

**Before the
Federal Communications Commission
Washington, D.C. 20554**

In the Matter of)	
)	
Terrestrial Use of the 2473-2495 MHz Band for)	
Low-Power Mobile Broadband Networks;)	IB Docket No. 13-213
Amendments to Rules for the Ancillary Terrestrial)	RM-11685
Component of Mobile Satellite Service Systems)	

To: The Commission

**COMMENTS OF
THE WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION**

The Wireless Internet Service Providers Association (“WISPA”), pursuant to Sections 1.415 and 1.419 of the Commission’s Rules, submits these Comments in response to the Notice of Proposed Rulemaking (“*NPRM*”) released by the Commission on November 1, 2013 in the above-captioned proceeding.¹ In the *NPRM*, the Commission seeks comment on a proposal by Globalstar, Inc. (“Globalstar”) to use the 2473-2495 MHz band for its Terrestrial Low Power Service (“TLPS”). WISPA believes that the record does not support adoption of the proposed rules at this time, and that appropriate cooperative field testing and further technical study demonstrating the absence of harmful interference must first be conducted and the results made available for public comment. The Commission must take into account the effect that the deployment of millions of TLPS devices will have on existing unlicensed users and devices in the 2400-2473 MHz and 2473-2483.5 MHz frequency ranges. Further, the Commission must be

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*, IB Docket No. 13-213, FCC 13-147 (2013) (“*NPRM*”). On February 19, 2014, a summary of the *NPRM* was published in the Federal Register, which established a deadline of May 5, 2014 for filing Comments. *See* 79 Fed.Reg. 9445 (Feb. 19, 2014). Accordingly, these Comments are timely filed.

assured that Globalstar does not, through its network management system, privatize use of the 2473-2483.5 MHz band to the exclusion of other unlicensed uses.

Introduction

WISPA is the trade association that represents the interests of WISPs that provide IP-based fixed wireless broadband services to consumers, businesses and anchor institutions across the country. WISPA's members include more than 800 WISPs, equipment manufacturers, distributors and others committed to providing affordable and competitive fixed broadband services. WISPs use unlicensed spectrum in TV white space and in the 900 MHz, 2.4 GHz, 3.65 GHz and 5 GHz bands which, because the spectrum is not exclusively licensed, can lower barriers to entry so that WISPs can expeditiously deploy high-quality and affordable service in unserved, underserved and competitive areas. WISPA estimates that WISPs serve more than 3,000,000 people, many of whom reside in rural areas where wired technologies like FTTH, DSL and cable Internet access services are not available. In many of these areas, WISPs provide the only terrestrial source of fixed broadband access. In areas where other broadband options are available, WISPs provide a local-access alternative that benefits customers by fostering competition, lowering costs and improving features.

Prior to adoption of the *NPRM*, WISPA submitted Comments in response to Globalstar's petition for rulemaking.² WISPA expressed general support for further consideration of Globalstar's proposal, but identified a number of questions the Commission should consider before adopting rules. Chief among these is the potential for harmful interference to unlicensed operations and the possibility that the TLPS would privatize public spectrum and make it available only to those having established business relationships with Globalstar. In addition to

² See WISPA Comments, RM-11685 (filed Jan. 14, 2013).

these questions, which remain unanswered, the *NPRM* seeks comment on other important issues related to interference protection and the potential foreclosure of use of unlicensed public spectrum.

Discussion

I. GLOBALSTAR MUST ENGAGE IN MEANINGFUL FIELD TESTING TO DETERMINE WHETHER TLPS OPERATIONS WOULD CAUSE HARMFUL INTERFERENCE TO DEVICES IN THE 2400-2483.5 MHz BAND.

As a trade association representing companies that rely heavily on unlicensed spectrum to offer broadband service to the public, WISPA fully appreciates that unlicensed devices are not entitled to interference protection from licensed services or other unlicensed devices. WISPA also appreciates that there is a significant need for licensed and unlicensed spectrum to meet the ever-expanding demands of consumers and businesses that require more and more capacity and speed.

