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Via Electronic Filing

Mindel De La Torre
Chief, International Bureau
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: Request for Modification of Blanket License for Mobile Earth Stations
GUSA Licensee LLC
Call Sign E970381

Dear Ms. De La Torre:

Pursuant to Section 25.117 of the Federal Communications Commission's ("FCC's" or "Commission's") rules, GUSA Licensee LLC ("Globalstar USA") hereby requests modification of its blanket license for mobile earth stations ("MESs") operating in the Big LEO mobile satellite service ("MSS") band.

As described in the Technical Operations Exhibit for the instant application, Globalstar USA proposes numerous changes to its current MES blanket license, which authorizes MES operations in the United States, all U.S. territories and possessions, and all U.S. territorial waters. Specifically, Globalstar USA seeks an increase in the quantity of several different MES types, including terminal categories identified in its blanket license as PTracker, Telemetry, Handheld 2, V Mobile, and A Fixed 4 devices. Globalstar USA also proposes to add a second, receive-only antenna to its PTracker and Telemetry devices, which are currently transmit-only units. In addition, Globalstar USA requests certain other changes to the technical and operational parameters for these various MES terminals, including increased maximum aggregate EIRP for both the V Mobile and A Fixed 4 categories. Finally, Globalstar USA seeks to revise the "Manufacturer" and "Model" designations for the PTracker, Telemetry, Handheld 2, V Mobile, and A Fixed 4 devices, so that all these designations are changed to "Various."

Grant of the proposed blanket license modification will facilitate the ongoing growth of Globalstar, Inc.'s ("Globalstar's") global MSS business, which provides extraordinary benefits to consumers and public safety customers in the United States and elsewhere. Currently, Globalstar uses its global Big LEO MSS constellation to provide affordable, high-quality mobile satellite voice and data services to approximately 700,000 customers in over 120 countries around the

world.¹ Globalstar expects the growth of its satellite business to accelerate over the next several years as its second-generation Big LEO MSS ground infrastructure becomes operational and supports an array of new service offerings. With an MES blanket license that provides for greater numbers of devices, more flexible technical parameters, and improved device performance, Globalstar and its technology vendors will have greater ability to roll out new, innovative products to Globalstar's expanding customer base.

In particular, Globalstar USA's proposed changes to the "Manufacturer" and "Model" designations for its PTracker, Telemetry, Handheld 2, V Mobile, and A Fixed 4 devices are necessitated by the continuing evolution of the MSS equipment marketplace. Until recent years, there were only a limited number of MES models available to operate over Globalstar's Big LEO network. In contrast, Globalstar is now working with an ever-changing assortment of MES vendors on a variety of innovative designs and applications. In this dynamic environment, the Commission should not require an MES blanket license to identify a specific, static group of manufacturers or terminal models. Such an approach would require Globalstar USA to modify its blanket authorization every time it added a new MES manufacturer or new device model, resulting in an excessive administrative burden both for Globalstar and the Commission. To avoid this public interest harm, Globalstar USA proposes to designate the manufacturers and models of its PTracker, Telemetry,² Handheld 2, V Mobile, and A Fixed 4 devices as "Various," with the technical parameters for these device categories encompassing all of the MES models in these categories to be operated under Globalstar's blanket license. The individual manufacturers and specific models in these device categories will be identified in the equipment certification filings for these units, rather than in Globalstar's blanket license. The equipment certification process will also ensure that Globalstar's mobile earth stations comply with all applicable technical requirements in Globalstar's license and the Commission's rules.

¹ Over the past decade, Globalstar has focused on the development of affordable, consumer-oriented devices and services, including those with significant public safety benefits. In particular, Globalstar's innovative "SPOT" family of MSS devices (in the PTracker device category) has played a critical role in providing emergency and safety-of-life services to individual consumers beyond terrestrial wireless reach. To date, SPOT devices have been used to initiate more than 4100 rescues worldwide.

² In response to a previous Globalstar USA modification request, the Commission in 2011 changed the "Manufacturer" designation for Globalstar's Telemetry devices to "Various." *See Satellite Communications Services Information re: Actions Taken*, Public Notice, Report No. SES-01370, at 9 (IB rel. Aug. 3, 2011); Application of GUSA Licensee LLC, SES-MOD-20110303-00241, call sign E970381 (filed March 3, 2011; grant effective Aug. 2, 2011).

