

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Fourth Report to Congress on)	IB Docket No. 14-229
Status of Competition in the Provision of)	
Satellite Services)	
To: The Commission		

COMMENTS OF THE SATELLITE INDUSTRY ASSOCIATION

SATELLITE INDUSTRY ASSOCIATION

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SUMMARY

The Satellite Industry Association (“SIA”) hereby responds to the International Bureau’s Public Notice requesting information on competition in the provision of satellite services. As discussed herein and in the attached 2014 State of the Satellite Industry Report, the satellite industry has continued to grow and innovate, providing an ever-increasing array of services and using spectrum more efficiently. During the 2011-2013 time frame on which the Bureau seeks comment, existing providers added capacity and new operators entered the market in every region of the globe. Meanwhile, there has been no significant change in the level of vertical integration within the industry.

Despite the long lead times and substantial upfront costs that characterize the satellite industry economic structure, entry by additional competitors has continued. Indeed, one notable trend has been the establishment of new national operators, particularly in emerging markets. In addition, the past few years have seen the introduction of high throughput satellites that add significant capacity, decrease costs per unit, and permit faster broadband speeds. Furthermore, consumers of satellite services have an increasing array of alternatives available to them, including many terrestrial services that compete directly with satellite offerings. This leads to robust competition on both price and non-price factors.

In the global market, foreign trade barriers continue to raise concerns for SIA members. SIA highlights in its comments policies in China and India that impede market access for satellite service providers.

TABLE OF CONTENTS

SUMMARY	i
I. INTRODUCTION	2
II. INDUSTRY STRUCTURE: THE NUMBER OF COMMERCIAL SATELLITE OPERATORS AND SATELLITES IS INCREASING IN EVERY REGION OF THE GLOBE	4
A. Participating Firms	4
B. Horizontal Concentration and Vertical Integration.....	8
C. Entry Conditions	9
III. NUMEROUS COMPETITIVE ALTERNATIVES TO SATELLITES HAVE EXPANDED CONSUMER CHOICE.....	10
IV. ACCESS TO FOREIGN MARKETS.....	11
V. CONCLUSION.....	12
ANNEX.....	13

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The Satellite Industry Association (“SIA”) welcomes this opportunity to submit these comments in response to the International Bureau’s Public Notice of November 25, 2014, seeking information on the state of competition in the provision of satellite services.¹ SIA is a U.S.-based trade association providing worldwide representation of the leading satellite operators, service providers, manufacturers, launch services providers, and ground equipment suppliers. Since its creation almost twenty years ago, SIA has advocated for the unified voice of the U.S. satellite industry on policy, regulatory, and legislative issues affecting the satellite business.² SIA is filing these comments to respond to the Commission’s requests for information on the structure of the satellite industry, the performance of the industry (including the requested three-year time series data), and access to foreign markets.

¹ *International Bureau Invites Comment for the Fourth Report to Congress on Status of Competition in the Provision of Satellite Services*, DA 14-1707 (Nov. 25, 2014) (“Public Notice”).

² SIA Executive Members include: The Boeing Company; The DIRECTV Group; EchoStar Corporation; Intelsat S.A.; Iridium Communications Inc.; Kratos Defense & Security Solutions; LightSquared; Lockheed Martin Corporation; Northrop Grumman Corporation; SES Americom, Inc.; SSL; and ViaSat, Inc. SIA Associate Members include: ABS US Corp.; Airbus DS SatCom Government, Inc.; Artel, LLC; ATK Inc.; Cisco; Comtech EF Data Corp.; DRS Technologies, Inc.; Eutelsat America Corp.; Exelis, Inc.; Glowlink Communications Technology, Inc.; Harris CapRock Communications; Hughes; iDirect Government Technologies; Inmarsat, Inc.; Kymeta Corporation; Marshall Communications Corporation.; MTN Government; O3b Limited; Orbital Sciences Corporation; Panasonic Avionics Corporation; Row 44, Inc.; TeleCommunication Systems, Inc.; Telesat Canada; TrustComm, Inc.; Ultisat, Inc.; Vencore Inc.; and XTAR, LLC.

