PUBLIC INTEREST STATEMENT AND REQUEST TO OPERATE ON A NON-INTERFERENCE BASIS AT 7025-7055 MHz

GUSA Licensee LLC (together with its parent Globalstar, Inc., "Globalstar"), pursuant to Section 25.115 of the Commission's rules, hereby requests authority for the operation of Globalstar's new, second-generation feeder link earth station antenna in Naalehu, Hawaii.[1] Grant of this application will generate substantial operational benefits for Globalstar's mobile satellite service ("MSS") network and its subscribers. Augmenting Globalstar's U.S. ground-based infrastructure with a new gateway in Hawaii will significantly expand its MSS signal coverage, increase service availability and quality in the United States, and promote innovation for its safety-of-life service and other offerings. In addition, Globalstar's second-generation, auto-tracking antenna technology will improve Globalstar's satellite control and help optimize its constellation management.

In conjunction with this application, the Commission should permit Globalstar's proposed Hawaii gateway antenna to receive and process Globalstar's feeder downlink signal at 7025-7055 MHz on a non-interference basis. Globalstar urges the Commission to approve the instant application and its other earth station filings for the Hawaii gateway as expeditiously as possible.

I. Globalstar and Its Mobile Satellite Service Offerings

Globalstar is a leading provider of global mobile satellite voice and data services. Licensed in the Big LEO bands, Globalstar's MSS system supports reliable services to consumers, public safety personnel, and customers covered by its network.[2] Globalstar uses its constellation of satellites and ground stations on six continents to provide affordable, high-quality MSS to over 700,000 customers in over 120 countries around the world.

Since initiating commercial MSS in 2000, Globalstar has been dedicated to providing state-of-the-art, mission-critical, and safety-of-life services to consumers, businesses, and governmental and public safety users in remote, unserved, and underserved areas not reached by

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[1] 47 C.F.R. § 25.115. Globalstar's new Hawaii gateway facility will include three feeder link earth station antennas that will operate independently and track different satellites when multiple satellites are in view. Globalstar is separately and concurrently applying for permanent authority for each of these antennas. Globalstar describes herein the public benefits that will result from deployment of the new Hawaii gateway.

[2] *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) ("*Globalstar License Order*"); *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 (IB 2011). Iridium is authorized to share spectrum with Globalstar at 1617.775-1618.725 MHz.

terrestrial deployments, both in the United States and globally. Globalstar's MSS network provides critical back-up capabilities for public safety personnel during disasters, when terrestrial networks can be rendered inoperable. In situations where all terrestrial facilities are down in an affected area, Globalstar's global MSS network will continue to function normally. Public safety entities involved in relief efforts in the United States and around the world have relied on Globalstar's satellite services after earthquakes, hurricanes, and other disasters.

Over the past decade, Globalstar has focused on the development of affordable, consumer-oriented devices and services with significant public safety benefits. The "SPOT" family of MSS devices has played a critical role in providing emergency and safety-of-life services to individual consumers beyond terrestrial wireless reach. To date, SPOT is responsible for initiating emergency rescue services via satellite to over 15,000 individuals around the world – often life-saving, on land and at sea.[3] During 2020 alone, SPOT products have been used to initiate an average of approximately two such rescues per day. Globalstar's subscribers transmitted more than 1.8 billion SPOT and other simplex messages last year, and that figure continues to grow at a significant rate year over year.

To expand its global messaging services, over the past two years Globalstar has implemented an innovative two-way "half-duplex" communications platform at its gateway earth stations. Going forward, key Globalstar two-way messaging products – including the "SPOT-X" product introduced during 2018 – will feature this half-duplex functionality.

Globalstar has also developed an array of satellite Internet of Things ("IoT") solutions for customers in industries such as oil and gas, mining, construction, transportation, agriculture, emergency management, government, maritime, and commercial fishing. Globalstar's satellite IoT products allow enterprises to streamline their operations and intelligently manage, monitor, and track their mobile assets remotely via Globalstar's MSS network. Globalstar's commercial IoT products include its SmartOne asset tracking solutions and IoT satellite transmitters.[4] Globalstar complements its IoT devices with a centralized cloud-based platform that provides live or historical tracking of personnel, vehicles, and assets on-demand.

Finally, over the past year Globalstar has tested and validated a new MSS waveform that will be utilized on its MSS network for new services including enhanced safety-of-life offerings.[5] This waveform is a burst mode packet data carrier that will support short-messaging

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[3] SPOT devices can transmit a user's GPS coordinates and status updates to any e-mail address, computer, handheld device, or smartphone in the world.

[4] SmartOne products enable Globalstar's customers to manage their remote assets utilizing motion sensors, comparative GPS positions, and custom-configured sensors. Globalstar's newest SmartOne product is SmartOne Solar, which provides up to a ten-year battery life and facilitates autonomous and efficient device operation.

[5] Globalstar is currently transmitting this new waveform over its MSS network pursuant to numerous grants of Special Temporary Authority at its existing gateway earth station facilities. *See, e.g.*, FCC File No. SES-STA-20200804-00822; *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-02301 at 72 (Sept. 16, 2020) (current Clifton-1 STA); FCC File No. SES-STA-20200804-00827; *Satellite*

data services.[6] Once placed into commercial service, this new waveform will permit dramatically increased numbers of devices to operate on Globalstar's MSS system. With the instant application, Globalstar seeks authority to transmit this new waveform from the proposed Hawaii gateway earth station antenna.