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Accordingly, for the reasons described herein, an expeditious grant of the proposed blanket license modification will further the public interest, convenience, and necessity. Please do not hesitate to contact me with any questions.

Respectfully submitted,

/s/ Stephen J. Berman

Stephen J. Berman

MOBILE EARTH STATION TECHNICAL & OPERATIONAL INFORMATION

I. Overview

GUSA Licensee LLC (Globalstar USA) holds a blanket license to operate 2,270,000 mobile earth stations (MESs) in the United States, all U.S. territories and possessions, and all U.S. territorial waters, for communications with the Globalstar™ Big LEO NGSO Mobile Satellite Service (MSS) system.¹ This total includes 550,000 handheld units, 305,000 vehicular mobile units, 60,000 ancillary fixed units, 490,000 Telemetry simplex transmitters, 10,000 aviation units, 750,000 SPOT Satellite Messenger and Tracker devices (personal tracker or “PTracker” devices), 104,000 satellite data and voice modems (SDVMs), and 1000 MCM-4 transmitters. Globalstar USA provides this Technical Operations Exhibit as an attachment to its FCC Earth Station License Modification Application, which, among other things, seeks to add 1,275,000 Mobile Earth Stations to the current MES blanket license, for a total of 3,545,000 MES units.

As indicated in the FCC Form 312 – Schedule B of this Modification Application, **Globalstar USA proposes the following modifications to the existing terminal types authorized under its current MES blanket license:**

- Quantity of MESs – 1,275,000 Additional MES Units
 - Increase the quantity of PTracker devices from 750,000 to 1,300,000.
 - Increase the quantity of Telemetry devices from 490,000 to 740,000.
 - Increase the quantity of Handheld 2 devices from 250,000 to 350,000.
 - Increase the quantity of V Mobile devices from 175,000 to 500,000.
 - Increase the quantity of A Fixed 4 devices from 25000 to 75000.

- Technical and Operational Parameters
 - Add a receive function to the Telemetry and PTracker devices. There is no change to any part of the transmit function of the Telemetry or PTracker devices.
 - Increase the Maximum Horizon EIRP Density for Handheld 2 devices from -32 dB(W/4kHz) to -29.8 dB(W/4kHz). There is no change in the maximum EIRP.
 - Increase the Maximum Aggregate EIRP for the V Mobile devices from 8 dBW to 9 dBW.
 - Increase the Maximum Antenna Gain for the V Mobile devices from 4 dBi to 5 dBi.
 - Increase the Maximum EIRP Density for the V Mobile devices from -16.9 dB(W/4kHz) to -15.9 dB(W/4kHz).

¹ The Globalstar MSS system consists of U.S. licensed satellites (identified as “Globalstar – (NGSO)” in Globalstar USA’s blanket license) and satellites licensed by the Republic of France (identified as “Globalstar 2.0 – (NGSO)” in Globalstar USA’s blanket license). *See* Globalstar USA Response to FCC Form 312, Question 42a, “Use of Non-U.S. Licensed Satellites,” provided with this blanket license modification application.

- Increase the Maximum Horizon EIRP Density for the V Mobile devices from -32.9 dB(W/4kHz) to -24 dB(W/4kHz).
 - Increase Total Input power at Antenna Flange for the A Fixed 4 devices from 2.5 watts to 3.5 watts.
 - Reduce the Maximum Antenna Gain for the A Fixed 4 devices from 5 dBi to 4.4 dBi.
 - Increase Maximum Aggregate EIRP for the A Fixed 4 devices from 8 dBW to 9.8 dBW.
 - Increase Maximum EIRP per Carrier for the A Fixed 4 devices from 4 dBW to 9.8 dBW.
 - Increase Maximum EIRP Density for the A Fixed 4 devices from -20.9 dB(W/4kHz) to -15.1 dB(W/4kHz).
- Manufacturer
 - Change the manufacturer for PTracker devices from Spot LLC to Various.
 - Change the manufacturer for Handheld 2 devices and Handheld 2 antennas to Various.
 - Change the manufacturer for V Mobile devices and V Mobile antennas from TeleCommunications, Inc. for Qualcomm to Various.
 - Change the manufacturer of A Fixed 4 devices and A Fixed 4 antennas from Richardson Electronics to Various.
 - Model
 - Change PTracker Model from SPOT to Various.
 - Change Telemetry Model from SRT to Various.
 - Change Handheld 2 Model from GSP-1700 to Various.
 - Change V Mobile Model from Vehicular Mobile to Various.
 - Change A Fixed 4 Model from Ancillary Fixed 4 to Various.