I. INTRODUCTION

In a 2005 amendment to the Communications Satellite Act, Congress directed the Federal Communications Commission (the “Commission”) to provide an annual report on the competitive market conditions facing satellite communications services providers.³ The Commission has submitted three reports pursuant to this provision in 2007, 2008, and 2011, and has requested comments from the public as it prepares its fourth report.⁴

To assist the Commission in preparing this next report to Congress, SIA is attaching to these comments the 2014 State of the Satellite Industry Report, which contains the Association’s most current data on the performance of the global commercial satellite industry. The report provides statistical information and explanatory comments on all four segments of the satellite industry on which the Commission requested data: the fixed-satellite service (FSS); the mobile-satellite service (MSS); satellite broadband; and the satellite digital audio radio service (SDARS).

The report shows that global satellite industry revenues grew by three percent from 2012 to 2013, reaching more than \$195 billion in the latter year. The portion of the industry that SIA refers to as the satellite services segment (which includes the FSS, MSS, satellite broadband, satellite television and SDARS sectors) continues to be the largest single source of revenues for the global satellite industry, as well as its primary growth driver. The satellite services segment grew by five percent in 2013, reaching nearly \$120 billion. Revenues attributed to the FSS were \$16.4 billion, while MSS, broadband, and SDARS revenues reached \$2.6 billion, \$1.7 billion, and \$3.8 billion, respectively.

³ Amendment to Communications Satellite Act, Pub. L. No. 109-34, 119 Stat. 377 (2005), codified at 47 U.S.C. § 703.

⁴ Public Notice at 1–2.

The satellite industry performed well from 2011 to 2013 due to numerous developments. For example, operators launched high throughput satellites (HTS) such as EchoStar 17⁵ and ViaSat-1,⁶ which utilize a variety of innovative spot beam and spectrum re-use technologies to expand capacity, elevate broadband speeds and offer new service applications. In addition, the mid-2013 launch of the O3b HTS constellation in relatively unused middle-earth orbit (MEO) brings fiber-like, low latency broadband connectivity to unserved and underserved areas. This period also saw an explosion of significant investment in research and development for new satellite terminal equipment and innovative mobility applications in the FSS as a result of the Commission's long-awaited earth station aboard aircraft proceeding.⁷ All this notable industry innovation and growth has been supported by Commission satellite policies over the last four decades that have facilitated market entry and a competitive U.S. market.

The importance of satellite communications to national security and public safety was emphatically shown during the period covered by this report. Satellites provided emergency restoration after Hurricane Sandy in 2012 and Typhoon Haiyan in the Philippines in late 2013,⁸ extensive support of national security missions throughout in the Middle East and Afghanistan,

⁵ Hughes Network Systems, LLC, "Hughes EchoStar XVII Satellite with JUPITER™ High Throughput Technology Successfully Launched," July 6, 2012, at <http://sats.client.shareholder.com/releasedetail.cfm?ReleaseID=689448>.

⁶ ViaSat Inc., "ViaSat-1 High-Capacity Satellite Launch Successful," Oct. 20, 2011, at <https://www.viasat.com/news/viasat-1-high-capacity-satellite-launch-successful>.

⁷ *In the Matter of Revisions to Parts 2 and 25 of the Commission's Rules to Govern the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the 10.95-11.2 GHz, 11.45-11.7 GHz, 11.7-12.2 GHz and 14.0-14.5 GHz Frequency Bands*, IB Docket No. 12-376, Notice of Proposed Rulemaking and Report and Order, FCC 12-161 (rel. Dec. 28, 2012), 27 FCC Rcd 16510 (subsequent history omitted). The SIA applauded this rulemaking proceeding in comments submitted on May 22, 2013.

⁸ E.g., C. Henry, "Disaster Relief 2.0: Lessons Learned After Typhoon Haiyan," *Satellite Today* (Feb. 24, 2014) at <http://www.satellitetoday.com/publications/2014/02/24/disaster-relief-2-0-lessons-learned-after-typhoon-haiyan/>.

and information used in search and recovery operations for airline disasters such as Malaysia Airlines flight MH-370.

