

NOTIFICATION OF REPOSITIONING OF NGSO SPACE STATIONS

Globalstar, Inc., and its subsidiaries GUSA Licensee LLC and GCL Licensee LLC (together “Globalstar”),¹ pursuant to Section 25.118(f) of the Federal Communications Commission’s (“Commission’s”) rules,² hereby notify the Commission of orbital adjustments to the non-geostationary mobile satellite service (“NGSO MSS”) space stations in Globalstar’s Big LEO MSS constellation. Adjustments to the phasing of Globalstar’s Big LEO satellites will optimize the use of its orbital assets and enhance the quality of its safety-of-life services to consumers, public safety personnel, and other customers in the United States and elsewhere. As described below, attached to this notification are exhibits containing revised technical parameters for its NGSO constellation and the certifications required by Section 25.118(f).

Globalstar and Its MSS Constellation. Globalstar is a leading provider of global mobile satellite voice and data services. On January 31, 1995, the Commission authorized Globalstar to construct, launch, and operate a “Big LEO” MSS system, and Globalstar initiated commercial service in 2000.³ Globalstar is licensed for uplink transmissions (mobile earth stations to satellites) in the Lower Big LEO band at 1610-1618.725 MHz, and for downlink transmissions (satellites to mobile earth stations) in the Upper Big LEO band at 2483.5-2500 MHz.⁴ Having invested over \$5 billion to develop its global NGSO MSS network, Globalstar today uses its constellation of satellites and 24 ground stations on six continents to provide affordable, high-quality MSS to approximately 694,000 customers in over 120 countries around the world. Globalstar is dedicated to providing mission-critical, emergency, and safety-of-life satellite services to consumers, public safety personnel, businesses, and other customers in remote, unserved, and underserved areas not reached by terrestrial deployments.

Globalstar’s global MSS constellation consists of first-generation Big LEO satellites licensed by the Commission and second-generation space stations licensed by the Republic of

¹ GUSA Licensee LLC holds licenses for Globalstar’s earth station gateways located in the continental United States and Alaska and a blanket license for the operation of Globalstar mobile earth station terminals in the United States, and is responsible for the provision of Globalstar MSS services to end users in the United States. GCL Licensee LLC holds licenses for Globalstar’s earth station gateway located in Puerto Rico. Another affiliated company, Globalstar Licensee LLC, is the authorized licensee of the first-generation Globalstar satellite constellation (call sign S2115).

² 47 C.F.R. § 25.118(f).

³ *Application of Loral/Qualcomm Partnership, L.P. For Authority to Construct, Launch, and Operate Globalstar, a Low Earth Orbit Satellite System to Provide Mobile Satellite Services in the 1610-1626.5 MHz/2483.5-2500 MHz Bands*, Order and Authorization, 10 FCC Rcd 2333 (1995); see also *Spectrum and Service Rules for Ancillary Terrestrial Components in the 1.6/2.4 GHz Big LEO Bands; Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands*, Second Order on Reconsideration, Second Report and Order, and Notice of Proposed Rulemaking, 22 FCC Rcd 19733, ¶¶ 8, 18-20 (2007).

⁴ Iridium is authorized to share spectrum with Globalstar at 1617.775-1618.725 MHz.

France. Globalstar launched the majority of its first-generation Big LEO satellites in the late 1990s, and then deployed eight additional first-generation satellites in 2007. Globalstar launched its second-generation Big LEO satellites in a series of launches from October 2010 to February 2013, and all 24 of these satellites are now in service.⁵ In March 2011, the Commission issued an order authorizing Globalstar's U.S. gateway earth station facilities and mobile earth terminals to communicate with its French-licensed second-generation Big LEO satellites.⁶

In the *March 2011 Modification Order*, the Commission permitted Globalstar to make the modifications necessary to operate a balanced 32-satellite Walker configuration over 8 orbital planes, utilizing Globalstar's 24 second-generation satellites and 8 first-generation satellites.⁷ The Commission also authorized Globalstar to operate a separate 16-satellite Walker configuration consisting entirely of its first-generation satellites, primarily for use in providing simplex services.⁸ In the years since that modification order and the completion of its second-generation deployment, Globalstar has retired a number of first-generation satellites at the end of their useful lives, in accordance with its approved orbital debris mitigation plan.⁹

⁵ See Press Release, Globalstar, Inc., *Mission Accomplished! Globalstar Announces Successful Fourth Launch of Six Second-Generation Satellites* (Feb. 6, 2013), <http://www.globalstar.com/en/index.php?cid=7010&pressId=764>.

