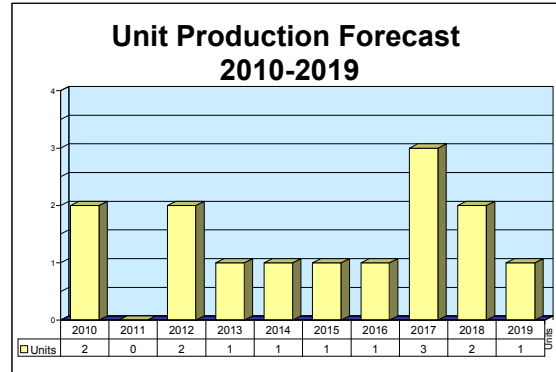


U.S. DBS

Outlook

- Space Systems/Loral selected to provide EchoStar 16
- EchoStar 14 launched into orbit in March 2010 on board a Proton Launch Vehicle
- DirecTV-12 launched into orbit in December 2009 on board a Proton launch vehicle
- U.S. DBS subscriber base expected to continue increasing by hundreds of thousands each quarter of 2010



Orientation

Description. Direct broadcast satellite (DBS) television systems allow TV signals to broadcast directly from a satellite to a home receiver without the intermediary of a local TV station or cable system.

Sponsor. The Federal Communications Commission (FCC), Washington, DC, authorizes and grants permits to build and operate DBS systems in the U.S.

DirecTV, El Segundo, California, is a DBS unit of The DirecTV Group (previously Hughes Electronics Corp).

DISH Network Corporation (formerly EchoStar Communications Corp), Littleton, Colorado, owns and operates the DISH Network.

Pegasus Communications Corp of Bala Cynwyd, Pennsylvania, is an independent provider of DirecTV services. It primarily operates in rural areas of the U.S.

SES Americom, Princeton, New Jersey, operates the AMC-15 and AMC-16, Americom2Home DBS. Capacity on both satellites is provided to EchoStar.

Home2US Communications Inc, Herndon, Virginia, is the operator of an open pay TV platform aboard SES Americom's AMC-4 spacecraft that provides international programming to U.S.-based subscribers.

Status. Operational

Total Produced. Approximately 30 dedicated U.S. direct broadcast satellites have been produced.

Application. DBS-TV satellites provide television transmissions directly from an orbiting satellite to a home receiver.

Price Range. Direct broadcast satellites cost between \$150 million and \$300 million.

Contractors

Prime

Boeing Satellite Development Center	http://www.boeing.com/defense-space/space/bss/ , 2260 E Imperial Hwy, El Segundo, CA 90245 United States, Tel: + 1 (951) 340-2492, Prime (Boeing-601 Satellite; Boeing-601HP Bus; Boeing-702)
Lockheed Martin Space Systems - Sunnyvale	http://www.lockheedmartin.com/ssc , 1111 Lockheed Martin Way, Sunnyvale, CA 94088-3504 United States, Tel: + 1 (408) 742-4321, Prime (SATCOM 7000 Bus; A2100 Bus; A2100AX Satellite Bus)
Orbital Sciences Corp, Space Systems Group	http://www.orbital.com , 21829 Atlantic Blvd, Dulles, VA 20166 United States, Tel: + 1 (703) 406-5000, Prime (Star-2 Satellite Bus)

U.S. DBS

Space Systems/Loral	http://www.ssloral.com , 3825 Fabian Way, Palo Alto, CA 94303-4604 United States, Tel: + 1 (650) 852-4000, Fax: + 1 (650) 852-5656, Email: lewisw@ssd.loral.com , Prime (FS-1300 Bus)
----------------------------	--

Comprehensive information on Contractors can be found in Forecast International's "International Contractors" series. For a detailed description, go to www.forecastinternational.com (see Products & Samples/Governments & Industries) or call + 1 (203) 426-0800.