II. INDUSTRY STRUCTURE: THE NUMBER OF COMMERCIAL SATELLITE OPERATORS AND SATELLITES IS INCREASING IN EVERY REGION OF THE GLOBE

A. Participating Firms

The FSS industry continues to be robustly competitive,⁹ with six larger operators of FSS satellite fleets offering capacity over the United States – Intelsat, SES, Telesat, Eutelsat, EchoStar and ViaSat – for the provision of a wide variety of communications services, including government and emergency communications services, video distribution/contribution and newsgathering, cellular backhaul, consumer and network broadband connectivity, and private network services for enterprise. A number of satellite operators with smaller fleets also offer competing FSS services within the U.S. (e.g., Star One) and traditional MSS global operator Inmarsat is poised to enter into direct competition in the FSS capacity industry segment with the launch of its HTS Global Express system.¹⁰ The number of competitors in the FSS segment compares favorably with other capital-intensive industries, including other sectors of the telecommunications industry, such as terrestrial mobile and fixed wireline.

In its previous comments to the Commission on competition in the provision of satellite services, SIA reported that satellite fleet operators were making sizeable financial investments to

⁹ In its first and second reports, the Commission found conditions of effective competition in the satellite sector. See *Second Annual Report and Analysis of Competitive Market Conditions with Respect to Domestic and International Satellite Communications Services* (“*Second Report*”), IB Docket No. 07-252, 23 FCC Rcd 15170, 15171, ¶ 3 (2008) (“We find in this *Second Report*, as we did in the *First Report*, that markets for commercial communications satellite services are subject to effective competition....”). The Commission stated in the third report that the record was insufficient to support a finding regarding the state of satellite competition. *Third Annual Report and Analysis of Competitive Market Conditions with Respect to Domestic and International Satellite Communications Services* (“*Third Report*”), IB Docket Nos. 09-16 & 10-99, 26 FCC Rcd 17284, 17287, ¶ 3 (2011).

¹⁰ Inmarsat announced that its first Global Express satellite, Inmarsat-5 F1, entered commercial service on July 1, 2014. See Inmarsat, “*Global Xpress*,” at <http://www.inmarsat.com/about-us/our-satellites/global-xpress/>.

upgrade and expand their space-based networks and diversify their service offerings, with the result that the overall number of commercial satellite operators and satellites was increasing.¹¹ This trend has continued, showing the vitality, innovation and competitive nature of this industry. SIA has calculated that over the period 2011 to 2013, some 64 commercial FSS satellites have been successfully launched worldwide. Many of these satellites were launched and operated by established satellite fleet operators. However, one of the trends seen in the industry is market entry by new national operators, particularly in emerging markets such as Asia-Pacific, Africa and the Middle East, and Latin America, providing additional competition.

We reported in 2010 that 13 different FSS operators were providing coverage of the Americas using approximately 95 satellites. Over this period, operators successfully launched 19 satellites for coverage of the Americas in ITU Region 2.¹² Specifically, during this time frame SES launched four satellites, Intelsat and Telesat each launched three satellites;¹³ EchoStar and Hispasat (Spain) each launched two satellites;¹⁴ and single satellites were launched by ViaSat, Embratel (Brazil), Quetzsat and Satmex (both Mexico).¹⁵ Toward the end of the period, Bolivia

¹¹ SIA Comments in IB Docket No. 10-99, submitted August 23, 2010, at page 3 (“SIA 2010 Comments”).

¹² SIA has relied on primary coverage areas or orbital position to associate each particular satellite with a single ITU Region, and we have not “double counted” any satellite among the ITU Regions, even those designed for inter-regional service. Discussion in text on satellite launches identifies the initial service area of satellites as they were named at time of launch – those satellites may have in some instances been relocated or had name changes in later years. In a few instances we have included satellites launched in the last days of December 2010 that would not have become operational until the 2011 period. Websites providing details on satellite launches are set forth in an annex to this report.

¹³ SES launched SES-3 in July 2011, SES-2 in September 2011; SES-4 in February 2012; and SES-6 in June 2013. Intelsat launched its Intelsat 18 with coverage of the Pacific and Western U.S. in October 2011; Intelsat 21 in August 2012; and Intelsat 23 in October 2012. Telesat launched Telstar 14R/Estrella do Sul 2 in May 2011; Nimiq 6 in May 2012; and Anik G1 in April 2013.