II. Description of Proposed Modifications of MES Technical and Operational Parameters

Below, Globalstar USA provides additional information regarding its proposed technical and operational modifications and the mobile terminal types to be operated under its revised blanket license.

A. MES Antenna Facilities Subject to the Proposed Modifications

Under the proposed MES blanket license modification, antennas for the following terminals identified in Globalstar USA's blanket license will be modified or added to the license:

- Telemetry (modified by addition of receive antenna)
- PTracker (modified by addition of receive antenna)
- Handheld 2

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TECHNICAL OPERATIONS

- V Mobile
- A Fixed 4

The antennas for these terminals will be designed by Globalstar, Inc. and other entities. In production, antennas may be fabricated by third party manufacturers. Changing the “Manufacturer” and “Model” designations for the terminals and antennas listed here to “Various” will give Globalstar USA and its equipment vendors greater flexibility as they develop and deploy new terminal devices and services.

The MES radio types corresponding to this application for modification is indicated below:

Radio Type	Radio Designator	Services Offered	Frequency Bands (MHz)	Antenna Designation
Telemetry	Dual mode	Globalstar™	Tx ¹ : 1610-1618.725 Rx ² : 2483.5-2500	GS TM RX
PTracker	Dual mode	Globalstar™	Tx ¹ : 1610-1618.725 Rx ² : 2483.5-2500	GS PT RX
Handheld 2	Dual Mode	Globalstar™	Tx ¹ : 1610-1618.725 Rx ² : 2483.5-2500	GS Handheld
V Mobile	Dual Mode	Globalstar™	Tx ¹ : 1610-1618.725 Rx ² : 2483.5-2500	GS V Mobile
A Fixed 4	Dual Mode	Globalstar™	Tx ¹ : 1610-1618.725 Rx ² : 2483.5-2500	GS A Fixed 4

¹ Tx - transmit band

² Rx – receive band

In addition to its existing transmit antenna, the PTracker radio can be equipped with a Globalstar™ receive antenna. This receive antenna has hemispherical coverage with a quasi omni-directional gain pattern, and is integrated in a single housing with the radio unit.

In addition to its existing transmit antenna, the Telemetry radio can be equipped with a Globalstar™ receive antenna. This receive antenna has hemispherical coverage with a quasi omni-directional gain pattern, and is either integrated in a single housing with the radio unit or external to the unit based on the end consumer application.

The Handheld 2 terminal is equipped with one Globalstar™ transmit/receive antenna. The antenna has hemispherical coverage with a quasi omni-directional gain pattern, and is integrated in a single housing with the radio unit.

The V Mobile terminal is equipped with one Globalstar™ transmit/receive antenna. The antenna has hemispherical coverage with a quasi omni-directional gain pattern, and is integrated in a single housing with the radio unit.

The A Fixed 4 terminal is equipped with one Globalstar™ transmit/receive antenna. The antenna has hemispherical coverage with a quasi omni-directional gain pattern, and is integrated in a single housing with the radio unit.

B. Key Technical and Operational Characteristics of Terminals Under Proposed Blanket License Modification

Key technical and operational characteristics of the terminal devices under the proposed blanket license modification are provided below.

1. Globalstar™ Receive Antenna for PTracker and Telemetry Devices (GS RX)

Parameter	Globalstar™ Satellite Personal Tracker Antenna GS Receive	Globalstar™ Telemetry Antenna GS Receive
Frequency	2483.5-2500 MHz	2483.5-2500 MHz
Polarization	Left Hand Circular	Left Hand Circular
Peak Gain	<2.0 dBic	<5.0 dBic
Elevation Plane Coverage	10 to 90 degrees	10 to 90 degrees
Azimuth Plane Coverage	360 degrees	360 degrees
Gain below 10 degrees elevation	<0 dBic	<0 dBic
Size	1.75" square, 0.3" thick	2.0" diameter, 2.0" length

Receive Only Antenna Heights

The extremely small size of the mobile terminal types to be operated under Globalstar USA's proposed blanket license modification makes FAA notification unnecessary. *See* Section 17.14(b) of the Rules. The PTracker is intended to be used as a handheld portable radio at roughly waist level (approximately three to four feet above ground level ("AGL")), but will still operate if held higher or set down on a surface.