Contractors are invited to submit updated information to Editor, International Contractors, Forecast International, 22 Commerce Road, Newtown, CT 06470, USA; rich.pettibone@forecast1.com

Technical Data

Design Features. DBS services use large, three-axis stabilized, geosynchronous-orbiting commercial communications satellite buses. These include the Boeing 601 and -702, Lockheed Martin A2100 and Series 7000, Space Systems/Loral 1300, and Orbital Sciences Star-2 satellite buses. Both DirecTV and EchoStar satellites operate in the Ku-band; however, the Spaceway satellites owned by DirecTV operate in the Ka-band. The DirecTV 4-S satellite uses highly focused spot-beam technology that enables the satellite operator

to expand its local channel offerings in metropolitan markets throughout the country. In addition, EchoStar IX features a hybrid C-, Ku-, and Ka-band payload to provide expanded services for EchoStar and the DISH Network.

The U.S. DBS orbital slots available range from 61.5° W to 148° W, although until recently, only the 61.5°, 101°, 110°, and 119° W positions were in use.

U.S. DBS Locations and Transponders

<u>Satellite</u>	<u>Launch Date</u>	<u>Location</u>	<u>Model/Transponders</u>
AMC-15	2004	105° W	A2100AX/24 Ku-band/12 Ka-band
AMC-16	2004	85° W	A2100X/24 Ku-band/12 Ka-band
DirecTV-1	1993	101° W	Boeing-601/3 Ku-band
DirecTV-1R	1999	101° W	Boeing-601HP/16 Ku-band
DirecTV-2	1994	101° W	Boeing-601/8 Ku-band
DirecTV-4S	2001	101° W	Boeing-601HP/48 Ku-band
DirecTV-5 (Tempo-1)	2002	119° W	1300/48 Ku-band
DirecTV-6 (Tempo-2)	1997	110° W	1300/11 Ku-band
DirecTV 7-S	2004	119° W	1300/54 Ku-band
DirecTV-8	2005	101° W	1300/16 Ku-band
DirecTV -9S	2006	101° W	1300/54 Ku-band
DirecTV-10	2007	101° W	Boeing-702/32 Ka-band
DirecTV-11	2008	101° W	Boeing-702/32 Ka-band
DirecTV-12	2009	102.8° W	Boeing-702/32 Ka-band
EchoStar 1	1995	148° W	Series 7000/16 Ku-band
EchoStar 3	1997	61.5° W	A2100AX/32 Ku-band
EchoStar 4	1998	77° W	A2100AX/32 Ku-band
EchoStar 6	2000	61.5° W	1300/32 Ku-band
EchoStar 7	2001	119° W	A2100AX/32 Ku-band
EchoStar 8	2002	110° W	1300/8 Ku-band
EchoStar IX	2006	121° W	1300/32 Ku-band/1 Ka-band
EchoStar X	2006	110° W	A2100/32 Ku-band
EchoStar XI	2007	110° W	1300/32 Ku-band
EchoStar XIV	2010	119° W	1300/32 Ku-band
EchoStar XV	2010	TBD	1300/32 Ku-band
Rainbow-1 (EchoStar XII)	2003	61.5° W	A2100/36 Ku-band
Spaceway 1	2005	102.8° W	Boeing-702/48 Ka-band
Spaceway 2	2005	99.2° W	Boeing-702/48 Ka-band

Program Review

Background. Direct broadcast satellites (DBS) offer the potential to reach the broadest audience with the least expense. Instead of having to build and maintain hundreds upon hundreds of terrestrial stations to deliver programming to pockets of end users across a geographical area, one high-power DBS can blanket an entire country or continent.

Several consolidations and acquisitions in late 1998 and early 1999 left the U.S. DBS community with two major players: The DirecTV Group (previously Hughes Electronics' DirecTV) and EchoStar. Together, the two companies serve more than 16 million customers.

DBS Gains Popularity

Consumers want DBS. According to a 2002 customer satisfaction survey conducted for the Satellite Broadcasting and Communications Association (SBCA), customers reported that DBS far surpassed both digital and analog cable services in terms of value for the money and signal transmission quality. DirecTV reached the 10-million-customer milestone back in April 2001, and boasted 1,345,000 new customers at year's end. EchoStar, meanwhile, had over 6 million subscribers at that time.

