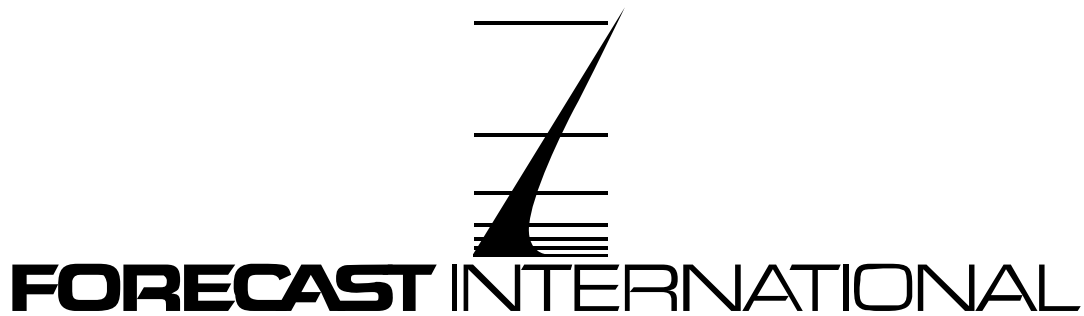


The Market for Commercial Communications Satellites

Product Code #F622

A Special Focused Market Segment Analysis by:



Analysis 2

The Market for Commercial Communications Satellites: 2010 - 2019

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PROGRAMS

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1300
A2100
AlphaBus
Amos
Arabsat
Boeing-702
Brasilsat/Star One
Eurostar
Eutelsat
Galileo Satellite Navigation System
Globalstar
Inmarsat
Insat
Intelsat
Iridium
JSAT
Optus
ORBCOMM
Satellite Radio
Satmex
SES Global
SES WORLD SKIES
Spacebus Series
Spaceway
Telesat
U.S. DBS
Vinasat

Introduction

Demand for satellite services remains strong, despite the global economic downturn. This is especially true in developing markets, such as Eastern Europe, North Africa, and the Middle East, where there are fewer barriers to entry for satellite operators, because of a lack of cable and fiber-optic infrastructure.

With a number of satellite operators in the midst of major fleet upgrades, deliveries are projected to be the highest in the near term. However, sales and deliveries of communications satellites will remain strong throughout the next 10 years.

Another trend in the commercial communications satellite industry is the growing interest in hosted payloads. Under a typical hosted payload plan, a government agency or military would pay a commercial satellite operator to deploy a payload on board a satellite. The government would be responsible for developing the payload, but would not bear the cost of developing and launching its own satellite. The satellite operator would benefit by receiving funds from a government to help cover the capital expense of purchasing and launching a new satellite. A recent example of this is Intelsat's hosting of a UHF communications payload for the Australian Defence Force.

This analysis is designed to provide the reader with Forecast International's view of some of the factors that will influence the commercial communications satellite market over the next 10 years. It breaks out the market into two segments. One covers those satellites consigned to orbits 35,900 kilometers high (geosynchronous orbit), where they appear to remain motionless in relation to the Earth's rotation. Because of their high orbits, a single GEO satellite can provide coverage over large areas of the Earth's surface.

The other market analyzed comprises those systems deployed much closer to Earth (LEO). Here, a satellite speeds overhead at about 8 kilometers per second, meaning that it can provide coverage over a specific area for brief periods. Consequently, LEO systems require large constellations so that coverage can be transferred from one satellite to another as each comes into range of a user below.

Major commercial systems reviewed in the preparation of this analysis include the following:

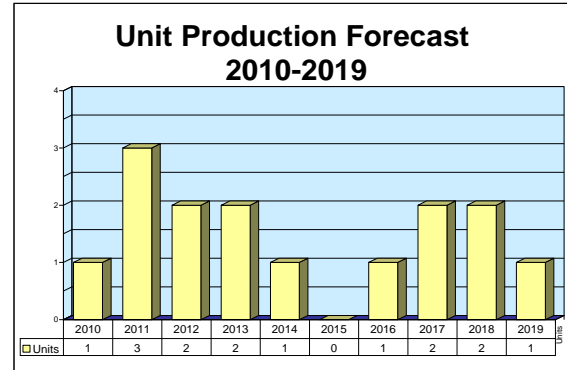
AMAZONAS
Amos
Angosat
APSTAR 7
ARABSAT/BADR