⁶ *Globalstar Licensee LLC; Application for Modification of Non-geostationary Mobile Satellite Service Space Station License; GUSA Licensee LLC; Applications for Modification of Mobile Satellite Service Earth Station Licenses; GCL Licensee LLC; Applications for Modification of Mobile Satellite Service Earth Station Licenses*, Order, 26 FCC Rcd 3948 (2011) ("*March 2011 Modification Order*"). Under the Commission's rules and policies, foreign-licensed satellite operators offering service in the United States through Commission-granted earth station authority are required to provide the same technical information regarding satellite system operations as U.S.-licensed space station operators. Accordingly, Globalstar submits the instant notification for earth station licensees GUSA Licensee LLC and GCL Licensee LLC, the entities authorized to communicate with Globalstar's second-generation satellites. (Globalstar is submitting the full notification in one lead file for GUSA Licensee LLC and GCL Licensee LLC, and a brief letter cross-referencing this notification in all other license files.) 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*, Report and Order, 12 FCC Rcd 24094, ¶¶ 189-192 (1997); *Amendment of the Commission's Space Station Licensing Rules and Policies*, First Report and Order and Further Notice of Proposed Rulemaking in IB Docket No. 02-34, and First Report and Order in IB Docket No. 02-54, 18 FCC Rcd 10760, ¶¶ 300-302 (2003).

⁷ *March 2011 Modification Order* ¶¶ 7, 35.

⁸ *Id.*

⁹ The current operational status of Globalstar's first-generation satellites is further described in its most recent annual satellite report. See Letter from Stephen J. Berman, Counsel to Globalstar, to Mindel De La Torre, Chief, International Bureau, FCC (June 30, 2016).

Description of Repositioning. In order to optimize its orbital assets, Globalstar plans to transition to a balanced 24-satellite Walker configuration operating over eight orbital planes, utilizing all of its second-generation satellites. Globalstar will continue to operate its eight remaining first-generation satellites in their current orbital configurations. These orbital adjustments to Globalstar's NGSO satellites will enhance its global MSS coverage and improve the quality of its services to MSS subscribers in the United States and around the world, without increasing the risk of collisions or interference to other systems.

Over a transition of approximately eleven weeks, Globalstar will adjust the phasing of its second-generation satellites within these satellites' previously authorized orbital planes. Globalstar will execute these orbital adjustments while complying with the Commission's rules, avoiding in-orbit collisions, and maintaining quality of service for its customers. (Globalstar provides all required certifications in attached Exhibit A.) Globalstar plans to initiate this repositioning process for its NGSO MSS space stations on or shortly after January 22, 2017.¹⁰ Following these orbital adjustments, all remaining MSS satellites in Globalstar's constellations will contain sufficient fuel to complete their useful lives and be de-orbited in a manner consistent with applicable orbital debris mitigation requirements.¹¹

Globalstar's orbital adjustments to its NGSO space station fleet will not affect the RF parameters of its individual satellites. Globalstar's second-generation satellites and remaining first-generation satellites will continue to conform to the RF parameters described by Globalstar in its applications and subsequently approved by the Commission.¹² These orbital adjustments will, however, change slightly the overall geographic "footprint" of Globalstar's MSS constellation. At Exhibit B to this notification, Globalstar depicts the second-generation satellite constellation "footprint" to demonstrate typical service coverage for the revised constellation as a

¹⁰ With the submission of this notification, Globalstar has complied with the requirement in Section 25.118(f) that it notify the Commission regarding this repositioning at least 10 days prior to the beginning of that repositioning process.

¹¹ Globalstar's first-generation satellites will be de-orbited in a manner consistent with the orbital debris mitigation plan approved by the Commission in 2005 (*see* Stamp Grant, SAT-MOD-20030606-00098 and SAT-AMD-20050105-00003 (granted Jan. 28, 2005)), while the de-orbiting of Globalstar's second-generation satellites will occur in a manner consistent with French Space Operations law and associated technical regulations (*see March 2011 Modification Order* ¶¶ 30-32).