¹⁴ EchoStar launched EchoStar 17 in July 2012 and EchoStar 16 in November 2012. Hispasat launched Hispasat 1E in the waning days of 2010, on December 29, 2010; its Amazonas 3 was launched in February 2013.

¹⁵ ViaSat 1 was launched in January 2012 and described as “the highest capacity satellite in the world.” See ViaSat website referenced in the annex. Embratel launched Star One C3 in November 2012. Quetzsat (which includes SES

launched its Tupak Katari Sat 1, primarily for Bolivian national coverage.¹⁶ Numerous orders for new satellite capacity were announced throughout this period, with substantial follow-on and replacement capacity being planned for deployment past the 2011 – 2013 timeframe.¹⁷

In ITU Region 1, significant new capacity was added across Europe, the Middle East, and Africa, as operators launched 24 new and replacement satellites. Eutelsat was particularly active, as it launched six satellites over this period.¹⁸ Intelsat and SES each launched four satellites, which provide substantial new capacity serving Africa.¹⁹ Yahsat (UAE) and Spacecom (Israel) each launched two satellites;²⁰ and six other operators each launched a single satellite in the region.²¹

In ITU Region 3, operators also added substantial capacity across the Asia-Pacific, with the successful launch of 22 new communications satellites. Fifteen different operators accounted

as a partner) launched its first satellite Quetzsat 1 in September 2011; Satmex 8 was launched in March 2013. Not included in this list is the MexSat 3 satellite, which was launched in December 2012 and operated by the Mexican government; although not entirely a commercial satellite, it is used to provide FSS service across Mexico.

¹⁶ The Tupak Katari Sat 1 was launched in December 2013.

¹⁷ For example, new satellites on order include ViaSat 2, a Ka-band broadband satellite with North Atlantic mobility coverage; MonacoSat 1 and SES-9, both planned for first half 2015 launch; Eutelsat 65 planned for 2016 launch to cover Brazil; Satmex 9 with a 48 Ku-band transponder payload, also planned for 2016; and Intelsat 23/Sky Brazil 1, designed with 60 Ku-band transponders and an EPIC-like payload.

¹⁸ Eutelsat launched its Ka-Sat with 82 Ka-band spot beams on December 26, 2010; Eutelsat W3C/16A in July 2011; Atlantic Bird 7/Eutelsat 7 West A in September 2011; Eutelsat 21B in November 2012; Eutelsat 3D in May 2013; and Eutelsat 25B in August 2013 (jointly owned by Es'hail and operated as Qatar's first national satellite).

¹⁹ Intelsat launched Intelsat New Dawn (now Intelsat 28) in April 2011 for service to Africa; Intelsat 22 in March 2012; Intelsat 19 in June 2012; and Intelsat 22 in August 2012. SES launched Astra 1N in August 2011; SES-5 in July 2012; Astra 2F in September 2012; and Astra 2E in September 2013.

²⁰ Yahsat launched its Yahsat 1A and Yahsat 1B in April 2011 and April 2012, respectively. Satcom launched Amos-5 in December 2011 and Amos-4 in August 2013 (the last an example of a satellite serving both ITU Regions 1 and 3).

²¹ The six satellites and their launch dates were Apstar 7 in 2012; Arabsat 7 in September 2011; Azerspace-1 in February 2013; Hylas 1 in November 2010; Nigcomsat-1R in December 2011; and Gazprom's Yamal 402 in December 2012.

for these launches. India's ISRO launched four satellites;²² Chinasat launched three;²³ and SKY Perfect JSAT Corporation ("JSAT") launched two satellites for the region.²⁴ Another eleven operators each launched a single new satellite during the period for service to this region.²⁵

This period also saw the initiation of a new constellation of HTS satellites in medium earth orbit, launched by O3b Networks in June 2013.²⁶ O3b's first constellation of four satellites provided an introductory step toward service to emerging and insufficiently connected markets in Latin America, Africa, the Middle East, Asia and Australia, with a collective population of over 3 billion people.

