

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of )  
 )  
Inquiry Concerning the Deployment of )  
Advanced Telecommunications )  
Capability to All Americans in a Reasonable ) GN Docket No. 04-54  
and Timely Fashion, and Possible Steps )  
to Accelerate Such Deployment )  
Pursuant to Section 706 of the )  
Telecommunications Act of 1996 )

**REPLY COMMENTS OF SES AMERICOM, INC.**

SES AMERICOM, Inc. (“SES AMERICOM”), by its attorneys, hereby replies to comments filed in response to the *Notice of Inquiry* (the “*NOI*”) released by the Federal Communications Commission (“FCC” or “Commission”) in the above-captioned proceeding.<sup>1</sup> In the *NOI*, the Commission requested comment on whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely manner, and what steps can be taken to accelerate such deployment.<sup>2</sup>

**I. INTRODUCTION**

In its comments in this proceeding,<sup>3</sup> SES AMERICOM described the critical role that satellite broadband systems will play in meeting not only the Commission’s objectives of ensuring affordable broadband access for all Americans, but also President Bush’s recently

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<sup>1</sup> Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, *Notice of Inquiry*, GN Docket No. 04-54, FCC 04-55, rel. March 17, 2004 (“*NOI*”). *See also* Public Notice, DA 04-1046, April 16, 2004.

<sup>2</sup> *NOI*, ¶ 10.

<sup>3</sup> Comments of SES AMERICOM, Inc., GN Docket No. 04-54, filed May 10, 2004 (“SES AMERICOM Comments”).

announced goal of “universal affordable access for broadband technology by the year 2007.”<sup>4</sup> A number of parties echoed this message, describing, for example, the important role satellite systems are expected to play in reaching remote locations in the United States.<sup>5</sup>

Some parties, however, noted existing deficiencies of satellite delivery options, particularly in terms of connectivity and cost.<sup>6</sup> As demonstrated below, these observations are based on earlier technologies and outdated proposals. The satellite broadband systems under development today will offer true two-way (via satellite), high-speed, affordable access, on terms that are fully competitive with terrestrial offerings. To demonstrate these advances, SES AMERICOM provides herein additional details on the systems it is developing, with its partners, to offer such services in the very near future.

## **II. NEW SATELLITE BROADBAND SYSTEMS WILL OFFER TRUE TWO-WAY CONNECTIVITY, WITH COST, SPEED AND PERFORMANCE COMPETITIVE WITH TERRESTRIAL OFFERINGS.**

Satellite technology is fully capable of providing two-way connectivity directly to the home or office, with both the forward and return communication channels transmitted via satellite. Some older satellite-based systems employed or proposed a terrestrial return path. That is, a broadband satellite link was used to download bandwidth-intensive Internet content and large files to the user, while a slower land-line connection was used to transmit commands from the user to the Internet service provider. While the asymmetrical data flow of such a technique mirrors, to some extent, actual usage patterns, the use of a terrestrial return path was dictated

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<sup>4</sup> George W. Bush Delivers Remarks on Homeownership – News Event, Political Transcripts by Federal Document Clearing House, March 26, 2004, LEXIS, Nexis Library, Political Transcripts file.

<sup>5</sup> *See, e.g.*, Comments of EchoStar Satellite LLC at 1-2, Comments of National Rural Telecommunications Cooperative at 4-7; Comments of Comcast at 13-14; Comments of the California Public Utilities Commission, Attachment at 13; Comments of MCI, Inc. at 7; Comments of the Organization for the Promotion and Advancement of Small Telecommunications Companies at 4; Comments of Verizon at 12-13.

<sup>6</sup> *See, e.g.*, Comments of AT&T Corp. at 2, 5; Comments of the California Public Utilities Commission, Attachment at 13, 36; Comments of General Communication, Inc. at 17; Comments of MCI, Inc. at 7; Comments of National Cable and Telecommunications Association at 8-9.

primarily by constraints in available spectrum. More recent services do not follow the same model, freeing satellite systems from dependence on a land-line. However, these systems still suffer from a number of drawbacks, including insufficient return channel capability, high costs for customer-premise equipment (“CPE”), lack of scalability, high support costs, and low availability on Ka-band satellites.