That said, the Commission cannot ignore the significant number of unlicensed devices in the 2400-2483.5 MHz band. Millions of consumers rely on broadband Wi-Fi and other devices that operate in the band adjacent to and overlapping with Globalstar's proposed use of Channel 14 for TLPS. These devices serve vital communications needs, from providing broadband services to rural consumers to mobile Wi-Fi services that connect consumers to first responders, educational resources and other information available via the Internet.

As comparison, when it adopted rules for the 900 MHz Multilateration-Location Monitoring ("M-LMS") service in 1995, the Commission recognized the presence of "several million Part 15 devices . . . used every day to provide a wide variety of valuable services to the

American public.”³ The Commission also stated that, “[i]n addition to the enormous benefits to both businesses and consumers that will result from the continued growth in the use of the Part 15 industry, our nation’s economy also benefits due to the continued development of these new, advanced radio technologies by American companies.”⁴ To ensure the continued use of these unlicensed devices, the Commission adopted Section 90.353(d) to specifically condition M-LMS licensees “upon the licensee’s ability to demonstrate through *actual field tests* that their systems do not cause unacceptable levels of interference to 47 CFR part 15 devices.”⁵ The Commission affirmed that the purpose of the testing condition “is to insure that multilateration LMS licensees, when designing and constructing their systems, take into consideration a goal of minimizing interference to existing deployments or systems of Part 15 devices in their area, and to verify through cooperative testing that this goal has been served.”⁶

Unlicensed users in the 2400-2483.5 MHz band deserve no less now. Although WISPA of course understands that Part 15 does not create interference protection rights for unlicensed devices, the regulatory obligations requirements imposed on M-LMS licensees expressly recognizes that the Commission has the authority – indeed, the responsibility – to ensure through field testing that an established base of millions of unlicensed consumer devices is not severely crippled.

Globalstar is well aware that WISPA stands ready to conduct joint testing with Globalstar to determine the effects that TLPS operations would have on Channel 11 operations. WISPA had hoped that the results of cooperative interference testing could have been submitted in the

³ See *Amendment of Part 90 of the Commission’s Rules to Adopt Regulations for Automatic Vehicular Monitoring Systems*, 10 FCC Rcd 4695, 4699 (1995).

⁴ *Id.* at 4700.

⁵ *Id.* at 4737 (emphasis added). See also Section 90.353(d).

⁶ *Amendment of Part 90 of the Commission’s Rules to Adopt Regulations for Automatic Vehicular Monitoring Systems*, 12 FCC Rcd 13942, 13968 (1997). See also *Order*, 26 FCC Rcd 16876, 16888 (WTB/OET 2011).

record at this time, but such is not possible despite WISPA's good faith efforts. Until cooperative testing takes place that demonstrates the absence of harmful interference, WISPA cannot support Globalstar's proposal. To do so would be irresponsible and invite harmful interference to the millions of unlicensed devices that currently provide valuable wireless communications services across the country.

II. GLOBALSTAR'S PROPOSAL LEAVES IMPORTANT QUESTIONS UNRESOLVED.

While Globalstar may be commended for its creativity, its execution is incomplete. First and foremost, neither Globalstar nor Jarvinian Wireless Innovation Fund ("Jarvinian"), its consulting engineering firm, has provided any evidence in the record indicating that it has performed any appropriate testing to determine whether and to what extent its proposed Channel 14 operations would cause harmful interference to adjacent Channel 11 operations. Without performing testing between Channel 11 and Channel 14, there is no technical basis to support Globalstar's claim that TLPS deployment "will further the Commission's goal of easing the congestion that is diminishing the quality of Wi-Fi service at high-traffic 802.11 hotspots and other locations."⁷ Indeed, the opposite may be true – the "Wi-Fi Traffic Jam," as Globalstar calls it, may actually worsen.⁸ There are currently three useable, non-interfering Wi-Fi channels (Channels 1, 6 and 11). Following implementation of Globalstar's TLPS Channel 14, there may be only two (not four as Globalstar claims) useable Wi-Fi channels (Channels 1 and 6) because Globalstar's Channel 14 will likely interfere with current Channel 11 in areas where they are co-located. This interference will reduce the throughput, reliability and number of potential users on both Channels 11 and 14.