II. Globalstar's MSS Gateway Earth Station Infrastructure

Globalstar's gateway earth station facilities are an essential part of its global MSS network infrastructure. In order for Globalstar to provide service to an MSS subscriber, that Globalstar user and a gateway earth station must be in line-of-sight view of at least one satellite simultaneously and without interruption.[7] Globalstar has positioned its existing global gateways on six continents to enable its provision of MSS to most of the world's population. In the United States and its territories, Globalstar currently operates gateway earth stations in Clifton, Texas; Sebring, Florida; Wasilla, Alaska; and Barrio of Las Palmas, Cabo Rojo, Puerto Rico. Elsewhere in North America, Globalstar also operates Canadian gateway earth stations in Smith Falls, Ontario, and High River, Alberta.

Globalstar is authorized for feeder uplink transmissions from its gateway earth stations to its satellites at 5091-5250 MHz and satellite feeder downlink transmissions to gateway facilities in the 6875-7055 MHz band.[8] (*See* Exhibit 1). Globalstar's feeder uplinks at 5 GHz carry the "return" traffic from parties communicating with Globalstar MSS handsets from either the public switched telephone network ("PSTN"), cellular or other wireless networks, or the Internet, depending on the nature of the MSS customer's call and connection. Each Globalstar satellite has a feeder uplink antenna that "hears" all right-hand circular-polarized ("RHCP") and left-hand circular-polarized ("LHCP") transmissions at 5091-5250 MHz within the feeder link coverage area, which is approximately 6800 km in diameter. Globalstar's satellites then translate, amplify, and downlink this return traffic to its MSS customers in the Big LEO band at 2483.5-2500 MHz.

Globalstar's satellites' feeder downlinks at 6/7 GHz convey all traffic transmitted from Globalstar's MSS end-user devices in the 1.6 GHz band. Globalstar's existing gateway facilities consist of multiple antennas that receive this downlink traffic from multiple satellites at

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Communications Services Information re: Actions Taken, Public Notice, Report No. SES-02298 at 29 (Sept. 2, 2020) (current Sebring-1 STA); FCC File No. SES-STA-20200804-00826; *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-02303 at 23 (Sept. 23, 2020) (current Las Palmas-2 STA).

[6] The channel bandwidth for this waveform is 4.5 megahertz at 5091-5250 MHz and 200 kilohertz at 6900-7055 MHz.

[7] Mobile terminal-to-mobile terminal satellite transmissions must be landed and switched at a gateway before being linked back up to the satellite and ultimately down to the other satellite device.

[8] As discussed *infra* at 7-8, Globalstar operates its earth station antennas in Sebring and Wasilla at 7025-7055 MHz on a non-interference basis.

particular time intervals determined by the motion of Globalstar's orbiting Big LEO satellites.[9] Each satellite downlinks the aggregate traffic from user devices located over a radius of approximately 2900 km on the earth's surface. Globalstar's gateways receive, translate, amplify, and transmit this user-initiated traffic into the PSTN, to cellular or other wireless networks, or to the Internet, depending on the nature of the MSS customer's call and connection.

Globalstar is currently in the process of rolling out second-generation gateway earth station antennas for its feeder link operations. It plans to deploy and operate these second-generation gateway antennas in Hawaii and its other U.S. gateway locations over the next one to two years. These antennas – 6-meter dishes with radomes, manufactured by Cobham SATCOM, a market-leading provider of radio and satellite communications solutions – will yield significant operational benefits for Globalstar's MSS network. These second-generation facilities provide superior satellite-tracking capability, relying on state-of-the-art auto-track technology. With this technology, Globalstar will enjoy greater control over its existing constellation and any future satellites, including faster response times in the event of satellite performance issues. These antennas are also more efficient than Globalstar's existing feeder link transceivers, requiring less power and only minimal maintenance.

III. The Proposed Hawaii Gateway Antenna Will Have Substantial Technical and Operational Benefits for Globalstar and Its MSS Customers

Grant of authority for the proposed Naalehu, Hawaii gateway antenna will help realize substantial technical and operational benefits for Globalstar and its subscribers. Once deployed, Globalstar's new gateway earth station facility in Hawaii will support and enlarge Globalstar's geographic footprint and improve its service availability, quality, and reliability.

Globalstar currently does not provide MSS coverage to users located in Hawaii and adjacent Pacific Ocean areas. Activation of the proposed Hawaii gateway will significantly expand Globalstar's MSS coverage by creating an extensive new coverage area over Hawaii and surrounding waters. The map in Exhibit 2 to this application shows the primary coverage area for the proposed Hawaii gateway antenna, and the maps in Exhibit 3 depict the increased feeder link availability that will result from this installation.[10] With this expanded coverage, deployment of the Hawaii gateway antennas will materially increase Globalstar service capacity in the United States.

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[9] Globalstar deploys multiple earth station antennas at each gateway facility in order to optimally process the feeder downlink transmissions arriving concurrently from multiple satellites. Each antenna operates independently and tracks a different satellite when multiple satellites are in view of a gateway.