ASIASAT
ASTRA 1N
SES ASTRA
ATLANTIC BIRD 7
BSAT-3C/JSat-110R
DIRECTV
ECHOSTAR
EuropaSat
EUTELSAT
EXPRESS
GALAXY
Galileo Navigation System
Gemini Future Production
Globalstar Second Generation
GSAT/INSAT
HISPASAT
HOT BIRD
I-2K/I-3K/I-4K
INMARSAT
INTELSAT
INTERSPUTNIK
Iridium NEXT
Japanese ETS Follow-Ons
JCSAT
KA-SAT
KOREASAT
MBSAT
MSV
NAHUEL
NEW DAWN
NigComSat
NILESAT
NIMIQ
SES SIRIUS
OPTUS
Orbcomm Second Generation
OverHorizon Spacecraft
Paksat
PALAPA
QuetzSat
RASCOM QAF1R
S2M-1
SATMEX
SES WORLD SKIES
SINOSAT
SIRIUS XM Satellite Radio
SmallGEO
SPACEWAY
SINGTEL
STAR1-C Series
SUPERBIRD
TELENOR
Continued...

SES WORLD SKIES

Outlook

- SES WORLD SKIES formed from merger of two SES divisions: SES New Skies and SES Americom
- In December 2009, SES successfully bid on the ProtoStar-2 spacecraft, which will be integrated into the SES WORLD SKIES fleet
- NSS-12 launched into orbit in October 2009 on board an Ariane 5; it operates from 57° E, the slot originally assigned to NSS-8



Orientation

Description. SES WORLD SKIES is an international satellite telecommunications system.

Sponsor. SES WORLD SKIES has operations in Princeton, N.J., and The Hague, Netherlands.

Status. WORLD SKIES operates 25 satellites and serves North and South America, Africa, the Middle East, and Asia.

Total Produced. Nine New Skies satellites have been produced, including the NSS-8, which was destroyed during a 2007 launch failure. An additional 18 Americom satellites have been produced.

Application. WORLD SKIES satellites provide global telecommunications coverage using C-band and high-powered Ku-band spot beam satellites.

Price Range. The Boeing-702-based NSS-8 cost approximately \$125 million; however, the total Boeing NSS-8 contract is valued at \$250 million and includes the satellite's launch. The cost for production and launch of the NSS-6 was estimated at \$250 million, excluding insurance costs.

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-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, Second Prime (SATCOM 5000 Bus; SATCOM 7000 Bus; A2100 Bus)
Orbital Sciences Corp	http://www.orbital.com , 21839 Atlantic Blvd, Dulles, VA 20166 United States, Tel: + 1 (703) 406-5000, Fax: + 1 (703) 406-3502, Email: webmaster@orbital.com , Prime
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 , Historical Prime (FS-1300 Bus)

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Subcontractor

Saab Space AB	http://www.saabgroup.com, Delsjömotet, Göteborg, 405 15 Sweden, Tel: + 46 31 735 00 00, Fax: + 46 31 735 40 00, Email: angelica.akerdahl@space.se (Ku-band Frequency Converters)
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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. WORLD SKIES offers the following: full-time cable program distribution to broadcast affiliates; occasional-use video transmission for breaking news and special events; high-power transmission for DTH television operators; private business networks for corporate-site data distribution; IP-based services, including Internet backbone connectivity; telephony and data transmission; and global government communications and distance-learning networks.

The NSS-6 and NSS-7 satellites were built on the Lockheed Martin A2100 and A2100AX satellite bus, respectively. The A2100 is a next-generation communications satellite that follows in the footsteps of Lockheed Martin's popular and successful Satcom series. It can host a combined total of nearly 50 C- and Ku-band transponders, yet weighs about 700 kilograms less than the satellite model it replaces.

The A2100 uses three-axis stabilization and is designed for launch on Atlas II class launch vehicles. Design life is 15 years.

The new satellite's modularity allows it to conform to a particular application. Power availability can range as high as 10 kW; in fact, the limiting factor in determining how much power the satellite will produce is the size of the payload fairing on the launch vehicle. Lockheed Martin also offers a top-of-the-line A2100AX model that features high-power (up to 230° W) transponders for direct broadcasting services.

New Skies' NSS-8 (lost during launch failure) was built on the Boeing-702 platform. The Boeing-702 satellite offers operators nearly twice the capacity and more than double the power of most other commercial communications satellites now in operation. To provide its high power, the Boeing-702 uses gallium arsenide rather than silicon solar cells, resulting in NSS-8's 14-kilowatt capacity.

