31, 2016, 2015 and 2014.

Proceeds from sales of our available-for-sale securities totaled $80.4 million, $111.5 million and $190.5 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Fair Value Measurements

Our current marketable investment securities are measured at fair value on a recurring basis as summarized in the table below. As of December 31, 2016 and 2015, we did not have investments that were categorized within Level 3 of the fair value hierarchy.

	As of December 31,					
	2016			2015		
	Total	Level 1	Level 2	Total	Level 1	Level 2
	(In thousands)					
Cash equivalents (including restricted)	$ 2,490,168	$ 62,332	$ 2,427,836	$ 840,950	$ 38,771	$ 802,179
Debt securities:						
Corporate bonds	$ 402,670	$ —	$ 402,670	$ 562,236	$ —	$ 562,236
Other (including restricted)	37,233	13,517	23,716	24,465	12,078	12,387
Equity securities - strategic	94,816	94,816	—	38,864	38,864	—
Total marketable investment securities	$ 534,719	$ 108,333	$ 426,386	$ 625,565	$ 50,942	$ 574,623

Investments in Unconsolidated Entities — Noncurrent

We have several strategic investments in certain non-publicly traded equity securities that are accounted for using either the equity or the cost method of accounting. Our ability to realize value from our strategic investments in companies that are not publicly traded depends on the success of those companies' businesses and their ability to obtain sufficient capital to execute their business plans. Because private markets are not as liquid as public markets, there is also increased risk that we will not be able to sell these investments, or that when we desire to sell them we will not be able to obtain fair value for them.

We recorded cash distributions from certain of our investments accounted for using the equity method of $15.0 million, $5.0 million and $7.4 million for the years ended December 31, 2016, 2015 and 2014, respectively. These cash distributions were determined to be a return on investment and reported in cash flows from operating activities in our consolidated statements of cash flows.

In June 2015, we made an equity investment in WorldVu Satellites Limited ("OneWeb"), a global low-earth orbit satellite service company. OneWeb plans to develop and operate a global network of low-earth orbit Ku-band satellites to provide internet access to fixed and mobile terminals. We do not exercise significant influence over the management of OneWeb; accordingly, we account for the investment using the cost method.

In May 2015, we acquired a 22.5% interest in the equity and subordinated debt of SmarDTV SA ("SmarDTV"), a Swiss subsidiary of Kudelski SA that offers set-top boxes and conditional access modules, in exchange for cash of $13.9 million and the contribution of several of our European subsidiaries to SmarDTV. We recorded our initial investment in SmarDTV at $20.0 million, representing our estimate of the investment's fair value using discounted cash flow techniques. Our estimate included significant unobservable inputs related to SmarDTV's future operations and is categorized within Level 3 of the fair value hierarchy. As of the acquisition date, we deconsolidated the contributed entities and recognized a $2.6 million loss within "Other income (expense)" in our consolidated statements of operations and comprehensive income (loss), consisting of: (i) a $0.7 million loss resulting from our initial investment (at fair value) being less than the sum of our $13.9 million cash payment and the carrying amount of the net assets of the deconsolidated entities and (ii) the reclassification from accumulated other comprehensive loss of $1.9 million in foreign currency translation adjustments related to the deconsolidated entities. The net assets of the deconsolidated entities included property and equipment of $6.7 million and cash of $0.8 million. We have the ability to exercise significant influence over SmarDTV and therefore account for our investment using the equity method. We and SmarDTV also entered into a services agreement pursuant to which our EchoStar Technologies segment purchases certain engineering services from SmarDTV. See Note 19 for information about our related party transactions with SmarDTV subsequent to the date of our initial investment. Following consummation of the Share Exchange, EchoStar will no longer own its interest in the equity and subordinated debt of SmarDTV and will no longer purchase engineering services from SmarDTV.

On August 8, 2014, an option providing for an unrelated party to acquire a 51.0% equity interest in Dish Mexico was terminated. Although we have owned 49.0% of the equity of Dish Mexico since its inception in 2008, we accounted for our investment as a 24.0% equity interest using the equity method based on assumed dilution that would occur upon the exercise of the option. Upon termination of the option, we recorded a $10.3 million adjustment to increase "Equity in earnings of unconsolidated affiliates, net" to reflect an increase from 24.0% to 49.0% in our interest in Dish Mexico's inception-to-date net income. For periods subsequent to the date of the termination of the option, we account for our investment in Dish Mexico as a 49.0% equity interest using the equity method.

As of December 31, 2013, our equity method investments included $18.0 million for our investment in DISH Digital Holding, L.L.C. (now known as Sling TV Holding L.L.C., "Sling TV Holding"), a joint venture between us and DISH Network. The carrying amount of our investment reflected the $44.7 million aggregate carrying amount of cash and certain noncash assets that we contributed to Sling TV Holding upon its formation on July 1, 2012 in exchange for a one-third equity interest in Sling TV Holding, less our equity in the net loss of Sling TV Holding of $16.5 million and $10.2 million for the years ended December 31, 2013 and 2012, respectively. Effective August 1, 2014, we and Sling TV Holding entered into an exchange agreement (the "Exchange Agreement") pursuant to which, we exchanged our one-third voting interest in Sling TV Holding, which we accounted for using the equity method, for a 10.0% non-voting interest in Sling TV Holding, which we account for using the cost method. As part of this transaction, we received a distribution of certain noncurrent assets associated with our OTT, SVOD platform business, including property and equipment, technology-related intangible assets and goodwill. Because we and Sling TV Holding are entities under common control, we recorded the distributed assets at their carrying amounts in Sling TV Holding's accounts, which totaled $34.1 million at the date of distribution, and we recorded our non-voting interest at $1.1 million, which represents 10.0% of the carrying amount of the remaining equity in Sling TV Holding. These amounts exceeded the carrying amount of our existing equity method investment by $8.8 million, which was credited to additional paid-in capital because gain recognition generally is precluded by GAAP in exchanges between entities under common control. In connection with our obligations associated with our interest prior to the Exchange Agreement, we contributed $18.6 million in cash to Sling TV Holding during the third quarter of 2014. We have no obligation to contribute additional capital to Sling TV Holding. See Note 19 for more information regarding the Exchange Agreement with Sling TV Holding. Following the consummation of the Share Exchange, we will no longer hold our investment in Sling TV Holding.

Investment in TerreStar

In 2008, we invested in certain debt securities ("Exchangeable Notes") of TerreStar Networks Inc. ("TerreStar"), which subsequently filed for bankruptcy protection under Chapter 11 of the U.S. Bankruptcy Code in 2010. We accounted for our investment in the Exchangeable Notes using the fair value method and, as of December 31, 2011, our investment was stated at its estimated fair value of zero. Effective March 29, 2012, the Exchangeable Notes were cancelled pursuant to TerreStar's Chapter 11 plan of reorganization. In December 2014 and January 2016, we received $5.8 million and $0.8 million, respectively, in cash distributions from the indenture trustee in satisfaction of our claims related to the Exchangeable Notes. We accrued a receivable as of December 31, 2015 for the 2016 receipt and recognized the distributions as gains in "Other, net" within "Other Income (Expense)" in our consolidated statements of operations and comprehensive income (loss). We reported the 2014 and 2016 cash receipts in "Other, net" within "Cash Flows from Investing Activities" in our consolidated statements of cash flows.

Note 7. Trade Accounts Receivable

Our trade accounts receivable consisted of the following:

	As of December 31,	
	2016	2015
	(In thousands)	
Trade accounts receivable	$ 187,018	$ 168,714
Contracts in process, net	36,170	23,011
Total trade accounts receivable	223,188	191,725
Allowance for doubtful accounts	(13,400)	(12,485)
Trade accounts receivable - DISH Network	278,615	277,159
Total trade accounts receivable, net	$ 488,403	$ 456,399

As of December 31, 2016 and 2015, progress billings offset against contracts in process amounted to $14.6 million and $2.9 million, respectively.

Note 8. Inventory

Our inventory consisted of the following:

	As of December 31,	
	2016	2015
	(In thousands)	
Finished goods	$ 58,797	$ 52,839
Raw materials	7,361	9,042
Work in process	6,286	5,129
Total inventory	$ 72,444	$ 67,010

As a result of our decision not to proceed with our direct-to-consumer security and home automation solution product offering and associated services, "Selling, general and administrative expenses" of our EchoStar Technologies segment for the year ended December 31, 2016 includes a $9.3 million adjustment to reduce inventory and related purchase commitments to estimated net realizable value.

Note 10. Goodwill, Regulatory Authorizations and Other Intangible Assets

Goodwill

The excess of the cost of an acquired business over the fair values of net tangible and identifiable intangible assets at the time of the acquisition is recorded as goodwill. Goodwill is assigned to the reporting units within our operating segments and is subject to impairment testing annually, or more frequently when events or changes in circumstances indicate the fair value of a reporting unit is more likely than not less than its carrying amount.

As of December 31, 2016 and 2015, approximately $504.2 million of our goodwill was assigned to reporting units of our Hughes segment and $6.4 million was assigned to our OTT, SVOD platform business reporting unit of our EchoStar Technologies segment. We test this goodwill for impairment annually for the Hughes and EchoStar Technologies segments in the second quarter and third quarter, respectively. Based on our qualitative assessment of impairment of our Hughes segment goodwill in the second quarter of 2016, we determined that it was not more likely than not that the fair values of the Hughes segment reporting units were less than the corresponding carrying amounts, including goodwill.

Regulatory Authorizations

Regulatory authorizations included amounts with finite and indefinite useful lives, as follows:

	As of December 31, 2015	Additions	Currency Translation Adjustment	As of December 31, 2016
	(In thousands)			
Finite useful lives:				
Cost	$ 82,007	$ —	$ 5,952	$ 87,959
Accumulated amortization	(9,852)	(4,685)	(446)	(14,983)
Net	72,155	(4,685)	5,506	72,976
Indefinite lives	471,657	—	—	471,657
Total regulatory authorizations, net	$ 543,812	$ (4,685)	$ 5,506	$ 544,633

Amortization expense for the regulatory authorizations with finite lives was $4.7 million, $4.7 million and $6.1 million for the years ended December 31, 2016, 2015 and 2014, respectively.

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Other Intangible Assets

Our other intangible assets, which are subject to amortization, consisted of the following:

	Weighted Average Useful Life (in Years)	As of December 31, 2016 Cost	2016 Accumulated Amortization	2016 Carrying Amount	2015 Cost	2015 Accumulated Amortization	2015 Carrying Amount
		(In thousands)					
Customer relationships	8	$ 293,932	$ (238,176)	$ 55,756	$ 293,932	$ (213,543)	$ 80,389
Contract-based	4	69,440	(69,440)	—	255,366	(251,493)	3,873
Technology-based	7	137,197	(125,908)	11,289	137,337	(111,840)	25,497
Trademark portfolio	20	29,700	(8,291)	21,409	29,700	(6,806)	22,894
Total other intangible assets		$ 530,269	$ (441,815)	$ 88,454	$ 716,335	$ (583,682)	$ 132,653

Customer relationships are amortized predominantly in relation to the expected contribution of cash flow to the business over the life of the intangible asset. Other intangible assets are amortized on a straight-line basis over the periods the assets are expected to contribute to our cash flows. Intangible asset amortization expense, including amortization of regulatory authorizations with finite lives and externally marketed capitalized software, was $58.4 million, $75.9 million and $92.1 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Future Amortization

As of December 31, 2016, our estimated future amortization of intangible assets, including regulatory authorizations with finite lives, was as follows:

	Amount
	(In thousands)
For the Years Ending December 31,	
2017	$ 30,253
2018	22,538
2019	21,324
2020	15,988
2021	9,350
Thereafter	65,997
Total	$ 165,450

Note 9. Property and Equipment

Property and equipment consisted of the following:

	Depreciable Life (In Years)	As of December 31, 2016	2015
		(In thousands)	
Land	—	$ 42,363	$ 41,457
Buildings and improvements	1-40	370,980	367,947
Furniture, fixtures, equipment and other	1-12	1,372,158	1,254,325
Customer rental equipment	2-4	689,579	588,430
Satellites - owned	2-15	2,381,120	2,381,120
Satellites acquired under capital leases	10-15	781,761	665,518
Construction in progress	—	1,438,812	1,112,267
Total property and equipment		7,076,773	6,411,064
Accumulated depreciation		(3,407,470)	(2,998,074)
Property and equipment, net		$ 3,669,303	$ 3,412,990

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

As of December 31, 2016 and 2015, accumulated depreciation included amounts for satellites acquired under capital leases of $328.2 million and $268.1 million, respectively.

In December 2015, we recognized an impairment loss of $2.4 million related to certain building and equipment in our EchoStar Technologies segment.

Construction in progress consisted of the following:

	As of December 31,	
	2016	2015
	(In thousands)	
Progress amounts for satellite construction, including prepayments under capital leases and launch services costs	$ 1,235,577	$ 963,103
Satellite related equipment	168,929	126,373
Other	34,306	22,791
Construction in progress	$ 1,438,812	$ 1,112,267

Construction in progress included the following owned and leased satellites under construction or undergoing in-orbit testing as of December 31, 2016.

Satellites	Segment	Expected Launch Date
EchoStar XIX	Other (3)	Fourth quarter of 2016 (1)
EchoStar XXI	Other	Second or third quarter of 2017
EchoStar XXIII	Other	First quarter of 2017
EchoStar 105/SES-11	ESS	Second quarter of 2017
Telesat T19V (“63 West”) (2)	Hughes	Second quarter of 2018

(1) This satellite was launched in December 2016 and is expected to be placed into service late in the first quarter of 2017.
(2) We entered into a satellite services agreement for certain capacity on this satellite once launched, but are not party to the construction contract.
(3) EchoStar contributed the EchoStar XIX satellite to its Hughes segment in February 2017.

We recorded capitalized interest related to our satellites, satellite payloads and related ground facilities under construction of $94.4 million, $63.8 million and $23.8 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Depreciation expense associated with our property and equipment consisted of the following:

	For the Years Ended December 31,		
	2016	2015	2014
	(In thousands)		
Satellites	$ 191,729	$ 197,469	$ 210,763
Furniture, fixtures, equipment and other	118,082	135,536	123,360
Customer rental equipment	114,568	105,725	116,685
Buildings and improvements	12,275	13,513	13,734
Total depreciation expense	$ 436,654	$ 452,243	$ 464,542

Satellites depreciation expense includes amortization of satellites under capital lease agreements of $56.2 million, $56.2 million and $59.7 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Satellites

As of December 31, 2016, we utilized in support of our operations, 18 of our owned and leased satellites in geosynchronous orbit, approximately 22,300 miles above the equator. We depreciate our owned satellites on a straight-line basis over the estimated useful life of each satellite. Three of our satellites are accounted for as capital leases and are depreciated on a straight-line basis over their respective lease terms. We utilized one satellite that is accounted for as an operating lease and not included in property and equipment as of December 31, 2016.

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Our operating satellite fleet consists of both owned and leased satellites detailed in the table below as of December 31, 2016.

Satellites	Segment	Launch Date	Nominal Degree Orbital Location (Longitude)	Depreciable Life (In Years)
Owned:				
SPACEWAY 3 (1)	Hughes	August 2007	95 W	12
EchoStar XVII	Hughes	July 2012	107 W	15
EchoStar I (2)(3)(4)	ESS	December 1995	77 W	—
EchoStar III (4)	ESS	October 1997	61.5 W	12
EchoStar VI (4)	ESS	July 2000	96.2 W	12
EchoStar VII (2)(3)	ESS	February 2002	119 W	3
EchoStar VIII (2)(4)	ESS	August 2002	77 W	12
EchoStar IX (2)(4)	ESS	August 2003	121 W	12
EchoStar X (2)(3)	ESS	February 2006	110 W	7
EchoStar XI (2)(3)	ESS	July 2008	110 W	9
EchoStar XII (2)(4)(5)	ESS	July 2003	61.5 W	2
EchoStar XIV (2)(3)	ESS	March 2010	119 W	11
EchoStar XVI (2)	ESS	November 2012	61.5W	15
EUTELSAT 10A (“W2A”) (6)	Other	April 2009	10 E	—
Capital Leases:				
Nimiq 5 (2)	ESS	September 2009	72.7 W	15
QuetzSat-1 (2)	ESS	September 2011	77 W	10
Eutelsat 65 West A	Hughes	March 2016	65 W	15
Operating Lease:				
AMC-15	ESS	October 2004	105 W	—

(1) Depreciable life represents the remaining useful life as of June 8, 2011, the date EchoStar completed its acquisition of Hughes Communications, Inc. and its subsidiaries.
(2) See Note 19 for discussion of related party transactions with DISH Network.
(3) Depreciable life represents the remaining useful life as of March 1, 2014, the effective date of our receipt of the satellites from DISH Network as part of the Satellite and Tracking Stock Transaction (See Note 4).
(4) Fully depreciated assets.
(5) Depreciable life represents the remaining useful life as of June 30, 2013, the date the EchoStar XII satellite was impaired.
(6) The Company acquired the S-band payload on this satellite, which prior to the acquisition in December 2013, experienced an anomaly at the time of the launch. As a result, the S-band payload is not fully operational.

Recent Developments

EchoStar XIX. The EchoStar XIX satellite was launched in December 2016 and we expect the satellite to be placed into service late in the first quarter of 2017. We expect the EchoStar XIX satellite to provide additional capacity for the Hughes broadband services to our customers in North America and added capacity in Mexico and certain Latin American countries and to add capability for aeronautical, enterprise and international broadband services. EchoStar contributed the EchoStar XIX satellite to its Hughes segment in February 2017.

Eutelsat 65 West A. The Eutelsat 65 West A satellite was launched in March 2016 and our Hughes segment began to offer consumer broadband services in Brazil using our leased Ka-band payload on the satellite in July 2016.

EchoStar XXI and EchoStar XXIII. Due to anomalies experienced by our launch providers, the launch dates of our EchoStar XXI and EchoStar XXIII satellites were delayed with expected launch dates in the second or third quarter of 2017 and the first quarter of 2017, respectively. We are in the process of evaluating the implications of these delays, including, without limitation, potential increased costs, regulatory and contractual milestone compliance and other satellite resource allocations. We had regulatory obligations to meet certain milestones by the fourth quarter of 2016 regarding the operations of the EchoStar XXI satellite across the European Union. We have notified the regulators in the EU of our delay and we intend to seek extensions of certain of these requirements to the extent we determine necessary. Although we anticipate being able to receive them, any such necessary extensions may be subject to additional conditions, penalties or other requirements. We also have regulatory obligations to meet certain in-service milestones by the second quarter of 2017 for our Brazilian license at 45 degree west longitude for the Ka-, Ku- and S-band frequency bands. We currently expect to meet our regulatory milestone for the Ku-band. We have sought an extension of the S- and Ka-band milestones, which may or may not be granted, and, if granted, may be subject to penalties, additional conditions or other requirements.

EchoStar 105/SES-11. Due to anomalies experienced by our launch provider, the expected launch date of our EchoStar 105/SES-11 satellite has been delayed until the second quarter of 2017. Our Ku-band payload on the EchoStar 105/SES-11 satellite will replace our current capacity on the AMC-15 satellite.

AMC-15 and AMC-16. In August 2014, in connection with the execution of agreements related to the EchoStar 105/SES-11 satellite, we entered into amendments that extend the terms of our existing agreements with SES Americom Colorado, Inc. (“SES”) for satellite services on the AMC-15 and AMC-16 satellites. As amended, the term of our agreement for satellite services on certain transponders on the AMC-15 satellite was extended from December 2014 through a certain period following the in-service date of the EchoStar 105/SES-11 satellite and is being accounted for as an operating lease. The amended agreement for the AMC-16 satellite services extended the term for the satellite’s entire communications capacity, subject to available power, for one year following expiration of the initial term in February 2015 and the agreement terminated according to its terms in February 2016.

As a result of anomalies that affected the operation of the AMC-15 and AMC-16 satellites, our monthly recurring payments were reduced under the related capital lease agreements during the year ending December 31, 2015. We have accounted for these lease modifications generally by reducing the carrying amounts of the satellite and related capital lease obligation by the present value of the payment reduction. In such instances where the carrying amount of the satellite had been reduced to zero as a result of accumulated depreciation or impairments, we have recognized the reductions in the capital lease obligations as gains in “Other, net” in our consolidated statements of operations and comprehensive income (loss). For the years ended December 31, 2016, 2015 and 2014, we recognized such gains of zero, $4.5 million and zero, respectively.

Satellite Anomalies and Impairments

Our satellites may experience anomalies from time to time, some of which may have a significant adverse impact on their remaining useful lives, the commercial operation of the satellites or our operating results. We are not aware of any anomalies with respect to our owned or leased satellites that have had any such material adverse effect during the year ended December 31, 2016. There can be no assurance, however, that anomalies will not have any such adverse impacts in the future. In addition, there can be no assurance that we can recover critical transmission capacity in the event one or more of our in-orbit satellites were to fail.

We historically have not carried in-orbit insurance on our satellites because we assessed that the cost of insurance was uneconomical relative to the risk of failures. Therefore, we generally bear the risk of any in-orbit failures. Pursuant to the terms of the agreements governing certain portions of our indebtedness, we are required, subject to certain limitations on coverage, to maintain in-orbit insurance for our SPACEWAY 3, EchoStar XVI, and EchoStar XVII satellites. Based on economic analysis of the current insurance market we have elected to obtain, subject to certain limitations on coverage, launch and in-orbit insurance for our EchoStar XIX, EchoStar XXI and EchoStar XXIII satellites and our interest in the EchoStar 105/SES-11 satellite. All other satellites, either in orbit or under construction, are not covered by launch or in-orbit insurance. We will continue to assess circumstances going forward and make insurance decisions on a case by case basis.

We evaluate our satellites for impairment and test for recoverability whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. Certain of the anomalies previously disclosed, may be considered to represent a significant adverse change in the physical condition of a particular satellite. However, based on the redundancy designed within each satellite, certain of these anomalies are not necessarily considered to be significant events that would require a test of recoverability.

Note 11. Debt and Capital Lease Obligations

As of December 31, 2015, our debt primarily consisted of the 2019 Senior Secured Notes and the 2021 Senior Unsecured Notes, each as defined below, and our capital lease obligations. As of December 31, 2016, our debt also included the 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes, each as defined below, which were issued in July 2016.

The following table summarizes the carrying amounts and fair values of our debt:

		As of December 31,			
		2016		2015	
	Effective Interest Rate	Carrying Amount	Fair Value	Carrying Amount	Fair Value
		(In thousands)			
Senior Secured Notes:					
6 1/2% Senior Secured Notes due 2019	6.959%	$ 990,000	$ 1,084,050	$ 990,000	$ 1,071,675
5 1/4% Senior Secured Notes due 2026	5.316%	750,000	739,688	—	—
Senior Unsecured Notes:					
7 5/8% Senior Unsecured Notes due 2021	8.062%	900,000	990,189	900,000	954,000
6 5/8% Senior Unsecured Notes due 2026	6.685%	750,000	760,245	—	—
Other		—	—	803	803
Less: Unamortized debt issuance costs		(31,821)	—	(31,276)	—
Subtotal		3,358,179	$ 3,574,172	1,859,527	$ 2,026,478
Capital lease obligations		302,007		332,838	
Total debt and capital lease obligations		3,660,186		2,192,365	
Less: Current portion		(37,307)		(35,698)	
Long-term debt and capital lease obligations, net of unamortized debt issuance costs		$ 3,622,879		$ 2,156,667	

The fair values of our debt are estimates categorized within Level 2 of the fair value hierarchy.