In sum, and as identified in our 2014 State of the Satellite Industry report, there are nearly 1,200 operating satellites as of year-end 2013, of which 40 percent are commercially-owned communications satellites.²⁷ This is evidence of a thriving competitive market. Further, more than 50 countries license or authorize the operation of at least one satellite (some as part of

²² ISRO launched INSAT 4G/GSAT-8 in May 2011; GSAT-12 in July 2011; GSAT-10 in September 2012; and GSAT-14 in early January 2014. This list excludes Indian satellites dedicated to government or military purposes, such as GSAT-7 launched in August 2013 for communications services used by the Indian defense services.

²³ ChinaSat 10 was launched in June 2011; ChinaSat 12/Apstar 7B launched in November 2012; and ChinaSat 11 launched in May 2013.

²⁴ JSAT launched its JCSat 13/JCSat 4B in May 2012; and BSat 3c/JCSAT 110R in August 2011.

²⁵ The eleven satellites and their launch dates were: SingTel 2 in May 2011; Koreasat 6 on December 29, 2010; Kazsat 2 in July 2011; Paksat 1R in August 2011; Asiasat 7 in November 2011; Apstar 7 in March 2012; Vinasat-2 in May 2012; Yamal 300K (Gazprom) in November 2012; Eutelsat 70B in December 2012; the Russian Satellite Communications Company Express AM-5 in December 2013; and SES-8 in December 2013.

²⁶ "O3b Takes Control of First Satellites, as In-Orbit Testing Successfully Completed. Second group of four satellites scheduled for September, ahead of commercial launch in Q4, 2013," Press release July 30, 2013, at <http://www.o3bnetworks.com/media-centre/press-releases/2013/o3b-takes-control-of-first-satellites-as-in-orbit-testing-successfully-completed>. In September 2013, O3b announced a delay of launch of its second constellation of four satellites, which ultimately were launched on July 10, 2014.

²⁷ See 2014 State of the Satellite Industry Report, page 7.

regional consortia), which underscores that the satellite market has diversified and expanded substantially on a global basis.

B. Horizontal Concentration and Vertical Integration

The level of competition among providers of satellite capacity has remained relatively unchanged since the last report was issued.²⁸ If anything, competition in U.S. has been enhanced as a result of Eutelsat's acquisition of Satmex and GE-23, thereby adding a fourth global satellite operator with North American coverage.²⁹

The level of vertical integration also remains relatively unchanged since the Commission's *Third Report*, with different companies pursuing somewhat different vertical integration strategies. The larger FSS fleet operators, Intelsat, SES, Eutelsat (Satmex) and Telesat, provide mostly wholesale transponder capacity or capacity to large customers, supplemented with significant terrestrial networks comprised of regional satellite teleports and fiber services; the first three companies also maintain U.S. subsidiaries that specialize in selling value-added, end-to-end and/or managed services directly or indirectly to U.S. government customers.³⁰ ViaSat and EchoStar/Hughes Network Services have vertically integrated their

²⁸ With respect to objective data on satellite capacity (*i.e.*, number of available transponders, number of transponders used, or other capacity measures) the Commission may rely on each operator's confidential annual satellite reports for such data.

²⁹ See "*Eutelsat Communications concludes acquisition of SATMEX*," Eutelsat press release, January 2, 2014, at <http://www.eutelsat.com/en/news/2014/Eutelsat-Satmex.html>; "*Eutelsat Communications Concludes Acquisition of GE-23 - Expanding footprint to high growth Asia-Pacific markets*," Eutelsat press release, September 25, 2012, at <http://www.eutelsat.com/news/compress/en/2012/html/PR%205912%20GE%2023%20Acquisition/PR%205912%20GE%2023%20Acquisition.html>.

³⁰ The Commission recently terminated a review of competitive issues associated with vertical integration in the U.S. government segment without further action. *Issues Related to Allegations of Warehousing and Vertical Foreclosure in the Satellite Space Segment, Notice of Inquiry*, FCC 13-79, IB Docket No. 13-147, 28 FCC Rcd 8571 (2013), proceeding terminated by *Order*, FCC 14-38, released April 15, 2014. See also comments filed in that proceeding by Intelsat; SES; EchoStar and its wholly-owned subsidiary Hughes Network Services; and the SIA, filed August 19, 2013.

consumer and network ground equipment businesses with both consumer broadband and FSS capacity offerings.