NSS-12 and NSS-14 are both being built by Space Systems/Loral and both are hybrid spacecraft featuring a blend of C- and Ku-band payloads.

<u>Satellite</u>	<u>Number of Transponders</u>	<u>Launched</u>	<u>Location</u>
NSS-14	52 C-band, 72 Ku-band	Planned 2010	338° E
NSS-12	40 C-band, 48 Ku-band	Planned 2009	57° E
NSS-11 (was AAP-1)	28 Ku-band	October 2000	108.2° E
NSS-10 (was AMC-12)	72 C-band	February 2005	322.5° E
NSS-9	55 C-band, 12 Ku-band	February 2009	183° E
NSS-8	56 C-band, 36 Ku-band	Failed to Launch	
NSS-806	36 C-band, 6 Ku-band	February 1998	319.5° E
NSS-7	49 C-band, 48 Ku-band	April 2002	338° E
NSS-703	38 C-band, 10 Ku-band	October 1994	57° E
NSS-6	50 Ku-band	December 2002	95° E
NSS-5 (was NSS-803)	38 C-band, 6 Ku-band	September 1997	183° E

Variants/Upgrades

NSS-K. Retired in 2002. Based on the Lockheed Martin LM-5000 bus, NSS-K is the former Intelsat K. Coverage extended from eastern North America to Europe, Moscow, and most of South America. NSS-K

featured European, North American, and South American spot beams. It was launched in June 1992 on an Atlas IIAS rocket. Design life was 10 years.

SES WORLD SKIES

NSS-513. Retired in 2002. Space Systems/Loral built the NSS-513, the former Intelsat 513. This satellite operated over the Pacific region, providing coverage for Australia and the Pacific Rim, including Hawaii and Alaska as well as Western Canada and the U.S. Launched in May 1988 on an Ariane 3 booster. It was replaced by NSS-5.

NSS-703. Formerly called Intelsat 703, this satellite employs the Space Systems/Loral 1300 platform. NSS-703 operates over the Indian Ocean region and provides coverage for Europe, the Middle East, Africa, Asia, and portions of the Pacific Rim and Australia. Launched aboard an Atlas IAS in October 1994, NSS-703 operated until late 2009.

NSS-5 (formerly NSS-803). An Ariane 42L booster launched the former Intelsat 803 in September 1997. Based on a Lockheed Martin LM-7000 bus, NSS-803 first covered the eastern half of North America and all of South America, Europe, the Middle East, and Africa, but replaced NSS-803 in January 2003 to serve the U.S. and Pacific Rim regions. Estimated end of life is December 2012.

NSS-806. The former Intelsat 806, also based on the LM-7000, was launched on an Atlas IAS rocket in February 1998. NSS-806 is located at 319.5° E, serving Latin American markets, the Iberian Peninsula, the Canary Islands, and Europe. NSS-806 offers nearly complete coverage of North, Central, and South America. Estimated end of life is July 2013.

NSS-6. A new satellite using the A2100AX platform, NSS-6 was launched in December 2002. It provides coverage to Asia, Australia, Southern Africa, and the Middle East. Estimated end of life is December 2016.

NSS-7. Using the A2100AX bus, NSS-7 provides high-powered Ku-band coverage of Western and Southern Africa for direct-to-home (DTH) services; extensive tailored Ku-band coverage of South America, including a new Southern Cone spot beam for the Mercosur region; a Caribbean/Andean spot beam; and extended North American Ku-band coverage for

Northeast Canada. Launch took place in April 2002; estimated end of life is April 2016.

NSS-8. Originally to launch in late 2003 on Sea Launch, NSS-8 was rescheduled for launch in January 2007. The NSS-8 was intended to serve the growing demand in the Indian Ocean region. It was destroyed during a failed launch attempt of a Zenit 3SL aboard the Sea Launch Odyssey platform.

NSS-9. The NSS-9 launched in February 2009 and deployed at 183° E longitude, which allowed the NSS-5 that operated in that slot to be deployed elsewhere. NSS-9 carries 55 C-band and 12 Ku-band transponders to provide telecommunications links between North America, Australia, and East Asia. It was built on the Orbital Sciences Star-2 platform, with a weight of 2,230 kilograms and an operational life of 15 years.