The early systems described above were extensions of existing technologies that were never intended to be employed for broadband delivery. The new Americom2Home (“A2H”) and Americom2Office (“A2O”) broadband systems, under development by SES AMERICOM and its partners, are being designed specifically to deliver competitive broadband services. The SES AMERICOM A2H broadband development team undertook, in early 2001, to design a system that overcame all of the shortcomings of earlier satellite broadband systems, by adding all of the capabilities necessary to allow satellite technology to compete fully with terrestrial systems (DSL and cable modem). These capabilities are highlighted below:

- **Affordability** – The factor that most affects consumer acceptance of broadband services is the initial cost of the subscriber equipment. For A2H services, SES AMERICOM expects to be able to lower the cost of CPE to under \$250 by the time that service commences in mid to late 2005.<sup>7</sup> This price point, combined with hub capital costs of under \$30 per subscriber,<sup>8</sup> mean that the satellite technology employed by SES AMERICOM will offer broadband service providers an initial cost per subscriber that will allow these A2H service partners to offer service at a retail price of less than \$50 per month, with no required up-front investment. SES AMERICOM similarly expects A2O service offerings to be equivalent in cost to comparable terrestrial options, for both up-front and recurring charges.<sup>9</sup>
- **Speed** – Connection speed is the performance measure most visible to the consumer. The CPE for the A2H service has been designed to support transmit speeds of up to

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<sup>7</sup> This is half of the \$500 price for consumer CPE today. *See* SES AMERICOM Comments at 4.

<sup>8</sup> Hub capital costs relate to the transmission equipment at a hub location that scales with subscriber growth.

<sup>9</sup> Achievement of these targets is highly dependent on the availability of adequate spectrum for broadband applications, as well as on the ability of SES AMERICOM and its partners to obtain sufficient volume commitments from service providers.

5 Mbps, and receive speeds of 10 Mbps or higher. This will allow A2H service providers to offer speeds equal to DSL and cable modem.<sup>10</sup>

- **Performance** – The actual performance delivered to the subscriber is a key element of broadband service, directly affecting customer satisfaction and ultimately the longevity of the subscriber. SES AMERICOM is implementing several improvements that will allow satellite service, even with its inherent delay (approximately 500 msec), to compete effectively with terrestrial alternatives. The service will always be on, and will perform well on all Internet applications (with the possible exception of “high-twitch” on-line gaming). Furthermore, SES AMERICOM plans to use the multicast capabilities of satellite technology to out-perform terrestrial delivery for some Internet entertainment applications, thus creating a competitive performance advantage that will be difficult for DSL and cable modem systems to emulate.
- **Installation** – Installation is a key issue for satellite broadband. The need for professional installation of a satellite dish adds a significant cost element, not generally required of terrestrial broadband service providers (although a high percentage of terrestrial connections are professionally installed). SES AMERICOM has focused considerable attention in this area, and has developed installation procedures -- employing automatic dish alignment techniques and specialized test equipment -- that should guarantee on-site installation in less than one hour, without any involvement by central operations. This process is highly scalable, and will support installation of over one million subscribers per year.<sup>11</sup>
- **Satellite Platform** – Significant effort has been expended in the development of new satellite technologies that significantly increase system capacity and availability of services to the subscriber. The primary innovation in this area is the implementation of techniques that modify information coding and transmission rates as the interference environment changes, resulting in more efficient use of the spectrum. These improvements result in much higher data flow in the same amount of bandwidth, and are expected to allow satellite operators to serve more than three times the number of customers on the same satellite transponder, as compared to currently available satellite broadband systems.<sup>12</sup> The satellite platform is also capable of supporting both transmit and receive operation in the same bandwidth, thereby providing additional economies because the subscriber return channel bandwidth is essentially “free.”
- **Operations** – The information technology systems (network management system, operational support system, and business support system) to be employed by the A2H

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<sup>10</sup> It will also eliminate one of the drawbacks of current broadband satellite systems, which transmit back to the hub at speeds only slightly greater than dial-up connections (even when via satellite). Typical DSL and cable modem service providers offer receive speeds of 1 Mbps and transmit speeds of 256 kbps.

<sup>11</sup> In addition, this process has been designed to avoid the need for software to be resident on a subscriber’s personal computer, which is expected to reduce substantially the customer service problems experienced by earlier two-way satellite systems.

<sup>12</sup> See SES AMERICOM Comments at 4.

and A2O systems have been designed to support millions of subscribers, on either a wholesale or direct-retail basis.

SES AMERICOM has in place a comprehensive satellite plan to implement the systems described above. A2O services will be offered on a global basis from several SES AMERICOM satellites, including the AMC-9 satellite at 83° W.L.,<sup>13</sup> the AMC-12 (WORLDSAT 2) satellite at 37.5° W.L., and the AMC-23 (WORLDSAT 3) satellite at 172° E.L.<sup>14</sup> A2O services will commence in the United States this year, and then roll out globally as satellite and other assets become available. The A2H platform will utilize SES AMERICOM's AMC-15 and AMC-16 satellites. A2H consumer services are planned to commence in the United States in 2005 (by A2H service partners), assuming availability of satellite capacity sufficient to justify a high-volume program.

