

**REVISED LEGAL NARRATIVE**

American Samoa Telecommunications Authority (“ASTCA”) files this Application for Earth Station Authorization to request an earth station license to operate two, 7.3 meter Ka-band antennas at Tafuna, American Samoa (“American Samoa Earth Station”), with the U.K.-authorized non-geostationary orbit (“NGSO”) Fixed-Satellite Service (“FSS”) of O3b Limited (“O3b”). Grant of this license for the American Samoa Earth Station will serve the public interest by substantially improving “middle-mile” connectivity for American Samoa and its people. O3b recently launched four U.K.-authorized satellites operating in the Ka-band, with four more planned to be launched in the first quarter of 2014.<sup>1</sup>

The two 7.3-meter Ka-band antennas at Tafuna will be technically identical to, and will operate at the same power levels as, the 7.3 meter Ka-band antennas used by O3b at its Hawaii and Texas gateways, which the Commission has previously authorized.<sup>2</sup> The ASTCA antennas, however, will not be performing TT&C. Unlike O3b’s Hawaii and Texas gateways, moreover, the American Samoa Earth Station will operate on a more narrow range of frequencies allocated to FSS on a primary basis,<sup>3</sup> and the American Samoa Earth Station will consist of only two antennas, as opposed to three at both O3b’s Hawaii and Texas gateways. The American Samoa Earth Station will serve as a gateway for ASTCA to aggregate Internet communications to and from American Samoa, and then provide onward services by other means; the Earth Station is not end-user equipment.<sup>4</sup> The American Samoa Earth Station will connect American Samoa to the rest of the world to the substantial benefit of the people of American Samoa.

**Public Interest Statement**

ASTCA is the incumbent telecommunications service provider in American Samoa. The local communications network in American Samoa, with its international connections, was originally built by the U.S. Navy and the U.S. Department of Interior. This network was inherited by the American Samoa government, which gave ASTCA, operated under a Board of Directors appointed by the American Samoa Governor, the responsibility of operating the network. While at one time ASTCA was the only provider of telecommunications services in the Territory, ASTCA has for some time faced competition from other providers.<sup>5</sup> Nevertheless,

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<sup>1</sup> See O3b Networks, *Launch of O3b Networks’ Second Batch of 4 Satellites Delayed* (Sept. 9, 2013), <http://bit.ly/18avdEv>.

<sup>2</sup> See FCC File No. SES-LIC-20100723-00952 (granted September 25, 2012) (“O3b Hawaii License”); FCC File No. SES-LIC-20130124-00089 (granted June 20, 2013) (“O3b Texas License”).

<sup>3</sup> The ASTCA Earth Station will only operate at 18.801-19.271 GHz and 28.601-29.071 GHz while the Hawaii and Texas gateway earth stations additionally operate at 17.8-18.6 GHz and 27.6-28.4 GHz. See, e.g., O3b Hawaii License; O3b Texas License.

<sup>4</sup> To be clear, grant of this application would not, for example, allow for ubiquitous deployment of end-user roof-top antennas in American Samoa. This application is solely for authorization for ASTCA to operate two 7.3 Ka-band commercial antennas at Tafuna so that ASTCA can increase Internet speeds for its customers throughout the Territory.

<sup>5</sup> See, e.g., Blue Sky American Samoa, *Homepage* (last visited Sept. 30, 2013), <http://www.bluesky.as/blueskyweb/>. To date, however, ASTCA remains the only telecommunications

because of American Samoa's remote location, limited economy, and small population base, Internet speeds remain slow, and costs for service remain high compared to speeds and prices in the continental United States. The Territory has been identified as having the most expensive Internet in America.<sup>6</sup> While the Commission and private companies discuss gigabit service to the home in the continental U.S., American Samoa currently has gigabit service to the island.<sup>7</sup> With this application, ASTCA seeks to roughly *double* the current broadband capacity for the Territory.<sup>8</sup> Grant of this application will serve the public interest, convenience and necessity by allowing ASTCA to better connect the people of American Samoa through O3b's next-generation communications system, which combines the reach of satellite with the speed of fiber. As the Commission has explained time and again, promoting Internet service in underserved areas is at the very core of the Commission's mission.<sup>9</sup> That is precisely what granting this application will do – double the broadband capacity in American Samoa.