⁷ Letter from Regina M. Keeney, Globalstar Counsel, to Marlene H. Dortch, FCC Secretary, RM-11685 (filed June 21, 2013) ("Globalstar June 2013 Ex Parte Notice") at 2.

⁸ *See, e.g.*, Letter from Regina M. Keeney, Globalstar Counsel, to Marlene H. Dortch, FCC Secretary, RM-11685 (filed Sept. 20, 2013), Presentation at 2, 11.

In addition, Globalstar misstates the real-world meaning of the principal of adjacent channels. Channels that are adjacent when looked at strictly in the frequency domain may indeed cause mutual, adjacent-channel interference to each other. While Globalstar claims that its proposed operation on Channel 14 has “no impact on public Wi-Fi operation in adjacent channels,” Globalstar has submitted no test data to support that claim.⁹ Without any guard band between Wi-Fi channels, adjacent-channel interference is extremely likely to occur because Channel 11 receivers will be overloaded by nearby TLPS Channel 14 transmitters. In addition, because there is no guard band between Channel 11 and Channel 14, out-of-band emissions from transmitters on each channel will be a source of interference to receivers on the other channel.¹⁰

In sum, absent reliable technical analysis and real-world testing, the Commission and wireless industry stakeholders simply do not know the extent and severity of the harmful interference.¹¹ Globalstar’s claim that harmful interference from TLPS operations to Channel 11 is “highly unlikely under real-world conditions” is completely unsupported by any technical evidence in the public record.¹² Globalstar’s assumptions and statements are flawed, and further demonstrate that there is a “dearth of technical analysis on the record and . . . that further technical analysis of Globalstar’s proposed TLPS is needed to determine the effect on unlicensed users.”¹³

⁹ Globalstar June 2013 Ex Parte Notice, Presentation at 16.

¹⁰ In the 3.5 GHz rulemaking proceeding, the Commission expressed concern over the ability of receivers to accept out-of-band emissions. *See Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Further Notice of Proposed Rulemaking, GN Docket No. 12-354, FCC 14-49 (rel. Apr. 23, 2014) at ¶ 82. Similar questions are presented here.

¹¹ In this regard, WISPA cannot determine the appropriate limit for out-of-band emissions below 2473 MHz that would result from TLPS operations. *See NPRM* at ¶ 30. However, WISPA believes that the Section 15.247(d) limit is insufficient given the lack of any guard band between Channels 11 and 14, especially in the absence of any contrary showing based on field testing.

¹² Globalstar Reply Comments, RM-11685 (filed Jan. 29, 2013) (“Globalstar Rulemaking Reply Comments”) at 14.

¹³ Letter from Stephanie E. Minnock, Tyler Cox and Blake E. Reid, Samuelson-Glushko Technology Law & Policy Clinic, Colorado Law, to Marlene H. Dortch, FCC Secretary, IB Docket No. 13-213 (filed March 31, 2014) at 2. *See also NPRM* at ¶ 16 (Commission seeks comment on the results of TLPS interference testing).