### **III. THE COMMISSION CAN HELP MAKE SATELLITE BROADBAND A REALITY.**

As discussed in the comments of SES AMERICOM and EchoStar, access to sufficient spectrum is one of the major impediments to deployment of viable broadband satellite systems.<sup>15</sup> In particular, the A2H platform depends critically on the availability of both Fixed-Satellite Service ("FSS") and Direct Broadcast Satellite ("DBS") spectrum. As SES AMERICOM explained, the Commission should resolve the regulatory impasse confronting those seeking to make substantially more DBS spectrum available by placing DBS satellites at reduced (4.5°) spacing. Specifically, the Commission should reject DIRECTV's call for a

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<sup>13</sup> SES AMERICOM has a pending application before the Commission to operate AMC-9 at 83° W.L. File No. SAT-AMD-20040319-00041.

<sup>14</sup> SES AMERICOM's wholly-owned subsidiary, Columbia Communications Corporation, holds a license to launch and operate the AMC-12 replacement satellite at 37.5° W.L. File No. SAT-LOA-20000407-00080. SES AMERICOM has an application pending to launch and operate the AMC-23 replacement satellite at 172° E.L. File No. SAT-LOA-20031218-00358. WORLDSAT is a subsidiary of SES AMERICOM. *See* SES AMERICOM Increases International Focus with WORLDSAT, January 15, 2004, [http://www.ses-amicom.com/media/2004/1\\_15\\_04.html](http://www.ses-amicom.com/media/2004/1_15_04.html).

<sup>15</sup> SES AMERICOM Comments at 7-10; Comments of EchoStar Satellite LLC at 6-8.

rulemaking, and instead support satellite coordination efforts under the auspices of the International Telecommunication Union, as prescribed by existing international and domestic rules.<sup>16</sup>

In addition, one way that the Commission can support development of true two-way systems is to ensure that spectrum to be used by satellite broadband services is unencumbered by the presence of terrestrial users in the same bands.<sup>17</sup> This avoids additional interference to consumer receivers from terrestrial links. It also avoids the unworkable delays inherent in individual coordination of CPE at each customer site, which would be required to protect adequately against such interference, as well as to protect terrestrial operations from CPE uplink transmissions. The Commission has already taken significant steps to ensure that Ka-band FSS spectrum is available for broadband service, by removing the terrestrial allocations in the 18.3-18.8 GHz bands.<sup>18</sup> It should continue to take this important consideration into account in regulating other bands to be used for satellite broadband applications.

Finally, as proposed by MCI, the Commission should seek ways to promote more actively the deployment of broadband in rural areas.<sup>19</sup> In particular, the Commission should aim to ensure that satellite applications are eligible for any funding authorized by Congress for such

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<sup>16</sup> See SES AMERICOM Comments at 8-9. The Commission should also reject EchoStar's proposal for a rulemaking on use of foreign orbital slots for DBS services. As SES AMERICOM has explained on a number of occasions, the Commission already has rules in place for evaluating the compatibility with U.S. policy of proposals to serve the United States from foreign orbital locations, and no further regulations are required. See, e.g., Reply Comments of SES AMERICOM, Inc., Report No. SPB-196, February 13, 2004, at 25-26.

<sup>17</sup> See SES AMERICOM Comments at 10.

<sup>18</sup> See Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz Frequency Bands, and the Allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Broadcast Satellite-Service Use, *Second Order on Reconsideration*, IB Docket No. 98-172, FCC 02-317, rel. Nov. 26, 2002.

<sup>19</sup> Comments of MCI, Inc. at 18.

efforts.<sup>20</sup> The Commission should, moreover, take the lead in recommending to Congress a host of new measures intended to ensure the availability of rural broadband, such as:

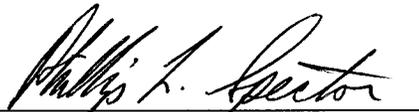
- Targeted grants that would serve as “seed money” for investment in new approaches and new technologies for rural broadband development;
- Quantity guarantees for satellite broadband CPE, thereby enabling manufacturers immediately to ramp up the kind of production volumes that lead to affordable customer pricing; and
- A loan guarantee program for satellites with a dedicated mission (at least in substantial part) of delivering rural broadband services of a quality and at a price comparable to urban terrestrial offerings.

#### IV. CONCLUSION

As demonstrated above, new satellite broadband systems promise to be fully competitive with terrestrial offerings in terms of connectivity and cost, with the additional advantage of being able to reach efficiently every American, no matter how remotely located. The satellite industry, led by SES AMERICOM, has done its part to make these systems a reality; the Commission must now do its part.

Respectfully Submitted,

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May 24, 2004

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<sup>20</sup> *Id.*

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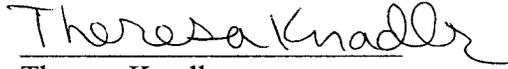
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