DiracTV Begins DBS Service in 1994

DiracTV's first satellite, the \$200 million, 2,700-kilogram, high-powered DBS-1, was successfully launched on an Ariane rocket in 1993. The DBS-2 was launched in August of the following year, followed by the DBS-3 in 1995.

The spacecraft control processor (SCP) on the DBS-1 satellite failed in 1998, prompting control of the satellite to automatically switch to the spare SCP on the spacecraft. DBS-1 was moved to 110° W after the 1999 arrival of DirecTV-1R, a Boeing-601HP model providing in-orbit redundancy.

Hubbard Broadcasting's United States Satellite Broadcasting (USSB) leased five of DBS-1's 16 high-powered transponders to market its DBS service, until DirecTV bought the firm in December 1998 for about \$1.3 billion. A year later, Hughes Electronics acquired the 2.3-million-subscriber Primestar DBS medium-power business, including its Tempo satellite assets, two high-power satellites, and its 11 frequencies at the 119° W orbital slot, for about \$1.8 billion.

Tempo had contracted Space Systems/Loral to build the two Tempo direct broadcast satellites under a \$400 million contract in 1993. Based on the 1300 bus, each satellite has 32 107-watt transponders, switchable to 16

transponders at 230 watts. Each has the capability to transmit more than 200 channels of programming. Tempo-2 was launched on an Atlas IIA booster in 1997 and deployed to 119° W. The second satellite, Tempo FM1, was scheduled for launch on an Atlas IIA in late 2000. When modifications made it unsuitable for an Atlas launch, the launch provider, International Launch Services (ILS), switched it to a Proton. Redesignated DirecTV-5, the 8,025-pound satellite was finally launched in May 2002 from the Baikonur Cosmodrome in Kazakhstan. The satellite entered service in July, replacing the older Tempo-2 in providing Spanish-language and high-definition programming to American subscribers.

DiracTV Employs Spot-Beam on 4S Spacecraft

DiracTV ordered a Boeing-601HP satellite in 1999. Following its launch on an Ariane 44LP in late 2001, DirecTV 4-S became the first spacecraft in the DirecTV fleet to use highly focused spot-beam technology. The new satellite enabled DirecTV to add 300 more local channels to its existing programming so it could meet the federal "must carry" requirement of the Satellite Home Viewer Improvement Act by the 2002 deadline. It also strengthened the redundancy of the fleet.

DiracTV selected Space Systems/Loral in April 2001 to build a new Ku-band spacecraft, DirecTV 7-S, which would also feature spot beams. DirecTV 7-S was to be launched to 119° W in late 2002. It was rescheduled to fly in on an Ariane 5 in summer 2003, but ultimately flew on a Zenit 3SL from Sea Launch in May 2004.

In August 2000, DirecTV stated that all of its satellites would be named "DiracTV" followed by their numerical identifier. The DBS-1, DBS-2, and DBS-3 were renamed DirecTV-1, DirecTV-2, and DirecTV-3; Tempo-1 and Tempo-2 became DirecTV-5 and DirecTV-6.

The DirecTV-3 spacecraft lost one of its two spacecraft control processors in May 2002. Operations were not interrupted, but it has been relegated to the role of on-orbit spare, and its operations have been transferred to the other satellites.

DiracTV again chose Space Systems/Loral to manufacture two satellites. The satellites, known as DirecTV-8 and DirecTV-9S, are expected to produce an aggregate construction revenue exceeding \$200 million.

DiracTV-8 was launched in May 2005 and operates in the 101° W orbital slot. The satellite is also able to operate from DirecTV's orbital slots at 110° and 119° W

U.S. DBS

longitude if necessary. The satellite carries 16 high-powered transponders for national digital video services.

The DirecTV-9S was launched in October 2006 and operates from the 101° W longitude slot. The 9S serves as backup for DirecTV's 4S and 7S satellites and carries 54 transponders broadcast into 27 beams for local and national digital video services.

HEC Changes Name

Hughes Electronics Corp announced that effective March 16, 2004, its company name would change to "The DirecTV Group Inc." In addition, the company changed its ticker symbol on the New York Stock Exchange to "DTV" from the "HS" symbol, and trades under the new name and symbol.