NSS-10/11. In March 2007, SES Global transferred the SES satellites AMC-12/Astra 4A and AAP-1 to SES New Skies. The spacecraft have subsequently been renamed NSS-10 and NSS-11.

NSS-10 was built on an Alcatel Alenia Space Spacebus 4000C3 platform and was originally ordered by GE Americom. The spacecraft features 72 C-band transponders. NSS-11 was built on a Lockheed Martin A2100 and carries 28 Ku-band transponders.

NSS-12. In May 2007, SES New Skies contracted Space Systems/Loral for the production of the NSS-12 spacecraft. The hybrid satellite is now in operation at the 57° E orbital slot. NSS-12 will carry 40 x 36 MHz equivalent C-band and 48 x 36 MHz equivalent Ku-band transponders and will serve as a replacement for the NSS-8 spacecraft.

NSS-14. In February 2008, SES New Skies returned to Space Systems/Loral for the production of the largest NSS to date. NSS-14 will be a hybrid satellite featuring 52 x 36 MHz equivalent C-band transponders and 72 x 36 MHz equivalent Ku-band transponders. SES New Skies will deploy NSS-14 in 2010 over the Atlantic Ocean region at 338° E, enabling the incumbent NSS-7 satellite to move to a new orbital position.

Program Review

New Skies. At the 22nd meeting of the Intelsat Assembly of Parties in 1998, Intelsat unanimously approved the creation of an independent spin-off company called New Skies Satellites NV, based in the Netherlands. The plan called for a complete and clear structural separation between New Skies and Intelsat. New Skies is subject to the regulatory bodies of every country in which it may operate and has no privileges or immunities.

Intelsat officially transferred six satellites – Intelsat 513, Intelsat 703, Intelsat 803, Intelsat 806, Intelsat K, and Intelsat KTV – to New Skies Satellites in November 1998. In addition, the Intelsat Ka-band frequency registrations associated with the 95° E and 319.5° E orbital locations were transferred to New Skies.

Intelsat owned 10 percent of New Skies, with the ownership held in a nonvoting trust. In addition, the

SES WORLD SKIES

initial shareholder ownership in New Skies has been diluted through an initial public offering. New Skies sold 28.5 million ordinary shares, representing approximately 22 percent of its total issued shares, in an IPO in October 2000. The deal raised approximately \$240.4 million (EUR275 million).

SES Global SA Acquires New Skies

SES Global finalized an acquisition of News Skies Satellites on March 29, 2006, following satisfaction of conditions approved by U.S. regulatory officials. SES acquired New Skies for \$1.15 billion. NSS was integrated as a subsidiary under the name SES New Skies. The addition of NSS was expected to strengthen SES' position in emerging markets in India, the Middle East, and Latin America.

SES New Skies Fleet. New Skies ordered an A2100AX satellite from Lockheed Martin Commercial Space Systems in 1999. The satellite, called NSS-7, provides Ku- and C-band services, including video distribution, Internet access, corporate business networking, and fixed services such as telephony and data. The satellite was launched in April 2002 on an Ariane 4 rocket to the 338.5° E location over the Atlantic for complete coverage of Latin America, Europe, Africa, and the Middle East.

It replaced NSS-K and freed NSS-803 to be repositioned over the Pacific Ocean at 183° E, where it provides more robust capacity for services in the Asia/Pacific region, plus transoceanic connectivity to the United States.

Arbitrators Find in Favor of New Skies

In November 1999, New Skies terminated the construction of a contract for the KTV satellite because the manufacturer failed to deliver it on time, leading to the loss of contracted revenues. New Skies' notice of termination was challenged by the manufacturer, and New Skies filed for arbitration, which was conducted in Washington, DC, under the auspices of the International Chamber of Commerce Court of International Arbitration. A panel ruled in favor of New Skies in July 2001, entitling the company to a \$53.3 million return of payment.

In August 2000, New Skies contracted Lockheed Martin Commercial Space Systems to build a Ku-/Ka-band geosynchronous satellite using the A2100AX platform. The satellite, designated NSS-6, weighs 4,567 kilograms (10,065 lb), and carries 50 Ku-band transponders and 12 Ka-band uplink beams. The Ka-band uplink beams can be connected to the Ku-band transponders to provide media and Internet services with the capability for two-way interactive networking,

among other services. Its transponders can be reassigned, in orbit, to any of six broad beams covering India, China, the Middle East (with South African spot coverage), Australia, Southeast Asia, and Northeast Asia. NSS-6 was launched in December 2002 on an Ariane 4 rocket and has a design life of 14 years.