¹² *See Loral/Qualcomm Partnership, L.P. For Authority to Construct, Launch, and Operate Globalstar, a Low Earth Orbit Satellite System to Provide Mobile Satellite Services in the 1610-1626.5 MHz/2483.5-2500 MHz Bands*, Order and Authorization, 10 FCC Rcd 2333 (1995) (approving technical parameters for Globalstar's first-generation satellites); Call Sign S2115, File No. SAT-MOD-20030606-00098; Public Notice, DA No. 05-316 (Feb. 4, 2005) (approving modified technical parameters for Globalstar's first-generation satellites); *March 2011 Modification Order* (approving technical and operational parameters for Globalstar's second-generation satellites).

whole. In addition, Globalstar includes with this notification a revised Form 312 Schedule S that presents the updated orbital parameters of Globalstar’s Big LEO MSS constellation.¹³

Required Certifications Under Section 25.118(f). In Exhibit A to this notification, Globalstar provides the certifications required by Section 25.118(f) of the Commission’s rules for orbital adjustments to its NGSO space stations.

Conclusion. Globalstar hereby notifies the Commission regarding the planned orbital adjustments to its NGSO space stations. These orbital adjustments will optimize the use of Globalstar’s orbital assets and the quality of its safety-of-life services to consumers, public safety personnel, and other customers inside and outside the United States.

¹³ The beam assignments, feeder link sub-band assignments, beam contour plots, and link budgets for Globalstar’s second-generation satellites are not affected by the planned orbital adjustments. Due to the recent introduction of the Commission’s new Schedule S software, however, Globalstar is including the relevant information on these unchanged technical parameters – in addition to the required information on the revised technical parameters – so that Globalstar’s Schedule S will be complete in the new software. Globalstar previously provided information on these unchanged technical parameters in Exhibits 1-3 and Schedule S to its 2008 second-generation application. *See* Modification Application of Globalstar Licensee, FCC File No. SAT-MOD-20080904-00165 (filed Sept. 4, 2008, granted March 18, 2011) (“*Space Station Modification Application*”); *see also* SAT-AMD-20091221-00147 (granted March 18, 2011); SAT-MOD-20130314-00030 (granted Sept. 18, 2014).)

EXHIBIT A

REQUIRED CERTIFICATIONS UNDER SECTION 25.118(f)

Globalstar, Inc., and its subsidiaries GUSA Licensee LLC and GCL Licensee LLC (together “Globalstar”) hereby provide the following certifications required by Section 25.118(f) of the Commission’s rules, 47 C.F.R. § 25.118(f), for the notification of orbital adjustments to Globalstar’s NGSO space stations:

- *Compliance with all license conditions and applicable rules.* Globalstar certifies that it will continue to comply with the conditions of its licenses and all applicable Commission rules after the orbital adjustments.
- *Compliance with geographic coverage requirement, specifically.* Globalstar certifies that, after the orbital adjustments, its NGSO system will be capable of providing MSS (i) to all locations as far north as 70° North latitude and as far south as 55° South latitude for at least 75 percent of every 24-hour period, and (ii) on a continuous basis throughout the fifty states, Puerto Rico, and the U.S. Virgin Islands, in accordance with the requirements of Section 25.143(b)(2) of the Commission’s rules.¹
- *Compliance with power flux density requirement, specifically.* Globalstar certifies that, following the orbital adjustments to its space stations, its MSS constellation will comply with the same power flux density (“pfd”) levels within each geographic coverage area as those applicable to its first-generation constellation. Specifically, power into the individual downlink beams of the Globalstar system will be controlled to be consistent with the Upper Big LEO band pfd requirements at the Earth's surface. The Upper Big LEO band pfd at the Earth's surface will be generally below the approved coordination threshold levels approved at WRC-95 (Res. 46 (Rev. WRC-95) A2.1.2.3.1). The 7 GHz C-band feeder downlink pfd at the Earth's surface for each sub-band will be nominally -155 dBW/m²/4 kHz for high elevation angles and will decrease linearly as the elevation angle decreases, consistent with the limits specified by the ITU and section 25.208(n) of the Commission’s rules, 47 C.F.R. § 25.208(n), with substantial margins.²
- *No Increased Risk of Harmful Interference.* Globalstar certifies that the orbital adjustments to its NGSO satellites will not increase the risk of harmful interference to other systems that is not permitted by coordination agreements.
- *No Request for Increased Interference Protection.* Globalstar certifies that it will not request increased interference protection because of the orbital adjustments to its NGSO satellites.

¹ 47 C.F.R. 25.143(b)(2)(ii), (iii).