More Satellites Ordered by DirecTV. In September 2004, DirecTV chose Boeing Satellite Systems to build three spacecraft for the DirecTV fleet. The three-satellite order is believed to have a value of \$1 billion, which includes the construction and launch of, and insurance for, the DirecTV-10 and DirecTV-11 satellites, plus the construction of a ground spare.

DirecTV-10 and DirecTV-11 were delivered in 2007 and 2008, respectively. A third satellite, DirecTV-12, was launched in December 2009.

EchoStar Enters the DBS Market in 1996

EchoStar Communications launched a DBS service in 1996 using two new Ku-band satellites, the first of which was launched in 1995; the second followed in 1996. Both are Lockheed Martin Series 7000 models, each carrying 16 130-watt channels. Both satellites operate from the 119° W orbital slot.

EchoStar 3, based on a Lockheed Martin A2100 satellite bus, was launched on an Atlas IIAS booster in 1997. EchoStar 4, also an A2100-based bird and sent on a Proton rocket, followed in 1998.

One of EchoStar 4's solar panels failed to deploy after its launch, leaving the satellite without enough electrical power to operate all 32 of its transponders. An additional unrelated anomaly discovered in 1998 resulted in the failure of one primary and one spare transponder. EchoStar eventually filed a \$219.2 million claim for constructive total loss of EchoStar 4.

EchoStar acquired the DBS assets of News Corp and MCI WorldCom in June 1999 for about \$1.2 billion. The assets included the 28 frequencies at DBS 110° W and two high-power satellites, renamed EchoStar 5 and EchoStar 6. The transaction gave EchoStar's DISH Network access to 50 high-power DBS frequencies capable of providing over 500 channels of video and

audio programming, Internet/data, and HDTV to the entire Continental U.S. from a single 18-inch satellite dish.

Built by Space Systems/Loral, EchoStar 5 and EchoStar 6 are both high-powered 1300 series spacecraft. EchoStar 5 has 32 110-W Ku-band transponders, and EchoStar 6 has 32 125-W Ku-band transponders. Both satellites are capable of power-combining to 16 transponders each of 220 W and 250 W, respectively. EchoStar 5 was launched on an Atlas IIAS booster in September 1999. EchoStar 6 was also launched on an Atlas IIAS, and sent in July 2000.

EchoStar Communications ordered an A2100AX satellite from Lockheed Martin Commercial Space Systems in February 2000. Dubbed EchoStar 7, the satellite has nearly 10 kilowatts of power and provides Ku-band services over the Continental U.S. The new spacecraft's spot-beam coverage enables EchoStar to serve customers with local broadcast channels in the top U.S. markets. The satellite was slated to launch on an Atlas III rocket in December 2001, but flew in February 2002. It was positioned at 119° W, where it replaced the capacity of the lost EchoStar 4 satellite. Together with EchoStar 8, it provides a broader array of local channels by satellite to consumers in Alaska and Hawaii, improves spectrum efficiency, enhances the quality of video channels for all DISH Network customers, and increases in-orbit backup capacity.

In March 2000, EchoStar selected Space Systems/Loral to build EchoStar 8 and EchoStar 9 using the 1300 satellite bus. Launched in August 2002, EchoStar 8 carries 32 Ku-band transponders. Its primary operating mode will provide 16 high-power national transponders at approximately 250° W RF and 25 spot beam transponders distributed among 16 beams. Over its 15-year operational life, it will provide television broadcast services to all 50 states.

First North American Ka-Band Takes Flight

EchoStar 9, the first North American satellite to feature a commercial Ka-band satellite payload, was launched in August 2003 on a Sea Launch Zenit 3SL.

The \$75 million EchoStar 9 carries a 32-transponder Ku-band payload operating at 110° W, in addition to the Ka-band and C-band payloads. The C-band payload is designated Telstar 13.

In September 2003, Lockheed Martin announced that it had won a contract to build the 10th satellite for EchoStar. The satellite was appropriately designated EchoStar 10, and was launched in February 2006. The EchoStar 10, which uses a Lockheed Martin A2100AX bus, is located at the 110° orbital slot, and provides

U.S. DBS

high-power Ku-Band satellite TV services and backup to the other EchoStar birds in the fleet.