[10] Exhibit 3 depicts the combined feeder uplink and downlink availability for Globalstar's satellites and gateways, for its existing simplex and half-duplex data services.

In combination with Globalstar's planned new gateway in Nevada (which will extend Globalstar's service westward off the U.S. Pacific coast),[11] the Hawaii gateway will enable continuous MSS coverage from the U.S. Pacific coastline to Hawaii and its surrounding/nearby Pacific waters (*see* Exhibit 4). The seamless availability of services across the Pacific to Hawaii will substantially enhance the maritime usage of Globalstar's offerings.

Approval of Globalstar's additional U.S. gateway facility is consistent with the Commission's feeder link policy for Big LEO MSS, which explicitly acknowledges the importance of gateways to the provision of this satellite service. In its 2002 order allocating 5 GHz and 6/7 GHz spectrum to Big LEO MSS feeder links, the Commission recognized that "gateways act as the backbone transport for a satellite system to tie the satellites to terrestrial networks," and that the provision of Big LEO MSS in the United States would require multiple gateways "to achieve greater frequency reuse of the feeder link spectrum, thereby increasing system capacity."[12] The Commission further found that it was "unnecessary to place arbitrary limits on the number or location of [U.S.] gateways,"[13] and stated that a Big LEO MSS operator would likely require up to six gateways in the United States.

The operational gains described above would all result from the augmentation of Globalstar's U.S.-based ground infrastructure with this additional gateway in Hawaii. Notably, no other modification of Globalstar's MSS network will yield this expanded MSS signal coverage or enhanced service quality. Globalstar can achieve these public interest benefits only by deploying the new Hawaii gateway facility.

As indicated above at 4 *supra*, Globalstar and its customers will also benefit from the fact that the proposed Hawaii facility is a second-generation feeder link antenna. This antenna's auto-tracking technology will enhance Globalstar's control of its satellites and help optimize the management of its MSS constellation. In the event of a satellite performance issue, Globalstar will be able to respond more rapidly and resolve that problem. In this way, Globalstar can prevent or minimize any detrimental effect on its MSS offerings and the customers who rely on those services.

IV. The Proposed Hawaii Gateway Antenna Will Not Cause Harmful Interference to Other Licensed Services

Following a Commission grant, Globalstar's operation of the proposed Hawaii gateway earth station antenna will not cause harmful interference to any other licensed radio services. With this application, Globalstar has included a report from Comsearch demonstrating that Globalstar has successfully coordinated this antenna's operations with all

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11 *See* FCC File Nos. SES-LIC-20201026-01177, SES-LIC-20201026-01178, and SES-LIC-20201026-01179 (filed Oct. 26, 2020).

12 *Amendment of Parts 2, 25 and 97 of the Commission's Rules with Regard to the Mobile-Satellite Service Above 1 GHz*, Report and Order, 17 FCC Rcd 2658, ¶ 52 (2002) ("*Big LEO Feeder Link Allocation Order*").

13 *Id.*

relevant Broadcast Auxiliary Service ("BAS") and other microwave licensees operating in 6/7 GHz spectrum.[14] No BAS licensee objected to or otherwise responded to Comsearch's coordination notice. In addition, Globalstar has provided a coordination report showing that proposed Hawaii antenna will have no detrimental impact on any Microwave Landing Systems operating in the 5 GHz band.[15]

V. The Commission Should Permit the Proposed Hawaii Gateway Antenna to Receive Globalstar's Feeder Downlink Signal at 7025-7055 MHz on a Non-Interference Basis

To realize the public interest benefits described above, Globalstar's proposed Hawaii gateway antenna must have access to sufficient spectrum to support full feeder uplink and downlink communications with Globalstar's satellites. In particular, to ensure robust, seamless MSS coverage to Hawaii and surrounding waters and enable the proposed earth station antenna to operate in the same manner as all other Globalstar gateways – and recognizing that Globalstar's first- and second-generation satellites were designed to operate across the entire feeder link band (*see infra* at note 25) – the proposed antenna must have access to the entire 6875-7055 MHz band for feeder downlink reception (as is the case today for all of Globalstar's active MSS gateways). To this end, Globalstar seeks authority for its proposed Hawaii antenna to receive and process satellite feeder downlink transmissions in the 7025-7055 MHz band on a non-interference basis. Within the 7025-7055 MHz band segment – which, as discussed below, is licensed to other users on a primary basis – Globalstar will accept interference from licensed operations to its Hawaii antenna, while ensuring that operation of this antenna does not cause interference to other licensed services.

Globalstar's need for non-interference rights at 7025-7055 MHz is a product of the licensing and allocation history in this spectrum. In the Commission's 1994 order adopting Big LEO MSS rules and policies, the Commission stated that it would authorize qualified Big LEO applicants to construct and launch satellites capable of operating with specified feeder link frequencies, conditioned on the Commission's later allocation decisions with respect to such frequencies.[16] Then, at WRC-95, the 6700-7075 MHz band was designated internationally for

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[14] *See* Response to FCC Form 312, Schedule B, Question E18: COMSEARCH Frequency Coordination and Interference Analysis Report (Attachment 1) ("Comsearch Coordination Report").