New Skies ordered a Boeing-702 satellite from Boeing Satellite Systems in 2001. The contract called for in-orbit delivery of an 88-transponder satcom, designated NSS-8, in the third quarter of 2003 aboard a Sea Launch Zenit 3SL launcher, and includes options for up to two follow-on spacecraft. The delivery date was delayed until 2007 because of production problems at Boeing's manufacturing plant. New Skies did not mind the delay because it gave the company extra cash from a \$168 million refund from Boeing due to the delay, as well as added flexibility in future deployments. However, NSS-8 was lost in a Zenit 3SL failure in 2007.

With the successful launches of the NSS-7 and NSS-6, both the NSS-K and the NSS-513 satellites were retired from commercial service in 2002 as planned.

NSS-803 was moved in January 2003 to replace the NSS-513 at the 183° E (177° W) position and was renamed NSS-5. It is the main NSS bird over the Pacific Ocean region and connects North America with all major destinations in the Pacific Rim. It can offer intercontinental video, voice, and Internet trunking.

In February 2003, New Skies and Intelsat agreed to use their existing orbital and satellite resources at a single orbital location to expand their respective commercial service offerings to the Americas, Europe, Africa, and the Middle East. New Skies offers use of its C-band frequency rights at 340° E, where the U.S.-licensed hybrid Intelsat 603 satellite is currently providing Ku-band services.

In return, each company separately markets the satellite's C-band capacity for the delivery of video, Internet, and data services throughout the Atlantic Ocean region, sharing revenues from C-band operations. Both firms offer "cross-strapped" services, where customer transmissions may be uplinked to the satellite in the C-band and downlinked in the Ku-band, and vice versa.

In November 2006, SES New Skies selected OSC to build its NSS-9 satellite. The contract sets precedent in many ways. It is OSC's first contract from NSS, which had previously selected Boeing, Space Systems/Loral, and Lockheed Martin to build satellites. The NSS-9 represents the first satellite ordered since New Skies' acquisition by SES Global. The spacecraft was launched into orbit on board an Ariane 5 in February 2009.

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***SES Transfers Two Spacecraft to SES
New Skies in 2007***

In March 2007, SES Global transferred the SES satellites AMC-12/Astra 4A and AAP-1 to SES New Skies, which would now be responsible for all customer and capacity management activities associated with these satellites. The spacecraft have subsequently been renamed NSS-10 and NSS-11.

In addition, SES New Skies has also assumed commercial responsibility for the West Africa beam on Astra 2B at 28.2° E. Together, the SES New Skies satellites provide global coverage, with the transferred satellites boosting fleet capacity at SES New Skies by 48 percent, from 215 to 318 transponders. The additional capacity comprises 67 transponders on NSS-10 (reduced from the maximum 72 due to the current beam configuration), 28 transponders on NSS-11, and the eight transponders on the West Africa beam of Astra 2B. SES New Skies will further strengthen its orbital resources through the addition of NSS-9 (launched in February 2009) and NSS-12 (launched in 2009), followed by NSS-14 in 2010.

***SES New Skies Orders Its Largest Satellite
Ever***

In February 2008, SES New Skies announced it had ordered its largest satellite ever, NSS-14, from Space Systems/Loral. The 1300-series spacecraft will weigh 5,800 kilograms at launch, and carry 52 Ku-band and 72 C-band transponders. The spacecraft, scheduled for launch in the fourth quarter of 2010, will be located at 338° E, serving the Americas as well as Europe and Africa.

Loral Wins Contract for NSS-8 Replacement

Space Systems/Loral will build a communications satellite for SES New Skies that will replace the one lost in a launch failure in January 2007. SS/Loral built the NSS-12 satellite for New Skies in a deal announced in May 2007. The terms were not disclosed. The spacecraft, based on SS/L's 1300 bus, was launched in October 2009 on board an Ariane 5. NSS-12 operates from 57° E, the slot originally assigned to NSS-8, and carries 40 C-band and 48 Ku-band transponders.