### **The O3b Satellite System**

The O3b satellite system will initially consist of up to eight satellites in medium earth orbit at 8,062 km above the Equator.<sup>10</sup> Each satellite has 12 steerable spot beams that track the position of gateways and customer locations on the earth as the satellite travels along its orbit. Each satellite operates on 20 wideband channels of 216 MHz each, half of which are typically used (in the normal operating configuration) for downlink operations while the other half are used for uplink operations. These interconnected spot beams provide critical "middle mile" connectivity between Internet service providers or telecommunications service providers, such as ASTCA, and the Internet backbone. This innovative design ensures that system bandwidth is focused on where it is required by customers.

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service provider with service covering *all* the inhabited islands of American Samoa, including not only Tutuila and Aunu'u, but also the islands of Manu'a. See, e.g., ASTCA, *Wireless Services* (last visited Sept. 30, 2013), <http://astca.net/astca/wireless-services>; see also Blue Sky, *Coverage* (last visited Sept. 30, 2013), [http://www.bluesky.as/blueskyweb/?page\\_id=115](http://www.bluesky.as/blueskyweb/?page_id=115).

<sup>6</sup> Darren Murph, *The Most Expensive Internet in America: Fighting to Bring Affordable Broadband to American Samoa*, Engadget (July 4, 2012), <http://engt.co/LPpmee>.

<sup>7</sup> The current American Samoa-Hawaii Cable offers 1.12 Gbps. See, e.g., *id.*; see also Stuart Corner, *Samoans One Step Closer to Broadband*, ITWire (Oct. 6, 2008), <http://bit.ly/16znG56>.

<sup>8</sup> O3b will provide 1.2 Gbps service to ASTCA.

<sup>9</sup> See, e.g., *Joint Statement on Broadband*, 25 FCC Rcd 3420 ¶ 1 (2010) (explaining that “mak[ing] sure that America has world-leading high-speed broadband networks . . . lies at the very core of the FCC’s mission in the 21<sup>st</sup> Century”); see also 47 U.S.C. § 151 (creating the FCC “[f]or the purpose of regulating interstate and foreign commerce in communication by wire and radio so as to make available, so far as possible, to all the people of the United States, without discrimination on the basis of race, color, religion, national origin, or sex, a rapid, efficient, Nation-wide, and world-wide wire and radio communication service with adequate facilities at reasonable charges.”); See also *Comprehensive Review of Licensing and Operating Rules for Satellite Services*, Report and Order, 28 FCC Rcd 12403 ¶ 2 (Aug. 9, 2013) (“Satellite technology is used to provide communication services throughout the United States and the world and is particularly important for communication in remote areas that are unserved or underserved by terrestrial communication facilities.”).

<sup>10</sup> For a more detailed description of O3b's satellite system, please reference O3b's Hawaii Application, FCC File No. SES-LIC-20100723-00952, Narrative at Section III and Schedule S.

### The ASTCA Earth Station

As mentioned above, the American Samoa Earth Station will consist of two 7.3m VIASAT antennas, continuously tracking O3b satellites as they cross the sky. These antennas are technically identical to the antennas employed by O3b in their Hawaii and Texas earth stations. The American Samoa antennas will operate in the same manner, and at the same power levels, as the O3b Hawaii and Texas earth stations, except that (as stated above) the American Samoa antennas will operate on a more narrow range of frequencies. ASTCA has provided a Technical Narrative, which provides further technical details regarding the earth station's operation.<sup>11</sup>

### Proposed Frequencies

While most of the United States is generally governed by the United States Frequency Allocation Table, American Samoa is generally governed by the International Telecommunications Union ("ITU") Region 3 Table.<sup>12</sup> The ITU Region 3 Table authorizes operation of ASTCA's earth station (Fixed Satellite Service) on a co-primary basis with Fixed and Mobile services at the relevant operating frequencies, 18.801-19.271 GHz and 28.601-29.071 GHz.

<b>Downlink Frequency</b>	<b>ITU Region 3 Plan</b>	<b>ASTCA Proposed Use</b>
18.8-19.3 GHz	FSS down FIXED MOBILE	Service Links
<b>Uplink Frequency</b>	<b>ITU Region 3 Plan</b>	<b>ASTCA Proposed Use</b>
28.6-29.1 GHz	FSS up FIXED MOBILE	Service Links

ASTCA enlisted Comsearch to conduct a coordination study (attached in the Technical Appendix, Attachment B), and Comsearch has found that ASTCA's earth station would not cause any harmful interference.