[15] *See* Response to FCC Form 312, Schedule B, Question E18: Information on Microwave Landing System Sites (Attachment 2).

[16] *Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5 MHz/2483.5-2500 MHz Frequency Bands*, Report and Order, 9 FCC Rcd 5936, ¶ 166 (1994) ("*Big LEO Service Rules Order*"). In 1996, the Commission followed through on its stated intent in the *Big LEO Service Rules Order* and authorized Globalstar to launch and operate satellites transmitting feeder link signals at 6875-7055 MHz to gateway earth stations, subject to the Commission's decision in a subsequent allocation rulemaking. *Application for Modification of License to Construct, Launch, and Operate Low-Earth-Orbit Satellites and Request for Waiver of Table of Allocations*, Order and Authorization, 11 FCC Rcd 16410, ¶ 8 (1996).

use for NGSO MSS feeder links.[17] In reliance on these actions, Globalstar designed its MSS network to utilize the 5091-5250 MHz band for feeder uplinks and the full 6875-7055 MHz band for feeder downlinks. In 2002, however, the Commission adopted an allocation order that conflicted with the international NGSO MSS feeder link designation. While the Commission allocated the 6700-7025 MHz segment to Fixed Satellite Service ("FSS") downlinks on a co-primary basis (limiting those FSS operations to NGSO MSS feeder downlinks),[18] it declined to extend this co-primary allocation to the 7025-7075 MHz band segment, in order to retain near-nationwide, "clear" spectrum for BAS use.[19]

Even with the absence of a primary allocation for MSS feeder links at 7025-7055 MHz, Globalstar's gateway antennas have long operated and continue to operate in that spectrum pursuant to Commission authorizations. Globalstar's gateway antennas in Clifton and Las Palmas were conditionally authorized to receive Globalstar's feeder downlinks at 7025-7055 MHz in the years leading up to the Commission's 2002 *Big LEO Feeder Link Allocation Order*.[20] That 2002 allocation order then grandfathered those operations in Clifton and Las Palmas on a co-primary basis.[21] In 2011, the Commission granted Globalstar similar authority to operate on a non-interference basis at 7025-7055 MHz at its gateway earth station antennas in Sebring, Florida, and Wasilla, Alaska, which represent all of the Globalstar gateway antennas constructed in the United States since the 2002 order.[22] For its proposed gateway antenna in Hawaii, Globalstar now requests the same authority to receive and process feeder downlink signals at 7025-7055 MHz on a non-interference basis.

Certainly, there is no technical, operational, or other reason why Globalstar should not be permitted to receive feeder downlinks at 7025-7055 MHz on a non-interference basis at the proposed Hawaii antenna. For years, Globalstar's satellites have transmitted feeder downlinks at

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17 *See* Final Acts of the World Radiocommunication Conference (WRC-95), Geneva, 1995; *see also* United States Proposals for the 1995 World Radiocommunication Conference, July 1995 (requesting feeder link allocation in the 6700-7075 MHz band). This designation is codified in the ITU Radio Regulations.

18 *Big LEO Feeder Link Allocation Order* ¶¶ 39-42; 47 C.F.R. § 2.106, footnote 5.458B.

19 *Big LEO Feeder Link Allocation Order* ¶¶ 39-42.

20 *See, e.g.,* FCC File No. SES-LIC-20000706-01091; *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-00274 at 2 (Mar. 28, 2001) (Clifton-2); FCC File No. SES-LIC-20000706-01092; *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-00274 at 2 (Mar. 28, 2001) (Clifton-3); FCC File No. SES-LIC-19990809-01350; *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-00195 at 3 (June 28, 2000) (Las Palmas-2); FCC File No. SES-LIC-19990809-01349; *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-00195 at 3 (June 28, 2000) (Las Palmas-3).

21 *Big LEO Feeder Link Allocation Order* ¶ 39.

22 *Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-01405 at 16 (Dec. 7, 2011).

7025-7055 MHz and its earth stations have received these signals, and Globalstar is unaware of any harmful interference to BAS or other microwave operations in the United States.[23] Moreover, the proposed Hawaii antenna would not *transmit* at 7025-7055 MHz; as a fundamental RF matter, this antenna's receipt of signals in that spectrum would not increase the risk of interference to other licensed services in the vicinity of this gateway, as these satellite signals are already present at this location pre-deployment. Finally, Globalstar has provided a coordination report from Comsearch demonstrating that it has successfully coordinated its proposed Hawaii operations with all relevant BAS and other microwave licensees.[24] No BAS or microwave licensee objected to or responded to Comsearch's coordination notice.

If the Commission denies Globalstar's request and prohibits the proposed Hawaii gateway antenna from receiving feeder downlink signals at 7025-7055 MHz, that decision will undercut the public interest benefits of this new gateway. As explained *infra* in note 25, denial of access to the 7025-7055 MHz band segment will create substantial, intermittent holes in Globalstar's Hawaii gateway coverage footprint. In this scenario, customers within affected areas in Hawaii and surrounding waters will be unable to connect to Globalstar's MSS network at all or, at a minimum, will suffer significantly reduced service quality.[25] Significantly, there would be no service benefits to offset the harmful effects of this flawed decision.