2019 Senior Secured Notes and 2021 Senior Unsecured Notes

On June 1, 2011, HSS issued $1.10 billion aggregate principal amount of 6 1/2% Senior Secured Notes due 2019 (the “2019 Senior Secured Notes”) at an issue price of 100.0%, pursuant to a Secured Indenture dated June 1, 2011, (as amended the “2011 Secured Indenture”). The 2019 Senior Secured Notes mature on June 15, 2019. Interest accrues at an annual rate of 6 1/2% and is payable semi-annually in cash, in arrears on June 15 and December 15 of each year. As of December 31, 2016 and 2015, the outstanding principal balance on the 2019 Senior Secured Notes was $990.0 million.

On June 1, 2011, HSS also issued $900.0 million aggregate principal amount of 7 5/8% Senior Unsecured Notes due 2021 (the “2021 Senior Unsecured Notes,”) at an issue price of 100.0%, pursuant to an Unsecured Indenture dated June 1, 2011 (together with the “2011 Secured Indenture”, the “2011 Indentures”). The 2021 Senior Unsecured Notes mature on June 15, 2021. Interest accrues at an annual rate of 7 5/8% and is payable semi-annually in cash, in arrears on June 15 and December 15 of each year. As of December 31, 2016 and 2015, the outstanding principal balance on the 2021 Senior Unsecured Notes was $900.0 million.

On June 12, 2015, we redeemed $110.0 million of the 2019 Senior Secured Notes at a redemption price equal to 103.0% of the principal amount plus accrued and unpaid interest. As a result, we recorded a $5.0 million loss consisting of the $3.3 million redemption premium and a $1.7 million write-off of related unamortized debt issuance costs.

2026 Senior Secured Notes and 2026 Senior Unsecured Notes

On July 27, 2016, HSS issued $750 million aggregate principal amount of 5 1/4% Senior Secured Notes due 2026 (the “2026 Senior Secured Notes” and, together with the 2019 Senior Secured Notes, the “Secured Notes”) at an issue price of 100.0%, pursuant to an indenture dated July 27, 2016 (the “2016 Secured Indenture”) and $750 million aggregate principal amount of 6 5/8% Senior Unsecured Notes due 2026 (the “2026 Senior Unsecured Notes” and, together with the 2021 Senior Unsecured Notes, the “Unsecured Notes”) at an issue price of 100.0%, pursuant to an indenture dated July 27, 2016 (together with the 2011 Indentures and the 2016 Secured Indenture, the “Indentures”). The 2019 Senior Secured Notes, the 2021 Senior Unsecured Notes, the 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes are referred to collectively as the “Notes” and individually as a series of the Notes. The 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes (collectively, the “2026 Notes”) mature on August 1, 2026. Interest on the 2026 Senior Secured Notes accrues at an annual rate of 5 1/4% and interest on the 2026 Senior Unsecured Notes accrues at an annual rate of 6 5/8%. Interest on the 2026 Notes is payable semi-annually in cash, in arrears on February 1 and August 1 of each year commencing February 1, 2017. As of December 31, 2016, the outstanding principal balance on each of the 2026 Senior Secured Notes and the 2026 Senior Unsecured Notes was $750.0 million.

Additional Information Relating to the Notes

Each series of the Notes is redeemable, in whole or in part, at any time at a redemption price equal to 100.0% of the principal amount thereof plus a “make-whole” premium, as defined in the applicable Indenture, together with accrued and unpaid interest, if any, to the date of redemption. HSS may also redeem up to 10% of the outstanding 2026 Senior Secured Notes per year prior to August 1, 2020 at a redemption price equal to 103% of the principal amount thereof plus accrued and unpaid interest to the date of redemption. In addition, HSS may, at any time prior to August 1, 2019, with the net cash proceeds from certain equity offerings or capital contributions, redeem up to 35% of the 2026 Senior Secured Notes, at 105.250% of the principal amount, and up to 35% of the 2026 Senior Unsecured Notes, at a redemption price equal to 106.625% of the principal amount plus, in each case, accrued and unpaid interest on the 2026 Notes being redeemed to the date of redemption.

The Secured Notes are:

- secured obligations of HSS;
- secured by security interests in substantially all existing and future tangible and intangible assets of HSS and certain of its subsidiaries on a first priority basis, subject to certain exceptions;
- ranked equally and ratably as between the 2019 Senior Secured Notes and the 2026 Senior Secured Notes;
- effectively junior to HSS’ obligations that are secured by assets that are not part of the collateral that secures the respective Secured Notes, in each case, to the extent of the value of the collateral securing such obligations;
- effectively senior to HSS’ existing and future unsecured obligations to the extent of the value of the collateral securing the respective Secured Notes, after giving effect to permitted liens as provided in the Indenture governing the respective Secured Notes;
- senior in right of payment to all existing and future obligations of HSS that are expressly subordinated to the respective Secured Notes;
- structurally junior to any existing and future obligations of any of HSS’ subsidiaries that do not guarantee the respective Secured Notes; and
- unconditionally guaranteed, jointly and severally, on a general senior secured basis by certain of our HSS’ subsidiaries, which guarantees rank equally with all of the guarantors’ existing and future unsubordinated indebtedness and effectively senior to such guarantors’ existing and future obligations to the extent of the value of the assets securing the respective Secured Notes.

The Unsecured Notes are:

- unsecured senior obligations of HSS;
- ranked equally with all existing and future unsubordinated indebtedness (including as between the 2021 Senior Unsecured Notes and the 2026 Senior Unsecured Notes) and effectively junior to any secured indebtedness up to the value of the assets securing such indebtedness;

- effectively junior to HSS' obligations that are secured to the extent of the value of the collateral securing such obligations;
- senior in right of payment to all existing and future obligations of HSS that are expressly subordinated to the respective Unsecured Notes;
- structurally junior to any existing and future obligations of any of HSS' subsidiaries that do not guarantee the respective Unsecured Notes; and
- unconditionally guaranteed, jointly and severally, on a general senior secured basis by certain of HSS' subsidiaries, which guarantees rank equally with all of the guarantors' existing and future unsubordinated indebtedness, and effectively junior to any secured indebtedness of the guarantors up to the value of the assets securing such indebtedness.

Subject to certain exceptions, the Indentures contain restrictive covenants that, among other things, impose limitations on HSS' ability and, in certain instances, the ability of certain of HSS' subsidiaries to:

- incur additional debt;
- pay dividends or make distributions on HSS' capital stock or repurchase HSS' capital stock;
- make certain investments;
- create liens or enter into sale and leaseback transactions;
- enter into transactions with affiliates;
- merge or consolidate with another company;
- transfer and sell assets; and
- allow to exist certain restrictions on the ability of certain of HSS' subsidiaries to pay dividends, make distributions, make other payments, or transfer assets to HSS or its subsidiaries.

In the event of a Change of Control, as defined in the respective Indentures, HSS would be required to make an offer to repurchase all or any part of a holder's Notes at a purchase price equal to 101.0% of the aggregate principal amount thereof, together with accrued and unpaid interest to the date of repurchase.

The Indentures provide for customary events of default for each series of the Notes, including, among other things, nonpayment, breach of the covenants in the applicable Indentures, payment defaults or acceleration of other indebtedness, a failure to pay certain judgments and certain events of bankruptcy, insolvency and reorganization. If any event of default occurs and is continuing with respect to any series of the Notes, the trustee or the holders of at least 25% in principal amount of the then outstanding Notes of such series may declare all the Notes of such series to be due and payable immediately, together with any accrued and unpaid interest.

Under the terms of a registration rights agreement, HSS agreed to register under the Securities Act of 1933, as amended, notes having substantially identical terms as the 2026 Notes as part of an offer to exchange freely tradable exchange notes for the 2026 Notes that is required to be declared effective by July 27, 2017. In the event that the registration statement is not declared effective by July 27, 2017 and under certain other conditions (a "registration default"), we are required to pay each holder of the 2026 Notes additional interest up to $0.25 per week per $1,000 in principal amount of the 2026 Notes until the registration default is cured.

Debt Issuance Costs

As of January 1, 2016 we adopted ASU 2015-3 (see Note 2). As a result, we report unamortized debt issuance costs in "Long-term debt and capital lease obligations, net of unamortized debt issuance costs" in our consolidated balance sheets retrospectively. In connection with the issuance of the 2026 Notes, we incurred $7.1 million of debt issuance costs. For the years ended December 31, 2016, 2015 and 2014, we amortized $6.6 million, $6.0 million and $5.8 million of debt issuance costs, respectively, which are included in "Interest expense, net of amounts capitalized" in our consolidated statements of operations and comprehensive income (loss).

Capital Lease Obligations

Our capital lease obligations reflect the present value of future minimum lease payments under noncancelable lease agreements, primarily for certain of our satellites (see Note 9). These agreements require monthly recurring payments, which generally include principal, interest, an amount for use of the orbital location and estimated executory costs, such as insurance and maintenance. The monthly recurring payments generally are subject to reduction in the event of failures that reduce the satellite transponder capacity. Certain of these agreements provide for extension of the initial lease term at our option. The effective interest rates for our satellite capital lease obligations range from 9.1% to 11.2%, with a weighted average of 10.6% as of December 31, 2016.

Our capital lease obligations consist primarily of our payment obligations under agreements for the Nimiq 5 and QuetzSat-1 satellites, which have remaining noncancelable terms ending in September 2024 and November 2021, respectively. As discussed in Note 19, we have subleased transponders on these satellites to DISH Network.

Future minimum lease payments under our capital lease obligations, together with the present value of the net minimum lease payments as of December 31, 2016, are as follows:

		Amount
		(In thousands)
For the Years Ending December 31,		
	2017	$ 93,092
	2018	88,923
	2019	88,221
	2020	88,033
	2021	83,995
Thereafter		174,240
Total minimum lease payments		616,504
Less: Amount representing lease of the orbital location and estimated executory costs (primarily insurance and maintenance) including profit thereon, included in total minimum lease payments		(188,216)
Net minimum lease payments		428,288
Less: Amount representing interest		(126,281)
Present value of net minimum lease payments		302,007
Less: Current portion		(37,307)
Long-term portion of capital lease obligations		$ 264,700

We received rental income from the sublease of our capital lease satellites of approximately $132.4 million for each of the years ended December 31, 2016, 2015 and 2014. As of December 31, 2016, our future minimum sublease rental income was $480.9 million relating to such satellites. The subleases have a remaining weighted average term of four years.

Note 12. Income Taxes

The components of income before income taxes are as follows:

	For the Years Ended December 31,		
	2016	2015	2014
		(In thousands)	
Domestic	$ 313,203	$ 224,058	$ 172,276
Foreign	(26,359)	(2,486)	6,057
Income before income taxes	$ 286,844	$ 221,572	$ 178,333

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

The components of the provision for income taxes are as follows:

	For the Years Ended December 31,		
	2016	2015	2014
	(In thousands)		
Current benefit (provision):			
Federal	$ (4,788)	$ (165)	$ (2,593)
State	(305)	(9,601)	9,006
Foreign	(2,911)	(6,303)	(5,455)
Total current benefit (provision)	(8,004)	(16,069)	958
Deferred benefit (provision):			
Federal	(93,681)	(62,572)	(31,905)
State	(10,023)	4,818	(1,283)
Foreign	5,556	1,622	1,446
Total deferred provision	(98,148)	(56,132)	(31,742)
Total income tax provision, net	$ (106,152)	$ (72,201)	$ (30,784)

The actual tax provisions for the years ended December 31, 2016, 2015 and 2014 reconcile to the amounts computed by applying the statutory federal tax rate to income before income taxes as shown below:

	For the Years Ended December 31,		
	2016	2015	2014
Statutory rate	35.0 %	35.0 %	35.0 %
State income taxes, net of Federal benefit	4.6 %	2.1 %	(0.2)%
Permanent differences	3.2 %	3.6 %	0.6 %
Tax credits	(6.2)%	(10.1)%	(18.6)%
Valuation allowance	— %	2.8 %	(0.9)%
Other	0.4 %	(0.8)%	1.4 %
Total effective tax rate	37.0 %	32.6 %	17.3 %

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The components of our deferred tax assets and liabilities are as follows:

	As of December 31,	
	2016	2015
	(In thousands)	
Deferred tax assets:		
Net operating losses, credit and other carryforwards	$ 178,925	$ 315,924
Unrealized losses on investments, net	47,737	47,678
Accrued expenses	39,596	34,037
Stock-based compensation	14,389	13,345
Other assets	15,008	9,534
Total deferred tax assets	295,655	420,518
Valuation allowance	(75,372)	(72,131)
Deferred tax assets after valuation allowance	220,283	348,387
Deferred tax liabilities:		
Depreciation and amortization	(962,838)	(993,326)
Other liabilities	(1,319)	(1,412)
Total deferred tax liabilities	(964,157)	(994,738)
Total net deferred tax liabilities	$ (743,874)	$ (646,351)
Noncurrent portion of net deferred tax liabilities	$ (743,874)	$ (646,351)
Total net deferred tax liabilities	$ (743,874)	$ (646,351)

Deferred tax assets and liabilities reflect the effects of tax losses, credits, and the future income tax effects of temporary differences between the consolidated financial statement carrying amounts of existing assets and liabilities and their respective tax bases and are measured using enacted tax rates that apply to taxable income in the years in which those temporary differences are expected to be recovered or settled.

We evaluate our deferred tax assets for realization and record a valuation allowance when we determine that it is more likely than not that the amounts will not be realized. Overall, our net deferred tax assets were offset by a valuation allowance of $75.4 million and $72.1 million as of December 31, 2016 and 2015, respectively. The change in the valuation allowance primarily relates to an increase in the net operating loss carryforwards of certain foreign subsidiaries.

Tax benefits of net operating loss and tax credit carryforwards are evaluated on an ongoing basis, including a review of historical and projected future operating results, the eligible carryforward period, and other circumstances. As of December 31, 2016, we had net operating loss carryforwards of $351.3 million, including $115.9 million of foreign net operating loss carryforwards. A substantial portion of these net operating loss carryforwards will begin to expire in 2029. As of December 31, 2016, we have tax credit carryforwards of $117.1 million and $52.6 million for federal and state income tax purposes, respectively. If not utilized, the federal tax credit carryforwards will begin to expire in 2026 and the state tax credit carryforwards will begin to expire in 2018.

Additionally, tax benefits from excess tax deductions attributable to stock-based compensation have resulted in $38.4 million of net operating loss carryforwards that has not been recognized as a credit to additional paid in capital, based on our accounting policy to follow the tax law ordering rules, which assume that stock option deductions are realized when they have been used for tax purposes. In connection with our adoption of ASU 2016-09 (see Note 2), we will recognize a deferred tax asset for the tax benefit of such excess tax deductions with a corresponding credit to retained earnings as of January 1, 2017.

As of December 31, 2016, we had undistributed earnings attributable to foreign subsidiaries for which no provision for U.S. income taxes or foreign withholding taxes has been made because it is expected that such earnings will be reinvested outside the U.S. indefinitely. It is not practicable to determine the amount of the unrecognized deferred tax liability at this time.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Accounting for Uncertainty in Income Taxes

In addition to filing U.S. federal income tax returns, we file income tax returns in all states that impose an income tax. We also file income tax returns in the United Kingdom, Brazil, India and a number of other foreign jurisdictions. We generally are open to income tax examination in these foreign jurisdictions for taxable years beginning in 2003. As of December 31, 2016, we are currently being audited by the Indian tax authorities for fiscal years 2003 through 2012. We have no other on-going significant income tax examinations in process in our foreign jurisdictions.

A reconciliation of the beginning and ending amount of unrecognized income tax benefits is as follows:

Unrecognized tax benefit	For the Years Ended December 31, 2016	2015	2014
	(In thousands)		
Balance as of beginning of period	$ 62,366	$ 44,839	$ 43,319
Additions based on tax positions related to the current year	2,132	11,748	3,806
Additions based on tax positions related to prior years	3	5,779	4,643
Reductions based on tax positions related to prior years	(734)	—	(81)
Reductions based on tax settlements	(265)	—	(6,848)
Balance as of end of period	$ 63,502	$ 62,366	$ 44,839

As of December 31, 2016, we had $63.5 million of unrecognized income tax benefits, all of which, if recognized, would affect our effective tax rate. As of December 31, 2015, we had $62.4 million of unrecognized income tax benefits, all of which, if recognized, would affect our effective tax rate. We do not believe that the total amount of unrecognized income tax benefits will significantly increase or decrease within the next twelve months due to the lapse of statute of limitations or settlement with tax authorities.

For the years ended December 31, 2016, 2015 and 2014, our income tax provision included an insignificant amount of interest and penalties.

Estimates of our uncertain tax positions are made based upon prior experience and are updated in light of changes in facts and circumstances. However, due to the uncertain and complex application of tax regulations, it is possible that the ultimate resolution of audits may result in liabilities which could be materially different from these estimates. In such an event, we will record additional income tax provision or benefit in the period in which such resolution occurs.

Note 13. Stockholders' Equity

Preferred Stock

Our board of directors is authorized to divide the preferred stock into series and, with respect to each series, to determine the preferences and rights and the qualifications, limitations or restrictions of the series, including the dividend rights, conversion rights, voting rights, redemption rights and terms, liquidation preferences, sinking fund provisions, the number of shares constituting the series, and the designation of such series. Our board of directors may, without stockholder approval, issue additional preferred stock of existing or new series with voting and other rights that could adversely affect the voting power of the holders of common stock and could have certain anti-takeover effects.

In February 2014, our board of directors authorized 13,000,000 shares of Hughes Retail Preferred Tracking Stock with a par value of $0.001 per share, of which 6,290,499 shares were issued to DISH Network on March 1, 2014 and remain outstanding as of December 31, 2016. See Note 4 for a discussion of the Hughes Retail Preferred Tracking Stock.

Common Stock

Our Class A, Class B, and Class C common stock are equivalent except for voting rights. Holders of Class A and Class C common stock are entitled to one vote per share and holders of Class B common stock are entitled to 10 votes per share. Upon a change in control of the Company, each holder of outstanding shares of Class C common stock is entitled to 10 votes for each share of Class C common stock held. Each share of Class B and Class C common stock is convertible, at the option of the holder, into one share of Class A common stock. Our principal stockholder owns the majority of all outstanding Class B common stock and, together with all other stockholders, owns outstanding Class A common stock. There are no shares of Class C common stock outstanding.

Any holder of Class D common stock is not entitled to a vote on any matter or to convert the shares of Class D common stock into any other class of common stock. There are no shares of Class D common stock outstanding.

Each share of common stock is entitled to receive its pro rata share, based upon the number of shares of common stock held, of dividends and distributions upon liquidation.

Common Stock Repurchase Program

Pursuant to a stock repurchase program approved by our board of directors, we are authorized to repurchase up to $500.0 million of our outstanding shares of Class A common stock through and including December 31, 2017. For the years ended December 31, 2016, 2015 and 2014, we did not repurchase any common stock under this program.

Note 14. Employee Benefit Plans

Employee Stock Purchase Plan

We have an employee stock purchase plan (the “ESPP”), under which we are authorized to issue 2.5 million shares of Class A common stock. As of December 31, 2016, we had 0.4 million shares of Class A common stock which remain available for issuance under this plan. Substantially all full-time employees who have been employed by us for at least one calendar quarter are eligible to participate in the ESPP. Employee stock purchases are made through payroll deductions. Under the terms of the ESPP, each employee’s deductions are limited so that the maximum they may purchase under the ESPP is $25,000 in fair value of Class A common stock per year. Stock purchases are made on the last business day of each calendar quarter at 85.0% of the closing price of the Class A common stock on that date. For the years ended December 31, 2016, 2015 and 2014, employee purchases of Class A common stock through the ESPP totaled approximately 383,000 shares, 362,000 shares and 283,000 shares, respectively.

401(k) Employee Savings Plans

Under the EchoStar 401(k) Plan (“the Plan”), eligible employees are entitled to contribute up to 75.0% of their compensation subject to the maximum limit provided by the Internal Revenue Code of 1986, as amended (the “Code”). Eligible employees have the option to make after-tax contributions to the Plan so that they may contribute up to 75% of their compensation on a pre-tax and/or after-tax basis subject to the Code limits. All employee contributions to the Plan are immediately vested. The Company matches 50 cents on the dollar for the first 6.0% of each employee’s salary contributions to the Plan for a total of 3.0% match on a pre-tax basis up to a maximum of $7,500 annually. The Company match is calculated each pay period there is an employee contribution. In addition, the Company may make an annual discretionary contribution to the 401(k) plan to be made in cash or our stock. Company contributions under the Plan vest at 20.0% per year and are 100.0% vested after an eligible employee has completed five years of employment. Forfeitures of unvested participant balances may be used to fund matching and discretionary contributions.

For the years ended December 31, 2016, 2015 and 2014, we recognized matching contributions, net of forfeitures, of $7.8 million, $7.4 million and $6.8 million, respectively, and made discretionary contributions of shares of our Class A common stock, net of forfeitures, with a fair value of $10.9 million, $10.4 million and $10.2 million, respectively (approximately 284,500, 204,000 and 207,000 shares, respectively), to the Plan.

Note 15. Stock-Based Compensation

Stock Incentive Plans

We maintain stock incentive plans to attract and retain officers, directors and key employees. Stock awards under these plans include both performance-based and non-performance based stock incentives. As of December 31, 2016, we had outstanding under these plans, stock options to acquire approximately 6.0 million shares of our Class A common stock and 6,667 restricted stock units. Stock options granted prior to and on December 31, 2016 were granted with exercise prices equal to or greater than the market value of our Class A common stock at the date of grant and generally with a maximum term of ten years. While generally we issue stock awards subject to vesting, typically over three to five years, some stock awards have been granted with immediate vesting and other stock awards vest only upon the achievement of certain performance objectives. As of December 31, 2016, we had 3.8 million shares of our Class A common stock available for future grant under our stock incentive plans.

Exercise prices for stock options outstanding and exercisable as of December 31, 2016 are as follows:

	Options Outstanding			Options Exercisable		
Price Range	Number Outstanding as of December 31, 2016	Weighted-Average Remaining Contractual Term (In Years)	Weighted-Average Exercise Price	Number Exercisable as of December 31, 2016	Weighted-Average Remaining Contractual Term (In Years)	Weighted-Average Exercise Price
$0.00 - $20.00	196,834	3	$ 17.93	196,834	3	$ 17.93
$20.01 - $25.00	489,947	3	$ 20.26	489,947	3	$ 20.26
$25.01 - $30.00	163,013	3	$ 27.80	128,013	3	$ 28.12
$30.01 - $35.00	365,000	6	$ 34.22	338,000	6	$ 34.22
$35.01 - $40.00	2,528,369	6	$ 38.07	1,811,969	5	$ 37.74
$40.01 - $45.00	415,500	9	$ 43.93	2,000	9	$ 43.83
$45.01 - $50.00	981,100	8	$ 47.47	392,500	7	$ 47.51
$50.01 and over	829,000	8	$ 51.90	191,800	8	$ 51.98
	5,968,763	7	$ 39.30	3,551,063	5	$ 35.40

Stock Award Activity

Our stock option activity was as follows:

	For the Years Ended December 31,					
	2016		2015		2014	
	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price	Options	Weighted-Average Exercise Price
Total options outstanding, beginning of period	5,893,241	$ 38.38	6,669,614	$ 34.02	6,271,058	$ 30.43
Granted	732,000	$ 41.86	929,000	$ 51.59	1,161,000	$ 47.84
Exercised	(453,182)	$ 28.83	(894,071)	$ 27.78	(697,544)	$ 24.87
Forfeited and canceled	(203,296)	$ 45.15	(811,302)	$ 29.45	(64,900)	$ 32.65
Total options outstanding, end of period	5,968,763	$ 39.30	5,893,241	$ 38.38	6,669,614	$ 34.02
Performance-based options outstanding, end of period (1)	—	$ —	—	$ —	623,100	$ 25.27
Exercisable at end of period	3,551,063	$ 35.40	3,082,241	$ 32.61	3,013,114	$ 29.66

(1) These stock options are included in the caption “Total options outstanding, end of period.” See discussion of the 2005 LTIP below.