Americom. GE Americom launched its first satellite in 1996. SES completed a 100 percent acquisition of GE Americom in 2001, creating SES Global. Originally, SES looked ready to merge with Hughes Spaceway, but GE Americom's strong U.S. market presence was the determining factor. SES acquired the company's stock and other assets for \$5 billion through a \$2.7 billion cash offering and 15.4 million shares in SES Global. SES Global later changed the designation of GE's 13

satellites from GE to Americom (AMC). Each division will focus on its regional market – SES Astra in Europe and SES Americom in the U.S.

The SES Americom Fleet. GE Americom's first A2100 satellite, designated GE-1 (now AMC-1), was launched on an Atlas IIA in 1996 and orbits at 103° W.

In 1997, GE Americom launched two satellites, GE-2 (AMC-2) and GE-3 (AMC-3), which offered cable and broadcast TV, as well as business TV, educational TV, private data networks, and government services. With GE-2 at the 85° W orbital slot, GE Americom was able to provide full 50-state coverage, augmenting GE-1. Both satellites carry 24 C-band transponders (12 to 20 watts) and 24 Ku-band transponders (60 watts) and are identical in design to the GE-1.

GE-4 (AMC-4) was launched on an Ariane 44LP in 1999. A C-/Ku-band hybrid (48 transponders), the satellite operates from 101° W, providing cable services via the C-band payload, and VSAT, business television, broadcasting, and Internet via the Ku-band payload.

In 1998, GE Americom and Lockheed Martin Global Telecommunications formed an equal joint venture called Americom Asia-Pacific (AAP) to develop and deploy a new satellite system to serve the communications needs of the Asia/Pacific region. The resulting GE-1A (now AAP-1) satellite provides television distribution and wideband Internet applications to businesses and consumers in the Asia/Pacific region from its orbital position at 108.2° E. The satellite features 28 Ku-band transponders and was launched on a Proton rocket in 2000.

AMC-5 was built by Alcatel Space (now Thales Alenia Space) on a Spacebus 2000 bus and launched on an Ariane 44L in 1998. It was the ex-Nahuelsat 2 spacecraft. AMC-5 resides at the 79° W orbital position.

GE Americom ordered additional A2100 satellites in 1999. The spacecraft – GE-6, -7, and -8 (AMC-6, -7, -8) – provide distribution of broadcast and cable television programming. AMC-6, launched in 2000, supplements domestic coverage by AMC-1, -2, -3, and -4 and operates from 72° W. The hybrid C-/Ku-band AMC-6 is a very large A2100AX-based satellite. In contrast, AMC-7 and AMC-8 are based on the smallest A2100 bus available.

AMC-7 was launched on an Ariane 5 in 2000, and operates 24 20-watt, 36-MHz transponders from 137 W, covering all 50 states, Canada, and the Caribbean. AMC-8/Aurora III, jointly owned by SES and AT&T Alascom, was launched to 139° W on a Proton later that year. AT&T Alascom uses a large portion of its C-band payload to carry telephony, voice, and digital services for customers throughout Alaska.

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SES Americom's AMC-9 was successfully launched on board a Russian Proton K booster from the Baikonur Cosmodrome in June 2003. The AMC-9 was built by Alcatel Space (now Thales Alenia Space) on a Spacebus 3000B3 platform. It carries 24 36-MHz C-band transponders with 20-watt SSPAs, and the Ku-band payload features 24 36-MHz transponders with 110-watt TWTAs. The spacecraft operates from the 83° W orbital position.

Block of Three Ordered from Lockheed

SES Americom awarded Lockheed Martin Commercial Space Systems a contract in September 2001 to build three A2100 satellites. Designated GE-10, GE-11, and GE-18 (now AMC-10, AMC-11, and AMC-15), the new satellites were being launched to provide distribution of premium cable programming across North America.

AMC-10 launched in February 2004 and AMC-11 launched in May 2004. Both launches occurred on Atlas IAS rockets. AMC-10 goes to 131° W and AMC-11, to 135° W. From these positions, they provide cable TV services to the U.S., Mexico, and the Caribbean. The AMC-10 takes the place of the Satcom C4, and the AMC-11 replaces Satcom C3. AMC-18 was included in the contract as a ground spare but was launched in December 2006.

AMC-15 is a hybrid Ku/Ka-band A2100 spacecraft constructed by Lockheed Martin. It was launched on a Proton in October 2004 to 105° W to kick off the Americom2Home DTH service. The AMC-16 satellite, also a Lockheed Martin A2100, was launched in 2004 on an Atlas V. The AMC-14 was lost during a launch failure of a Proton M/Breeze M launch vehicle in 2008.