Prohibiting Globalstar's Hawaii gateway from operating at 7025-7055 MHz would be particularly detrimental now to Globalstar and its subscribers, with Globalstar's MSS traffic set to increase significantly over the next year as it continues to upgrade its ground infrastructure and introduce innovative new offerings. The Commission should avoid this outcome by granting

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[23] During this period Globalstar also is unaware of any interference to its MSS feeder downlink operations from BAS and other microwave systems operating at 6/7 GHz.

[24] *See* Comsearch Coordination Report.

[25] Given the design of Globalstar's MSS network, the proposed gateway antenna must have access to the full 6875-7055 MHz band for feeder downlink reception to support geographically seamless coverage throughout the western United States. Both Globalstar's U.S.-licensed first-generation space stations and its French-licensed second-generation satellites are "hard-wired" to use the full 180 megahertz of spectrum at 6875-7055 MHz. On Globalstar's MSS network, there are sixteen separate 16.5 megahertz-wide feeder downlink beams that fill the 6875-7055 MHz band (separated by small guard bands), and each of these feeder downlink beams is paired with one of sixteen geographic-area uplink beams in the 1.6 GHz Big LEO MSS end-user service link band. *See* Exhibit 5.

Four of Globalstar's sixteen end-user uplink beams at 1.6 GHz correspond with Globalstar's feeder downlink spectrum at 7025-7055 MHz. *See* Exhibit 5. As shown in Exhibit 5, if the proposed Hawaii gateway antenna cannot operate at 7025-7055 MHz, this antenna will be unable to receive and process simplex and half-duplex transmissions originating within two of the four affected 1.6 GHz uplink beams in its geographic footprint, and will also be unable to support a significant percentage of simplex and half-duplex SPOT transmissions originating in the other two affected 1.6 GHz uplink beams. Accordingly, lack of access to this spectrum will create intermittent holes in the coverage area for the Hawaii antenna.

Globalstar's request and permitting the proposed Hawaii gateway antenna to operate at 7025-7055 MHz on a non-interference basis.

VI. Conclusion

For all of the aforementioned reasons, the Commission should expeditiously grant Globalstar's application for authority to operate a new gateway antenna in Naalehu, Hawaii, including operations in the 7025-7055 MHz band segment on a non-interference basis.

Exhibit 1:

Globalstar Frequency Plan for Feeder Links and Service Links

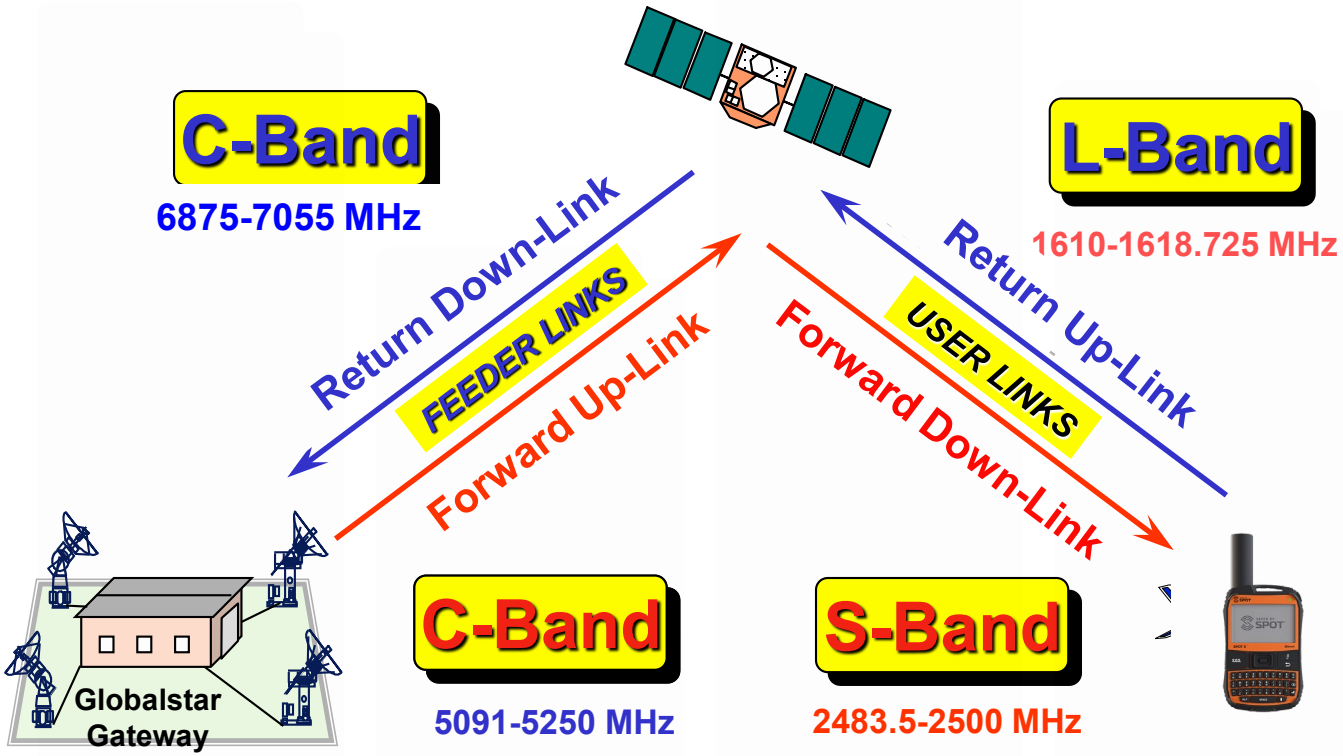


Exhibit 2:
Hawaii Gateway Service Area

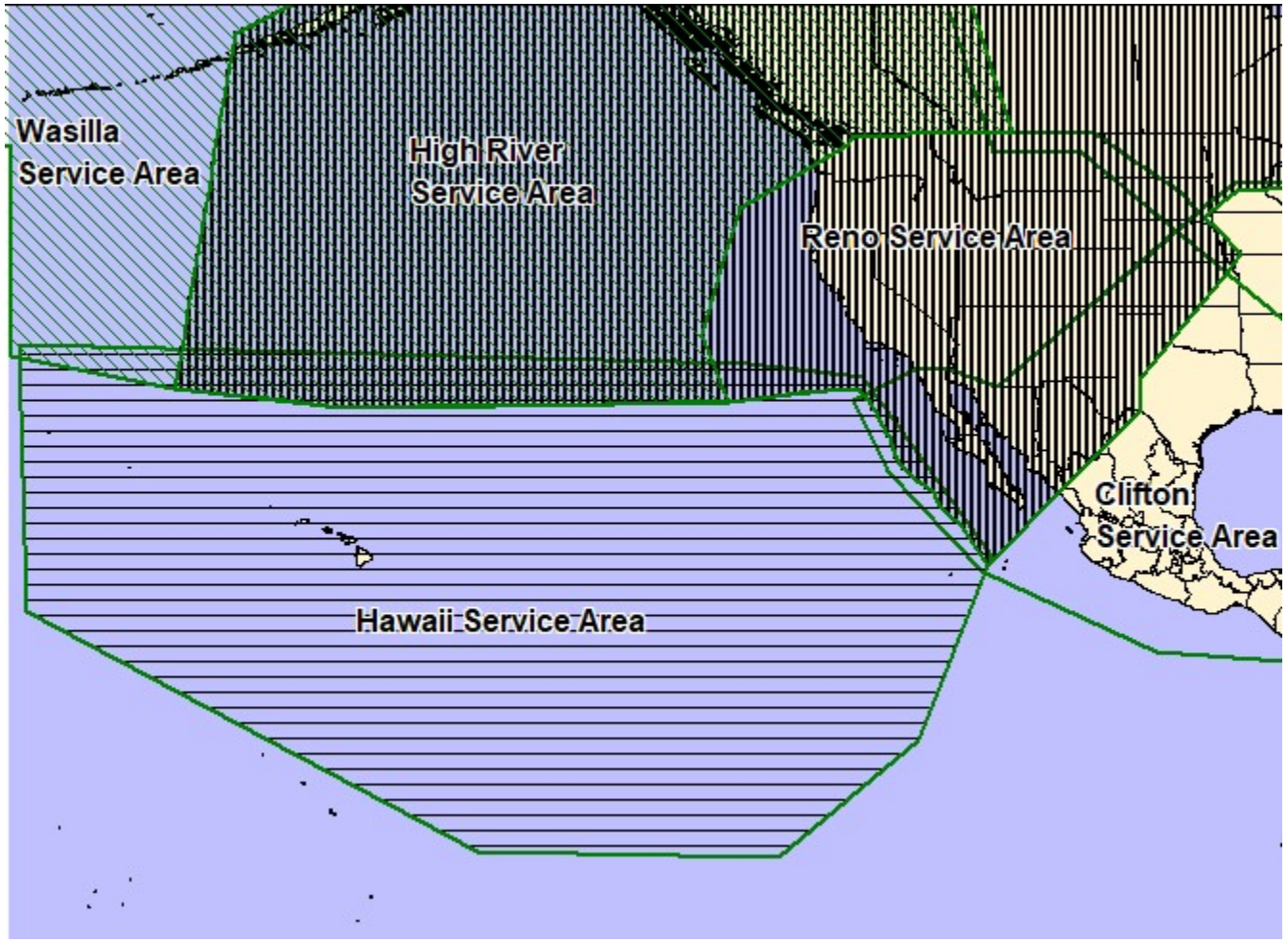
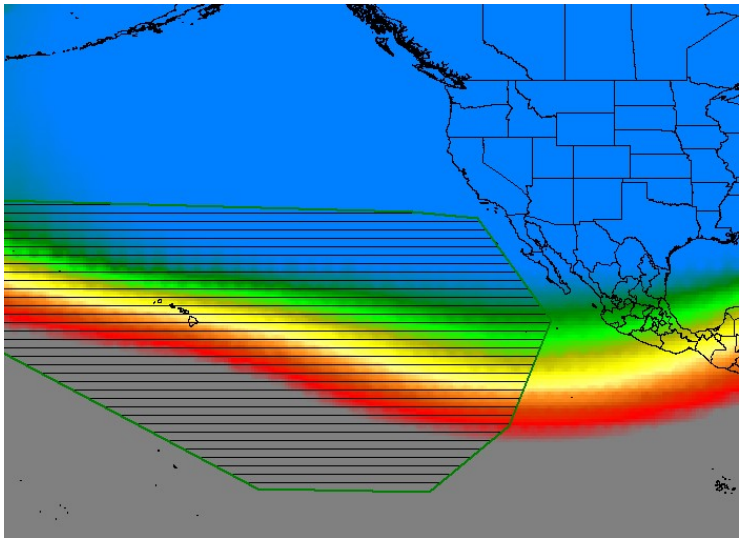
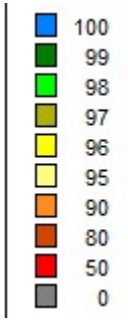