### U.S. Market Access

Under the Commission's "DISCO II" procedure, a company may obtain U.S. "landing rights" for a non-U.S. licensed space station by filing an initial earth station application that lists the space station as a "point of communication" and demonstrating that the space station meets

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<sup>11</sup> See Exhibit B.

<sup>12</sup> See 47 C.F.R. § 2.105 n.3.

applicable Commission requirements.<sup>13</sup> The satellite operator, O3b, provided such a showing as part of its Hawaii gateway earth station application,<sup>14</sup> which the Commission has granted.

The Commission has found that there is no need for any new showing by future applicants requesting authority to communicate with the same system.<sup>15</sup> Rather, it is sufficient that any such earth station applicant cite to the initial grant of market access; confirm that there has been no change in the services the satellite system will be used to provide; and represent that there has been no change to the satellite system's operating parameters.<sup>16</sup> Consistent with these requirements, ASTCA hereby cites to the O3b Hawaii license; confirms that there has been no change in the services O3b's satellite system will be used to provide; and represents that there has been no change to O3b's satellite system's operating parameters.

### **Technical Waivers Applicable to O3b's System**

ASTCA does not believe any of the following waivers are required to operate its earth station, but, in an abundance of caution, ASTCA requests that the Commission waive any of the following rules to the extent that the Commission believes that they could prevent O3b from providing service to ASTCA's earth station.

*Geographic coverage.* Section 25.145(c) of the Commission's rules requires Ka-band NGSO systems, such as O3b's system, to provide service coverage (i) to all locations as far north as 70 degrees latitude and as far south as 55 degrees latitude for at least 75% of every 24-hour period and (ii) on a continuous basis throughout the fifty states, Puerto Rico and the U.S. Virgin Islands.<sup>17</sup> The Commission waived Section 25.145(c) for O3b's Hawaii gateway earth station, but reserved judgment as to whether a waiver of Section 25.145(c) is appropriate with respect to other links.<sup>18</sup>

ASTCA does not believe that a waiver of the coverage requirements under Section 25.145(c) is necessary. Nevertheless, to the extent that any additional waiver is required for O3b to provide service to ASTCA's earth station, ASTCA hereby requests that the Commission waive the requirement for O3b.

ASTCA's request is supported by good cause. The public interest considerations that led the Commission to grant a waiver of the coverage requirements to permit operation of the gateway earth station in Hawaii should apply with equal if not greater force in American Samoa. Adding this earth station will make specialized satellite system coverage available to American

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<sup>13</sup> See *Amendment of the Commission's Regulatory Policies to Allow Non-U.S. Licensed Space Stations to Provide Domestic and International Satellite Service in the United States*, 15 FCC Rcd 7207 ¶ 5 (1999) (“DISCO II”).

<sup>14</sup> See O3b's Hawaii Application, FCC File No. SES-LIC-20100723-00952, Narrative at Section V; O3b's Texas Application, FCC File No. SES-LIC-20130124-00089, Narrative at “U.S. Market Access.”

<sup>15</sup> DISCO II ¶ 192.

<sup>16</sup> *Id.*

<sup>17</sup> 47 C.F.R. § 25.145(c).

<sup>18</sup> See O3b Hawaii License, Condition 90044 (grant of Section 25.145(c) waiver for the Hawaii gateway earth station is “without prejudice to action on any waiver request filed in connection with an application to provide additional services to, from, or within the United States.”).

Samoa, thereby providing much-needed broadband service to a remote and isolated location. ASTCA therefore respectfully requests the Commission to waive this geographic coverage requirement.

*Cross-polarization Isolation.* In granting O3b's Hawaii License, the Commission found good cause to grant the O3b constellation a waiver of the requirement in Section 25.210(i)(1) for FSS space station antennas to have a minimum cross-polarization isolation of 30 dB in their primary coverage area. This waiver grant was not limited to the Hawaii License. Accordingly, ASTCA believes a waiver is unnecessary for its earth station to communicate with the spacecraft in the O3b constellation. However, out of an abundance of caution and to the extent necessary, ASTCA hereby incorporates by reference the waiver request in O3b's Hawaii application related to Section 25.210(i)(1). For the reasons stated therein, which apply with equal force here, that waiver, if needed again, should be granted in this case as well.