² See Loral/Qualcomm Licensee, Inc., Application for Modification to Order and Authorization for Globalstar, FCC File Nos. 19-DSS-P-91(48) and CSS-91-014 (filed Mar. 7, 1996) at Section 3 “WRC-95 p.f.d. Levels.”

- *Monitoring of Collision Risk.* Globalstar certifies that it will monitor collision risk during the orbital adjustments and take any necessary evasive measures.
- *Change of Orbital Altitude.* Globalstar certifies that any change of orbital altitude entailed by the orbital adjustments will not exceed 10 kilometers in extent or 30 days in duration, and that it has notified, or will notify, the operator(s) of any satellite within 20 kilometers of the interim orbit at least 10 days before commencing any orbital adjustments.

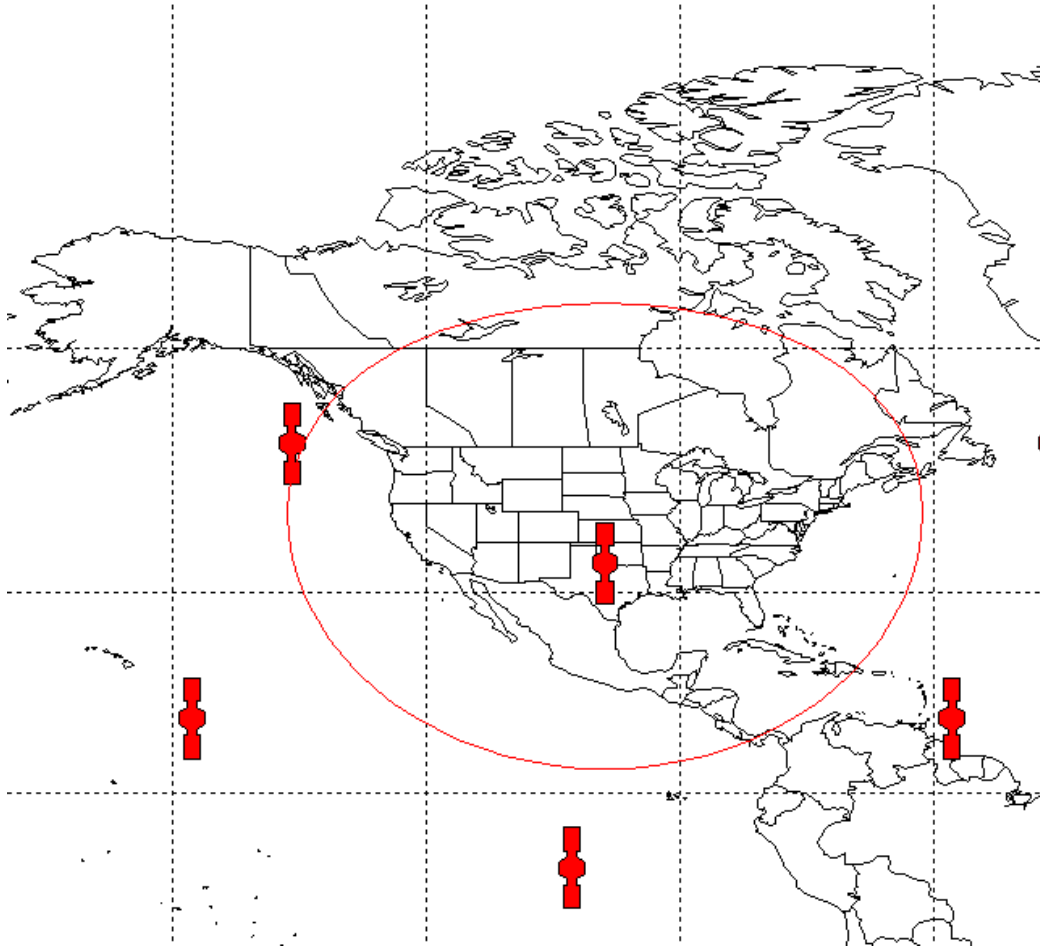
Under penalty of perjury, I hereby provide the above certifications and declare that the the engineering statements made therein are true and correct to the best of my knowledge.

/s/ Tom Nowitzky
Tom Nowitzky
Director of Satellite Engineering
Globalstar, Inc.

Dated: January 12, 2017

EXHIBIT B

Representative Satellite Footprint with user elevation mask at 5 degrees above the horizon:



Representative 24-Satellite Constellation Footprint with user elevation mask at 5 degrees above the horizon:

