



November 9, 2016

Via Electronic Filing

Marlene H. Dortch, Secretary
Federal Communications Commission
445 Twelfth Street, SW
Washington, DC 20554

Re: Written *Ex Parte* Presentation: *Terrestrial Use of the 2473-2495 MHz Band for Low-Power Mobile Broadband Networks* – IB Docket No. 13-213

Dear Ms. Dortch:

Globalstar, Inc. (“Globalstar”) has fully supported the rules the Commission unanimously proposed in its November 2013 *NPRM*.¹ The Commission’s *NPRM* proposed more intensive use of Globalstar’s 11.5 megahertz of licensed mobile satellite service (“MSS”) spectrum in the 2.4 GHz band and 10.5 megahertz of unlicensed spectrum in the adjacent ISM band. Globalstar strongly believes that the Commission’s proposed low-power terrestrial use of these bands represents an innovative and pro-consumer approach to augmenting the nation’s supply of broadband spectrum and enhancing wireless broadband performance for all consumers.

The proposed use of the unlicensed ISM band, however, has raised a number of technical and policy objections that have delayed the completion of this proceeding as well as the investment that would yield improved broadband at 2.4 GHz. Given this ongoing delay and continued opposition from certain parties, Globalstar hereby seeks to narrow the relief it originally requested and urges the Commission to adopt rules that will expedite the outcome of this rulemaking. As described below, Globalstar requests that the Commission adopt a subset of the rules proposed in the *NPRM* and permit Globalstar to use its 11.5 megahertz of licensed MSS spectrum at 2483.5-2495 MHz for low-power terrestrial broadband services.

Globalstar’s revised proposal should resolve all remaining interference-related concerns in this proceeding as well as policy issues related to use of the 10.5 megahertz of unlicensed ISM spectrum. Rules enabling Globalstar to use its own licensed spectrum more intensively are consistent with well-established Commission policy and precedent. This

¹ *Terrestrial Use of the 2473-2495 MHz Band for Low-Power Mobile Broadband Networks; Amendments to Rules for the Ancillary Terrestrial Component of Mobile Satellite Service Systems*, Notice of Proposed Rulemaking, 28 FCC Rcd 15351 (2013) (“*NPRM*”).

revised approach should allow the Commission to move forward with confidence that this spectrum will be rapidly utilized for the benefit of consumers. In particular, this revised proposal should eliminate objections relating to Globalstar's proposed operations below 2483.5 MHz and alleged detrimental interference to Wi-Fi systems and Bluetooth operations in the unlicensed ISM band. Although the record demonstrates that such interference allegations are without merit, in the interest of moving forward, Globalstar asks the Commission to adopt rules expeditiously for low-power terrestrial operations at 2483.5-2495 MHz.

Globalstar plans to utilize its 11.5 megahertz of licensed spectrum at 2483.5-2495 MHz for low-power operations that support traditional mobile broadband services, including a variety of voice, data, and text applications. With its future terrestrial partners, Globalstar would operate these low-power systems in a variety of settings across the United States to support high data rates and provide consumers with additional terrestrial broadband capacity.

Globalstar urges the Commission to adopt a subset of the Part 25 amendments proposed in the *NPRM* to permit Globalstar to provide terrestrial operations in the 2483.5-2495 MHz band.² The proposed rule amendments for this revised approach are defined below.

Interference protection

Globalstar proposes that the rights to protection from interference that apply today to terrestrial operations under the Commission's Part 25 rules would apply to Globalstar's low-power terrestrial service at 2483.5-2495 MHz. These rights are consistent with those proposed in the *NPRM* above 2483.5 MHz, upon which a number of parties provided comment.³ Specifically, Globalstar would be required to protect other licensed systems from harmful interference, and its low-power terrestrial facilities would not be entitled to interference protection from other authorized operations.