We realized total tax benefits from stock options exercised of $3.3 million, $7.9 million and $7.2 million for the years ended December 31, 2016, 2015 and 2014, respectively.

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Our restricted stock unit activity was as follows:

	For the Years Ended December 31,											
	2016				2015				2014			
	Restricted Stock Units		Weighted-Average Grant Date Fair Value		Restricted Stock Units		Weighted-Average Grant Date Fair Value		Restricted Stock Units		Weighted-Average Grant Date Fair Value	
Total restricted stock units outstanding, beginning of period	57,328	$	42.31		96,768	$	29.29		121,877	$	29.93	
Granted	—	$	—		100,000	$	50.00		—	$	—	
Vested	(50,661)	$	43.38		(83,992)	$	45.72		(22,877)	$	33.08	
Forfeited and canceled	—	$	—		(55,448)	$	27.01		(2,232)	$	25.51	
Total restricted stock units outstanding, end of period	6,667	$	34.22		57,328	$	42.31		96,768	$	29.29	
Restricted Performance Units outstanding, end of period	—	$	—		33,334	$	50.00		55,448	$	27.00	

In 2015, we granted 100,000 restricted stock units (“RSUs”). The RSUs vested based on the attainment of certain quarterly company performance criteria for the second, third and fourth quarters of 2015. In 2015, 66,666 of the RSUs vested and in February 2016 the remaining 33,334 RSUs vested.

2005 LTIP. During 2005, DISH Network adopted a long-term, performance-based stock incentive plan (the “2005 LTIP”). The 2005 LTIP provided stock options and RSUs, either alone or in combination, with vesting over seven years at the rate of 10.0% per year during the first four years, and at the rate of 20.0% per year thereafter. In connection with the Spin-off, those stock options and RSUs were converted into EchoStar stock options and RSUs with the same terms and obligations as were provided under the 2005 LTIP. As of December 31, 2014, all outstanding awards under the terms of the 2005 LTIP had satisfied applicable time-based vesting requirements and were subject only to a performance condition that a company-specific goal is achieved by March 31, 2015. In 2015 we determined that the company-specific goal was no longer achievable under the terms of the 2005 LTIP. Accordingly, the 2005 LTIP and all outstanding awards under the terms of the 2005 LTIP were cancelled and terminated during 2015.

Stock-Based Compensation

Total non-cash, stock-based compensation expense for all of our employees is shown in the following table for the years ended December 31, 2016, 2015 and 2014 and was assigned to the same expense categories as the base compensation for such employees:

	For the Years Ended December 31,					
	2016		2015		2014	
	(In thousands)					
Research and development expenses	$	3,003	$	4,570	$	2,403
Selling, general and administrative expenses		12,231		17,269		12,280
Total stock-based compensation	$	15,234	$	21,839	$	14,683

As of December 31, 2016, total unrecognized stock-based compensation cost, net of estimated forfeitures, related to our unvested stock awards was $27.1 million. This amount is based on an estimated future forfeiture rate of approximately 2.0% per year and will be recognized over a weighted-average period of approximately two years.

Valuation of Stock Options

The fair value of each stock option granted for the years ended December 31, 2016, 2015 and 2014 was estimated at the date of the grant using a Black-Scholes option valuation model. The estimated grant-date fair values and related assumptions were as follows:

	For the Years Ended December 31,		
Assumptions:	**2016**	**2015**	**2014**
Risk-free interest rate	1.10% - 1.87%	1.38% - 1.80%	1.72% - 1.85%
Volatility factor	27.22% - 27.37%	27.16% - 27.85%	29.05% - 35.02%
Expected term of options in years	5.7 - 5.8	5.3 - 5.4	5.2 - 5.3
Weighted-average grant-date fair value	\$11.15 - \$12.49	\$12.25 - \$15.05	\$13.79 - \$17.21

We do not currently intend to pay dividends on our common stock and accordingly, the dividend yield used in the Black-Scholes option valuation model was assumed to be zero for all periods. The Black-Scholes option valuation model was developed for use in estimating the fair value of traded stock options which have no vesting restrictions and are fully transferable. Consequently, our estimate of fair value may differ from that determined using other valuation models. Further, the Black-Scholes option valuation model requires the input of subjective assumptions. Changes in the subjective input assumptions can materially affect the fair value estimate.

Based on the closing market price of our Class A common stock on December 31, 2016, the aggregate intrinsic value of our stock options was $72.6 million for options outstanding and $56.9 million for options exercisable as of December 31, 2016.

Note 16. Commitments and Contingencies

Commitments

The following table summarizes our contractual obligations at December 31, 2016:

	Payments Due in the Year Ending December 31,						
	Total	**2017**	**2018**	**2019**	**2020**	**2021**	**Thereafter**
	(In thousands)						
Long-term debt	$ 3,390,000	$ —	$ —	$ 990,000	$ —	$ 900,000	$ 1,500,000
Capital lease obligations	302,007	37,307	36,927	40,370	44,733	46,131	96,539
Interest on long-term debt and capital lease obligations	1,487,583	252,999	248,428	212,318	175,799	136,673	461,366
Satellite-related obligations	732,004	220,421	135,987	63,499	60,479	45,308	206,310
Operating lease obligations	87,558	34,974	14,920	11,484	8,425	7,385	10,370
Purchase and other obligations	105,923	105,923	—	—	—	—	—
Total	$ 6,105,075	$ 651,624	$ 436,262	$ 1,317,671	$ 289,436	$ 1,135,497	$ 2,274,585

"Satellite-related obligations" primarily include payments pursuant to agreements for the construction of the EchoStar XIX, EchoStar XXI, EchoStar XXIII, and EchoStar 105/SES-11 satellites; payments pursuant to launch services contracts and regulatory authorizations; executory costs for our capital lease satellites; costs under satellite service agreements; and in-orbit incentives relating to certain satellites; as well as commitments for long-term satellite operating leases and satellite service arrangements. We incurred satellite-related expenses of $144.2 million, $160.8 million and $178.8 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Our "Purchase and other obligations" primarily consists of binding purchase orders for digital set-top boxes and related components. Our purchase obligations can fluctuate significantly from period to period due to, among other things, management's control of inventory levels, and can materially impact our future operating asset and liability balances, and our future working capital requirements.

The table above does not include amounts related to deferred tax liabilities, unrecognized tax positions and certain other amounts recorded in our noncurrent liabilities as the timing of any payments is uncertain. The table also excludes long-term deferred revenue and other long-term liabilities that do not require future cash payments.

In certain circumstances, the dates on which we are obligated to pay our contractual obligations could change.

Rent Expense

For the years ended December 31, 2016, 2015 and 2014, we recorded $24.7 million, $22.0 million and $21.3 million, respectively, of operating lease expense relating to the leases of office space, equipment, and other facilities.

Contingencies

Patents and Intellectual Property

Many entities, including some of our competitors, have or may in the future obtain patents and other intellectual property rights that cover or affect products or services directly or indirectly related to those that we offer. We may not be aware of all patents and other intellectual property rights that our products and services may potentially infringe. Damages in patent infringement cases can be substantial, and in certain circumstances can be trebled. Further, we cannot estimate the extent to which we may be required in the future to obtain licenses with respect to intellectual property rights held by others and the availability and cost of any such licenses. Various parties have asserted patent and other intellectual property rights with respect to components within our direct broadcast satellite (“DBS”) products and services. We cannot be certain that these persons do not own the rights they claim, that these rights are not valid or that our products and services do not infringe on these rights. Further, we cannot be certain that we would be able to obtain licenses from these persons on commercially reasonable terms or, if we were unable to obtain such licenses, that we would be able to redesign our products and services to avoid infringement.

Separation Agreement

In connection with the Spin-off, we entered into a separation agreement with DISH Network that provides, among other things, for the division of certain liabilities, including liabilities resulting from litigation. Under the terms of the separation agreement, we have assumed certain liabilities that relate to our business, including certain designated liabilities for acts or omissions that occurred prior to the Spin-off. Certain specific provisions govern intellectual property related claims under which, generally, we will only be liable for our acts or omissions following the Spin-off and DISH Network will indemnify us for any liabilities or damages resulting from intellectual property claims relating to the period prior to the Spin-off, as well as DISH Network’s acts or omissions following the Spin-off. The Share Exchange Agreement contains additional indemnification provisions between us and DISH Network for certain liabilities and legal proceedings that will apply if the Share Exchange is consummated.

Litigation

We are involved in a number of legal proceedings (including those described below) concerning matters arising in connection with the conduct of our business activities. Many of these proceedings are at preliminary stages and/or seek an indeterminate amount of damages. We regularly evaluate the status of the legal proceedings in which we are involved to assess whether a loss is probable or there is a reasonable possibility that a loss or an additional loss may have been incurred and to determine if accruals are appropriate. We record an accrual for litigation and other loss contingencies when we determine that a loss is probable and the amount of the loss can be reasonably estimated. If accruals are not appropriate, we further evaluate each legal proceeding to assess whether an estimate of possible loss or range of loss can be made. There can be no assurance that legal proceedings against us will be resolved in amounts that will not differ from the amounts of our recorded accruals. Legal fees and other costs of defending litigation are charged to expense as incurred.

For certain cases described below, management is unable to predict with any degree of certainty the outcome or provide a meaningful estimate of the possible loss or range of possible loss because, among other reasons, (i) the proceedings are in various stages; (ii) damages have not been sought or specified; (iii) damages are unsupported, indeterminate and/or exaggerated in management’s opinion; (iv) there is uncertainty as to the outcome of pending appeals or motions; (v) there are significant factual issues to be resolved; and/or (vi) there are novel legal issues or unsettled legal theories to be presented or a large number of parties are involved (as with many patent-related cases). For these cases, however, management does not believe, based on currently available information, that the outcomes of these proceedings will have a material adverse effect on our financial condition, operating results or cash flows, though there is no assurance that the resolution and outcomes of these proceedings, individually or in the aggregate, will not be material to our financial condition, operating results or cash flows for any particular period, depending, in part, upon the operating results for such period.

We intend to vigorously defend the proceedings against us. In the event that a court ultimately rules against us, we may be subject to adverse consequences, including, without limitation, substantial damages, which may include treble damages, fines, penalties, compensatory damages and/or other equitable or injunctive relief that could require us to materially modify our business operations or certain products or services that we offer to our consumers. In addition, adverse decisions against DISH Network in the proceedings described below could decrease the number of products and components we sell to DISH Network, which could have a material adverse effect on our business operations and our financial condition, results of operations and cash flows.

California Institute of Technology

On October 1, 2013, the California Institute of Technology ("Caltech") filed suit against two of our subsidiaries, Hughes Communications, Inc. and Hughes Network Systems, LLC ("HNS"), as well as against DISH Network, DISH Network L.L.C., and dishNET Satellite Broadband L.L.C., in the United States District Court for the Central District of California alleging infringement of United States Patent Nos. 7,116,710; 7,421,032; 7,916,781; and 8,284,833, each of which is entitled "Serial Concatenation of Interleaved Convolutional Codes forming Turbo-Like Codes." Caltech asserted that encoding data as specified by the DVB-S2 standard infringes each of the asserted patents. In the operative Amended Complaint, served on March 6, 2014, Caltech claimed that certain of our Hughes segment's satellite broadband products and services infringed the asserted patents by implementing the DVB-S2 standard. On February 17, 2015, Caltech filed a second complaint in the same district against the same defendants alleging that HNS' Gen4 HT1000 and HT1100 products infringed the same patents asserted in the first case. On May 25, 2016, we, the DISH Network defendants and Caltech entered into a settlement agreement pursuant to which the Court dismissed with prejudice all of the claims in these actions on May 31, 2016.

ClearPlay, Inc.

On March 13, 2014, ClearPlay, Inc. ("ClearPlay") filed a complaint against EchoStar Corporation and our subsidiary, EchoStar Technologies L.L.C., as well as against DISH Network and DISH Network L.L.C. in the United States District Court for the District of Utah. The complaint alleges infringement of United States Patent Nos. 6,898,799, entitled "Multimedia Content Navigation and Playback"; 7,526,784, entitled "Delivery of Navigation Data for Playback of Audio and Video Content"; 7,543,318, entitled "Delivery of Navigation Data for Playback of Audio and Video Content"; 7,577,970, entitled "Multimedia Content Navigation and Playback"; and 8,117,282, entitled "Media Player Configured to Receive Playback Filters From Alternative Storage Mediums." ClearPlay alleges that the AutoHop™ feature of the Hopper™ set-top box infringes the asserted patents. On February 11, 2015, the Court stayed the case pending various third-party challenges before the United States Patent and Trademark Office regarding the validity of certain of the patents ClearPlay asserted in the case. In those third-party challenges, the United States Patent and Trademark Office found that all claims of the 282 patent are unpatentable and that certain claims of the 784 patent and 318 patent are unpatentable. ClearPlay appealed as to the 784 and 318 patents, and on August 23, 2016, the United States Court of Appeals for the Federal Circuit affirmed the findings of the United States Patent and Trademark Office. With the third-party challenges resolved, on October 31, 2016, the stay was lifted and the case has resumed in District Court. No trial date has been set.

CRFD Research, Inc. (a subsidiary of Marathon Patent Group, Inc.)

On January 17, 2014, CRFD Research, Inc. ("CRFD") filed a complaint against EchoStar Corporation and our subsidiary, EchoStar Technologies L.L.C., as well as against DISH Network, DISH DBS Corporation and DISH Network L.L.C., in United States District Court for the District of Delaware, alleging infringement of United States Patent No. 7,191,233 (the "233 patent"). The 233 patent is entitled "System for Automated, Mid-Session, User-Directed, Device-to-Device Session Transfer System," and relates to transferring an ongoing software session from one device to another. CRFD alleges that certain of our set-top boxes infringe the 233 patent. On the same day, CRFD filed patent infringement complaints against AT&T Inc.; Comcast Corp.; DirecTV; Time Warner Cable Inc.; Cox Communications, Inc.; Level 3 Communications, Inc.; Akamai Technologies, Inc.; Cablevision Systems Corp. and Limelight Networks, Inc. On January 26, 2015, we and DISH Network filed a petition before the United States Patent and Trademark Office challenging the validity of certain claims of the 233 patent, which was subsequently instituted along with two third-party petitions also challenging the validity of certain claims of the 233 patent. On June 4, 2015, the litigation in the District Court was ordered stayed pending resolution of our petition before the United States Patent and Trademark Office, and on January 16, 2016, the United States Patent and Trademark Office held oral arguments on the merits of the petition. On June 1, 2016, the Patent and Trademark Office found that four of the challenged thirty claims were unpatentable. On July 5, 2016, CRFD filed a notice of appeal to the United States Court of Appeals for the Federal Circuit. CRFD is an entity that seeks to license an acquired patent portfolio without itself practicing any of the claims recited therein.

Elbit

On January 23, 2015, Elbit Systems Land and C4I LTD and Elbit Systems of America Ltd. (together referred to as “Elbit”) filed a complaint against our subsidiary HNS, as well as against Black Elk Energy Offshore Operations, LLC, Bluetide Communications, Inc. and Helm Hotels Group, in the United States District Court for the Eastern District of Texas, alleging infringement of United States Patent Nos. 6,240,073 (the “073 patent”) and 7,245,874 (“874 patent”). The 073 patent is entitled “Reverse Link for a Satellite Communication Network” and the 874 patent is entitled “Infrastructure for Telephony Network.” Elbit alleges that the 073 patent is infringed by broadband satellite systems that practice the Internet Protocol Over Satellite standard. Elbit alleges that the 874 patent is infringed by the manufacture and sale of broadband satellite systems that provide cellular backhaul service via connections to E1 or T1 interfaces at cellular backhaul base stations. On April 2, 2015, Elbit filed an amended complaint removing Helm Hotels Group as a defendant, but making similar allegations against a new defendant, Country Home Investments, Inc. On November 3 and 4, 2015, and January 22, 2016, the defendants filed petitions before the United States Patent and Trademark Office challenging the validity of the patents in suit, which the Patent and Trademark Office subsequently declined to institute. On April 13, 2016, the defendants answered Elbit’s complaint. Trial is scheduled to commence on July 31, 2017.

The Hopper Litigation

On May 24, 2012, DISH Network L.L.C., filed suit in the United States District Court for the Southern District of New York against American Broadcasting Companies, Inc. (“ABC”), CBS Corporation (“CBS”), Fox Entertainment Group, Inc., Fox Television Holdings, Inc., Fox Cable Network Services, L.L.C. (collectively, “Fox”) and NBCUniversal Media, LLC (“NBC”). The lawsuit sought a declaratory judgment that DISH Network L.L.C is not infringing any defendant’s copyright, or breaching any defendant’s retransmission consent agreement, by virtue of the PrimeTime Anytime™ and AutoHop™ features of the Hopper™ set-top boxes we design and sell to DISH Network. A consumer can use the PrimeTime Anytime feature at his or her option, to record certain primetime programs airing on ABC, CBS, Fox, and/or NBC up to every night, and to store those recordings for up to eight days. A consumer can use the AutoHop feature at his or her option, to watch certain recordings the subscriber made with our PrimeTime Anytime feature, commercial-free, if played back at a certain point after the show’s original airing.

Later on May 24, 2012, (i) Fox Broadcasting Company, Twentieth Century Fox Film Corp. and Fox Television Holdings, Inc. filed a lawsuit against DISH Network and DISH Network L.L.C. (collectively, “DISH”) in the United States District Court for the Central District of California, alleging that the PrimeTime Anytime feature, the AutoHop feature, as well as DISH’s use of Slingbox unit’s placeshifting functionality infringe their copyrights and breach their retransmission consent agreements, (ii) NBC Studios LLC, Universal Network Television, LLC, Open 4Business Productions LLC and NBCUniversal Media, LLC filed a lawsuit against DISH in the United States District Court for the Central District of California, alleging that the PrimeTime Anytime feature and the AutoHop feature infringe their copyrights, and (iii) CBS Broadcasting Inc., CBS Studios Inc. and Survivor Productions LLC filed a lawsuit against DISH in the United States District Court for the Central District of California, alleging that the PrimeTime Anytime feature and the AutoHop feature infringe their copyrights.

As a result of certain parties’ competing counterclaims and venue-related motions brought in both the New York and California actions, as described below, and certain networks filing various amended complaints, the claims proceeded in the following venues: (1) the copyright and contract claims regarding the ABC and CBS parties in New York; and (2) the copyright and contract claims regarding the Fox and NBC parties in California.

California Actions. On August 17, 2012, the NBC plaintiffs filed a first amended complaint in their California action adding EchoStar Corporation and our subsidiary EchoStar Technologies L.L.C. to the NBC litigation, alleging various claims of copyright infringement. Pursuant to a settlement agreement between the parties, on June 16, 2016, the parties filed a stipulation to dismiss with prejudice the NBC action, which was granted on June 20, 2016.

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In addition, on February 21, 2013, the Fox plaintiffs filed a second motion for preliminary injunction against: (i) DISH Network, seeking to enjoin the Hopper Transfers™ feature in the second-generation Hopper set-top box, alleging breach of a retransmission consent agreement; and (ii) EchoStar Technologies L.L.C. and DISH Network, seeking to enjoin the Slingbox unit's placeshifting functionality in the second-generation Hopper set-top box, alleging copyright infringement by both defendants, and breach of the earlier-mentioned retransmission consent agreement by DISH Network. On January 12, 2015, the Court entered an order ruling on the parties' respective summary judgment motions, holding that: (a) the Slingbox unit's placeshifting functionality and the PrimeTime Anytime, AutoHop and Hopper Transfers features do not violate copyright law; (b) certain quality assurance copies (which were discontinued in November 2012) did violate copyright law; and (c) the Slingbox unit's placeshifting functionality, the Hopper Transfers feature and certain quality assurance copies breach DISH's retransmission consent agreement with Fox. Pursuant to a settlement agreement between us, DISH Network and the Fox plaintiffs, on February 10, 2016, we, DISH Network and the Fox plaintiffs filed a stipulation to dismiss with prejudice all of our respective claims pending in the California Court. That motion was granted on February 11, 2016.

New York Actions. On October 9, 2012, the ABC plaintiffs filed copyright counterclaims in the New York action against EchoStar Technologies, L.L.C., with the CBS plaintiffs filing similar copyright counterclaims in the New York action against EchoStar Technologies L.L.C. on October 12, 2012. Additionally, the CBS plaintiffs filed a counterclaim alleging that DISH Network fraudulently concealed the AutoHop feature when negotiating the renewal of its CBS retransmission consent agreement.

Pursuant to a settlement between us and the ABC parties, during March 2014, the ABC parties withdrew their appeal to the United States Court of Appeals for the Second Circuit; we and the ABC parties filed a stipulation on March 4, 2014 to dismiss without prejudice all of our respective claims pending in the United States District Court for the Southern District of New York; and the ABC parties granted a covenant not to sue. The Court ordered such dismissal on March 6, 2014. Pursuant to a settlement between us and the CBS parties, on December 10, 2014, we and the CBS parties filed a stipulation to dismiss with prejudice all of our respective claims pending in the New York Court. The Court ordered such dismissal on December 10, 2014.

These matters related to the Hopper litigation are now concluded.

Michael Heskiaoff, Marc Langenohl, and Rafael Mann

On July 10, 2015, Messrs. Michael Heskiaoff and Marc Langenohl, purportedly on behalf of themselves and all others similarly situated, filed suit against our subsidiary Sling Media, Inc. in the United States District Court for the Southern District of New York. The complaint alleges that Sling Media Inc.'s display of advertising to its customers violates a number of state statutes dealing with consumer deception. On September 25, 2015, the plaintiffs filed an amended complaint, and Mr. Rafael Mann, purportedly on behalf of himself and all others similarly situated, filed an additional complaint alleging similar causes of action. On November 16, 2015, the cases were consolidated. On August 12, 2016, the Court dismissed the consolidated case due to plaintiffs' failure to state a claim. On September 12, 2016, the plaintiffs moved the Court for leave to file an amended complaint, which we have opposed.

Realtime Data LLC

On May 8, 2015, Realtime Data LLC ("Realtime") filed suit against EchoStar Corporation and our subsidiary HNS in the United States District Court for the Eastern District of Texas alleging infringement of United States Patent Nos. 7,378,992, entitled "Content Independent Data Compression Method and System"; 7,415,530, entitled "System and Methods for Accelerated Data Storage and Retrieval"; and 8,643,513, entitled "Data Compression System and Methods." On September 14, 2015, Realtime amended its complaint, additionally alleging infringement of United States Patent No. 9,116,908, entitled "System and Methods for Accelerated Data Storage and Retrieval." Realtime generally alleges that the asserted patents are infringed by certain HNS data compression products and services. Over April 29, 2016 and May 5, 2016, the defendants filed petitions before the United States Patent and Trademark Office challenging the validity of the asserted patents. The United States Patent and Trademark Office has instituted proceedings on each of those petitions, but the litigation has not been stayed. On February 14, 2017, Realtime filed a second suit against EchoStar Corporation and our subsidiary HNS in the same District Court, alleging infringement of four additional United States Patents, Nos. 7,358,867, entitled "Content Independent Data Compression Method and System;" 8,502,707, entitled "Data Compression Systems and Methods;" 8,717,204, entitled "Methods for Encoding and Decoding Data;" and 9,054,728, entitled "Data Compression System and Methods." The cases have been consolidated and no trial date has been set. Realtime is an entity that seeks to license an acquired patent portfolio without itself practicing any of the claims recited therein.