### **Response to Question 42a Regarding the Use of a Non-U.S. Licensed Satellite**

As explained, ASTCA's earth station will communicate with O3b's constellation of non-geostationary orbit Ka-band satellites, which have been licensed by the United Kingdom. The information required by Section 25.137 of the Commission's rules, which concerns communications with non-U.S. licensed space stations, has been filed previously in connection with O3b's request for authority to operate gateway earth stations in Haleiwa, Hawaii and Vernon, Texas.<sup>19</sup> That information is hereby incorporated by reference.

Although ASTCA will not operate the station via remote control and will not have a network operations center ("NOC"), O3b will have the ability to shut down communications between the earth station and the satellite system 24 hours a day, seven days a week, from both its primary NOC and its back-up NOC, which are at the following locations:

**Primary NOC:** L-6815 Chateau de Betzdorf,  
Betzdorf, Luxembourg  
+352 710 725 82

**Backup NOC:** 8000 Gainsford Court,  
Bristow, VA USA  
+1 703 366 1500

### **Request for Expedited Processing**

For the reasons stated in this application, ASTCA is urgently in need of starting commercial service via O3b's first set of satellites. (ASTCA does not need all of the satellites to start its service, and therefore does not need to wait for the second set of satellites to be launched.) Therefore, ASTCA respectfully requests that the Commission act expeditiously to grant this application as soon as possible. Promptly approving this application will enable the proposed American Samoa Earth Station to commence operations and enable improved telecommunications in American Samoa as soon as possible.

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<sup>19</sup> See O3b Hawaii License; O3b Texas License.

**Conclusion**

As demonstrated in this application, and in all the materials with which this application is associated, the proposed ASTCA Earth Station fully complies with the Commission's Part 25 rules. Thus, grant of this earth station application will serve the public interest, convenience and necessity.

Respectfully submitted,

**AMERICAN SAMOA TELECOMMUNICATIONS  
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## ATTACHMENT

O3b Limited (“O3b”) operates a U.K.-authorized, non-geostationary orbit (“NGSO”) Fixed-Satellite Service (“FSS”) system in the Ka-band. This attachment relates to an expansion of the possible configurations in which O3b positions its NGSO satellites.

The Commission has issued licenses and grants of special temporary authority (“STA”) to O3b and customers of O3b to operate earth stations that communicate with O3b’s system. Various applications for additional earth station licenses and STAs are pending.

In its initial FCC application, which sought authority for a gateway earth station located in Hawaii, O3b stated that it planned to operate eight NGSO satellites that would be spaced equally, *i.e.*, at 45° intervals.<sup>1</sup> The Commission granted this application, and O3b’s license for the Hawaii earth station includes milestones for O3b’s constellation that are premised on an eight-satellite system.<sup>2</sup>

O3b would like the flexibility to operate up to two of its eight NGSO satellites as in-orbit spares. The remaining satellites would be equally spaced in O3b’s authorized orbital plane, and each in-orbit spare would be co-located with a non-spare satellite.<sup>3</sup>

This attachment accompanies various modification applications, STA requests, supplements, and notifications that are being filed with the FCC in connection with O3b’s desire to have the positional flexibility described in the attachment. The additional orbital configurations identified in the attachment are consistent with the terms of O3b’s U.K. authorization.<sup>4</sup>

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<sup>1</sup> See Application for Hawaii Earth Station, File No. SES-LIC-20100723-00952, Legal Narrative, Section III and Attachment A thereto (Technical Statement), Section A.2.

<sup>2</sup> See FCC Radio Station Authorization, Call Sign E100088, Condition 90047.

<sup>3</sup> No changes are being sought to the technical parameters identified in the licenses and STAs held by O3b and its customers. No changes are being made to O3b’s Schedule S, either, but O3b notes that the number of satellites and phase angles in Section S4 and S5 of Schedule S will vary to the extent that O3b operates one or more in-orbit spare satellites.

<sup>4</sup> No changes are being made to O3b’s orbital debris mitigation plan, which O3b filed with its Hawaii gateway earth station application, and which the Commission approved in granting that application based on “a finding that O3B Limited is and will be subject to direct and effective regulation by the United Kingdom concerning orbital debris mitigation.” See FCC Radio Station Authorization, Call Sign E100088, Condition 90045. The basis for the Commission’s finding is unchanged.