In December 2004, EchoStar chose Space Systems/Loral to build the latest DBS in its fleet. Designated EchoStar 11, the satellite is built on SS/L's 1300 platform, and was launched in July 2008. This is the fifth EchoStar spacecraft that SS/L has been contracted to build; SS/L has also built five DirecTV spacecraft.

In January 2007, Space Systems/Loral was contracted to manufacture EchoStar 14, which will provide expanded services and flexibility for the DISH Network. EchoStar 14 is based on SS/L's 1300 platform. There are currently three SS/L-built satellites on orbit in the EchoStar fleet. Financial details of the EchoStar contract were not released. The satellite launched into orbit in March 2010 on board a Proton launch vehicle.

EchoStar XV, a Space Systems/Loral 1300, was delivered to Baikonur Cosmodrome in June 2010. As of the writing of this report, the satellite is expected to be launched in July 2010.

In December 2009, Space Systems/Loral was selected to provide EchoStar 16. The satellite, based on the 1300 bus, will be launched in 2012.

Rainbow DBS, We Hardly Knew Ye

In 2001, Cablevision filed an application with the FCC to operate a single satellite from the 61.5° W orbital slot. Cablevision's Rainbow DBS and Loral (R/L DBS) purchased the slot from Continental. Cablevision hired Lockheed Martin to build the Rainbow-1 satellite, which was delivered as planned in early 2003.

A Lockheed Martin Atlas V rocket launched Rainbow-1 from Cape Canaveral Air Force Station, Florida, in July 2003. In 2004, it started to become clear that the Cablevision leadership wanted out of the DBS market and, in 2005, EchoStar Communications agreed to purchase Rainbow-1 for \$200 million in cash. Cablevision's Voom high-definition satellite broadcasting service was discontinued in April 2005, with EchoStar continuing to broadcast 10 of Voom's former 21 HDTV channels to maintain the customer base already established by Cablevision. EchoStar currently operates Rainbow-1 as EchoStar 12.

EchoStar and Hughes Attempt a Merger

In October 2001, News Corp owner Rupert Murdoch walked away from his 18-month negotiation to buy DirecTV after General Motors, the owner of Hughes and DirecTV, again extended the deadline for DirecTV CEO Charlie Ergen to arrange financing. EchoStar moved in with a bid to pick up DirecTV for \$23.65 billion.

EchoStar and Hughes Electronics Corp reached an agreement that involved the spinoff of Hughes from GM, and the merger of Hughes DirecTV with EchoStar. The companies' attempts to gain FCC approval were foiled by antitrust allegations.

The EchoStar/Hughes merger would have enabled local channel delivery in all U.S.-designated market areas (giving some 42 million U.S. homes an alternative to cable), and made satellite-delivered high-speed Internet access a viable alternative for all Americans.

DBS Must Share 12-GHz Frequency. In 2002, the FCC decided to allow the Multi-channel Video Distribution and Data Service (MVDDS) access to the 12-GHz band used by U.S. DBS and non-geostationary-orbit fixed satellite service (FSS). Operators in all services will share the 12-GHz band on a co-primary basis, as long as they do not interfere with DBS.

SES Moves for Piece of the DBS Pie

SES Americom, part of the SES Global commercial satcom powerhouse, petitioned the FCC in April 2002 for a license to launch its U.S. satellite broadcast network, Americom2Home. SES Americom intends to establish a neighborhood of direct broadcast satellites and market its broadcast capacity to content providers, much as its sister company SES-Astra does in Europe. SES-Astra provides 12 direct broadcast satellites from which broadcasters and content owners offer numerous free-to-air, pay TV, and broadband offerings directly to residences.