Shareholder Derivative Litigation

On December 5, 2012, Greg Jacobi, purporting to sue derivatively on behalf of EchoStar Corporation, filed suit (the "Jacobi Litigation") against Charles W. Ergen, Michael T. Dugan, R. Stanton Dodge, Tom A. Ortolf, C. Michael Schroeder, Joseph P. Clayton, David K. Moskowitz, and EchoStar Corporation in the United States District Court for the District of Nevada. The complaint alleges that a March 2011 attempted grant of 1.5 million stock options to Charles Ergen breached defendants' fiduciary duties, resulted in unjust enrichment, and constituted a waste of corporate assets.

On December 18, 2012, Chester County Employees' Retirement Fund, derivatively on behalf of EchoStar Corporation, filed a suit (the "Chester County Litigation") against Charles W. Ergen, Michael T. Dugan, R. Stanton Dodge, Tom A. Ortolf, C. Michael Schroeder, Anthony M. Federico, Pradman P. Kaul, Joseph P. Clayton, and EchoStar Corporation in the United States District Court for the District of Colorado. The complaint similarly alleges that the March 2011 attempted grant of 1.5 million stock options to Charles Ergen breached defendants' fiduciary duties, resulted in unjust enrichment, and constituted a waste of corporate assets.

On February 22, 2013, the Chester County Litigation was transferred to the District of Nevada, and on April 3, 2013, the Chester County Litigation was consolidated into the Jacobi Litigation. Oral argument on a motion to dismiss the Jacobi Litigation was held February 21, 2014. On April 11, 2014, the Chester County Litigation was stayed pending resolution of the motion to dismiss. On March 30, 2015, the Court dismissed the Jacobi Litigation, with leave for Jacobi to amend his complaint by April 20, 2015. On April 20, 2015, Jacobi filed an amended complaint, which on June 12, 2015, we moved to dismiss. On March 17, 2016, the Court dismissed the amended Jacobi Litigation, and on July 25, 2016, Jacobi filed an appeal brief with the United States Court of Appeals for the Ninth Circuit. Our answering brief was filed on September 22, 2016.

Of the attempted grant of 1.5 million options to Mr. Ergen in 2011, only 800,000 were validly granted and remain outstanding.

Technology Development and Licensing, LLC

On January 22, 2009, Technology Development and Licensing, LLC ("TDL") filed suit against EchoStar Corporation and DISH Network in the United States District Court for the Northern District of Illinois alleging infringement of United States Patent No. Re. 35,952, which relates to certain favorite channel features. TDL is an entity that seeks to license an acquired patent portfolio without itself practicing any of the claims recited therein. The case has been stayed since July 2009, pending two reexamination petitions before the United States Patent and Trademark Office, which concluded in August 2015 resulting in 42 out of the 53 claims of the 952 patent being invalidated. As a result, the case resumed in August 2015. In a separate matter in which TDL is asserting the same patent, the court in that action ruled that four additional claims of the '952 patent are invalid because they claim unpatentable subject matter, and TDL has stipulated that it will not appeal that order. Only two claims of the '952 patent remain asserted against us. A trial date has not been set.

TQ Beta LLC

On June 30, 2014, TQ Beta LLC ("TQ Beta") filed suit against DISH Network, DISH DBS Corporation, DISH Network L.L.C., as well as EchoStar Corporation and our subsidiaries, EchoStar Technologies, L.L.C, HSS, and Sling Media, Inc., in the United States District Court for the District of Delaware, alleging infringement of United States Patent No. 7,203,456 (the "456 patent"), which is entitled "Method and Apparatus for Time and Space Domain Shifting of Broadcast Signals." TQ Beta alleges that the Hopper, Hopper with Sling, ViP 722 and ViP 722k DVR devices, as well as the DISH Anywhere service and DISH Anywhere mobile application, infringe the 456 patent, but has not specified the amount of damages that it seeks. TQ Beta is an entity that seeks to license an acquired patent portfolio without itself practicing any of the claims recited therein. During August 2015, EchoStar Corporation and DISH Network L.L.C. filed petitions before the United States Patent and Trademark Office challenging the validity of certain claims of the 456 patent, and in February 2016, the United States Patent and Trademark Office agreed to institute proceedings on our petitions. On February 25, 2016, the case was stayed pending resolution of these proceedings before the United States Patent and Trademark Office, and the Court vacated all pending court dates and deadlines. On January 30, 2017, the United States Patent and Trademark Office issued its final written decisions on our petitions, invalidating all claims of the 456 patent that were asserted in the litigation, which decisions may be appealed by TQ Beta.

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TQ Delta LLC

On July 17, 2015, TQ Delta, LLC (“TQ Delta”) filed a complaint against DISH Network, DISH DBS Corporation and DISH Network L.L.C. in the United States District Court for the District of Delaware. On May 16, 2016, TQ Delta filed a second amended complaint that added EchoStar Corporation and EchoStar Technologies L.L.C. as defendants. That complaint alleges infringement of United States Patent No. 6,961,369 (the “369 patent”), which is entitled “System and Method for Scrambling the Phase of the Carriers in a Multicarrier Communications System”; United States Patent No. 8,718,158 (the “158 patent”), which is entitled “System and Method for Scrambling the Phase of the Carriers in a Multicarrier Communications System”; United States Patent No. 9,014,243 (the “243 patent”), which is entitled “System and Method for Scrambling Using a Bit Scrambler and a Phase Scrambler”; United States Patent No.7,835,430 (the “430 patent”), which is entitled “Multicarrier Modulation Messaging for Frequency Domain Received Idle Channel Noise Information”; United States Patent No. 8,238,412 (the “412 patent”), which is entitled “Multicarrier Modulation Messaging for Power Level per Subchannel Information”; United States Patent No. 8,432,956 (the “956 patent”), which is entitled “Multicarrier Modulation Messaging for Power Level per Subchannel Information”; and United States Patent No. 8,611,404 (the “404 patent”), which is entitled “Multicarrier Transmission System with Low Power Sleep Mode and Rapid-On Capability”; and United States Patent No. 9,094,268 (the “268 patent”), which is entitled “Multicarrier Transmission System with Low Power Sleep Mode and Rapid-On Capability.” TQ Delta alleges that satellite TV services, Internet services, set-top boxes, gateways, routers, modems, adapters and networks that operate in accordance with one or more Multimedia over Coax Alliance Standards infringe the asserted patents. TQ Delta has filed actions in the same court alleging infringement of the same patents against Comcast Corp., Cox Communications, Inc., DirecTV, Time Warner Cable Inc. and Verizon Communications, Inc. TQ Delta is an entity that seeks to license an acquired patent portfolio without itself practicing any of the claims recited therein. Trial has been set for November 13, 2017. On July 14, 2016, TQ Delta stipulated to dismiss with prejudice all claims related to the 369 patent and the 956 patent. On July 20, 2016, DISH Network filed petitions with the United States Patent and Trademark Office challenging the validity of all of the patent claims of the 404 patent and 268 patent asserted against it, and other parties have also filed petitions with the United States Patent and Trademark Office challenging the validity of all of the patent claims asserted in the action. On November 4, 2016, the United States Patent and Trademark Office agreed to institute proceedings on the third-party petitions related to the 158 patent, the 243 patent, the 412 patent and the 430 patent. On December 20, 2016, pursuant to a stipulation of the parties, the Court stayed the case until the resolution of all petitions to the United States Patent and Trademark Office challenging the validity of all of the patent claims at issue. On January 19, 2017, the United States Patent and Trademark Office granted our motions to join the instituted petitions on the 430 and 158 patents. On February 9, 2017, the United States Patent and Trademark Office agreed to institute proceedings on our petition related to the 404 patent, and on February 13, 2017, the United States Patent and Trademark Office agreed to institute proceedings on our petition related to the 268 patent.

Two-Way Media Ltd.

On February 17, 2016, Two-Way Media Ltd. (“TWM”) filed a complaint against EchoStar Corporation and our subsidiaries, EchoStar Technologies L.L.C., EchoStar Satellite Services L.L.C., and Sling Media, Inc., as well as against DISH Network Corporation, DISH DBS Corporation, DISH Network L.L.C., DISH Network Service L.L.C., Sling TV Holding L.L.C., Sling TV L.L.C., and Sling TV Purchasing L.L.C. TWM brought the suit in the United States District Court for the District of Colorado, alleging infringement of United States Patent Nos. 5,778,187; 5,983,005; 6,434,622; and 7,266,686, each entitled “Multicasting Method and Apparatus”; and 9,124,607, entitled “Methods and Systems for Playing Media.” TWM alleged that the Sling TV, Sling International, DISH Anywhere, and DISHWorld services, as well as the Slingbox units and DISH DVRs incorporating Slingbox technology, infringed the asserted patents. TWM is an entity that seeks to license a patent portfolio without itself practicing any of the claims recited therein. Effective December 8, 2016, we, DISH Network Corporation and TWM entered into a settlement agreement pursuant to which the Court dismissed with prejudice all claims in the action on December 15, 2016.

Other

In addition to the above actions, we are subject to various other legal proceedings and claims, which arise in the ordinary course of our business. As part of our ongoing operations, the Company is subject to various inspections, audits, inquiries, investigations and similar actions by third parties, as well as by governmental/regulatory authorities responsible for enforcing the laws and regulations to which the Company may be subject. Further, under the federal False Claims Act, private parties have the right to bring qui tam, or “whistleblower,” suits against companies that submit false claims for payments to, or improperly retain overpayments from, the federal government. Some states have adopted similar state whistleblower and false claims provisions. In addition, the Company from time to time receives inquiries from federal, state and foreign agencies regarding compliance with various laws and regulations.

In our opinion, the amount of ultimate liability with respect to any of these actions is unlikely to materially affect our financial position, results of operations or cash flows, though the resolutions and outcomes, individually or in the aggregate, could be material to our financial position, operating results or cash flows for any particular period, depending, in part, upon the operating results for such period.

The Company indemnifies its directors, officers and employees for certain liabilities that might arise from the performance of their responsibilities for the Company. Additionally, in the normal course of its business, the Company enters into contracts pursuant to which the Company may make a variety of representations and warranties and indemnify the counterparty for certain losses. The Company's possible exposure under these arrangements cannot be reasonably estimated as this involves the resolution of claims made, or future claims that may be made, against the Company or its officers, directors or employees, the outcomes of which are unknown and not currently predictable or estimable.

Note 17. Segment Reporting

Operating segments are business components of an enterprise for which separate financial information is available and regularly evaluated by the chief operating decision maker ("CODM"), who for EchoStar is the Company's Chief Executive Officer. Under this definition, we operate in three primary business segments, Hughes, EchoStar Technologies and ESS as described in Note 1 of these consolidated financial statements. Following consummation of the Share Exchange described in Note 20 of these consolidated financial statements, we will no longer operate the EchoStar Technologies business segment.

The primary measure of segment profitability that is reported regularly to our CODM is earnings before interest, taxes, depreciation and amortization, or EBITDA. Our segment operating results do not include real estate and other activities, costs incurred in certain satellite development programs and other business development activities, expenses of various corporate departments and our centralized treasury operations, including income from our investment portfolio and interest expense on our debt. These activities are accounted for in the "All Other and Eliminations" column in the table below. Total assets by segment have not been reported herein because the information is not provided to our CODM on a regular basis. The Hughes Retail Group is included in our Hughes segment and our CODM reviews separate HRG financial information only to the extent such information is included in our periodic filings with the SEC. Therefore, we do not consider HRG to be a separate operating segment.

Prior to 2015, our OTT, SVOD platform business, including certain assets distributed to us in August 2014 in connection with the Exchange Agreement with Sling TV Holding (see Notes 6 and 19), was managed separately from our existing operating segments and was reported within "All Other and Eliminations." In the first quarter of 2015, we assigned management responsibility for our OTT, SVOD platform business to our EchoStar Technologies segment, where it continues to be managed and reported as a separate reporting unit. All prior period amounts have been retrospectively adjusted to present operations of our OTT, SVOD platform business in our EchoStar Technologies segment.

Transactions between segments were not significant for the years ended December 31, 2016, 2015 and 2014.

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NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

The following table presents revenue, EBITDA, and capital expenditures for each of our operating segments:

	Hughes	EchoStar Technologies	EchoStar Satellite Services	All Other and Eliminations	Consolidated Total
			(In thousands)		
For The Year Ended December 31, 2016					
External revenue	$ 1,389,152	$ 1,248,534	$ 406,970	$ 12,074	$ 3,056,730
Intersegment revenue	$ 3,209	$ 663	$ 690	$ (4,562)	$ —
Total revenue	$ 1,392,361	$ 1,249,197	$ 407,660	$ 7,512	$ 3,056,730
EBITDA	$ 427,802	$ 89,549	$ 339,496	$ 26,684	$ 883,531
Capital expenditures	$ 322,362	$ 69,744	$ 58,925	$ 247,223	$ 698,254
For The Year Ended December 31, 2015					
External revenue	$ 1,344,945	$ 1,297,510	$ 489,842	$ 11,417	$ 3,143,714
Intersegment revenue	$ 2,395	$ 688	$ 749	$ (3,832)	$ —
Total revenue	$ 1,347,340	$ 1,298,198	$ 490,591	$ 7,585	$ 3,143,714
EBITDA	$ 396,684	$ 106,745	$ 412,607	$ (50,683)	$ 865,353
Capital expenditures	$ 285,499	$ 50,593	$ 101,215	$ 266,213	$ 703,520
For The Year Ended December 31, 2014					
External revenue	$ 1,325,887	$ 1,626,826	$ 481,579	$ 11,286	$ 3,445,578
Intersegment revenue	$ 1,831	$ 540	$ 2,876	$ (5,247)	$ —
Total revenue	$ 1,327,718	$ 1,627,366	$ 484,455	$ 6,039	$ 3,445,578
EBITDA	$ 356,871	$ 154,786	$ 419,442	$ (28,518)	$ 902,581
Capital expenditures	$ 218,607	$ 48,616	$ 28,734	$ 384,069	$ 680,026

The following table reconciles total consolidated EBITDA to reported "Income before income taxes" in our consolidated statements of operations and comprehensive income (loss):

	For the Years Ended December 31,		
	2016	2015	2014
		(In thousands)	
EBITDA	$ 883,531	$ 865,353	$ 902,581
Interest income and expense, net	(102,381)	(111,637)	(162,247)
Depreciation and amortization	(495,068)	(528,158)	(556,676)
Net income (loss) attributable to noncontrolling interest in HSS Tracking Stock and other noncontrolling interests	762	(3,986)	(5,325)
Income before income taxes	$ 286,844	$ 221,572	$ 178,333

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Geographic Information and Transactions with Major Customers

Geographic Information. Revenue is attributed to geographic regions based upon the location where the goods and services are provided. North America revenue includes transactions with North America customers. All other revenue includes transactions with customers in Asia, Africa, Australia, Europe, South America, and the Middle East. The following table summarizes total long-lived assets and revenue attributed to the North America and other foreign locations.

	As of December 31,	
Long-lived assets:	**2016**	**2015**
	(In thousands)	
North America:		
United States	$ 4,499,384	$ 4,440,590
Canada and Mexico	16,668	1,242
All other	296,968	158,253
Total long-lived assets	$ 4,813,020	$ 4,600,085

	For the Years Ended December 31,		
Revenue:	**2016**	**2015**	**2014**
	(In thousands)		
North America:			
United States	$ 2,623,967	$ 2,685,665	$ 2,958,539
Canada and Mexico	187,442	203,813	220,122
All other	245,321	254,236	266,917
Total revenue	$ 3,056,730	$ 3,143,714	$ 3,445,578

Transactions with Major Customers. For the years ended December 31, 2016, 2015 and 2014, our revenue included sales to one major customer. The following table summarizes sales to this customer and its percentage of total revenue.

	For the Years Ended December 31,		
	2016	**2015**	**2014**
	(In thousands)		
Total revenue:			
DISH Network:			
Hughes segment	$ 107,300	$ 105,181	$ 112,692
EchoStar Technologies segment	1,130,985	1,141,435	1,443,419
EchoStar Satellite Services segment	349,549	423,465	407,236
All Other and Eliminations	12,058	11,404	11,244
Total DISH Network	1,599,892	1,681,485	1,974,591
All other	1,456,838	1,462,229	1,470,987
Total revenue	$ 3,056,730	$ 3,143,714	$ 3,445,578
Percentage of total revenue:			
DISH Network	52.3%	53.5%	57.3%
All other	47.7%	46.5%	42.7%

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

Note 18. Quarterly Financial Data (Unaudited)

Our quarterly results of operations are summarized as follows:

	For the Three Months Ended			
	March 31	June 30	September 30	December 31
	(In thousands, except per share amounts)			
Year ended December 31, 2016				
Total revenue	$ 816,359	$ 757,629	$ 742,349	$ 740,393
Operating income	$ 86,465	$ 89,886	$ 81,981	$ 106,066
Net income attributable to EchoStar common stock	$ 50,674	$ 56,133	$ 36,644	$ 38,222
Basic earnings per share	$ 0.54	$ 0.60	$ 0.39	$ 0.41
Diluted earnings per share	$ 0.54	$ 0.60	$ 0.39	$ 0.40
Year ended December 31, 2015				
Total revenue	$ 798,653	$ 793,595	$ 760,879	$ 790,587
Operating income	$ 81,205	$ 94,348	$ 88,607	$ 91,873
Net income attributable to EchoStar common stock	$ 33,402	$ 33,900	$ 30,102	$ 66,296
Basic earnings per share	$ 0.36	$ 0.37	$ 0.33	$ 0.71
Diluted earnings per share	$ 0.36	$ 0.36	$ 0.32	$ 0.71

For the quarter ended December 31, 2015, our effective income tax rate decreased due primarily to the re-enactment of federal research and experimentation tax credits in December 2015. The decrease in our effective tax rate resulted in a $23.2 million decrease in our quarterly tax provision.

Note 19. Related Party Transactions

DISH Network

Following the Spin-off, we and DISH Network have operated as separate publicly-traded companies. However, pursuant to the Satellite and Tracking Stock Transaction, described in Note 4 and below, DISH Network owns Hughes Retail Preferred Tracking Stock representing an aggregate 80.0% economic interest in the residential retail satellite broadband business of our Hughes segment. The tracking stock is an equity security and the rights of DISH Network, as the holder of the tracking stock, in our assets are subject to the claims of our creditors. In addition, a substantial majority of the voting power of the shares of EchoStar and DISH Network is owned beneficially by Charles W. Ergen, our Chairman, and by certain trusts established by Mr. Ergen for the benefit of his family.

In connection with and following the Spin-off, we and DISH Network have entered into certain agreements pursuant to which we obtain certain products, services and rights from DISH Network; DISH Network obtains certain products, services and rights from us; and we and DISH Network have indemnified each other against certain liabilities arising from our respective businesses. We also may enter into additional agreements with DISH Network in the future. Generally, the amounts DISH Network pays for products and services provided under the agreements are based on our cost plus a fixed margin (unless noted differently below), which varies depending on the nature of the products and services provided.

The following is a summary of the terms of our principal agreements with DISH Network that may have an impact on our financial condition and results of operations.

Following the Share Exchange, we also expect that certain of the related party transactions described below will be terminated and that we will enter into agreements for new transactions with DISH Network, including agreements pursuant to which we obtain certain products, services and rights from DISH Network and DISH Network obtains certain products, services and rights from us.

Equipment revenue — DISH Network

Receiver Agreement. Effective January 2012, we and DISH Network entered into a receiver agreement (the "2012 Receiver Agreement"), pursuant to which DISH Network has the right, but not the obligation, to purchase digital set-top boxes, related accessories, and other equipment from us for the period from January 2012 through December 2014. The 2012 Receiver Agreement replaced the receiver agreement we entered into with DISH Network in connection with the Spin-off. The 2012 Receiver Agreement allows DISH Network to purchase digital set-top boxes, related accessories, and other equipment from us either: (i) at cost (decreasing as we reduce costs and increasing as costs increase) plus a dollar mark-up which will depend upon the cost of the product subject to a collar on our mark-up; or (ii) at cost plus a fixed margin, which will depend on the nature of the equipment purchased. Under the 2012 Receiver Agreement, our margins will be increased if we are able to reduce the costs of our digital set-top boxes and our margins will be reduced if these costs increase. We provide DISH Network with standard manufacturer warranties for the goods sold under the 2012 Receiver Agreement. Additionally, the 2012 Receiver Agreement includes an indemnification provision, whereby the parties indemnify each other for certain intellectual property matters. DISH Network is able to terminate the 2012 Receiver Agreement for any reason upon at least 60 days' notice to us. We are able to terminate the 2012 Receiver Agreement if certain entities acquire DISH Network. In May 2014, we received DISH Network's notice to extend the 2012 Receiver Agreement for one year through December 2015, and in November 2015, we amended the 2012 Receiver Agreement with DISH Network to extend the term of the 2012 Receiver Agreement for one year through December 2016. In November 2016, we and DISH Network amended this agreement to extend its term for one year through December 2017.

Services and other revenue — DISH Network

Broadcast Agreement. Effective January 2012, we and DISH Network entered into a broadcast agreement (the "2012 Broadcast Agreement") pursuant to which we provide certain broadcast services to DISH Network, including teleport services such as transmission and downlinking, channel origination services, and channel management services, for the period from January 2012 through December 2016. In November 2016, we and DISH Network amended the 2012 Broadcast Agreement to extend the term for one year through December 2017. The 2012 Broadcast Agreement replaced the broadcast agreement that we entered into with DISH Network in connection with the Spin-off. The fees for the services provided under the 2012 Broadcast Agreement are calculated at either: (a) our cost of providing the relevant service plus a fixed dollar fee, which is subject to certain adjustments; or (b) our cost of providing the relevant service plus a fixed margin, which depends on the nature of the services provided. DISH Network has the ability to terminate channel origination services and channel management services for any reason and without any liability upon at least 60 days' notice to us. If DISH Network terminates the teleport services provided under the 2012 Broadcast Agreement for a reason other than our breach, DISH Network generally is obligated to reimburse us for any direct costs we incur related to any such termination that we cannot reasonably mitigate.

Broadcast Agreement for Certain Sports Related Programming. In May 2010, we and DISH Network entered into a broadcast agreement pursuant to which we provide certain broadcast services to DISH Network in connection with its carriage of certain sports related programming. The term of this agreement is ten years. If DISH Network terminates this agreement for a reason other than our breach, DISH Network generally is obligated to reimburse us for any direct costs we incur related to any such termination that we cannot reasonably mitigate. The fees for the broadcast services provided under this agreement depend, among other things, upon the cost to develop and provide such services.

RUS Implementation Agreement. In September 2010, DISH Broadband L.L.C. ("DISH Broadband"), DISH Network's indirect, wholly-owned subsidiary, was selected by the Rural Utilities Service ("RUS") of the United States Department of Agriculture to receive up to approximately $14.1 million in broadband stimulus grant funds (the "Grant Funds"). Effective November 2011, HNS and DISH Broadband entered into a RUS Implementation Agreement (the "RUS Agreement") pursuant to which HNS provided certain portions of the equipment and broadband service used to implement DISH Broadband's RUS program. While the RUS Agreement expired in June 2013 when the Grant Funds were exhausted, HNS is required to continue providing services to DISH Broadband's customers activated prior to the expiration of the RUS Agreement in accordance with the terms and conditions of the RUS Agreement.