The antenna height for the Telemetry unit will vary depending on the installation site. This unit can be mounted on the ground or any surface to allow the collection and transmission of ground-based telemetry data. Typically, the antenna will be mounted 6 meters AGL or less. In addition, Telemetry units may be used in aeronautical applications where the antenna will be mounted on an airplane's fuselage. In that case, the antenna height for the Telemetry units will vary depending on the altitude of the aircraft, but may be as high as 20,000 meters AGL.

Modified Operational Parameters for PTracker and Telemetry Devices

- a) Frequency of operation: Receiver band of 2483.5-2500 MHz.
- b) Antenna Polarization: Left hand circular
- c) Emission Designator:

- PTracker: 1M23XXX
 - Telemetry: 1M23XXX
- d) Maximum EIRP: The modification of the PTracker and Telemetry devices involves only the addition of a receive antenna to these devices. Accordingly, Globalstar USA provides no information on emissions or EIRP for this proposed modification.
- e) Maximum EIRP Density: The modification of the PTracker and Telemetry devices involves only the addition of a receive antenna to these devices. Accordingly, Globalstar USA provides no information on EIRP density for this modification.
- f) Description of Modulation: The Globalstar™ PTracker and Telemetry MES receivers utilize frequency hopping CDMA with a chip rate of 1.23 MHz or less.

2. Globalstar™ Antenna for GS Handheld 2 Devices (GS Handheld 2)

Parameter	Globalstar™ Satellite Personal Tracker Antenna GS Handheld 2
Frequency	1610.00-1618.725 MHz
Polarization	Left Hand Circular
Peak Gain	<4.0 dBic
Elevation Plane Coverage	10 to 90 degrees
Azimuth Plane Coverage	360 degrees
Gain below 10 degrees elevation	<0 dBic
Size	0.5” square, 3.75” high

Antenna Height

The extremely small size of the mobile terminal types to be operated under Globalstar USA’s proposed blanket license modification makes FAA notification unnecessary. See Section 17.14(b) of the Rules. The Handheld 2 terminal is intended to be used as a handheld portable radio at roughly head level (approximately five to six feet above ground level (“AGL”)), but will still operate if held higher or set down on a surface.

Modified Operational Parameters for the Handheld 2 Devices

The only modification to the Globalstar™ Handheld 2 device parameters is an increase in the maximum horizon EIRP density from -32 dB(W/4kHz) to -29.8 dB(W/4kHz). All other parameters of the Handheld 2 devices remain unchanged from the previous version of the blanket terminal license. Globalstar USA’s proposed increase in horizon EIRP density is designed to compensate for the greater distance between the MES and the satellite at low elevation angles, and to provide improved performance from Handheld 2 devices.

3. Globalstar™ Antenna for V Mobile Devices (GS V Mobile)

Parameter	Globalstar™ Satellite Personal Tracker Antenna GS V Mobile
Frequency	1610.00-1618.725 MHz
Polarization	Left Hand Circular
Peak Gain	<5.0 dBic
Elevation Plane Coverage	10 to 90 degrees
Azimuth Plane Coverage	360 degrees
Gain below 10 degrees elevation	<0 dBic
Size	3.5” diameter, 1.5” high

Antenna Height

The extremely small size of the mobile terminal types to be operated under Globalstar USA’s proposed blanket license modification makes FAA notification unnecessary. *See* Section 17.14(b) of the Rules. The V Mobile terminal is intended to be used as a vehicle-mounted or transportable radio at roughly vehicle height level (approximately four to seven feet above ground level (“AGL”)), but will still operate if set down on a surface.

Operational Parameters for the V Mobile Devices

The modifications to the Globalstar™ V Mobile device parameters are shown in the Table below. All other parameters of the V Mobile devices remain unchanged from the previous version of the blanket terminal license. Globalstar USA’s proposed changes in indicated parameters are designed to provide improved performance from vehicular-mounted or transportable user terminals.

New Radio Type and Antenna Type	Max Horizon EIRP Density (dBW/4 kHz)	Peak Antenna Gain (dBic or dBi)	Max EIRP (dBW)	(e) Max EIRP Density/Carrier (dBW/4 kHz)²
V Mobile	-28.0	5.0	9.0	-15.9

² Meets the -15 dBW/4 kHz MES limit specified in the FCC General Rules and Regulations governing Frequency Allocations and Radio Treaty Matters (47 C.F.R. Part 2), Section 2.106, footnote S5.364.