C. Entry Conditions

The Commission's *Second Report* contains a good analysis of industry cost structure that continues to apply today. It describes the large upfront costs that must be incurred for satellite construction and launch before any revenue can be earned, together with lumpy investments leading to cycles of excess capacity – features of the industry that have not changed.³¹

A number of new spacecraft technology developments promise improved cost efficiency for the satellite industry. In addition to HTS satellites, which permit notably higher speeds, lower cost-per-bits and new service applications, these developments include the availability of new launch service providers that may lower the cost of deploying satellites to orbit (*e.g.*, SpaceX); the emergence of new electric propulsion technology, creating lighter satellites (*i.e.*, more powerful/capable in-orbit satellites at same mass); improved ground terminal equipment (*e.g.*, flat phased arrays and smaller antennas), and interference mitigation and spectrum efficiency mechanisms (*e.g.*, advanced modulation schemes, multi-LNB, carrier-in-carrier, carrier ID).

Regarding spectrum constraints on entry, while the U.S. satellite market is mature, new players have opportunities to enter the satellite services market with proper spectrum planning. Not all orbital positions capable of serving the U.S. territory in established and new FSS bands are currently occupied. In 2011-2013 alone, new entry in the form of HTS satellites by O3b, ViaSat and Hughes Network Services have brought new, innovative and competitive alternatives to market in the 20/30 GHz band spectrum. Other HTS systems, such as the Intelsat Epic

³¹ *Second Report* at ¶¶ 42-48.

satellites, are planned for launch in 2015 that will introduce notable spectrum efficiencies in the C-band and Ku-band. Numerous operators are building additional 20/30 GHz satellites capable of serving the United States.³²

Existing satellite operators are looking for more spectrum to meet emerging market opportunities and increased demand. Next-generation high throughput satellites in the 20/30 GHz band, for example, have had to expand into spectrum not allocated to FSS on a primary basis in the U.S. to meet this demand.

III. NUMEROUS COMPETITIVE ALTERNATIVES TO SATELLITES HAVE EXPANDED CONSUMER CHOICE

From the consumer's perspective, there are substantial competitive options to satellite service. Customers of "wholesale" FSS satellite capacity typically are sophisticated corporations or governments that try to negotiate the best possible deal for transponder capacity from FSS providers before entering into service contracts. As a result, there is competition both on price and on non-price factors (*e.g.*, coverage/power levels and service quality) among satellite capacity providers when responding to customer requests for proposals. Large media, enterprise or private network customers often consider hybrid or terrestrial wired or wireless alternatives for their business needs. For example, cable television service providers may use fiber networks for their terrestrial distribution of media content to cable head-ends, and offshore oil rigs for large energy companies often use point-to-point microwave between platforms. Domestic and international long distance telecommunications carriers and cellular networks also use a combination of satellite and fiber for their trunking and network backhaul links.

³² See SIA Comments filed Jan. 15, 2015 in response to the Commission's Notice of Inquiry in GN Docket No. 14-177, FCC 14 154 (rel. Oct. 17, 2014), on the potential for the provision of mobile radio services in bands above 24 GHz. Appendix 1 of those comments shows both the existing and planned satellites in the 20/30 GHz band that are under construction.

Similarly, customers of “retail” satellite broadband services can rely on price rivalry due to competitive terrestrial wired and wireless broadband options and non-price competition arising from different speed packages, bundled pricing, and other service differentiation. Rapid growth in areas which are underserved by terrestrial broadband infrastructure as well as in areas where satellite consumer broadband providers compete directly with terrestrial wired or wireless broadband indicate strong consumer acceptance of satellite broadband as a viable technology and competitive alternative to terrestrial options. Those competitive alternatives give users of satellite service numerous competitive options.