Satellite Services Provided to DISH Network. Since the Spin-off, we have entered into certain satellite service agreements pursuant to which DISH Network receives satellite services on certain satellites owned or leased by us. The fees for the services provided under these satellite service agreements depend, among other things, upon the orbital location of the applicable satellite, the number of transponders that are providing services on the applicable satellite, and the length of the service arrangements. The terms of each service arrangement is set forth below:

ECHOSTAR CORPORATION
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS - Continued

EchoStar I, EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV. As part of the Satellite and Tracking Stock Transaction discussed in Note 4, in March 2014, we began providing certain satellite services to DISH Network on the EchoStar I, EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV satellites. The term of each satellite services agreement generally terminates upon the earlier of: (i) the end of life of the satellite; (ii) the date the satellite fails; or (iii) a certain date, which depends upon, among other things, the estimated useful life of the satellite. DISH Network generally has the option to renew each satellite service agreement on a year-to-year basis through the end of the respective satellite's life. There can be no assurance that any options to renew such agreements will be exercised. DISH Network elected not to renew the satellite services agreement relative to the EchoStar I satellite. The agreement for the EchoStar I satellite expired pursuant to its terms effective November 2015. In December 2016, DISH Network renewed the satellite services agreement relative to the EchoStar VII satellite for one year to June 2018.

EchoStar VIII. In May 2013, DISH Network began receiving satellite services from us on the EchoStar VIII satellite as an in-orbit spare. Effective March 2014, this satellite services arrangement converted to a month-to-month service agreement with both parties having the right to terminate upon 30 days' notice. The agreement terminated in accordance with its terms effective November 2015.

EchoStar IX. Effective January 2008, DISH Network began receiving satellite services from us on the EchoStar IX satellite. Subject to availability, DISH Network generally has the right to continue to receive satellite services from us on the EchoStar IX satellite on a month-to-month basis.

EchoStar XII. DISH Network receives satellite services from us on the EchoStar XII satellite. The term of the satellite services agreement terminates upon the earlier of: (i) the end of life of the satellite; (ii) the date the satellite fails or the date the transponder(s) on which the service was being provided under the agreement fails; or (iii) September 2017. DISH Network generally has the option to renew the agreement on a year-to-year basis through the end of the satellite's life. There can be no assurance that any options to renew this agreement will be exercised.

EchoStar XVI. In December 2009, we entered into an initial ten-year transponder service agreement with DISH Network, pursuant to which DISH Network has received satellite services from us on the EchoStar XVI satellite since January 2013. Effective December 2012, we and DISH Network amended the transponder service agreement to, among other things, change the initial term to generally expire upon the earlier of: (i) the end-of-life or replacement of the satellite; (ii) the date the satellite fails; (iii) the date the transponder(s) on which service is being provided under the agreement fails; or (iv) four years following the actual service commencement date. In July 2016, we and DISH Network further amended the transponder service agreement to, among other things, extend the initial term by one additional year and to reduce the term of the first renewal option by one year. Prior to expiration of the initial term, we, upon certain conditions, and DISH Network have the option to renew for an additional five-year period. If either we or DISH Network exercise our respective five-year renewal options, DISH Network has the option to renew for an additional five-year period prior to expiration of the then-current term. There can be no assurance that any option to renew this agreement will be exercised. In the event that we or DISH Network does not exercise the first five-year renewal option or DISH Network does not exercise the second five-year renewal option, DISH Network has the option to purchase the EchoStar XVI satellite for a certain price. If DISH Network does not elect to purchase the EchoStar XVI satellite at that time, we may sell the EchoStar XVI satellite to a third party and DISH Network is required to pay us a certain amount in the event we are not able to sell the EchoStar XVI satellite for more than a certain amount.

Nimiq 5 Agreement. In September 2009, we entered into a fifteen-year satellite service agreement with Telesat Canada ("Telesat") to receive service on all 32 DBS transponders on the Nimiq 5 satellite at the 72.7 degree west longitude orbital location (the "Telesat Transponder Agreement"). In September 2009, we also entered into a satellite service agreement (the "DISH Nimiq 5 Agreement") with DISH Network, pursuant to which DISH Network receives satellite services from us on all 32 of the DBS transponders covered by the Telesat Transponder Agreement.

Under the terms of the DISH Nimiq 5 Agreement, DISH Network makes certain monthly payments to us that commenced in September 2009, when the Nimiq 5 satellite was placed into service, and continue through the service term. Unless earlier terminated under the terms and conditions of the DISH Nimiq 5 Agreement, the service term will expire ten years following the date the Nimiq 5 satellite was placed into service. Upon expiration of the initial term, DISH Network has the option to renew the DISH Nimiq 5 Agreement on a year-to-year basis through the end of life of the Nimiq 5 satellite. Upon in-orbit failure or end of life of the Nimiq 5 satellite, and in certain other circumstances, DISH Network has certain rights to receive service from us on a replacement satellite. There can be no assurance that any options to renew the DISH Nimiq 5 Agreement will be exercised or that DISH Network will exercise its option to receive service on a replacement satellite.

QuetzSat-1 Agreement. In November 2008, we entered into a ten-year satellite service agreement with SES Latin America, which provides, among other things, for the provision by SES Latin America to us of service on 32 DBS transponders on the QuetzSat-1 satellite. Concurrently, in 2008, we entered into a transponder service agreement with DISH Network, pursuant to which DISH Network receives satellite services on 24 of the DBS transponders on the QuetzSat-1 satellite. The QuetzSat-1 satellite was launched in September 2011 and was placed into service in November 2011 at the 67.1 degree west longitude orbital location. In February 2013, we and DISH Network entered into an agreement pursuant to which we receive certain satellite services from DISH Network on five DBS transponders on the QuetzSat-1 satellite. In January 2013, the QuetzSat-1 satellite was moved to the 77 degree west longitude orbital location and DISH Network commenced commercial operations at such location in February 2013.

Under the terms of our contractual arrangements with DISH Network, we began to provide service to DISH Network on the QuetzSat-1 satellite in February 2013 and will continue to provide service through the remainder of the service term. Unless extended or earlier terminated under the terms and conditions of our agreement with DISH Network for the QuetzSat-1 satellite, the initial service term will expire in November 2021. Upon expiration of the initial service term, DISH Network has the option to renew the agreement for the QuetzSat-1 satellite on a year-to-year basis through the end of life of the QuetzSat-1 satellite. Upon an in-orbit failure or end of life of the QuetzSat-1 satellite, and in certain other circumstances, DISH Network has certain rights to receive service from us on a replacement satellite. There can be no assurance that any options to renew this agreement will be exercised or that DISH Network will exercise its option to receive service on a replacement satellite.

103 Degree Orbital Location/SES-3. In May 2012, we entered into a spectrum development agreement (the “103 Spectrum Development Agreement”) with Ciel Satellite Holdings Inc. (“Ciel”) to develop certain spectrum rights at the 103 degree west longitude orbital location (the “103 Spectrum Rights”). In June 2013, we and DISH Network entered into a spectrum development agreement (the “DISH 103 Spectrum Development Agreement”) pursuant to which DISH Network may use and develop the 103 Spectrum Rights. Unless earlier terminated under the terms and conditions of the DISH 103 Spectrum Development Agreement, the term generally will continue for the duration of the 103 Spectrum Rights.

In connection with the 103 Spectrum Development Agreement, in May 2012, we also entered into a ten-year service agreement with Ciel pursuant to which we receive certain satellite services from Ciel on the SES-3 satellite at the 103 degree orbital location. In June 2013, we and DISH Network entered into an agreement pursuant to which DISH Network receives certain satellite services from us on the SES-3 satellite (the “DISH 103 Service Agreement”). Under the terms of the DISH 103 Service Agreement, DISH Network makes certain monthly payments to us through the service term. Unless earlier terminated under the terms and conditions of the DISH 103 Service Agreement, the initial service term will expire on the earlier of: (i) the date the SES-3 satellite fails; (ii) the date the transponder(s) on which service was being provided under the agreement fails; or (iii) June 2023. Upon in-orbit failure or end of life of the SES-3 satellite, and in certain other circumstances, DISH Network has certain rights to receive service from us on a replacement satellite. There can be no assurance that DISH Network will exercise its option to receive service on a replacement satellite.

Satellite and Tracking Stock Transaction. In February 2014, we entered into agreements with DISH Network to implement a transaction pursuant to which, among other things: (i) in March 2014, EchoStar and HSS issued shares of the Tracking Stock to DISH Network in exchange for five satellites owned by DISH Network (EchoStar I, EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV) (including assumption of related in-orbit incentive obligations) and approximately $11.4 million in cash; and (ii) in March 2014, DISH Network began receiving certain satellite services on these five satellites from us. See Note 4 for further information.

TT&C Agreement. Effective January 2012, we entered into a telemetry, tracking and control (“TT&C”) agreement pursuant to which we provide TT&C services to DISH Network for a period ending in December 2016 (the “2012 TT&C Agreement”). In November 2016, we and DISH Network amended the 2012 TT&C Agreement to extend the term for one year through December 2017. The 2012 TT&C Agreement replaced the TT&C agreement we entered into with DISH Network in connection with the Spin-off. The fees for services provided under the 2012 TT&C Agreement are calculated at either: (i) a fixed fee or (ii) cost plus a fixed margin, which will vary depending on the nature of the services provided. DISH Network is able to terminate the 2012 TT&C Agreement for any reason upon 60 days’ notice.

In connection with the Satellite and Tracking Stock Transaction, in February 2014, we amended the TT&C Agreement to cease the provision of TT&C services to DISH Network for the EchoStar I, EchoStar VII, EchoStar X, EchoStar XI and EchoStar XIV satellites. Effective March 2014, we provide TT&C services for the D-1 and EchoStar XV satellites; however, for the period that we received satellite services on the EchoStar XV satellite from DISH Network, we waived the fees for the TT&C services on the EchoStar XV satellite. Effective August 2016, we provide TT&C services to DISH Network for the EchoStar XVIII satellite.

Real Estate Lease Agreements. We have entered into lease agreements pursuant to which DISH Network leases certain real estate from us. The rent on a per square foot basis for each of the leases is comparable to per square foot rental rates of similar commercial property in the same geographic area at the time of the lease, and DISH Network is responsible for its portion of the taxes, insurance, utilities and maintenance of the premises. The term of each of the leases is set forth below:

Inverness Lease Agreement. The lease for certain space at 90 Inverness Circle East in Englewood, Colorado is for a period ending in December 2016. In February 2016, DISH Network terminated this lease effective in August 2016.

Meridian Lease Agreement. The lease for all of 9601 S. Meridian Blvd. in Englewood, Colorado is for a period ending in December 2016. Effective December 2016, we and DISH Network amended this lease to, among other things, extend the term for one year through December 2017. This agreement may be extended by mutual consent, in which case this agreement will be converted to a month-to-month lease agreement. Upon extension, both parties have the right to terminate this agreement upon 30 days' notice.

Santa Fe Lease Agreement. The lease for all of 5701 S. Santa Fe Dr. in Littleton, Colorado is for a period ending in December 2016. Effective December 2016, we and DISH Network amended this lease to, among other things, extend the term for one year through December 2017. This agreement may be extended by mutual consent, in which case this agreement will be converted to a month-to-month lease agreement. Upon extension, both parties have the right to terminate this agreement upon 30 days' notice.

Atlanta Sublease Agreement. The sublease for certain space at 211 Perimeter Center in Atlanta, Georgia terminated in October 2016.

Gilbert Lease Agreement. The original lease for certain space at 801 N. DISH Dr. in Gilbert, Arizona was a month to month lease and could be terminated by either party upon 30 days' prior notice. The original lease was terminated in May 2014. Effective August 2014, we began leasing this space to DISH Network under a new lease for a period ending in July 2016. Effective November 2016, we and DISH Network amended this lease to extend the term for one year through July 2017.

Cheyenne Lease Agreement. The lease for certain space at 530 EchoStar Drive in Cheyenne, Wyoming is for a period ending in December 2031. This agreement may be extended by mutual consent, in which case this agreement will be converted to a month-to-month lease agreement. Upon extension, both parties have the right to terminate this agreement upon 30 days' notice.

Product Support Agreement. In connection with the Spin-off, we entered into a product support agreement pursuant to which DISH Network has the right, but not the obligation, to receive product support from us (including certain engineering and technical support services) for all set-top boxes and related accessories that we have previously sold and in the future may sell to DISH Network. The fees for the services provided under the product support agreement are calculated at cost plus a fixed margin, which varies depending on the nature of the services provided. The term of the product support agreement is the economic life of such set-top boxes and related accessories, unless terminated earlier. DISH Network may terminate the product support agreement for any reason upon at least 60 days' notice. In the event of an early termination of this agreement, DISH Network is entitled to a refund of any unearned fees paid to us for the services.

DISHOnline.com Services Agreement. Effective January 2010, DISH Network entered into a two-year agreement with us pursuant to which DISH Network receives certain services associated with an online video portal. The fees for the services provided under this services agreement depend, among other things, upon the cost to develop and operate such services. DISH Network has the option to renew this agreement for successive one year terms and the agreement may be terminated by DISH Network for any reason upon at least 120 days' notice to us. In October 2014, DISH Network exercised its right to renew this agreement for a one-year period ending in December 2015, and in November 2015, DISH Network exercised its right to renew this agreement for an additional one-year period ending in December 2016. In December 2016, we and DISH Network amended this agreement to, among other things, extend the term for one year through December 2017.

DISH Remote Access Services Agreement. Effective February 2010, we entered into an agreement with DISH Network pursuant to which DISH Network receives, among other things, certain remote digital video recorder (“DVR”) management services. The fees for the services provided under this services agreement depend, among other things, upon the cost to develop and operate such services. This agreement had an initial term of five years with automatic renewal for successive one year terms. This agreement automatically renewed in February 2017 for an additional one-year period until February 2018. The agreement may be terminated by DISH Network for any reason upon at least 120 days’ notice to us.

SlingService Services Agreement. Effective February 2010, we entered into an agreement with DISH Network pursuant to which DISH Network receives certain services related to placeshifting. The fees for the services provided under this services agreement depend, among other things, upon the cost to develop and operate such services. This agreement had an initial term of five years with automatic renewal for successive one year terms. This agreement automatically renewed in February 2017 for an additional one-year period until February 2018. The agreement may be terminated by DISH Network for any reason upon at least 120 days’ notice to us.

TerreStar Agreement. In March 2012, DISH Network completed its acquisition of substantially all the assets of TerreStar Networks Inc. (“TerreStar”). Prior to DISH Network’s acquisition of substantially all the assets of TerreStar and our completion of the Hughes Acquisition, TerreStar and HNS entered into various agreements pursuant to which our Hughes segment provides, among other things, warranty, operations and maintenance and hosting services for TerreStar’s ground-based communications equipment. TerreStar generally has the right to continue to receive warranty services from us for one of our products on a month-to-month basis. The provision of warranty services for our other product will continue until March 2018 and will automatically renew in March 2018 for an additional one-year period, unless terminated by TerreStar upon at least 60 days’ written notice to us prior to the end of the term. The provision of operations and maintenance services will continue until April 2018 and will automatically renew in April 2018 for an additional one-year period, unless terminated by TerreStar or us upon at least 90 days’ written notice prior to the end of the term. The provision of hosting services will continue until May 2022 and will not renew beyond May 2022 unless the parties enter into a new agreement or amend the existing agreement. In addition, TerreStar generally may terminate such services for convenience subject to providing us with prior notice and/or payment of termination charges.

Hughes Broadband Distribution Agreement. Effective October 2012, HNS and dishNET Satellite Broadband L.L.C. (“dishNET”), a wholly-owned subsidiary of DISH Network, entered into a distribution agreement (the “Distribution Agreement”) pursuant to which dishNET has the right, but not the obligation, to market, sell and distribute the Hughes satellite internet service (the “Hughes service”). dishNET pays HNS a monthly per subscriber wholesale service fee for the Hughes service based upon a subscriber’s service level and based upon certain volume subscription thresholds. The Distribution Agreement also provides that dishNET has the right, but not the obligation, to purchase certain broadband equipment from us to support the sale of the Hughes service. The Distribution Agreement had an initial term of five years with automatic renewal for successive one year terms unless terminated by either party with a written notice at least 180 days before the expiration of the then-current term. In February 2014, HNS and dishNET entered into an amendment to the Distribution Agreement which, among other things, extended the initial term of the Distribution Agreement until March 2024. Upon expiration or termination of the Distribution Agreement, the parties will continue to provide the Hughes service to the then-current dishNET subscribers pursuant to the terms and conditions of the Distribution Agreement.

Set-Top Box Application Development Agreement. In November 2012, we and DISH Network entered into a set-top box application development agreement (the “Application Development Agreement”) pursuant to which we provide DISH Network with certain services relating to the development of web-based applications for set-top boxes for the period ending in February 2016. The Application Development Agreement automatically renewed in February 2017 for a one-year period ending in February 2018, and renews automatically for successive one-year periods thereafter, unless terminated earlier by us or DISH Network at any time upon at least 90 days’ notice. The fees for services provided under the Application Development Agreement are calculated at our cost of providing the relevant service plus a fixed margin, which will depend on the nature of the services provided.

XiP Encryption Agreement. In July 2012, we entered into an encryption agreement with DISH Network for our whole-home HD DVR line of set-top boxes (the “XiP Encryption Agreement”) pursuant to which we provide certain security measures on our whole-home HD DVR line of set-top boxes to encrypt the content delivered to the set-top box via a smart card and secure the content between set-top boxes. The XiP Encryption Agreement's term ends on the same day as the 2012 Receiver Agreement and therefore was automatically extended through December 2017 when we and DISH Network extended the 2012 Receiver Agreement. We and DISH Network each have the right to terminate the XiP Encryption Agreement for any reason upon at least 180 days' notice and 30 days' notice, respectively. The fees for the services provided under the XiP Encryption Agreement are calculated on a monthly basis based on the number of receivers utilizing such security measures each month.

DBSD North America Agreement. In March 2012, DISH Network completed its acquisition of 100% of the equity of reorganized DBSD North America, Inc. ("DBSD North America"). Prior to DISH Network's acquisition of DBSD North America and our completion of the Hughes Acquisition, DBSD North America and HNS entered into various agreements pursuant to which our Hughes segment provides, among other things, warranty, operations and maintenance and hosting services of DBSD North America's gateway and ground-based communications equipment. DBSD North America generally has the right to continue to receive warranty services from us on a month-to-month basis until February 2019. The provision of operations and maintenance services will continue until April 2018 and will automatically renew in April 2018 for an additional one-year period, unless terminated by DBSD North America upon at least 120 days' written notice to us prior to the end of the term. The provision of hosting services will continue until February 2022 and will automatically renew for an additional five-year period until February 2027 unless terminated by DBSD North America upon at least 180 days' written notice to us prior to the end of the term. In addition, DBSD North America generally may terminate such services for convenience, subject to providing us with prior notice and/or payment of termination charges.

Sling TV Holding L.L.C. (formerly DISH Digital Holding L.L.C.) ("Sling TV Holding"). Effective July 2012, we and DISH Network formed Sling TV Holding, which was owned two-thirds by DISH Network and one-third by us. Sling TV Holding was formed to develop and commercialize certain advanced technologies. At that time, we, DISH Network and Sling TV Holding entered into the following agreements with respect to Sling TV Holding: (i) a contribution agreement pursuant to which we and DISH Network contributed certain assets in exchange for our respective ownership interests in Sling TV Holding; (ii) a limited liability company operating agreement ("Operating Agreement"), which provides for the governance of Sling TV Holding; and (iii) a commercial agreement ("Commercial Agreement") pursuant to which, among other things, Sling TV Holding had: (a) certain rights and corresponding obligations with respect to its business; and (b) the right, but not the obligation, to receive certain services from us and DISH Network, respectively. Additionally, the spouse of Mr. Vivek Khemka, the President - EchoStar Technologies L.L.C., is employed as Vice President of Business Development and Operations of Sling TV Holding.

Effective August 2014, we and Sling TV Holding entered into an exchange agreement ("Exchange Agreement") pursuant to which, among other things, Sling TV Holding distributed certain assets to us and we reduced our interest in Sling TV Holding to a 10.0% non-voting interest. As a result, DISH Network has a 90.0% equity interest and a 100% voting interest in Sling TV Holding. In addition, we, DISH Network and Sling TV Holding amended and restated the Operating Agreement, primarily to reflect the changes implemented by the Exchange Agreement. Finally, we, DISH Network and Sling TV Holding amended and restated the Commercial Agreement, pursuant to which, among other things, Sling TV Holding: (1) continues to have certain rights and corresponding obligations with respect to its business; (2) continues to have the right, but not the obligation, to receive certain services from us and DISH Network; and (3) has a license from us to use certain of the assets distributed to us as part of the Exchange Agreement. Following the consummation of the Share Exchange, we will no longer hold our investment in Sling TV Holding.

Cost of sales — equipment and services and other— DISH Network

Remanufactured Receiver and Services Agreement. In connection with the Spin-off, we entered into a remanufactured receiver and services agreement with DISH Network pursuant to which we have the right, but not the obligation, to purchase remanufactured receivers and related components from DISH Network at cost plus a fixed margin, which varies depending on the nature of the equipment purchased. In November 2014, we and DISH Network extended this agreement for a one-year period ending in December 2015, and in November 2015, we and DISH Network extended this agreement for a one-year period ending in December 2016. In November 2016, we and DISH Network further amended the remanufactured receiver and services agreement to extend its term for a one-year period through December 2017. We may terminate the remanufactured receiver and services agreement for any reason upon at least 60 days' notice to DISH Network. DISH Network may also terminate this agreement if certain entities acquire DISH Network.

ECHOSTAR CORPORATION
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Satellite Services Received from DISH Network — EchoStar XV. In May 2013, we began receiving satellite services from DISH Network on the EchoStar XV satellite and relocated the satellite to the 45 degree west longitude orbital location for testing pursuant to our Brazilian authorization. Effective March 2014, this satellite services agreement converted to a month-to-month service agreement with both parties having the right to terminate this agreement upon 30 days' notice. In October 2015, we provided DISH Network a notice to terminate this agreement effective in November 2015, and the agreement was terminated according to its terms in November 2015.

General and administrative expenses — DISH Network

Professional Services Agreement. In connection with the Spin-off, we entered into various agreements with DISH Network including the Transition Services Agreement, Satellite Procurement Agreement and Services Agreement, which all expired in January 2010 and were replaced by a Professional Services Agreement. In January 2010, we and DISH Network agreed that we shall continue to have the right, but not the obligation, to receive the following services from DISH Network, among others, certain of which were previously provided under the Transition Services Agreement: information technology, travel and event coordination, internal audit, legal, accounting and tax, benefits administration, program acquisition services and other support services. Mr. Vivek Khemka, who remains employed as DISH Network's Executive Vice President and Chief Technology Officer, currently also provides services to us pursuant to the Professional Services Agreement as President - EchoStar Technologies L.L.C. Additionally, we and DISH Network agreed that DISH Network would continue to have the right, but not the obligation, to engage us to manage the process of procuring new satellite capacity for DISH Network (previously provided under the Satellite Procurement Agreement), receive logistics, procurement and quality assurance services from us (previously provided under the Services Agreement) and other support services. The Professional Services Agreement automatically renewed in January 2017 for an additional one-year period until January 2018 and renews automatically for successive one-year periods thereafter, unless terminated earlier by either party upon at least 60 days' notice. However, either party may terminate the Professional Services Agreement in part with respect to any particular service it receives for any reason upon at least 30 days' notice.