SES Americom Secures Multi-Sat Insurance Policy. SES Americom signed a \$1.3 billion-plus insurance agreement with Marsh-Space in late 2002 for coverage of six communication satellites to be launched between January 2003 and late 2004 – namely, the Alcatel Spacebus-based AMC-9, -12, and -13, and the Lockheed Martin A2100-based AMC-10, -11, and -15. Details were not disclosed. However, with today's insurance costs skyrocketing, the policy is remarkably priced at about year-2000 levels. SES Americom says the agreement reflects the blue chip investors' ability to differentiate its performance from that of its competitors. In turn, Marsh-Space credited SES Americom's record of mission success and the size of the contract as factors in establishing such a low rate.

Americom2Home Continues. A2H was announced by Americom in 2002 to expand the satellite resources available to the DTH service companies and programmers who wish to reach U.S. homes with video,

broadband, and other advanced services. The first satellite in the A2H 105° W neighborhood is AMC-2, which was relocated to that orbital position and readied for operation in August 2003.

AMC-15 will succeed AMC-2 and offer circular polarization and high power on the FSS Ku-band platform with 24 transponders of 36 MHz each, as well as 12 Ka-band spot beams of 125 MHz each. Pending FCC authority, Americom also has plans to operate a BSS satellite, AMC-14, at 105.5° W.

Formation of Worldsat. In January 2004, SES Americom announced the official formation of Worldsat LLC and an agreement to provide services to Connexion by Boeing on Worldsat-3 (AMC-23). The satellite features a customized Ku-band payload designed to address the specific requirements of the trans-Pacific traveler. Worldsat was created in 2003 by SES Global as a subsidiary of SES Americom.

SES Americom Acquires Verestar. In April 2004, SES Americom received U.S. Bankruptcy Court approval to acquire the assets of Verestar Inc for a total cash consideration of \$18.5 million. The Fairfax, Virginia-based company focuses on managed solutions for satellite communications in government, broadcast, enterprise, and international services markets with strategically located teleport facilities in the U.S. and abroad. Verestar's company assets include four U.S. teleports and one in Switzerland.

New AMC Bird Contracted. A team consisting of Thales Alenia Space and Orbital Sciences Corp won a contract to build the AMC-21 satellite, with Thales Alenia serving as prime contractor and payload provider, while Orbital will provide its Star Two satellite bus. The spacecraft entered service in late 2008 in GEO at 125° W; it weighed 2,500 kilograms at launch and carries 24 Ku-band transponders.

Big Sat Order Goes to OSC

Orbital Sciences Corporation has won an order for as many as five communications satellites from SES Americom. The satellites will be built using Orbital's Star Two spacecraft bus. The contract includes firm orders for two satellites, AMC-5R and a ground spare, with options for three additional satellites over the next few years. The first two satellites, scheduled for delivery in mid- and late 2009, will carry 24 C-band and 24 Ku-band transponders and generate 5 kilowatts of power; future satellites will be identical to the first two.

SES Global Secures 10 Future Launches

In an effort to secure slots in increasingly crowded launch manifests, European satellite operator SES Global signed launch agreements for 10 future

SES WORLD SKIES

satellites with Ariespace and International Launch Services. SES signed separate agreements in June 2007 with Ariespace and ILS for five launches from each company in the 2009-2013 period, with the total value of the agreements estimated to be \$700 million. The agreements are designed to cover most of SES' launch requirements during that period. The long-term deal also ensures that the company will have spots in launch manifests that have become more crowded in recent years, driving up launch prices and forcing satellite operators to scramble to find launches.

SES Americom, New Skies Combined

SES WORLD SKIES. SES Global merged its New Skies and Americom divisions in July 2008. SES hopes that by combining management, the new division will improve its overall operating efficiency and performance. The combination of the two divisions will also help create more flexibility within the company. The new division was renamed SES WORLD SKIES in September 2009. It was previously known as SES Americom-New Skies. WORLD SKIES currently operates 25 satellites within the 40-satellite global SES fleet.

On December 17, 2009, SES SA was successful in its bid of \$185 million on the ProtoStar-2 spacecraft. The satellite, which was launched in May 2009, will be integrated into the SES WORLD SKIES fleet.

In January 2010, SES WORLD SKIES announced a new satellite nomenclature. Previously, satellites built for New Skies were designated NSS, and Americom satellites were designated AMC. Under the new system, satellites will be named SES.