Exhibit 3:
Expected Improvement in Satellite Feeder Link Availability



Current Feeder Link Availability



Feeder Link Availability with Hawaii Gateway

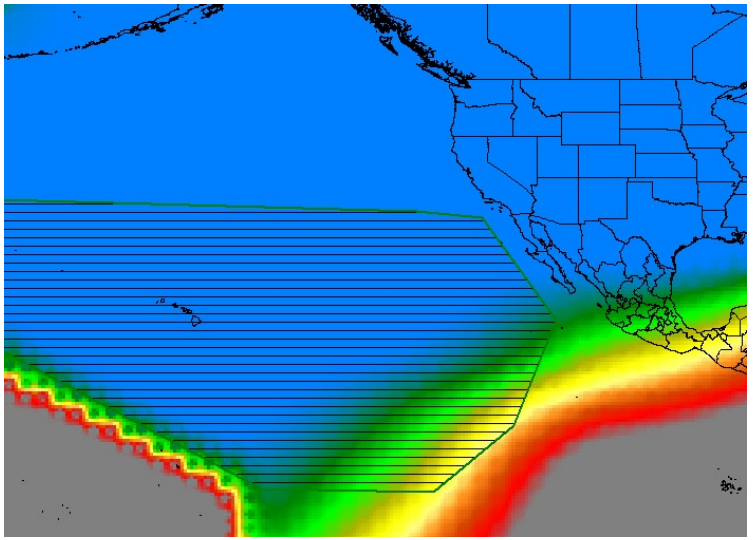
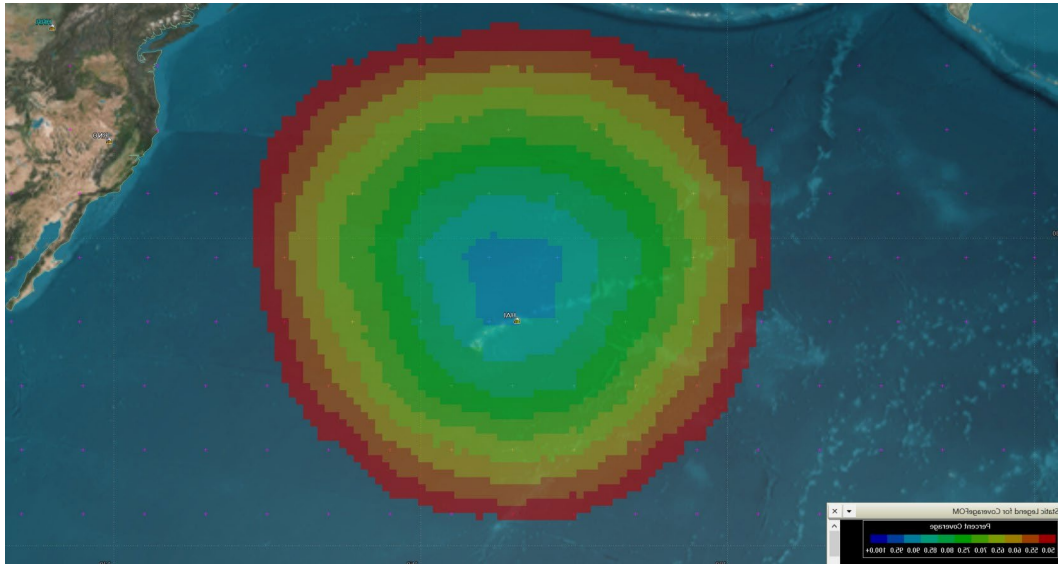


Exhibit 4: Expected MSS Coverage with Future Reno, Nevada and Hawaii Gateways



Expected Coverage from Hawaii Gateway

Expected Combined Coverage in the Western U.S. from Reno, Nevada and Hawaii Gateways