The company plans to initially launch two satellites: one to the 105.5° W slot to provide the DBS services, the other to the adjacent 105° W slot to provide high-speed broadband services. The company holds a license – granted to its affiliate by the government of Gibraltar and related to the 105.5° W slot – which falls directly between orbital positions used by DirecTV and EchoStar at 101° and 110°, respectively. Both Americom2Home and the existing satellites use frequencies in the 12.2- to 12.7-GHz range, which is set aside internationally for direct broadcasting to the home. SES Americom also holds FCC licenses for Ku-band and Ka-band operations from the 105° W location.

DirecTV and EchoStar claim that the SES DBS service would interfere with their satellites. SES agreed that while any interference issues must be addressed, premature claims of interference "appear to be nothing more than an attempt to keep competitors out of the DBS market." SES Americom is willing to coordinate its services with the other DBS operators' services without creating harmful interference with their systems.

U.S. DBS

The AMC-15, which is based on the Lockheed A2100 and sports a suite of Ku- and Ka-band transponders, was launched on a Proton M/Breeze M rocket to the 105° W slot in October 2004.

U.S. Satellite DBS Service Taxes Take Root

In July 2003, Ohio imposed a 6 percent sales tax exclusively on satellite DBS services – and not cable – despite allegations that it was unconstitutional. A similar proposal in California was vetoed in 2002, partly because the California Space Authority defended the impressive coalition of opponents that fought the tax proposal. Similarly, these sales taxes do not apply to cable television services, though they compete in the same market. It has not been made clear why these states have not attempted to impose a similar tax on cable television services. However, it does appear likely that more states will attempt to impose a DBS service tax if no legal precedent can be set against it.

Additionally, DBS taxes have also been imposed in Tennessee and Utah. Other states are also considering this option, including Arkansas, Arizona, California, Kentucky, Nevada, Texas, and Virginia. EchoStar and DirecTV have been the most vociferous in their arguments regarding the unconstitutional nature of those taxes.

DirecTV Sells HNS Stake

SkyTerra Communications, which is controlled by Apollo Management, purchased from the DirecTV

Group the 50 percent of Hughes Network Systems (HNS) that it did not already own. SkyTerra closed the deal in December 2004; Morgan Stanley held the sell-side advisory mandate. The purchase price for the 50 percent stake in HNS – valued at around \$1.9 billion before various assets were stripped from the company – was \$100 million.

Sea Launch Picks Up Another EchoStar Contract

Sea Launch Co signed a firm contract with EchoStar Communications Corp for the launch of the EchoStar 11 DBS in 2007. This will be Sea Launch's third mission with an EchoStar spacecraft, having launched EchoStar 9 in August 2003 and EchoStar 10 in February 2006. The new contract calls for Sea Launch to lift the EchoStar 11 spacecraft to geosynchronous transfer orbit. Under construction by SS/L, the spacecraft will be based on SS/L's 1300-series platform and will support EchoStar's DISH Network customers.

Liberty Media/News Corp Asset Swap

In November 2006, News Corp announced its intention to transfer its 39 percent managing interest in The DirecTV Group to John Malone's Liberty Media; in return, it bought back Liberty's shares in News Corp, giving the Murdoch family tighter control of News Corp. The \$11 billion asset swap was approved by News Corp shareholders in April 2007, and the deal was completed in April 2007.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
	1981	Stanley Hubbard (founder of USSB) files for first DBS license
	1991	Primestar begins first medium-powered Ku-band service
Jun	1991	Hughes and USSB announce DBS plan
Dec	1993	Launch of first DirecTV satellite
Jun	1994	Start of DirecTV satellite service
Aug	1994	DBS-2 launched on Atlas IIA
Jun	1995	DBS-3 launched on Ariane 42P
Dec	1995	EchoStar 1 launched on CZ-2E
Mar	1996	EchoStar DBS service begun
Sep	1996	EchoStar 2 launched on Ariane 42P
Mar	1997	Tempo-2 launched on Atlas IIA (satellite now part of DirecTV)
Oct	1997	EchoStar 3 launched on Atlas IIAS
May	1998	EchoStar 4 launched on Proton
Dec	1998	DirecTV acquires USSB
Jan	1999	DirecTV acquires Primestar
Jun	1999	EchoStar acquires News Corp/MCI WorldCom DBS assets
Sep	1999	EchoStar 5 launched on Atlas IIAS
Oct	1999	DirecTV-1R launched on Sea Launch Zenit 3L
Jul	2000	EchoStar 6 launched on Atlas IIAS
Oct	2001	EchoStar and Hughes Electronics agree to merge
Nov	2001	DirecTV-4S launched on Ariane
Feb	2002	EchoStar 7 launched on Atlas IIIB
May	2002	DirecTV-5 launched on Proton K/Block DM