² The Commission's *NPRM* provides notice of proposed rules for Globalstar operations both within its licensed spectrum at 2483.5-2495 MHz as well as operations outside of Globalstar's spectrum. Globalstar's revised proposal raises no new issues that were not presented for notice and comment. Rather, this proposal merely requires the Commission to implement a subset of the changes that were originally proposed. Thus, the Commission's *NPRM* provides sufficient notice for this proposal. As was the case in the *NPRM*, the only rule changes necessary for Globalstar's low-power terrestrial service at 2483.5-2495 MHz are in Part 25.

³ *NPRM* ¶ 19.

Consistent with Commission ancillary terrestrial component (“ATC”) precedent, Globalstar would manage interference between its MSS and low-power terrestrial operations at 2483.5-2495 MHz. Globalstar has committed to implement a network operating system that will minimize interference to its own MSS operations and help ensure Globalstar’s compliance with the operational and technical requirements for its low-power terrestrial service.

Technical requirements, including power and emission limits

Globalstar proposes that the technical rules for its low-power terrestrial operations at 2483.5-2495 MHz be in line with the technical rules proposed in the *NPRM*. As the Commission proposed in the *NPRM*, Section 25.149(a) should be modified so that low-power terrestrial wireless operations in the non-forward-band mode can occur at 2483.5-2495 MHz.⁴ Also as proposed in the *NPRM*, Section 25.149(c) of the Commission’s rules should be modified to include a new Section 25.149(c)(4) that contains a number of key technical requirements, identified below, for this low-power service at 2483.5-2495 MHz.⁵

First, the power limit for this service should be the same as proposed in the *NPRM*: 1 Watt with a peak equivalent isotropically radiated power (“EIRP”) of no more than 6 dBW (4 Watts).⁶ Second, with respect to emissions limits, the Commission should apply a limit on unwanted emissions below the bottom edge of the band at 2483.5 MHz that is equivalent to the limit that the Commission suggested would be appropriate below the bottom edge at 2473 MHz under the *NPRM*.⁷ Under this rule, in any 100 kilohertz bandwidth below 2483.5 MHz, unwanted emissions will have to be at least 20 dB below the fundamental power in the 100 kilohertz bandwidth within the band that contains the highest level of desired power.⁸ Finally, at the 2495 MHz band edge, the Commission

⁴ *NPRM* ¶ 24.

⁵ *NPRM* ¶ 28 and at Appendix A, proposed rule Section 25.149(c)(4).

⁶ *NPRM* ¶ 28. As the Commission pointed out in the *NPRM*, this power limit is identical to that contained in Section 15.247 of the Commission’s rules. *NPRM* ¶ 28; 47 C.F.R. § 15.247.

⁷ *NPRM* ¶ 30. The *NPRM* did not propose any specific unwanted emissions or out-of-band emissions limit at 2483.5 MHz, given that this is the approximate mid-point of the *NPRM*’s proposed transmissions at 2473-2495 MHz. See *NPRM* ¶ 31. The *NPRM* did, however, provide the opportunity to comment on issues presented by emissions at 2473 MHz, the bottom edge of the service proposed in the *NPRM*.

⁸ *NPRM* ¶ 30. As the Commission notes in the *NPRM*, the Commission already applies this emissions rule within the unlicensed ISM band to spread spectrum or digital modulation systems, pursuant to Section 15.247(d) of the Commission’s rules. *NPRM* ¶ 30; 47 C.F.R. § 15.247(d).

should adopt the same out-of-band emission (“OOBE”) limit that it proposed in the *NPRM*: $40 + 10 \log (P)$ dB at the channel edge at 2495 MHz, $43 + 10 \log (P)$ dB at 5 MHz from the channel edges, and $55 + 10 \log (P)$ dB at X MHz from the channel edges where X is the greater of 6 MHz or the actual emission bandwidth.⁹

Equipment certification

Globalstar proposes that, as provided in the *NPRM*, applications for equipment certification of low-power terrestrial devices at 2483.5-2495 MHz would have to meet the technical requirements of new Section 25.149(c)(4) of the Commission’s rules. Equipment certification for low-power terrestrial devices at 2483.5-2495 MHz under Globalstar’s revised proposal, however, should be more straightforward than under the Commission’s proposal in the *NPRM*.¹⁰ Globalstar expects that low-power terrestrial devices at 2483.5-2495 MHz will be newly certified equipment assigned a new FCC ID under well-established Part 2 procedures.

Gating requirements

Just as it proposed in the *NPRM*, the Commission should relax its ATC gating requirements to permit Globalstar to offer terrestrial service in its licensed spectrum at 2483.5-2495 MHz.¹¹ As provided in the Commission’s proposed Section 25.149(g), Globalstar should be able to provide low-power terrestrial service in this band as long as it demonstrates the “commercial availability” of its MSS in the United States.¹² Globalstar reiterates that it remains strongly committed to the successful development of its MSS business.¹³

⁹ *NPRM* ¶ 32.

¹⁰ *NPRM* ¶¶ 42-44.

¹¹ *NPRM* ¶¶ 25-27.

¹² *NPRM* at Appendix A, proposed rule Section 25.149(g).

¹³ Globalstar’s state-of-the-art satellite services provide extraordinary public safety benefits to consumers, businesses, and governmental and public safety users in the United States and around the world. Globalstar provides mobile satellite services to approximately 700,000 subscribers worldwide. Globalstar’s products are used daily for life-saving services, with its SPOT product line having resulted in over 4,800 rescues to date (for an average of approximately two rescues per day). Globalstar completed the launch of a \$1 billion second-generation satellite constellation in 2013 and continues to invest in ground infrastructure upgrades and an expanded line of enterprise, consumer, and government products. Globalstar will soon roll-out its next generation SPOT device providing “two-way” messaging capabilities in addition to its tracking and life-saving

License modification procedure

As required in the Commission’s existing Part 25 rules (and as the Commission proposed in the *NPRM*), Globalstar would have to modify its Part 25 licenses before providing low-power terrestrial service within its licensed spectrum at 2483.5-2495 MHz. While this modification application will be subject to public notice and comment, the Commission should make clear that interested parties can only raise new issues related to this application, rather than issues previously raised during the rulemaking process. Parties must not be given “two bites at the regulatory apple.”¹⁴

* * *

Nearly every opponent of the Commission’s *NPRM* focused on Globalstar’s low-power terrestrial operations in the unlicensed 10.5 megahertz of Channel 14 (2473-2483.5 MHz).¹⁵ Globalstar’s revised proposal addresses those objections by narrowing the relief it seeks to its own licensed spectrum. Under the revised proposal, it is beyond technical

functions. In its most recent Q3 2016 results, Globalstar’s revenue grew 8%, while Adjusted EBITDA increased 48% as compared to the comparable period in the prior year.

¹⁴ See *Flexibility for Delivery of Communications by Mobile Satellite Service Providers in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Bands*, Order on Reconsideration, 18 FCC Rcd 13590, ¶ 14 (2003).

¹⁵ The National Cable and Telecommunications Association (“NCTA”), the Wi-Fi Alliance, and WISPA have asserted that Globalstar’s operations on Channel 14 would cause interference to Wi-Fi operations on Channel 11. See Comments of the National Cable & Telecommunications Association, IB Docket No. 13-213, at 5 (May 5, 2014); Reply Comments of Wi-Fi Alliance, IB Docket No. 13-213, at 6 (June 4, 2014); Comments of the Wireless Internet Service Providers Association, IB Docket No. 13-213, at 5 (May 5, 2014). The Bluetooth SIG, Microsoft, Nintendo, the Entertainment Software Association, the Hearing Industries Association, and others have alleged that TLPS on Channel 14 would cause interference to various Bluetooth operations in the supposed “safe haven” for Bluetooth at 2473-2483.5 MHz. See, e.g., Comments of Bluetooth SIG, IB Docket No. 13-213, at 1 (May 2, 2014); Letter from Gerard J. Waldron, Counsel, Microsoft Corporation, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 13-213, at 2 (June 18, 2015); Letter from Hien Le, Senior Corporate Counsel, Product Compliance and Engineering, Nintendo of America, Inc., to Marlene H. Dortch, Secretary, FCC, IB Docket No. 13-213, at 1 (Sept. 21, 2016); Letter from Michael Warnecke, Chief Counsel, Technology Policy, Entertainment Software Association, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 13-213, at 2 (June 6, 2016); Letter from Laura A. Stefani, Counsel, The Hearing Industries Association, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 13-213, at 2 (July 13, 2015).