Real Estate Lease Agreements. We have entered into a lease agreement pursuant to which we lease certain real estate from DISH Network. The rent on a per square foot basis is comparable to per square foot rental rates of similar commercial property in the same geographic area at the time of the lease, and we are responsible for our portion of the taxes, insurance, utilities and maintenance of the premises. The lease agreement is for certain space at 1285 Joe Battle Blvd., El Paso, Texas, was for an initial period ending in August 2015, and provided us with renewal options for four consecutive three year terms. Effective August 2015, we exercised our first renewal option for a period ending in August 2018.

Other agreements — DISH Network

Share Exchange Agreement. On January 31, 2017, EchoStar and certain of its subsidiaries entered into the Share Exchange Agreement with DISH Network Corporation and certain of its subsidiaries which provides, among other things, that EchoStar and its subsidiaries will receive all of the shares of the EchoStar Tracking Stock and HSS Tracking Stock in exchange for 100% of the equity interests of certain EchoStar subsidiaries that will hold our EchoStar Technologies businesses (collectively, the "Share Exchange"). Following consummation of the Share Exchange, EchoStar will no longer operate the EchoStar Technologies business segment and the EchoStar Tracking Stock and HSS Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and terms of, such tracking stock will terminate and be of no further effect. The Share Exchange has been structured in a manner to be a tax-free exchange for each of EchoStar and DISH Network. Pursuant to the Share Exchange Agreement, EchoStar will transfer certain assets, investments in joint ventures, spectrum licenses and real estate properties and DISH Network will assume certain liabilities relating to the transferring assets and businesses. The Share Exchange Agreement contains customary representations and warranties by the parties, including representations by EchoStar related to the transferring assets, assumed liabilities and the financial condition of the transferring businesses. Prior to closing, EchoStar and its subsidiaries have agreed to conduct the transferring businesses in the ordinary course and not to undertake specified actions without the written consent of DISH Network. The parties' obligations to close the Share Exchange are subject to various conditions. EchoStar and DISH Network have agreed to customary indemnification provisions whereby each party indemnifies the other against certain losses with respect to breaches of representations, warranties or covenants and certain liabilities and if certain actions undertaken by it causes the transaction to be taxable to the other party after closing. In connection with the Share Exchange, EchoStar and DISH Network and certain of their subsidiaries will enter into certain customary agreements covering, among other things, matters relating to taxes, employees, intellectual property and the provision of transitional services. See Note 20 for further information.

Intellectual Property Matters Agreement. We entered into an Intellectual Property Matters Agreement with DISH Network in connection with the Spin-off. The Intellectual Property Matters Agreement governs our relationship with DISH Network with respect to patents, trademarks and other intellectual property. The Intellectual Property Matters Agreement will continue in perpetuity unless mutually terminated by the parties. Pursuant to the Intellectual Property Matters Agreement, DISH Network irrevocably assigned to us all right, title and interest in certain patents, trademarks and other intellectual property necessary for the operation of our set-top box business. In addition, the agreement permits us to use, in the operation of our set-top box business, certain other intellectual property currently owned or licensed by DISH Network. In addition, DISH Network may not use the "EchoStar" name as a trademark, except in certain limited circumstances. Similarly, the Intellectual Property Matters Agreement provides that we will not make any use of the name or trademark "DISH Network" or any other trademark owned by DISH Network, except in certain circumstances.

Tax Sharing Agreement. In connection with the Spin-off, we entered into a tax sharing agreement with DISH Network which governs our respective rights, responsibilities and obligations after the Spin-off with respect to taxes for the periods ending on or before the Spin-off. Generally, all pre-Spin-off taxes, including any taxes that are incurred as a result of restructuring activities undertaken to implement the Spin-off, are borne by DISH Network, and DISH Network will indemnify us for such taxes. However, DISH Network is not liable for and will not indemnify us for any taxes that are incurred as a result of the Spin-off or certain related transactions failing to qualify as tax-free distributions pursuant to any provision of Section 355 or Section 361 of the Internal Revenue Code of 1986, as amended, because of: (i) a direct or indirect acquisition of any of our stock, stock options or assets; (ii) any action that we take or fail to take; or (iii) any action that we take that is inconsistent with the information and representations furnished to the IRS in connection with the request for the private letter ruling, or to counsel in connection with any opinion being delivered by counsel with respect to the Spin-off or certain related transactions. In such case, we will be solely liable for, and will indemnify DISH Network for, any resulting taxes, as well as any losses, claims and expenses. The tax sharing agreement will only terminate after the later of the full period of all applicable statutes of limitations, including extensions, or once all rights and obligations are fully effectuated or performed.

In light of the tax sharing agreement, among other things, and in connection with our consolidated federal income tax returns for certain tax years prior to and for the year of the Spin-off, in September 2013, we and DISH Network agreed upon a supplemental allocation of the tax benefits arising from certain tax items resolved in the course of the IRS's examination of our consolidated tax returns. Prior to the agreement with DISH Network, the federal tax benefits were reflected as a deferred tax asset for depreciation and amortization, which was netted in our noncurrent deferred tax liabilities. The agreement requires DISH Network to pay us the federal tax benefit it receives at such time as we would have otherwise been able to realize such tax benefit, which we currently estimate would be after 2017. Accordingly, we recorded a noncurrent receivable from DISH Network in "Other receivable — DISH Network" and a corresponding increase in our net noncurrent deferred tax liabilities to reflect the effects of this agreement in September 2013. In addition, in September 2013, we and DISH Network agreed upon a tax sharing arrangement for filing certain combined state income tax returns and a method of allocating the respective tax liabilities between us and DISH Network for such combined returns, through the taxable period ending on December 31, 2017.

We and DISH Network file combined income tax returns in certain states. In 2014 and 2015, we earned and recognized a tax benefit for certain state income tax credits that we would be unable to utilize currently if we had filed separately from DISH Network. DISH Network expects to utilize these tax credits to reduce its state income tax payable. We expect to increase additional paid-in capital upon receipt of any consideration paid to us by DISH Network in exchange for these tax credits.

TiVo. In April 2011, we and DISH Network entered into a settlement agreement with TiVo, Inc. ("TiVo"). The settlement resolved all pending litigation between us and DISH Network, on the one hand, and TiVo, on the other hand, including litigation relating to alleged patent infringement involving certain DISH Network DVRs. Under the settlement agreement, all pending litigation was dismissed with prejudice and all injunctions that permanently restrain, enjoin or compel any action by us or DISH Network were dissolved. We and DISH Network are jointly responsible for making payments to TiVo in the aggregate amount of $500.0 million, including an initial payment of $300.0 million and the remaining $200.0 million in six equal annual installments between 2012 and 2017. Pursuant to the terms and conditions of the agreements entered into in connection with the Spin-off, DISH Network made the initial payment to TiVo in May 2011, except for the contribution from us totaling approximately $10.0 million, representing an allocation of liability relating to our sales of DVR-enabled receivers to an international customer. Subsequent payments are allocated between us and DISH Network based on historical sales of certain licensed products, with EchoStar being responsible for 5% of each annual payment.

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Sling Trademark License Agreement. In December 2014, Sling TV Holding entered into an agreement with Sling Media, Inc., our subsidiary, pursuant to which Sling TV Holding has the right, for a fixed fee, to use certain trademarks, domain names and other intellectual property related to the "Sling" trademark through December 2016. In December 2016, Sling TV Holding and Sling Media, Inc. amended this agreement to extend the term thereof on a month-to-month basis. Either party may terminate this agreement at any time upon 21 days prior written notice to the other party.

gTLD Bidding Agreement. In April 2015, we and DISH Network entered into a gTLD Bidding Agreement whereby, among other things: (i) DISH Network obtained rights from us to participate in a generic top level domain ("gTLD") auction, assuming all rights and obligations from us related to our application with the Internet Corporation for Assigned Names and Numbers ("ICANN") for a particular gTLD; (ii) DISH Network agreed to reimburse us for our ICANN application fee and certain out-of-pocket expenses related to the application and the auction; and (iii) we and DISH Network agreed to split equally the net proceeds obtained by DISH Network as the losing bidder in the auction, less such fee reimbursement and out-of-pocket expenses.

Patent Cross-License Agreements. In December 2011, we and DISH Network entered into separate patent cross-license agreements with the same third party whereby: (i) we and such third party licensed our respective patents to each other subject to certain conditions; and (ii) DISH Network and such third party licensed their respective patents to each other subject to certain conditions (each, a "Cross-License Agreement"). Each Cross-License Agreement covers patents acquired by the respective party prior to January 2017 and aggregate payments under both Cross-License Agreements total less than $10.0 million. Each Cross-License Agreement contained an option to extend each Cross-License Agreement to include patents acquired by the respective party prior to January 2022. In December 2016, both we and DISH Network exercised our renewal options, resulting in aggregate additional payments to such third party totaling less than $3.0 million. Since the aggregate payments under both Cross-License Agreements were based on the combined annual revenue of us and DISH Network, we and DISH Network agreed to allocate our respective payments to such third party based on our respective percentage of combined total revenue.

PMC. In 2008, Personalized Media Communications, Inc. ("PMC") filed suit against us, DISH Network and Motorola Inc., in the United States District Court for the Eastern District of Texas, alleging infringement of United States Patent Nos. 5,109,414; 4,965,825; 5,233,654; 5,335,277 and 5,887,243, which relate to satellite signal processing. In May 2015, we, DISH Network and PMC entered into a settlement and release agreement that provided, among other things, for a license by PMC to us and DISH Network for certain patents and patent applications and the dismissal of all of PMC's claims in the action against us and DISH Network with prejudice. In June 2015, the Court dismissed all of PMC's claims in the action against us and DISH Network with prejudice. In June 2015, we and DISH Network agreed that we would contribute a one-time payment of $5.0 million towards the settlement under the agreements entered into in connection with the Spin-off and the 2012 Receiver Agreement.

TerreStar-2 Development Agreement. In August 2013, we and DISH Network entered into a development agreement ("T2 Development Agreement") with respect to the EchoStar XXI satellite under which we reimburse DISH Network for amounts it pays pursuant to an authorization to proceed ("T2 ATP") with SS/L in connection with the construction of the EchoStar XXI satellite. In exchange, DISH Network granted us a right of first refusal and right of first offer to purchase the EchoStar XXI satellite during the term of the T2 Development Agreement. The T2 Development Agreement was amended in December 2013 to provide for the right and option to purchase DISH Network's rights and obligations under the T2 ATP and the related agreement for the construction of the EchoStar XXI satellite with SS/L. In December 2014, we exercised our option to purchase DISH Network's rights and obligations under the T2 Development Agreement for $55.0 million in cash and the agreement terminated pursuant to its terms. In accordance with accounting principles that apply to transfers of assets between companies under common control, we recorded a $9.6 million charge to additional-paid-in-capital, net of related deferred income taxes.

Caltech. two of our subsidiaries, Hughes Communications, Inc. and HNS, as well as against DISH Network, DISH Network L.L.C., and dishNET Satellite Broadband L.L.C., in the United States District Court for the Central District of California alleging infringement of United States Patent Nos. 7,116,710; 7,421,032; 7,916,781; and 8,284,833, each of which is entitled "Serial Concatenation of Interleaved Convolutional Codes forming Turbo-Like Codes." Caltech asserted that encoding data as specified by the DVB-S2 standard infringes each of the asserted patents. Caltech claimed that certain of our Hughes segment's satellite broadband products and services, infringe the asserted patents by implementing the DVB-S2 standard. Pursuant to a settlement agreement among us, DISH Network and Caltech, in May 2016, Caltech dismissed with prejudice all of its claims in On October 1, 2013, Caltech filed complaints against two of our subsidiaries, Hughes Communications, Inc. and HNS, as well as against DISH Network, DISH Network L.L.C., and dishNET Satellite Broadband L.L.C., in the United States District Court for the Central District of California alleging infringement of United States Patent Nos. 7,116,710; 7,421,032; 7,916,781; and 8,284,833, each of which is entitled "Serial Concatenation of Interleaved Convolutional Codes forming Turbo-Like Codes." Caltech asserted that encoding data as specified by the DVB-S2 standard infringes each of the asserted patents. Caltech claimed that certain of our Hughes segment's satellite broadband products and services, infringe the asserted patents by implementing the DVB-S2 standard. Pursuant to a settlement agreement among us, DISH Network and Caltech, in May 2016, Caltech these actions. See Note 16 of these consolidated financial statements for further information. dismissed with prejudice all of its claims in these actions. See Note 16 of these consolidated financial statements for further information.

Orange, NJ. In October 2016, we and DISH Network sold two parcels of real estate owned separately by us and DISH Network in Orange, NJ to a third party pursuant to a purchase and sale agreement. Pursuant to the agreement, we and DISH Network separately received our respective payments from the buyer.

Invidi. In November 2010 and April 2011, we made investments in Invidi Technologies Corporation ("Invidi") in exchange for shares of Invidi's Series D Preferred Stock. In November 2016, DIRECTV, LLC, a wholly owned indirect subsidiary of AT&T Inc., DISH Network and Cavendish Square Holding B.V., an affiliate of WPP plc, entered into a series of agreements to acquire Invidi. As a result of the transaction, we sold our ownership interest in Invidi on the same terms offered to the other shareholders of Invidi. The transaction closed in January 2017.

Other Agreements

Hughes Systique Corporation ("Hughes Systique")

We contract with Hughes Systique for software development services. In 2008, Hughes Communications, Inc. loaned $1.5 million to Hughes Systique pursuant to a term loan facility. The initial interest rate on the loans was 6%, payable annually, and the accrued and unpaid interest was added to the principal amount in certain circumstances. The loans were convertible into shares of Hughes Systique upon non-payment or an event of default. In May 2014, we amended the term loan facility to increase the interest rate from 6% to 8%, payable annually, to reflect then-current market conditions and extend the maturity date of the loans to May 1, 2015, and in April 2015, we extended the maturity date of the loans to May 1, 2016 on the same terms. In 2015, Hughes Systique repaid $1.5 million of the outstanding principal of the loan facility. In February 2016, Hughes Systique repaid $0.3 million of the outstanding principal of the loan facility. In April 2016, Hughes Systique repaid in full the remaining $0.3 million outstanding principal and interest of the loan facility. As of December 31, 2016, the principal amount outstanding of the loan facility was zero. In addition to our 43.9% ownership in Hughes Systique, Mr. Pradman Kaul, the President of Hughes Communications, Inc. and a member of our board of directors, and his brother, who is the CEO and President of Hughes Systique, in the aggregate, own approximately 25.8%, on an undiluted basis, of Hughes Systique's outstanding shares as of December 31, 2016. Furthermore, Mr. Pradman Kaul serves on the board of directors of Hughes Systique. Hughes Systique is a variable interest entity and we are considered the primary beneficiary of Hughes Systique due to, among other factors, our ability to direct the activities that most significantly impact the economic performance of Hughes Systique. As a result, we consolidate Hughes Systique's financial statements in our consolidated financial statements.

NagraStar L.L.C.

We own 50.0% of NagraStar L.L.C. ("NagraStar"), a joint venture that is our primary provider of encryption and related security technology used in our set-top boxes. We account for our investment in NagraStar using the equity method. We made purchases from NagraStar totaling approximately $11.9 million, $19.6 million and $22.6 million for the years ended December 31, 2016, 2015 and 2014, respectively. As of December 31, 2016 and 2015, we had trade accounts payable to NagraStar totaling approximately $1.5 million and $2.6 million, respectively. Following the consummation of the Share Exchange, we will no longer hold our investment in NagraStar.

Dish Mexico

We own 49.0% of an entity that provides direct-to-home satellite services in Mexico known as Dish Mexico. We provide certain broadcast services and satellite services and sell hardware such as digital set-top boxes and related equipment to Dish Mexico.

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The following table summarizes revenue from sales of hardware and services we provided to Dish Mexico.

	For the Years Ended December 31,		
	2016	2015	2014
	(In thousands)		
Digital set-top boxes and related accessories	$ 52,324	$ 66,779	$ 60,464
Satellite services	$ 23,347	$ 23,347	$ 23,327
Uplink services	$ 4,059	$ 4,996	$ 6,251

As of December 31, 2016 and 2015, we had trade accounts receivable from Dish Mexico of approximately $24.2 million and $32.9 million, respectively.

Deluxe/EchoStar LLC

We own 50.0% of Deluxe/EchoStar LLC (“Deluxe”), a joint venture that we entered into in 2010 to build an advanced digital cinema satellite distribution network targeting delivery to digitally equipped theaters in the U.S. and Canada. We account for our investment in Deluxe using the equity method. We recognized revenue from Deluxe for transponder services and the sale of broadband equipment of approximately $3.0 million, $2.7 million and $3.3 million for the years ended December 31, 2016, 2015 and 2014, respectively. As of December 31, 2016 and 2015, we had trade accounts receivable from Deluxe of approximately $0.7 million and $0.1 million, respectively.

SmarDTV

In May 2015, we acquired a 22.5% interest in SmarDTV, which we account for using the equity method. Pursuant to our agreements with SmarDTV and its subsidiaries, we purchased engineering services from and paid royalties to SmarDTV and its subsidiaries totaling $6.3 million and $3.6 million for the years ended December 31, 2016 and 2015, respectively. As of December 31, 2016 and 2015, we had trade accounts payable to SmarDTV of $2.4 million and $0.9 million, respectively, and a current note receivable from SmarDTV of zero and $0.5 million, respectively, arising from a working capital adjustment pursuant to the acquisition agreement. Following the consummation of the Share Exchange, we will no longer own our interest in the equity and subordinated debt of SmarDTV and will no longer purchase engineering services from SmarDTV.

AsiaSat

We contract with AsiaSat Telecommunications Inc. (“AsiaSat”) for the use of transponder capacity on one of AsiaSat's satellites. We incurred expenses of approximately $1.45 million payable to AsiaSat under this agreement for the year ended December 31, 2016. In 2016, Mr. William David Wade, a member of our board of directors, served as the Chief Executive Officer of AsiaSat and Mr. Wade is currently serving as a senior advisor to the CEO of AsiaSat through March 2017.

Note 20. Subsequent Event

On January 31, 2017, EchoStar Corporation (“EchoStar”) and certain subsidiaries of EchoStar entered into the Share Exchange Agreement with DISH Network Corporation and certain of its subsidiaries (“DISH Network”).

Pursuant to the Share Exchange Agreement, among other things EchoStar will receive all of the shares of EchoStar Tracking Stock and HSS Tracking Stock in exchange for 100% of the equity interests of certain subsidiaries which will hold substantially all of the EchoStar Technologies business segment. The Share Exchange has been structured in a manner to be a tax-free exchange for each of EchoStar and DISH Network.

Following the closing of the Share Exchange, the Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and the terms of, the Tracking Stock will terminate and be of no further effect. The Share Exchange is expected to be consummated three business days after the satisfaction or waiver of all of the closing conditions to the transaction (other than conditions that by their nature are to be satisfied at the closing, but subject to the satisfaction of those conditions at such time), but no earlier than February 28, 2017. The Share Exchange Agreement provides for customary termination rights of EchoStar and DISH, including the right of either party to terminate the Share Exchange Agreement if the Share Exchange has not closed by March 31, 2017. The closing conditions to the transaction involving third parties or governmental approvals have been satisfied (other than those that by their nature are to be satisfied at the closing). While we currently expect the Share Exchange to be consummated on or about February 28, 2017, no assurance can be given that the Share Exchange will be consummated on the terms or within the time frame disclosed, or at all.

As a result of this transaction, we expect the historical financial results of our EchoStar Technologies segment prior to the closing of the Share Exchange to be reflected in the Company's consolidated financial statements as discontinued operations beginning in the period the Share Exchange is consummated. We also expect the noncontrolling interest in HSS Tracking Stock, as reflected in our stockholders equity to be eliminated as a result of the retirement of the HSS Tracking Stock.