U.S. DBS

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
May	2002	DirecTV-3 removed from service, relegated to on-orbit spare
Aug	2002	EchoStar 8 launched on Proton K/Block DM
Jul	2002	FCC revokes EchoStar's Ka-band license
Jul	2003	Cablevision Rainbow-1 DBS satcom launched on Atlas V
Aug	2003	EchoStar 9 launched on Sea Launch Zenit 3SL
May	2004	DirecTV-7S launched on Sea Launch Zenit 3SL
Oct	2004	Launch of SES Americom's AMC-15 on Proton M/Breeze M
May	2005	Launch of DirecTV-8 on Proton M/Breeze M
Feb	2006	EchoStar X launched on Sea Launch Zenit 3SL
Oct	2006	DirecTV-9S launched on Ariane 5 ECA
Jul	2007	DirecTV-10 launched on Proton-M
Mar	2008	DirecTV-11 launched on Sea Launch Zenit 3SL
Jul	2008	EchoStar 11 launched on Sea Launch Zenit 3SL
Dec	2009	DirecTV-12 launched on Proton
Mar	2010	EchoStar 14 launched on Proton
Jul	2010	Anticipated launch of EchoStar 15

Forecast Rationale

DirecTV and DISH Network continue to dominate the U.S. direct broadcast satellite (DBS) market. In 2009, DirecTV reported revenues of \$21.6 billion, compared to \$11.5 billion for the DISH Network. DirecTV had approximately 18.5 million customers at the end of 2009, while DISH had 14.1 million. Because of the dominance of these two players, the U.S. DBS market is essentially a duopoly. In addition to the U.S. market, both DirecTV and DISH Network are actively expanding into Latin America.

With the growth of these two companies comes demand for new satellites. Satellite production for the U.S. DBS market will be driven by the need to replace aging satellites, as well as to expand capacity over both North and South America. At this point, it remains unlikely that any new players will enter the U.S. DBS market,

leaving DirecTV and DISH the primary buyers of satellites.

EchoStar, former parent company of the DISH Network until the unit was spun off in 2007, operates the majority of satellites used by DISH to provide DBS services. EchoStar hopes to enter the fixed satellite services market. However, the company has not yet been successful, and its primary business continues to be leasing satellite capacity to DISH Network.

Production of satellites will be steady over the next 10 years for the U.S. DBS market to meet the needs of the primary DBS operators in the U.S.: DirecTV and the DISH Network. A growing customer base will require additional capacity over the next 10 years. Additionally, new satellites will be needed to replace aging spacecraft already in orbit.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence			Good Confidence			Speculative			Total		
	Thru 2009	2010	2011	2012	2013	2014	2015	2016	2017		2018	2019
Space Systems/Loral												
ECHOSTAR-14 <> 1300												
	0	1	0	0	0	0	0	0	0	0	0	1
ECHOSTAR-15 <> 1300												
	0	1	0	0	0	0	0	0	0	0	0	1
ECHOSTAR-16 <> 1300												
	0	0	0	1	0	0	0	0	0	0	0	1
Subtotal	0	2	0	1	0	0	0	0	0	0	0	3

U.S. DBS

ESTIMATED CALENDAR YEAR UNIT PRODUCTION												
Designation or Program	High Confidence					Good Confidence			Speculative			
	Thru 2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
MFR Not Selected												
DIRECTV Follow-Ons												
	1	0	0	0	0	1	0	1	2	0	1	5
EHOSTAR Follow-Ons												
	0	0	0	1	1	0	1	0	1	2	0	6
Subtotal	1	0	0	1	1	1	1	1	3	2	1	11
Total	1	2	0	2	1	1	1	1	3	2	1	14