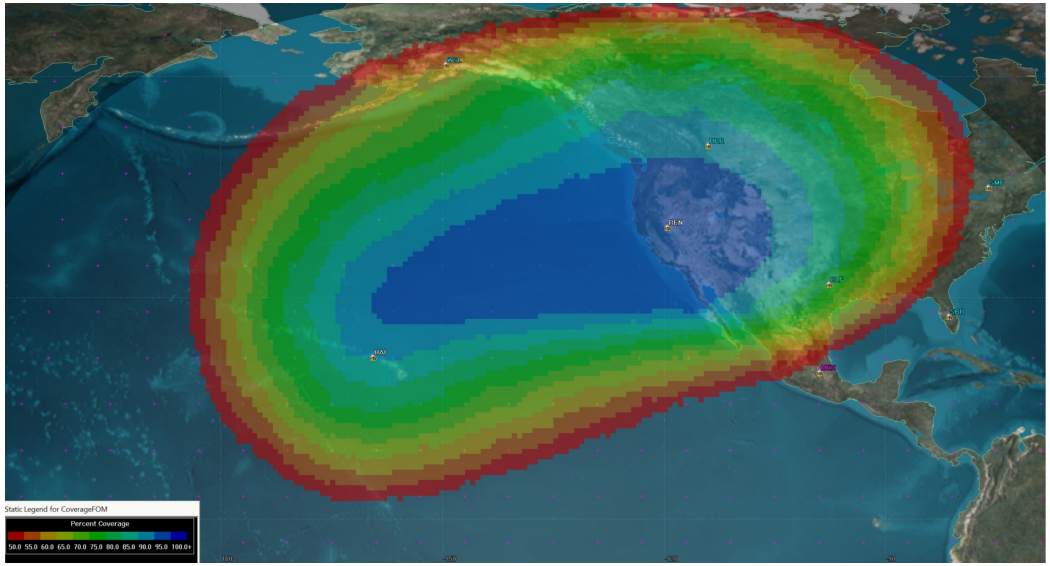
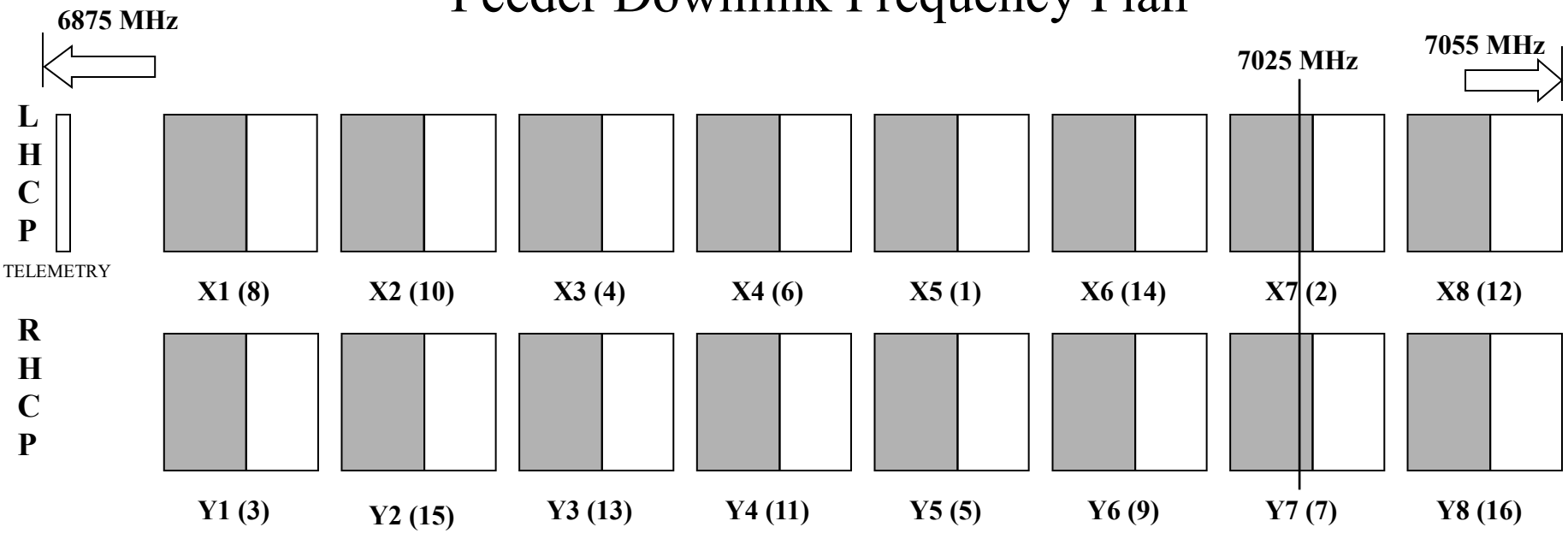


Exhibit 5:

Feeder Downlink Frequency Plan



Each of the blocks above represents one of the sixteen spot beams (X1 through X8 for LHCP, Y1 through Y8 for RHCP) in the Big LEO MSS spectrum at 1.6 GHz (1610-1626.5 MHz). The gray portion of each block represents Globalstar's licensed Big LEO MSS spectrum at 1610-1618.725 MHz, where Globalstar devices transmit service uplinks to Globalstar's satellites. If the proposed Hawaii gateway antenna cannot operate at 7025-7055 MHz, this antenna will be unable to receive and process simplex and half-duplex transmissions originating within two of the four affected 1.6 GHz uplink beams in its geographic footprint (X8 and Y8), and will also be unable to support a significant percentage of simplex and half-duplex SPOT transmissions originating in the other two affected 1.6 GHz uplink beams (X7 and Y7).

DECLARATION

I hereby certify under penalty of perjury that the engineering statements made in GUSA Licensee LLC's application for authority for a new earth station antenna in Naalehu, Hawaii are true and correct to the best of my knowledge.

/s/ Wen Doong
Wen Doong
Senior Vice President, Engineering & Operations
Globalstar, Inc.

Date: December 11, 2020