ECHOSTAR CORPORATION
SCHEDULE I

CONDENSED BALANCE SHEETS
(Parent Company Information Only— See notes to consolidated financial statements)
(In thousands, except per share amounts)

	As of December 31, 2016	As of December 31, 2015
Assets		
Current Assets:		
Cash and cash equivalents	$ 498,219	$ 530,678
Marketable investment securities, at fair value	334,593	358,995
Other current assets	2,258	2,560
Total current assets	835,070	892,233
Noncurrent Assets:		
Investments in consolidated subsidiaries, including intercompany balances	2,854,218	2,446,916
Restricted cash and marketable investment securities	1,106	862
Deferred tax assets	122,124	245,457
Other intangible assets, net	—	5,221
Investments in unconsolidated entities	27,529	26,476
Other receivable - DISH Network	88,252	88,503
Other noncurrent assets, net	465	—
Total noncurrent assets	3,093,694	2,813,435
Total assets	$ 3,928,764	$ 3,705,668
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accrued expenses and other	$ 8,699	$ 10,190
Total current liabilities	8,699	10,190
Total liabilities	8,699	10,190
Commitments and Contingencies		
Stockholders' Equity:		
Preferred Stock, $.001 par value, 20,000,000 shares authorized:		
Hughes Retail Preferred Tracking Stock, $.001 par value, 13,000,000 shares authorized, 6,290,499 issued and outstanding at each of December 31, 2016 and 2015	6	6
Common stock, $.001 par value, 4,000,000,000 shares authorized:		
Class A common stock, $.001 par value, 1,600,000,000 shares authorized, 52,243,465 shares issued and 46,711,147 shares outstanding at December 31, 2016 and 51,087,839 shares issued and 45,555,521 shares outstanding at December 31, 2015	52	51
Class B common stock, $.001 par value, 800,000,000 shares authorized, 47,687,039 shares issued and outstanding at each of December 31, 2016 and 2015	48	48
Class C common stock, $.001 par value, 800,000,000 shares authorized, none issued and outstanding at each of December 31, 2016 and 2015	—	—
Class D common stock, $.001 par value, 800,000,000 shares authorized, none issued and outstanding at each of December 31, 2016 and 2015	—	—
Additional paid-in capital	3,828,677	3,776,451
Accumulated other comprehensive loss	(124,803)	(117,233)
Accumulated earnings	314,247	134,317
Treasury stock, at cost	(98,162)	(98,162)
Total stockholders' equity	3,920,065	3,695,478
Total liabilities and stockholders' equity	$ 3,928,764	$ 3,705,668

ECHOSTAR CORPORATION
CONDENSED STATEMENTS OF OPERATIONS AND COMPREHENSIVE INCOME (LOSS)
(Parent Company Information Only— See notes to consolidated financial statements)
(In thousands)

	For the Years Ended December 31,		
	2016	2015	2014
Costs and Expenses:			
Selling, general and administrative expenses	$ 1,622	$ 1,482	$ 1,536
Depreciation and amortization	5,221	16,964	16,965
Total costs and expenses	6,843	18,446	18,501
Operating losses	(6,843)	(18,446)	(18,501)
Other Income (Expense):			
Interest income and expense, net	10,348	7,941	8,880
Gains (losses) on marketable investment securities, net	2,772	(5,067)	73
Equity in earnings (losses) of unconsolidated affiliates, net	6,053	6,157	(4,389)
Other, net	(18)	790	5,835
Total other income, net	19,155	9,821	10,399
Income (loss) before income taxes and equity in earnings of consolidated subsidiaries, net	12,312	(8,625)	(8,102)
Equity in earnings of consolidated subsidiaries, net	172,466	166,731	159,871
Income tax benefit (provision), net	(4,848)	(4,749)	1,105
Net income	$ 179,930	$ 153,357	$ 152,874
Comprehensive Income (Loss):			
Net income	$ 179,930	$ 153,357	$ 152,874
Other comprehensive income (loss), net of tax:			
Unrealized gains (losses) on available-for-sale securities and other	7,565	(7,844)	(5,280)
Recognition of realized (gains) losses on available-for-sale securities in net income	(2,594)	5,086	(73)
Equity in other comprehensive loss of consolidated subsidiaries, net	(12,541)	(58,619)	(35,848)
Total other comprehensive loss, net of tax	(7,570)	(61,377)	(41,201)
Comprehensive income	$ 172,360	$ 91,980	$ 111,673

ECHOSTAR CORPORATION
CONDENSED STATEMENTS OF CASH FLOWS
(Parent Company Information Only— See notes to consolidated financial statements)
(In thousands)

	For the Years Ended December 31,		
	2016	2015	2014
Cash Flows from Operating Activities:			
Net income	$ 179,930	$ 153,357	$ 152,874
Adjustments to reconcile net income to net cash flows from operating activities:			
Depreciation and amortization	5,221	16,964	16,965
Equity in (earnings) losses of unconsolidated affiliates, net	(6,053)	(6,157)	4,389
Equity in earnings of consolidated subsidiaries, net	(172,466)	(166,731)	(159,871)
Losses (gains) and impairment on marketable investment securities, net	(2,772)	5,067	(73)
Deferred tax provision (benefit)	4,848	4,749	(1,105)
Dividends received from unconsolidated entity	5,000	5,000	5,000
Changes in current assets and current liabilities, net	2,093	7,205	6,389
Changes in noncurrent assets and noncurrent liabilities, net	251	(566)	35
Other, net	4,661	7,705	13,319
Net cash flows from operating activities	20,713	26,593	37,922
Cash Flows from Investing Activities:			
Purchases of marketable investment securities	(524,517)	(327,610)	(1,013,699)
Sales and maturities of marketable investment securities	548,721	701,832	1,118,187
Contributions to subsidiaries and affiliates, net	(104,099)	(182,943)	(275,545)
Investments in unconsolidated entities	—	—	(18,569)
Changes in restricted cash and marketable investment securities	(244)	431	(270)
Other	(465)	—	—
Net cash flows from investing activities	(80,604)	191,710	(189,896)
Cash Flows from Financing Activities:			
Net proceeds from Class A common stock options exercised and stock issued under the Employee Stock Purchase Plan	27,432	38,729	28,857
Other, net	—	—	(3,075)
Net cash flows from financing activities	27,432	38,729	25,782
Net increase (decrease) in cash and cash equivalents	(32,459)	257,032	(126,192)
Cash and cash equivalents, beginning of period	530,678	273,646	399,838
Cash and cash equivalents, end of period	$ 498,219	$ 530,678	$ 273,646

ECHOSTAR CORPORATION
SCHEDULE II
VALUATION AND QUALIFYING ACCOUNTS

Our valuation and qualifying accounts as of December 31, 2016, 2015 and 2014 were as follows:

Allowance for doubtful accounts	Balance at Beginning of Year	Charged to Costs and Expenses	Deductions	Balance at End of Year
	(In thousands)			
For the years ended:				
December 31, 2016	$ 12,485	$ 14,389	$ (13,474)	$ 13,400
December 31, 2015	$ 14,188	$ 6,712	$ (8,415)	$ 12,485
December 31, 2014	$ 13,237	$ 7,242	$ (6,291)	$ 14,188

Third Amendment
To
2012 Receiver Agreement
Between
EchoStar Technologies L.L.C.
and
EchoSphere L.L.C.

This Third Amendment (this "Amendment") to that certain 2012 Receiver Agreement by and between EchoStar Technologies L.L.C. ("ETLLC") and EchoSphere L.L.C. ("Licensee") dated January 1, 2012 as amended by: (i) that certain First Amendment dated as of November 7, 2012 (the "First Amendment") and (ii) that certain Second Amendment dated as of November 4, 2015 (the "Second Amendment", and together with that certain 2012 Receiver Agreement and the First Amendment, collectively, the "Agreement") is made as of this 4th day of November, 2016 (the "Third Amendment Effective Date"). Hereinafter, ETLLC and Licensee may be referred to individually as a "Party" or collectively as the "Parties."

WHEREAS, the term of the Agreement expires December 31, 2016; and

WHEREAS, the Parties now desire to amend the Agreement to extend the term of the Agreement for an additional one (1) year;

NOW, THEREFORE, in consideration of the mutual promises set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Term. Section 10.1 of the Agreement is hereby deleted in its entirety and replaced with the following:

> This Agreement shall commence on the date first written above and shall continue until December 31, 2017 (the "Term").

2. No Other Amendment. Except as expressly set forth herein, all of the terms and conditions of the Agreement shall remain in full force and effect, without any change whatsoever.

3. Counterparts. This Third Amendment may be executed in two (2) or more counterparts, each of which when executed and delivered shall be deemed to be an original, and all of which when taken together shall constitute one and the same instrument. Facsimile signatures and electronically scanned signatures shall be deemed originals.

4. Capitalized Terms. Capitalized terms used herein, but not otherwise defined, shall have the meaning ascribed to them in the Agreement.

5. Conflict. In the event there is any conflict between the terms and conditions of this Third Amendment and the terms and conditions of the Agreement, the terms and conditions of this Third Amendment will prevail.

6. Entire Agreement. The Agreement, including any Exhibits or Attachments to the Agreement, and this Third Amendment constitute the entire agreement between the Parties with respect to the subject matter hereof and supersede all previous agreements, oral or written, between the Parties concerning the subject matter hereof. No modification or amendment of the terms of the Agreement or this Third Amendment shall be effective except by a writing executed by both Parties.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this Third Amendment as of the Third Amendment Effective Date.

ECHOSTAR TECHNOLOGIES L.L.C.

By: *<u>/s/ David J. Rayner</u>*
Name: David J. Rayner
Title: Executive Vice President, Chief Financial Officer and Treasurer

ECHOSPHERE L.L.C.

By: *<u>/s/ Steve E. Swain</u>*
Name: Steve E. Swain
Title: Senior Vice President and Chief Financial Officer

First Amendment
To
2012 Broadcast Services Agreement
Between
EchoStar Broadcasting Corporation
and
DISH Network L.L.C.

This First Amendment (this "First Amendment") to that certain 2012 Broadcast Services Agreement by and between EchoStar Broadcasting Corporation ("EBC") and DISH Network L.L.C. ("Customer"), dated January 1, 2012 (the "Agreement"), is made as of this 4th day of November, 2016 (the "First Amendment Effective Date"). Hereinafter, EBC and Customer may be referred to individually as a "Party" or collectively as the "Parties."

WHEREAS, the term of the Agreement expires December 31, 2016; and

WHEREAS, the Parties now desire to amend the Agreement to extend the term of the Agreement for an additional one (1) year;

NOW, THEREFORE, in consideration of the mutual promises set forth herein and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties hereby agree as follows:

1. Term. Section 10 of the Agreement is hereby deleted in its entirety and replaced with the following:

> This Agreement shall commence on the Effective Date and shall expire on the earlier of: (i) the date all Services have been terminated in accordance with the terms of this Agreement; or (ii) December 31, 2017 (the "Term").

2. No Other Amendment. Except as expressly set forth herein, all of the terms and conditions of the Agreement shall remain in full force and effect, without any change whatsoever.

3. Counterparts. This First Amendment may be executed in two (2) or more counterparts, each of which when executed and delivered shall be deemed to be an original, and all of which when taken together shall constitute one and the same instrument. Facsimile signatures and electronically scanned signatures shall be deemed originals.

4. Capitalized Terms. Capitalized terms used herein, but not otherwise defined, shall have the meaning ascribed to them in the Agreement.

5. Conflict. In the event there is any conflict between the terms and conditions of this First Amendment and the terms and conditions of the Agreement, the terms and conditions of this First Amendment will prevail.

6. Entire Agreement. The Agreement, including any Exhibits or Attachments to the Agreement, and this First Amendment constitute the entire agreement between the Parties with respect to the subject matter hereof and supersede all previous agreements, oral or written, between the Parties concerning the subject matter hereof. No modification or amendment of the terms of the Agreement or this First Amendment shall be effective except by a writing executed by both Parties.

[SIGNATURE PAGE FOLLOWS]

IN WITNESS WHEREOF, the Parties have caused their duly authorized representatives to execute this First Amendment as of the First Amendment Effective Date.

ECHOSTAR BROADCASTING CORPORATION

By: */s/ David J. Rayner*
Name: David J. Rayner
Title: Executive Vice President, Chief Financial Officer and Treasurer

DISH NETWORK L.L.C.

By: */s/ Steven E. Swain*
Name: Steven E. Swain
Title: Senior Vice President and Chief Financial Officer

EXHIBIT 21

ECHOSTAR CORPORATION AND SUBSIDIARIES

LIST OF SUBSIDIARIES

As of December 31, 2016

Legal Entity	State or Country of Incorporation
Hughes Satellite Systems Corporation	Colorado
Hughes Communications, Inc.	Delaware
Hughes Network Systems, LLC	Delaware
EchoStar Technologies L.L.C.	Texas
EchoStar Corporation	Nevada
EchoStar Broadcasting Corporation	Colorado
EchoStar Operating L.L.C.	Colorado
EchoStar Satellite Services L.L.C	Colorado
EchoStar Satellite Operating Corporation	Colorado
EchoStar XI Holding L.L.C.	Colorado

Exhibit 23

Consent of Independent Registered Public Accounting Firm

The Board of Directors
EchoStar Corporation:

We consent to the incorporation by reference in the registration statements of EchoStar Corporation of our report dated February 24, 2017, with respect to the consolidated balance sheets of EchoStar Corporation and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations and comprehensive income (loss), and changes in stockholders' equity, and cash flows, for each of the years in the three-year period ended December 31, 2016, the financial statement schedules I and II and the effectiveness of internal control over financial reporting as of December 31, 2016, which report appears in the December 31, 2016 annual report on Form 10-K of EchoStar Corporation.

Form	Registration Statement No.	Description
S-8	333-162339	Additional shares for 2008 Employee Purchase Plan
S-8	333-148416	2008 Stock Incentive Plan
		2008 Employee Purchase Plan
		2008 Nonemployee Director Stock Option Plan
		2008 Class B CEO Stock Option Plans

/s/ KPMG LLP

Denver, Colorado
February 24, 2017

Exhibit 24

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below constitutes and appoints Dean A. Manson, individually, as the true and lawful attorney-in-fact and agent of the undersigned, with full power of substitution and resubstitution, for and in the name, place and stead of the undersigned, in any and all capacities, to sign the Annual Report on Form 10-K of EchoStar Corporation, a Nevada corporation formed in October 2007, for the year ended December 31, 2016, and any and all amendments thereto and to file the same, with all exhibits thereto and other documents in connection therewith, with the United States Securities and Exchange Commission, and hereby grants to each such attorney-in-fact and agent full power and authority to do and perform each and every act and thing requisite and necessary to be done in connection therewith, as fully as to all intents and purposes as the undersigned might or could do in person, hereby ratifying and confirming all that such attorney-in-fact and agent, or his substitute, may lawfully do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this Power of Attorney has been signed by the following persons in the capacities and on the date indicated.

Signature	Title	Date
/s/ Charles W. Ergen Charles W. Ergen	Director	February 24, 2017
/s/ R. Stanton Dodge R. Stanton Dodge	Director	February 24, 2017
/s/ Anthony M. Federico Anthony M. Federico	Director	February 24, 2017
/s/ Pradman P. Kaul Pradman P. Kaul	Director	February 24, 2017
/s/ Tom A. Ortolf Tom A. Ortolf	Director	February 24, 2017
/s/ C. Michael Schroeder C. Michael Schroeder	Director	February 24, 2017
/s/ William David Wade William David Wade	Director	February 24, 2017

EXHIBIT 31.1

CERTIFICATION OF CHIEF EXECUTIVE OFFICER
Section 302 Certification

I, Michael T. Dugan, certify that:

1. I have reviewed this Annual Report on Form 10-K of EchoStar Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2017

/s/ Michael T. Dugan

Chief Executive Officer, President and Director
(Principal Executive Officer)

EXHIBIT 31.2

CERTIFICATION OF CHIEF FINANCIAL OFFICER
Section 302 Certification

I, David J. Rayner, certify that:

1. I have reviewed this Annual Report on Form 10-K of EchoStar Corporation;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

a. All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

b. Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 24, 2017

/s/ David J. Rayner

Executive Vice President, Chief Financial Officer,
Chief Operating Officer and Treasurer
(Principal Financial and Accounting Officer)

EXHIBIT 32.1

CERTIFICATIONS OF CHIEF EXECUTIVE OFFICER AND CHIEF FINANCIAL OFFICER
Section 906 Certifications

In connection with the annual report for the year ended December 31, 2016 on Form 10-K (the "Annual Report"), of EchoStar Corporation (the "Company") as filed with the Securities and Exchange Commission on the date hereof, we, Michael T. Dugan and David J. Rayner, Chief Executive Officer and Chief Financial Officer, respectively, of the Company, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant section 906 of the Sarbanes-Oxley Act of 2002, that to the best of our knowledge:

(i) the Annual Report fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934; and

(ii) the information contained in this Annual Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: February 24, 2017

/s/ Michael T. Dugan

Name:	Michael T. Dugan
Title:	Chief Executive Officer, President and Director
	(Principal Executive Officer)

/s/ David J. Rayner

Name:	David J. Rayner
Title:	Executive Vice President, Chief Financial Officer,
	Chief Operating Officer and Treasurer
	(Principal Financial and Accounting Officer)

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of the Annual Report or as a separate disclosure document.

A SIGNED ORIGINAL OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906 HAS BEEN PROVIDED TO THE COMPANY AND WILL BE RETAINED BY THE COMPANY AND FURNISHED TO THE SECURITIES AND EXCHANGE COMMISSION OR ITS STAFF UPON REQUEST.

EXHIBIT 99.1

Unaudited Condensed Attributed Financial Information for Hughes Retail Group

On March 1, 2014, EchoStar Corporation (the terms “we,” “us,” “EchoStar,” and “our” refer to EchoStar Corporation and its subsidiaries) issued shares of its newly authorized Hughes Retail Preferred Tracking Stock (the “EchoStar Tracking Stock”) and Hughes Satellite Systems Corporation (“HSS”), a subsidiary of EchoStar, also issued shares of its newly authorized Hughes Retail Preferred Tracking Stock (the “HSS Tracking Stock” and together with the EchoStar Tracking Stock, the “Tracking Stock”) to certain subsidiaries of DISH Network Corporation.

The Tracking Stock is intended to reflect the separate performance of the Hughes Retail Group, which is comprised primarily of our business of providing satellite broadband internet services to residential retail subscribers, including the assets and liabilities primarily associated with the operation of the business; and the business operations, revenue, billings, operating and other direct and indirect support activities to provide services to the business and Hughes retail subscribers. The Hughes Retail Group also includes any proceeds associated with a sale or transfer of the Hughes Retail Group or any assets of the Hughes Retail Group, and any other assets acquired by or for the account of the Hughes Retail Group or otherwise attributed, contributed, allocated or transferred to the Hughes Retail Group from time to time. The EchoStar Group is comprised of all existing and future businesses of EchoStar and its subsidiaries, excluding the Hughes Retail Group.

Holders of the Tracking Stock and our common stock are holders of capital stock of the issuer (EchoStar or HSS) and are subject to risks associated with an investment in the issuer and all of its businesses, assets and liabilities. The issuance of the Tracking Stock does not affect the rights of our creditors or the creditors of our subsidiaries.

Notwithstanding the following attribution of assets, liabilities, revenue, expenses and cash flows to the Hughes Retail Group and the EchoStar Group, our tracking stock structure does not affect the ownership of or the legal title to our assets or responsibility for our liabilities.

The accompanying condensed attributed financial information as of December 31, 2016 and 2015 and for the years ended December 31, 2016, 2015 and 2014 are unaudited. The Company’s management is solely responsible for this financial information and believes that it has been prepared in conformity with accounting principles generally accepted in the United States.

The following tables present our consolidated assets and liabilities as of December 31, 2016 and 2015 and our consolidated revenue, expenses and cash flows for the years ended December 31, 2016, 2015 and 2014. The tables further present our assets, liabilities, revenue, expenses and cash flows that are attributed to the Hughes Retail Group as if that business and its assets had been attributed to that group at the beginning of each period. The financial information in this Exhibit should be read in conjunction with our consolidated financial statements for the period ended December 31, 2016 included in our Annual Report on Form 10-K.

On January 31, 2017, EchoStar and certain of its subsidiaries entered into the Share Exchange Agreement. The Share Exchange Agreement provides, among other things, that EchoStar and its subsidiaries will receive all of the shares of the EchoStar Tracking Stock and HSS Tracking Stock in exchange for 100% of the equity interests in certain EchoStar subsidiaries that will hold our EchoStar Technologies businesses. Following consummation of the Share Exchange, the EchoStar Tracking Stock and HSS Tracking Stock will be retired and all agreements, arrangements and policy statements with respect to, and terms of, such tracking stock will terminate and be of no further effect. The transaction is expected to close during the first quarter of 2017. For more information regarding the Share Exchange, see Note 20 in the notes to consolidated financial statements in Item 15 of our most recent Annual Report on Form 10-K.

CONDENSED ATTRIBUTED BALANCE SHEETS
(In thousands)
(Unaudited)

	Attributed As of December 31, 2016				Attributed As of December 31, 2015			
	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated
Assets								
Current Assets:								
Cash, cash equivalents and marketable investment securities	$ —	$ 3,093,659	$ —	$ 3,093,659	$ —	$ 1,536,578	$ —	$ 1,536,578
Trade accounts receivable, net	28,452	181,336	—	209,788	27,094	152,146	—	179,240
Trade accounts receivable - DISH Network, net	—	278,615	—	278,615	—	277,159	—	277,159
Inventory	4,364	69,111	(1,031)	72,444	6,699	61,878	(1,567)	67,010
Prepaids and deposits	487	57,432	—	57,919	990	55,959	—	56,949
Inter-group advances	14,259	—	(14,259)	—	—	30,398	(30,398)	—
Other current assets	—	10,862	—	10,862	—	16,723	—	16,723
Total current assets	47,562	3,691,015	(15,290)	3,723,287	34,783	2,130,841	(31,965)	2,133,659
Noncurrent Assets:								
Restricted cash and marketable investment securities	—	12,926	—	12,926	—	21,002	—	21,002
Property and equipment, net	143,496	3,542,815	(17,008)	3,669,303	162,497	3,266,315	(15,822)	3,412,990
Regulatory authorizations, net	—	544,633	—	544,633	—	543,812	—	543,812
Goodwill	260,000	250,630	—	510,630	260,000	250,630	—	510,630
Other intangible assets, net	15,402	73,052	—	88,454	31,488	101,165	—	132,653
Economic interest in Hughes Retail Group	—	88,468	(88,468)	—	—	89,140	(89,140)	—
Investments in unconsolidated entities	—	197,219	—	197,219	—	209,264	—	209,264
Other receivable - DISH Network	—	90,586	—	90,586	—	90,966	—	90,966
Deferred tax assets	39,407	10,147	(39,407)	10,147	19,685	4,041	(19,685)	4,041
Other noncurrent assets, net	31,477	130,664	(467)	161,674	35,277	115,859	(667)	150,469
Total noncurrent assets	489,782	4,941,140	(145,350)	5,285,572	508,947	4,692,194	(125,314)	5,075,827
Total assets	$ 537,344	$ 8,632,155	$ (160,640)	$ 9,008,859	$ 543,730	$ 6,823,035	$ (157,279)	$ 7,209,486
Liabilities and Stockholders' Equity								
Current Liabilities:								
Trade accounts payable	$ 13,104	$ 176,711	$ —	$ 189,815	$ 12,023	$ 201,648	$ —	$ 213,671
Trade accounts payable - DISH Network	—	5,032	—	5,032	—	24,682	—	24,682
Current portion of long-term debt and capital lease obligations	—	37,307	—	37,307	—	35,698	—	35,698
Deferred revenue and prepayments	30,291	32,665	—	62,956	26,636	35,245	—	61,881
Accrued compensation	—	58,106	—	58,106	—	42,767	—	42,767
Accrued interest	—	46,504	—	46,504	—	8,596	—	8,596
Accrued royalties	—	23,199	—	23,199	—	22,531	—	22,531
Inter-group advances	—	14,259	(14,259)	—	30,398	—	(30,398)	—
Accrued expenses and other	46,192	62,327	—	108,519	26,399	90,606	—	117,005
Total current liabilities	89,587	456,110	(14,259)	531,438	95,456	461,773	(30,398)	526,831
Noncurrent Liabilities:								
Long-term debt and capital lease obligations, net of unamortized debt issuance costs	—	3,622,879	—	3,622,879	—	2,156,667	—	2,156,667
Deferred tax liabilities, net	—	793,427	(39,407)	754,020	—	670,077	(19,685)	650,392
Other noncurrent liabilities	5,416	88,301	—	93,717	2,576	91,378	—	93,954
Total noncurrent liabilities	5,416	4,504,607	(39,407)	4,470,616	2,576	2,918,122	(19,685)	2,901,013
Total liabilities	95,003	4,960,717	(53,666)	5,002,054	98,032	3,379,895	(50,083)	3,427,844
Stockholders' Equity:								
Equity/Attributed net assets	442,341	3,584,698	(106,974)	3,920,065	445,698	3,356,976	(107,196)	3,695,478
Noncontrolling interest in HSS Tracking Stock	—	73,910	—	73,910	—	74,854	—	74,854
Other noncontrolling interests	—	12,830	—	12,830	—	11,310	—	11,310
Equity/Attributed net assets	442,341	3,671,438	(106,974)	4,006,805	445,698	3,443,140	(107,196)	3,781,642
Total liabilities and equity/attributed net assets	$ 537,344	$ 8,632,155	$ (160,640)	$ 9,008,859	$ 543,730	$ 6,823,035	$ (157,279)	$ 7,209,486

CONDENSED ATTRIBUTED STATEMENTS OF OPERATIONS

(In thousands)

(Unaudited)