IV. ACCESS TO FOREIGN MARKETS

SIA refers the Commission to its Comments concerning foreign trade barriers, in response to the U.S. Trade Representative’s Request for Comments Concerning Compliance with Telecommunications Trade Agreements.³³ SIA identified the following issues concerning China, which remain today:

National treatment. China is a restrictive market for foreign satellite operators. Satellite operators that are Chinese-owned receive preferential treatment over foreign satellite operators. Unlike domestic Chinese satellite operators, foreign satellite operators are prohibited from leasing transponder capacity directly to end-users in the country. Instead, foreign satellite operators are required to obtain government approval or enter into a contract with a “qualified domestic entity” in order to provide satellite capacity or services within China.³⁴

In its comments, SIA maintained that a “true ‘open skies’ policy should be adopted for the provision of satellite services in China” in order to permit local users to contract directly with any satellite operator for any satellite capacity that has the ability to serve China, without being

³³ SIA Comments submitted on December 17, 2012, available at http://www.sia.org/wp-content/uploads/2012/12/SIA_Comments_on_USTR_1377_Report_2012_12_17.pdf .

³⁴ *Id.* at 1.

subject to domestic preferences. SIA also noted there is a lack of transparency with regard to China's satellite regulations.

With respect to India, SIA noted that it presents "a restrictive market for foreign satellite operators." Despite regulations apparently permitting end users in India to uplink signals using either C- or Ku-band via Indian as well as foreign satellites, in reality, "proposals envisaging use of Indian satellites will be accorded preferential treatment."³⁵

SIA has noted above the expansion of satellite systems being operated by foreign private and government entities and new market entry, particularly in emerging markets. The Commission should remain vigilant to ensure that countries with new satellite interests do not seek to restrict market access to their domestic marketplaces through preferential regulatory policies as these national satellite systems are developed and deployed.

V. CONCLUSION

SIA appreciates the opportunity to provide inputs to the Fourth Satellite Competition Report. Please contact the undersigned with any questions about these comments or the attached report.

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³⁵ *Id.* at 3.

Annex: *Background resources and website source of information on satellite launches:*

Amos <http://www.amos-spacecom.com/content.cfm?page=amos-2>

Apstar “Satellite Fleet,” at <http://www.apstar.com/en/apstar-fleet/>

Arabsat, “Arabsat 5C” at <http://www.arabsat.com/pages/Satellite.aspx?sid=35&pid=119> and press release dated September 22, 2011, at <http://www.arabsat.com/pages/PressReleaseDetails.aspx?id=197>

Avanti “Fleet and Coverage,” at <http://www.avantiplc.com/fleet-coverage/hylas-1>

Azercosmos “Satellite Fleet,” at <http://azercosmos.az/satellite-fleet/satellites>

China Satellite Communications Co. Ltd (Chinasat) “Satellite Resources,” at http://www.chinasatcom.com/en/News_Info.aspx?m=20110329113845577061&n=20110329133944310204

EchoStar “Satellite Fleet,” at <http://www.ehostarsatelliteservices.com/SatelliteFleet/Fleet.aspx>.

Embratel “Our Sattelites,” (sic) at http://www.starone.com.br/en/internas/satelite_d1/

Eutelsat “Find Your Satellite,” at <http://www.eutelsat.com/en/satellites/find-your-satellite.html>

Gazprom “Infrastructure,” at http://www.gazprom-spacesystems.ru/en/infrastructure/space/yamal_402/background/index.php

Hispasat “Satellite Fleet,” at <http://www.hispasat.com/en/satellite-fleet>

Indian Space Research Organization (ISRO) “List of Communication Satellites ,” at <http://www.isro.gov.in/spacecraft/list-of-communication-satellites>

Intelsat “Infrastructure – Past Launches,” at <http://www.intelsat.com/infrastructure/satellites-and-coverage-maps/past-launches/>

JSAT “Delivering Reliable Satellite Communications & Solutions,” at <http://www.jsat.net/en/#>

Nigerian Communications Satellite Ltd (NIGCOMSAT), no date for NigComSat 1R launch indicated, see Wikipedia, “NigComSat-1,” at <http://en.wikipedia.org/wiki/NigComSat-1>

SES “Satellite Fleet,” at <http://www.ses.com/4627900/satellite-fleet>

ViaSat “High Capacity Satellite System,” at <https://www.viasat.com/broadband-satellite-networks/high-capacity-satellite-system>.

Yahsat “Our Fleet,” at <http://www.yahsat.com/our-fleet/>