This name change will also affect three new satellites, currently under contract with Orbital Sciences Corp; they will be named SES-1, SES-2, and SES-3. Those satellites are expected to be launched in 2010 and 2011. The NSS-14, currently under construction with Space Systems/Loral, will be renamed SES-4. The C-band payload on SIRIUS-5 will be named SES-5, and the Ku-band payload will keep its SIRIUS-5 name. WORLD SKIES also is negotiating a contract for SES-6, a replacement for NSS-806. ProtoStar-2 will be named SES as well. Satellites already in orbit will keep their names.

Timetable

<u>Month</u>	<u>Year</u>	<u>Major Development</u>
May	1988	NSS-513(A) launched on Ariane 3
Jun	1992	NSS-K launched on Atlas IIA
Oct	1994	NSS-703 launched on Atlas IIAS
Sep	1997	NSS-803 launched on Ariane 42L
Feb	1998	NSS-806 launched on Atlas IIAS
Apr	2002	NSS-7 launched on Ariane 4
3Q	2002	NSS-K and NSS-513 retired
Dec	2002	NSS-6 launched on Ariane 4
Jan	2003	NSS-803 becomes NSS-5
Jan	2007	NSS-8 launch failure on Zenit 3SL
Jul	2008	New Skies and Americom merge into single division
Feb	2009	NSS-9 launched on Ariane 5
Sep	2009	New division named WORLD SKIES
Oct	2009	NSS-12 launched
	2010	SES-1 scheduled to launch
	2011	SES-2, SES-3, and SES-4 (formerly NSS-14) scheduled to launch

Forecast Rationale

In July 2008, SES announced that it would merge its New Skies and Americom divisions into a single division, which, later that year, was named SES WORLD SKIES. SES officials hope that by combining the two divisions into one, the company will increase its global flexibility and improve overall operating efficiency and performance.

In addition to the reorganization, SES is in the midst of a large-scale capital reinvestment program. Company executives expect to launch 15 new satellites between 2010 and 2014. While spending on the buying program is expected to end in 2011, deliveries will continue through 2014. The company-wide fleet will expand from 40 satellites to about 50 satellites, which

SES WORLD SKIES

represents a 28 percent increase in the transponders in orbit.

The WORLD SKIES division is expected to be instrumental in this company-wide expansion. WORLD SKIES currently operates 25 of the 41 SES satellites. It operates in a number of important markets, such as Africa and Latin America, where SES hopes to expand in the future. New satellites in WORLD SKIES' fleet will be given a nomenclature beginning with SES.

SES-1 through SES-4 are already under contract. Contracts for these satellites were actually signed before

the two divisions merged. SES-1 through -3 were to be given AMC nomenclatures, while SES-4 was formerly known as NSS-14. However, under the new WORLD SKIES division, the satellites are now referred to with their new names.

In addition to the four satellites already under contract, SES WORLD SKIES is expected to take delivery of five additional satellites by 2014. More will follow later the forecast period. SES SA's push to expand its global fleet and replace aging satellites will drive satellite production throughout the forecast period.

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	
Orbital Sciences Corp												
SES-1 <> SES WORLD SKIES <> STAR-2												
	0	1	0	0	0	0	0	0	0	0	0	1
SES-2 <> SES WORLD SKIES <> STAR-2												
	0	0	1	0	0	0	0	0	0	0	0	1
SES-3 <> SES WORLD SKIES <> STAR-2												
	0	0	1	0	0	0	0	0	0	0	0	1
Subtotal	0	1	2	0	0	0	0	0	0	0	0	3
Space Systems/Loral												
SES-4 <> SES WORLD SKIES <> 1300												
<small>Note: Formerly named NSS-14.</small>												
	0	0	1	0	0	0	0	0	0	0	0	1
MFR Not Selected												
SES Follow-Ons <> SES WORLD SKIES												
	0	0	0	1	2	1	0	1	2	2	1	10
SES-6 <> SES WORLD SKIES												
	0	0	0	1	0	0	0	0	0	0	0	1
Subtotal	0	0	0	2	2	1	0	1	2	2	1	11
Total	0	1	3	2	2	1	0	1	2	2	1	15

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			Electronics			NOTE: No charge for Real-Time format.		
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			DVD	\$50	\$95	\$5.95	\$12.95	

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