4. Globalstar™ Antenna A Fixed 4 (GS A Fixed 4)

Parameter	Globalstar™ Satellite Personal Tracker Antenna GS A Fixed 4
Frequency	1610.00-1618.725 MHz
Polarization	Left Hand Circular
Peak Gain	<5.0 dBic
Elevation Plane Coverage	10 to 90 degrees
Azimuth Plane Coverage	360 degrees
Gain below 10 degrees elevation	<0 dBic
Size	1.5” diameter, 20” high

Antenna Height

The small size of the fixed terminal types to be operated under Globalstar USA’s proposed blanket license modification makes FAA notification unnecessary. *See* Section 17.14(b) of the Rules.

The A Fixed 4 terminal is intended to be used as a fixed radio mounted to an existing structure. The height of the antenna above the existing structure will not exceed 6.1 meters.

Modified Operational Parameters for the A Fixed 4 Devices

The modifications to the Globalstar™ A Fixed 4 device parameters are shown in the Table below. All other parameters of the A Fixed 4 devices remain unchanged from the previous version of the blanket terminal license. Globalstar USA’s proposed changes in indicated parameters are designed to provide improved performance and higher composite data rates from fixed user terminals.

New Radio Type and Antenna Type	Max Tx Power Available Watts	Peak Antenna Gain (dBic or dBi)	Max EIRP (dBW)	(e) Max EIRP Density/Carrier (dBW/4 kHz)²
A Fixed 4	3.5	4.4	9.8	-15.1

² Meets the -15 dBW/4 kHz MES limit specified in the FCC General Rules and Regulations governing Frequency Allocations and Radio Treaty Matters (47 C.F.R. Part 2), Section 2.106, footnote S5.364.

C. Protection of Other Radio Services

• **Radioastronomy Protection**

The Globalstar™ Telemetry, PTracker, Handheld 2, V Mobile, and A Fixed 4 MES terminals operate in the 1610 – 1618.725 MHz (earth-to-space) band. In this band, Mobile Satellite Service is co-primary with Radiodetermination Satellite Services.

Globalstar, Inc., intends to abide by the radioastronomy coordination guidelines set forth in the FCC Rules governing Satellite Communications (47 C.F.R. Part 25), Section 25.213(a). A coordination procedure is outlined in the “Technical Operational Coordination Agreement for the Joint Usage of the Band 1610.6 – 1613.8 MHz between the National Science Foundation and Globalstar for Airborne Mobile Earth Stations Operating in its Mobile Satellite Service (MSS) Network,” dated November 29, 2001. Under the agreed operational procedure, radioastronomy sites in the U.S. will inform the operator of the Globalstar™ gateway serving its area, through Globalstar USA, as to the planned schedule for radioastronomy measurements. During active measurement periods, the appropriate gateway will not assign particular channels between 1610.6 - 1613.8 MHz (Globalstar™ channels 1 - 3) to MESs in the radioastronomy exclusion zones.

For all the Telemetry, PTracker, Handheld 2, V Mobile, and A Fixed 4 units, operations will be prohibited in the joint band in designated radioastronomy exclusion zones.

• **GPS and GLONASS Protection**

The Globalstar™ Telemetry, PTracker, Handheld 2, V Mobile and A Fixed 4 MES terminals will continue to protect radionavigation satellite services in the band 1559 - 1610 MHz, including GPS and GLONASS receivers, according to the FCC Rules governing Satellite Communications (47 C.F.R. Part 25), Sections 25.202 (f) and 25.216 as per the current MES blanket license.

Specifically, the Globalstar™ Telemetry, PTracker, Handheld 2, V Mobile and A Fixed 4 terminals will not exceed an out-of-band emissions EIRP density level (averaged over any 2 ms active transmission period) of at least:

- 70 dBW/MHz between 1559 - 1605 MHz; and
- 70 to -10 dBW/MHz, linearly interpolated between 1605 - 1610 MHz.

The EIRP of any discrete spurious emission (*i.e.*, bandwidth less than 700 Hz) will not exceed:

- 80 dBW between 1559 - 1605 MHz; and
- 80 to -20 dBW/MHz, linearly interpolated between 1605 - 1610 MHz.

The peak EIRP density of carrier-off state emissions (averaged over any 2 ms active transmission period) will not exceed:

- 80 dBW/MHz between 1559 - 1610 MHz.