	Attributed For the Year Ended December 31, 2016				Attributed For the Year Ended December 31, 2015				Attributed For the Year Ended December 31, 2014			
	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated
Revenue:												
Services and equipment revenue - DISH Network	$ —	$1,599,892	$ —	$ 1,599,892	$ —	$1,681,485	$ —	$ 1,681,485	$ —	$1,974,591	$ —	$ 1,974,591
Services and equipment revenue - other	641,360	1,142,165	(326,687)	1,456,838	613,708	1,176,958	(328,437)	1,462,229	562,495	1,173,878	(265,386)	1,470,987
Total revenue	641,360	2,742,057	(326,687)	3,056,730	613,708	2,858,443	(328,437)	3,143,714	562,495	3,148,469	(265,386)	3,445,578
Costs and Expenses:												
Cost of sales (exclusive of depreciation and amortization)	372,625	1,680,950	(317,969)	1,735,606	360,947	1,759,600	(315,827)	1,804,720	320,127	2,060,922	(253,133)	2,127,916
Selling, general and administrative expenses	142,130	243,504	—	385,634	146,163	227,953	—	374,116	143,987	228,023	—	372,010
Research and development expenses	—	76,024	—	76,024	—	78,287	—	78,287	878	60,008	—	60,886
Depreciation and amortization	132,122	371,214	(8,268)	495,068	139,443	394,169	(5,454)	528,158	134,952	423,076	(1,352)	556,676
Impairment of long-lived assets	—	—	—	—	—	2,400	—	2,400	—	—	—	—
Total costs and expenses	646,877	2,371,692	(326,237)	2,692,332	646,553	2,462,409	(321,281)	2,787,681	599,944	2,772,029	(254,485)	3,117,488
Operating income (loss)	(5,517)	370,365	(450)	364,398	(32,845)	396,034	(7,156)	356,033	(37,449)	376,440	(10,901)	328,090
Other Income (Expense):												
Interest income	—	21,287	(38)	21,249	—	10,582	(153)	10,429	1	9,147	(46)	9,102
Interest expense, net of amounts capitalized	(38)	(123,630)	38	(123,630)	(153)	(122,066)	153	(122,066)	(45)	(171,350)	46	(171,349)
Loss from partial redemption of debt	—	—	—	—	—	(5,044)	—	(5,044)	—	—	—	—
Gains (losses) and other-than-temporary impairment on marketable investment securities, net	—	9,767	—	9,767	—	(17,669)	—	(17,669)	—	41	—	41
Economic interest in earnings (loss) of Hughes Retail Group	—	(671)	671	—	—	(3,987)	3,987	—	—	(3,549)	3,549	—
Other, net	—	15,060	—	15,060	—	(111)	—	(111)	—	12,449	—	12,449
Total other income (expense), net	(38)	(78,187)	671	(77,554)	(153)	(138,295)	3,987	(134,461)	(44)	(153,262)	3,549	(149,757)
Income (loss) before income taxes	(5,555)	292,178	221	286,844	(32,998)	257,739	(3,169)	221,572	(37,493)	223,178	(7,352)	178,333
Income tax benefit (provision), net	2,198	(108,350)	—	(106,152)	13,065	(85,266)	—	(72,201)	14,836	(45,620)	—	(30,784)
Net income (loss)	(3,357)	183,828	221	180,692	(19,933)	172,473	(3,169)	149,371	(22,657)	177,558	(7,352)	147,549
Less: Net loss attributable to noncontrolling interest in HSS Tracking Stock	—	(944)	—	(944)	—	(5,603)	—	(5,603)	—	(6,714)	—	(6,714)
Less: Net income attributable to other noncontrolling interests	—	1,706	—	1,706	—	1,617	—	1,617	—	1,389	—	1,389
Net income (loss) attributable to EchoStar	$ (3,357)	$ 183,066	$ 221	$ 179,930	$(19,933)	$ 176,459	$ (3,169)	$ 153,357	$(22,657)	$ 182,883	$ (7,352)	$ 152,874

CONDENSED ATTRIBUTED STATEMENTS OF CASH FLOWS
(In thousands)
(Unaudited)

	Attributed For the Year Ended December 31, 2016				Attributed For the Year Ended December 31, 2015				Attributed For the Year Ended December 31, 2014			
	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated	Hughes Retail Group	EchoStar Group	Inter-Group Eliminations	EchoStar Consolidated
Cash Flows from Operating Activities:												
Net income (loss)	$ (3,357)	$ 183,828	$ 221	$ 180,692	$ (19,933)	$ 172,473	$ (3,169)	$ 149,371	$ (22,657)	$ 177,558	$ (7,352)	$ 147,549
Adjustments to reconcile net income (loss) to net cash flows from operating activities:												
Depreciation and amortization	132,122	371,214	(8,268)	495,068	139,443	394,169	(5,454)	528,158	134,952	423,076	(1,352)	556,676
Impairment of long-lived assets	—	—	—	—	—	2,400	—	2,400	—	—	—	—
Loss from partial redemption of debt	—	—	—	—	—	5,044	—	5,044	—	—	—	—
Losses (gains) and impairment on marketable investment securities, net	—	(9,767)	—	(9,767)	—	17,669	—	17,669	—	(41)	—	(41)
Equity in earnings of unconsolidated affiliates, net	—	(13,310)	—	(13,310)	—	(1,895)	—	(1,895)	—	(8,198)	—	(8,198)
Stock-based compensation	—	15,234	—	15,234	—	21,839	—	21,839	—	14,683	—	14,683
Deferred tax provision	(19,722)	117,870	—	98,148	(24,162)	80,294	—	56,132	(31,607)	63,349	—	31,742
Dividends received from unconsolidated entities	—	15,000	—	15,000	—	5,000	—	5,000	—	7,400	—	7,400
Proceeds from sale of trading securities	—	7,140	—	7,140	—	380	—	380	—	17,053	—	17,053
Economic interest in loss (earnings) of Hughes Retail Group	—	671	(671)	—	—	3,987	(3,987)	—	—	3,549	(3,549)	—
Changes in current assets and current liabilities, net	26,009	(44,645)	(536)	(19,172)	13,951	(45,056)	(331)	(31,436)	18,996	56,352	1,899	77,247
Changes in noncurrent assets and noncurrent liabilities, net	6,640	3,019	(200)	9,459	3,946	(2,350)	20	1,616	(687)	(8,265)	647	(8,305)
Other, net	—	24,851	—	24,851	—	22,173	—	22,173	—	4,325	—	4,325
Net cash flows from operating activities	141,692	671,105	(9,454)	803,343	113,245	676,127	(12,921)	776,451	98,997	750,841	(9,707)	840,131
Cash Flows from Investing Activities:												
Purchases of marketable investment securities	—	(921,247)	—	(921,247)	—	(536,430)	—	(536,430)	—	(1,523,514)	—	(1,523,514)
Sales and maturities of marketable investment securities	—	1,001,166	—	1,001,166	—	1,057,034	—	1,057,034	—	1,353,157	—	1,353,157
Expenditures for property and equipment	(97,035)	(634,760)	9,454	(722,341)	(116,194)	(705,997)	12,921	(809,270)	(125,882)	(563,851)	9,707	(680,026)
Refunds and other receipts related to capital expenditures	—	24,087	—	24,087	—	105,750	—	105,750	—	—	—	—
Changes in restricted cash and marketable investment securities	—	8,076	—	8,076	—	(2,057)	—	(2,057)	—	(2,808)	—	(2,808)
Investments in unconsolidated entities	—	(1,636)	—	(1,636)	—	(64,655)	—	(64,655)	—	(18,569)	—	(18,569)
Acquisition of regulatory authorization	—	—	—	—	—	(3,428)	—	(3,428)	—	—	—	—
Expenditures for externally marketed software	—	(23,252)	—	(23,252)	—	(22,327)	—	(22,327)	—	(22,955)	—	(22,955)
Inter-group advances	(14,259)	30,398	(16,139)	—	—	(2,949)	2,949	—	—	(27,449)	27,449	—
Other, net	—	2,880	—	2,880	—	72	—	72	—	7,125	—	7,125
Net cash flows from investing activities	(111,294)	(514,288)	(6,685)	(632,267)	(116,194)	(174,987)	15,870	(275,311)	(125,882)	(798,864)	37,156	(887,590)
Cash Flows from Financing Activities:												
Proceeds from issuance of long-term debt	—	1,500,000	—	1,500,000	—	—	—	—	—	—	—	—
Payments of debt issuance costs	—	(7,097)	—	(7,097)	—	—	—	—	—	—	—	—
Repayment of 6 1/2% Senior Secured Notes Due 2019 and related premium	—	—	—	—	—	(113,300)	—	(113,300)	—	—	—	—
Repayment of debt and capital lease obligations	—	(40,364)	—	(40,364)	—	(44,804)	—	(44,804)	—	(63,122)	—	(63,122)
Net proceeds from Class A common stock options exercised and stock issued under the Employee Stock Purchase Plan	—	27,432	—	27,432	—	38,729	—	38,729	—	28,857	—	28,857
Net proceeds from issuance of Tracking Stock	—	—	—	—	—	—	—	—	—	7,526	—	7,526
Excess tax benefit from stock option exercises	—	848	—	848	—	3,929	—	3,929	—	(7,252)	—	(7,252)
Inter-group advances	(30,398)	14,259	16,139	—	2,949	—	(2,949)	—	27,449	—	(27,449)	—
Inter-group equity contributions (distributions), net	—	—	—	—	—	—	—	—	(564)	564	—	—
Other, net	—	(5,130)	—	(5,130)	—	(4,811)	—	(4,811)	—	(1,105)	—	(1,105)
Net cash flows from financing activities	(30,398)	1,489,948	16,139	1,475,689	2,949	(120,257)	(2,949)	(120,257)	26,885	(34,532)	(27,449)	(35,096)
Effect of exchange rates on cash and cash equivalents	—	138	—	138	—	(5,696)	—	(5,696)	—	(2,511)	—	(2,511)
Net increase (decrease) in cash and cash equivalents	—	1,646,903	—	1,646,903	—	375,187	—	375,187	—	(85,066)	—	(85,066)
Cash and cash equivalents, beginning of period	—	924,240	—	924,240	—	549,053	—	549,053	—	634,119	—	634,119
Cash and cash equivalents, end of period	$ —	$ 2,571,143	$ —	$ 2,571,143	$ —	$ 924,240	$ —	$ 924,240	$ —	$ 549,053	$ —	$ 549,053

NOTES TO CONDENSED ATTRIBUTED FINANCIAL INFORMATION

(Unaudited)

Note 1. Business Description

The Hughes Retail Group is generally comprised of our business of providing satellite broadband internet services to residential retail subscribers in the United States, including the assets and liabilities primarily associated with the operation of the business; and the business operations, revenue, billings, operating and other direct and indirect support activities to provide services to the business and Hughes retail subscribers. The Hughes Retail Group also includes any proceeds associated with a sale or transfer of the Hughes Retail Group or any assets of the Hughes Retail Group, and any other assets acquired by or for the account of the Hughes Retail Group or otherwise attributed, contributed, allocated or transferred to the Hughes Retail Group from time to time. The EchoStar Group consists of all other operations of EchoStar, including all existing and future businesses other than the Hughes Retail Group. EchoStar has adopted a policy statement (the "Policy Statement") as described in Note 2 below, which sets forth management and allocation policies for purposes of attributing all of the business and operations of EchoStar to either the Hughes Retail Group or the EchoStar Group (each as fully defined in the Policy Statement and collectively, the "Groups").

Note 2. Basis of Presentation

The overall objective of the attributed financial information is to present the amounts reported in its consolidated financial statements attributed to the Hughes Retail Group and the EchoStar Group. The Policy Statement contains specific provisions that determine how certain assets, liabilities, revenue and expenses are attributed to the Groups. The Policy Statement does not explicitly address the attribution of all amounts reported in our consolidated financial statements; accordingly, management applies judgment in attributing certain amounts based on its assessment of the activities of the Groups and the guiding principles set forth in the Policy Statement.

Set forth below is an overview of the Policy Statement and additional discussion about how we have attributed amounts in our consolidated financial statements to the Groups.

Policy Statement

In accordance with the Policy Statement, all existing and future retail subscribers in the United States, including related customer contracts, are attributed to the Hughes Retail Group. Assets and liabilities that are directly related to the Hughes Retail Group are attributed to the Hughes Retail Group, including certain accounts receivable, inventory, property and equipment, deferred subscriber acquisition costs, intangible assets and tax related assets and liabilities. To the extent practicable, costs and expenses are attributed without markup to the Hughes Retail Group or the EchoStar Group based on specific identification. Common or shared costs, including corporate overhead, are allocated between the Hughes Retail Group and the EchoStar Group using objective methods and criteria that reflect the relative usage of the corresponding functions or services. Where resources are shared by the Groups and determinations based on use alone are not practicable, we use other methods and criteria that we believe are fair and result in a reasonable estimate of the costs associated with operation, utilization, and maintenance of such resources to each Group. Such methods and criteria may include allocations based on revenue, operating costs, square footage, headcount or management estimates. Under the documents governing the Tracking Stock, any change in our management's allocation methodologies requires the consent of the holders of a majority of the outstanding shares of the Tracking Stock, but does not require the consent of our common stockholders.

The Hughes Retail Group utilizes broadband satellite capacity that is operated and maintained by the EchoStar Group. The Policy Statement provides for a monthly charge to the Hughes Retail Group for its utilization of such capacity based on the number of retail subscribers and revenue per month. In addition, the Policy Statement establishes pricing for the Hughes Retail Group purchases of customer rental equipment from the EchoStar Group based on cost plus a fixed margin percentage. Income taxes incurred by EchoStar and its subsidiaries that include operations of the Hughes Retail Group are allocated between the EchoStar Group and the Hughes Retail Group based primarily on the relative amounts of earnings or loss attributable to each Group.

The various attributions, allocations and inter-group charges provided for in the Policy Statement generally do not affect the amounts reported in EchoStar's consolidated financial statements, except for effects on the attribution of equity and net income or loss between the holders of Tracking Stock and EchoStar's common stockholders. The Policy Statement also does not significantly affect the way that the Hughes segment management assesses operating performance and allocates resources. In addition, our chief operating decision maker reviews the Hughes Retail Group financial information only to the extent such information is included in our periodic filings with the SEC. Therefore we do not consider the Hughes Retail Group to be a separate operating segment.

Balance Sheet Attributions

Assets attributed to the Hughes Retail Group based on specific identification consist primarily of trade accounts receivable from retail broadband subscribers, property and equipment (primarily customer rental equipment) used solely in the retail business, and deferred subscriber acquisition costs included in other noncurrent assets. Goodwill and other intangible assets (primarily customer relationships, developed technology and trademarks), which were recognized in connection with our acquisition of Hughes Communications, Inc. in June 2011, were attributed to the Hughes Retail Group based on an analysis of information for the retail business that was available at the acquisition date.

No attribution to the Hughes Retail Group has been made for certain significant assets that it shares with the EchoStar Group, including regulatory authorizations and property and equipment (such as satellites and related terrestrial facilities), because those assets are operated and maintained by the EchoStar Group and it is not practicable to allocate the asset carrying amounts between the Groups. However, the Hughes Retail Group has the right to use such assets and is charged for its use of such assets in accordance with the Policy Statement.

Liabilities attributed to the Hughes Retail Group based on specific identification consist primarily of customer prepayments and deferred revenue related to retail subscribers and deferred tax liabilities related to assets and liabilities that have been attributed to the Hughes Retail Group. Except to a limited extent, it is not practicable to attribute accounts payable and accrued liabilities to the Hughes Retail Group because those amounts arise from centralized processes managed by the EchoStar Group. The Hughes Retail Group generally incurs inter-group payables to all other operations in connection with such centralized processes. As provided in the Policy Statement, none of our long-term debt is attributed to the Hughes Retail Group; however, interest is charged on all inter-group payables.

Revenue and Expense Attributions

The Hughes Retail Group revenue relates to services and equipment provided to retail broadband subscribers and is readily identifiable based on specific identification.

Expenses attributed to the Hughes Retail Group based on specific identification include depreciation of property and equipment and amortization of intangible assets that are attributed to the Hughes Retail Group. Certain other operating expenses, such as compensation of employees that work exclusively in the retail business, are also attributed to the Hughes Retail Group based on specific identification. A substantial portion of the Hughes Retail Group cost of sales is based on the specific inter-group pricing provisions of the Policy Statement, including a monthly charge per retail subscriber and charges for customer rental equipment at cost plus a fixed margin percentage. The Hughes Retail Group operating expenses also reflect allocations of corporate overhead and other expenses incurred by EchoStar.

Cash Flow Attributions

The Hughes Retail Group participates in EchoStar’s centralized cash management system and does not maintain separate cash accounts. Under the centralized cash management system, net advances of cash to or from the Hughes Retail Group are reflected in an inter-group receivable or payable account, which bears interest at the same rate earned by EchoStar on its cash and marketable investment securities portfolio. There is no allocation of EchoStar’s long-term debt or related interest costs to the Hughes Retail Group.

Cash receipts from retail broadband subscribers and payments of certain expenses attributed to the Hughes Retail Group on a specific identification basis generally are reflected in the attributed statements of cash flows in the period the cash is received or paid. It is not practicable to determine the timing of related cash disbursements under the centralized cash management system for other costs and expenses attributed to the Hughes Retail Group. The accompanying statements of cash flows generally presents cash flows related to such transactions when they are recognized on an accrual basis in an inter-group receivable or payable account. Periodic changes in inter-group receivables or payables generally are indicative of amounts received or paid by the EchoStar Group on behalf of the Hughes Retail Group and are reported in the accompanying attributed statements of cash flows as investing activity for the Group with a net receivable balance or as financing activity for the Group with a net payable balance.

Attributions for Periods Prior to Adoption of the Policy Statement

Except as discussed below, attributions of assets, liabilities, revenue, expenses and cash flows to the Hughes Retail Group in periods prior to the adoption of the Policy Statement effective March 1, 2014 are substantially as described above. However, because the Policy Statement was not effective, the attributed financial information for periods prior to March 1, 2014 do not reflect retrospective application of specific pricing terms in the Policy Statement, such as the monthly charge per subscriber or the cost-plus-fixed-margin pricing for equipment transfers. In lieu of charges based on such specific terms, the attributed financial information for periods prior to March 1, 2014 reflect actual costs incurred for specifically identified items or are based on allocations of actual costs incurred for shared resources. In addition, because no arrangement for interest-bearing inter-group receivables or payables existed prior to March 1, 2014, no such accounts or related interest are reflected in the attributed financial information for periods prior to March 1, 2014. In such periods, EchoStar's equity in the net assets of the Hughes Retail Group is presented as "Equity/Attributed net assets" and periodic changes in such equity are presented as "Inter-group equity contributions (distributions), net" within financing activities in the attributed statements of cash flows. As a result of our use of different attribution methods for certain items in periods prior to March 1, 2014, the attributed financial position, results of operations and cash flows of the Groups are not directly comparable to the corresponding attributed financial information for periods after March 1, 2014. Accordingly, the attributed financial information for periods prior to March 1, 2014 does not purport to present the attributed financial information that would have resulted if the Policy Statement had been adopted in such periods.

Note 3. Property and Equipment

Property and equipment for the Hughes Retail Group consisted of the following:

	Depreciable Life (In Years)	As of December 31, 2016	As of December 31, 2015
		(In thousands)	
Customer rental equipment	2-4	$ 681,121	$ 584,086
Accumulated depreciation		(537,625)	(421,589)
Property and equipment, net		$ 143,496	$ 162,497

Depreciation expense associated with the Hughes Retail Group property and equipment, net of retirements, was $116.0 million, $119.8 million and $110.8 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Note 4. Goodwill and Other Intangible Assets

Goodwill

Goodwill is assigned to reporting units of our operating segments. A portion of the Hughes segment goodwill was attributed to the Hughes Retail Group as if the Hughes Retail Group had been a separate reporting unit at June 8, 2011, the date EchoStar completed the acquisition of Hughes Communications, Inc. Approximately $260.0 million of the $504.2 million Hughes segment goodwill was attributed to the Hughes Retail Group.

Other Intangible Assets

Other intangible assets for the Hughes Retail Group consisted of the following:

	As of December 31, 2016			As of December 31, 2015		
	Cost	Accumulated Amortization	Carrying Amount	Cost	Accumulated Amortization	Carrying Amount
	(In thousands)					
Customer relationships	$ 145,100	$ (141,148)	$ 3,952	$ 145,100	$ (129,660)	$ 15,440
Technology-based	23,500	(21,868)	1,632	23,500	(17,951)	5,549
Trademark portfolio	13,620	(3,802)	9,818	13,620	(3,121)	10,499
Total other intangible assets	$ 182,220	$ (166,818)	$ 15,402	$ 182,220	$ (150,732)	$ 31,488

Customer relationships are amortized predominantly in relation to the expected contribution of cash flow to the business over the life of the intangible asset. Other intangible assets are amortized on a straight-line basis over the periods the assets are expected to contribute to our cash flows. Amortization expense was $16.1 million, $19.6 million and $24.2 million for the years ended December 31, 2016, 2015 and 2014, respectively.

Note 5. Income Taxes

We establish a provision for income taxes currently payable or receivable and for income tax amounts deferred to future periods based upon a separate return allocation method which results in income tax expense that approximates the expense that would result if the Hughes Retail Group was a stand-alone entity. Deferred tax assets and liabilities are recorded for the estimated future tax effects of differences that exist between the financial reporting carrying amount and tax bases of assets and liabilities.

Deferred tax assets are offset by valuation allowances when we determine it is more likely than not that such deferred tax assets will not be realized in the foreseeable future.

In accordance with the Policy Statement, all income tax obligations and benefits that arose prior to March 1, 2014, except for deferred income taxes related to differences between the financial reporting carrying amounts and tax bases of the Hughes Retail Group assets and liabilities, are attributable to the EchoStar Group. Because no arrangements for inter-group settlement of income taxes existed prior to March 1, 2014, no inter-group receivables or payables were recognized for attributed income tax expenses or benefits related to operations for periods prior to March 1, 2014.

We have accounted for income taxes for the Hughes Retail Group in the accompanying attributed financial information in a manner similar to a stand-alone company. To the extent this methodology differs from our tax sharing policy, differences have been reflected in the attributed net assets of the groups.

The components of the benefit (provision) for income taxes for the Hughes Retail Group are as follows:

	For The Years Ended December 31,		
	2016	2015	2014
	(In thousands)		
Current:			
Federal	$ (14,411)	$ (9,125)	$ (13,788)
State	(3,114)	(1,972)	(2,982)
Total current provision	(17,525)	(11,097)	(16,770)
Deferred:			
Federal	17,445	21,372	27,954
State	2,278	2,790	3,652
Income tax benefit	19,723	24,162	31,606
Total income tax (provision) benefit, net	$ 2,198	$ 13,065	$ 14,836

The actual tax provisions for the Hughes Retail Group for the years ended December 31, 2016, 2015 and 2014 reconcile to the amounts computed by applying the statutory federal tax rate to income (loss) before income taxes as shown below:

	For The Years Ended December 31,		
	2016	2015	2014
Statutory rate	35.0%	35.0%	35.0%
State income taxes, net of federal effect	4.6%	4.6%	4.6%
Total effective tax rate	39.6%	39.6%	39.6%

The tax effects of temporary differences that give rise to significant portions of the deferred income tax assets and deferred income tax liabilities for the Hughes Retail Group are presented below:

	As of December 31,	
	2016	2015
	(In thousands)	
Deferred tax assets		
Accrued expense	$ 4,346	$ 5,875
Deferred revenue	2,143	1,019
Depreciation and amortization	32,918	12,791
Total deferred tax assets	$ 39,407	$ 19,685

Note 6. Equity/Attributed Net Assets

The reported amounts of equity/attributed net assets for the Hughes Retail Group and EchoStar Group represent the excess of attributed assets over attributed liabilities for the respective groups. EchoStar Group equity includes the 20.0% retained economic interest of EchoStar common stockholders in the net assets of the Hughes Retail Group.

The Hughes Retail Group equity/attributed net assets consisted of attributed paid-in capital and accumulated earnings as follows:

	As of December 31,	
	2016	2015
	(In thousands)	
Attributed paid-in capital	$ 456,122	$ 456,122
Attributed accumulated earnings (deficit):		
Periods prior to March 1, 2014	33,395	33,395
Periods beginning March 1, 2014	(47,176)	(43,819)
Total	(13,781)	(10,424)
Total equity/attributed net assets	$ 442,341	$ 445,698