debate that Globalstar's low-power terrestrial operations within its licensed spectrum at 2483.5-2495 MHz would raise no interference risks for unlicensed operations in the ISM band or otherwise result in costs for unlicensed systems below 2483.5 MHz. Under this proposal, there will be no potential co-channel interference to unlicensed services in the ISM band. The closest unlicensed broadband systems would be 10.5 megahertz away from the 2483.5 MHz band edge, and the nearest unlicensed narrowband operations would be 3 megahertz away from that edge. In addition, with Globalstar's low-power terrestrial operations entirely in its licensed MSS spectrum at 2483.5-2495 MHz, opponents clearly cannot assert that Globalstar would have "preferential" access to unlicensed ISM spectrum.¹⁶

With respect to licensed services, Globalstar's low-power terrestrial operations at 2483.5-2495 MHz should not raise any interference issues for Sprint Corporation ("Sprint") or other Broadband Radio Service ("BRS") licensees at 2496-2502 MHz or Educational Broadband Service ("EBS") licensees above 2502 MHz. Nor would these low-power operations have any detrimental effect on Broadcast Auxiliary Service ("BAS") licensees in the 2.4 GHz and other bands, who have long shared this spectrum successfully with Globalstar and terrestrial providers.¹⁷

Globalstar's revised proposal will also generate substantial public interest benefits. New low-power terrestrial rules at 2483.5-2495 MHz will benefit consumers throughout the United States by securing an additional 11.5 megahertz of spectrum for the U.S. broadband spectrum inventory and enabling Globalstar to use its licensed spectrum more intensively. Globalstar's low-power architecture would support high data rates, provide a diversity of customers and locations with additional terrestrial broadband capacity, and help satisfy consumers' demand for wireless broadband.

Globalstar urges the Commission to move forward rapidly to adopt this revised proposal. There can be no legitimate opposition to this proposal, which narrows Globalstar's low-power terrestrial rights to its own licensed MSS spectrum at 2483.5-2495 MHz. Accordingly, four years after Globalstar filed its Petition for Rulemaking and three years after the Commission proposed rules in the *NPRM*, Globalstar urges the Commission

¹⁶ See, e.g., Letter from Aparna Sridhar, Counsel, Google, to Marlene H. Dortch, Secretary, FCC, IB Docket No. 13-213, at 3 (April 2, 2015) ("Globalstar could reframe its proposal to make a more plausible request: For instance, it might ask for permission to operate an ancillary terrestrial network . . . on the spectrum above 2483.5 MHz, for which it already has a license.").

¹⁷ In fact, Globalstar's revised proposal would *reduce* overlap with BAS facilities at 2.4 GHz compared to the *NPRM*. While TLPS at 2473-2495 MHz would overlap with BAS Channels A9 and A10, operations under its revised proposal would only overlap with BAS Channel A10.

Marlene H. Dortch
November 9, 2016
Page 7

to adopt Globalstar's revised proposal and enable intensive terrestrial broadband use of its spectrum for the benefit of consumers throughout the United States.

Respectfully submitted,

/s/ L. Barbee Ponder

L. Barbee Ponder

cc: Edward "Smitty" Smith
Brendan Carr
Erin McGrath
Daudeline Meme
Johanna Thomas

Mindel De La Torre
Jon Wilkins
Julius Knapp
Jose Albuquerque
Brian Regan
Ronald Repasi