Second, although Globalstar claims that its initial TLPS testing results “have exceeded all expectations” with respect to effective distance and effective capacity, the sole evidence supporting this claim is apparently the eight multi-colored Wi-Fi heat maps created during Jarvinian’s testing using one single access point located on the fifth floor of a commercial building in Cambridge, Massachusetts.¹⁴ Noticeably absent from this presentation is an actual statement of Globalstar’s initial expectations, an assessment of how and whether those initial expectations realistically relate to real-world operations, a description of the test plan and any graphical comparison of the test results. Moreover, WISPA questions the validity and value of Globalstar’s unsupported claim that Channel 14, which has no existing broadband users and therefore no significant interference, has a superior signal-to-noise ratio (SNR) and therefore will deliver five times the distance and four times the capacity when compared to Channel 6, the most frequently used and most congested, interference-prone and thus worst performing Wi-Fi channel. Comparing Globalstar’s rosy performance expectations to a worst-case scenario is misleading and fails to prove either the absence of harmful interference to Channel 11 or the validity of Globalstar’s Channel 14 performance claims.

Third, aside from the invalid interference comparison and flawed performance analysis, the Commission also must consider issues concerning Globalstar’s “managed operations” in the 2473-2483.5 MHz band.¹⁵ Although Globalstar’s proposed TLPS operations would not obtain any “superior status over other authorized users,”¹⁶ it would provide TLPS “only to *authenticated* users and devices and utilizing available technologies to prevent *unauthorized* use

¹⁴ See Letter from L. Barbee Ponder IV, General Counsel & Vice President Regulatory Affairs, Globalstar, to Mignon Clyburn, Chairwoman, FCC, RM-11685 (filed June 13, 2013).

¹⁵ *NPRM* at ¶ 20.

¹⁶ *Id.*

of this spectrum.”¹⁷ This statement strongly implies that Globalstar will control use of the 2473-2483.5 MHz band and allow access only to those that meet whatever technical, financial, legal or other criteria Globalstar unilaterally establishes to authorize use of this public spectrum. Such an approach is diametrically opposed to Part 15 rules that regulate *devices* based on certification requirements designed to mitigate the potential for harmful interference, not on authentication and authorization by a private party. Globalstar’s TLPS is conceived as a “private Wi-Fi,” in sharp contrast to the spirit of public unlicensed operations.

Globalstar contends that

it is not seeking to convert the unlicensed frequencies at 2473-2483.5 MHz into its own exclusively licensed spectrum. The spectrum will remain unlicensed. Now and in the future, any party will be able to operate in the 2473-2483.5 MHz band in a manner *consistent with the Commission’s existing Part 15 rules*, avoiding harmful interference to Globalstar’s adjacent-band MSS offerings above 2483.5 MHz.¹⁸

Current Part 15 rules impose on unlicensed devices in the 2400-2483.5 MHz band stringent out-of-band emissions requirements in order to protect Globalstar’s MSS operations.¹⁹ Now that Globalstar wants to use the band for its own private broadband Wi-Fi service, WISPA notes the irony in Globalstar’s proposal – that existing Commission Wi-Fi technical limitations originally designed to protect Globalstar’s MSS operations and which have prevented broadband use of 2473-2483.5 MHz need no longer apply. Consequently, the combination of the current Wi-Fi strict out-of-band limits and the deployment of Globalstar’s proposed TLPS scheme would threaten to privatize use of the band, and from a practical perspective foreclose other broadband uses of the band that may develop over time, making the privatization permanent and exclusive.

¹⁷ Globalstar Petition for Rulemaking, RM-11685 (filed Nov. 13, 2012) at 38-39 (emphasis added).

¹⁸ Globalstar Rulemaking Reply Comments at 13 (emphasis added).

¹⁹ See Section 15.247.

This would be contrary to years of spectrum policy that have promoted spectrum sharing, innovation and the deployment of millions of other devices by the public in unlicensed bands.

Conclusion

For the foregoing reasons, WISPA respectfully submits that the record does not demonstrate a sufficient technical basis upon which the Commission can adopt its proposed rules. Further, WISPA remains concerned about the limitations on current and future uses of the 2400-2473 MHz and 2473-2483.5 MHz bands. WISPA looks forward to continued participation in this proceeding, including cooperative interference testing.

Respectfully submitted,

WIRELESS INTERNET SERVICE PROVIDERS ASSOCIATION

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