



**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

May 2, 2014

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

Via the ECFS

The Bluetooth Special Interest Group (SIG) is a global trade organization that oversees the development of *Bluetooth*® wireless technology specifications and the promotion and protection of the Bluetooth brand. Backed by industry leading companies, the Bluetooth SIG empowers over 23,000 member companies to collaborate, innovate and guide Bluetooth wireless technology. Surpassing the 2.5 billion devices shipped landmark in 2013 alone; 10s of billions in the last five years, Bluetooth devices have become a large part of our everyday life, and the coming Internet of Everything will create new opportunities for an acceleration of growth for this technology. With more and more Bluetooth devices having a greater impact on the way we live, it is essential that we protect and defend the valuable unlicensed spectrum that makes it possible, and the industry that we represent.

In November of 2012, Globalstar petitioned the FCC for a rulemaking to enable them to use their MSS-license spectrum in 2483.5 to 2495 MHz to create a Terrestrial Low Power Service (TLPS), and to allow them to extend that service into the 2473 to 2483.5 MHz band. This extension would take it into spectrum currently being shared, among others, by two technologies that have become essential to our way of life, and the industries that make a significant contribution to employment in this country and around the world: Wi-Fi and Bluetooth. With billions of devices sharing just 83.5 MHz of the RF spectrum, it is not hard to understand how adding a licensed service to this band will cause harm. For this reason, the Bluetooth SIG, along with dozens of other entities,

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responded to the petition and met with the FCC to express our concerns and our skepticism with many of the claims outlined in their petition.

In November of 2013, the Globalstar petition was granted and the rulemaking was issued. We appreciate the Commission allowing us this opportunity to provide our comments in this proceeding. With so much at stake, we were unwilling to accept unsubstantiated claims such as “*The Record Demonstrates the Public Interest Benefits that Will Result from Globalstar’s Proposed Terrestrial Services in the Big LEO Band*”, when no actual record was cited and nothing in the petition demonstrated public interest benefits. The petition is replete with rhetoric and absent of data that supports their request.

The Commission should not grant privileges to Globalstar not afforded other users of this band

In Paragraph 4, Globalstar indicates that their TLPS network will “...enhance the commercial viability of its global MSS network by entering into joint ventures with other companies and using the revenues from future terrestrial services and spectrum leases to cover the capital costs along with the ongoing operational costs of providing MSS.” We do not believe that commercial viability of the Globalstar MSS is the responsibility of the Commission, nor should have any place in this proceeding, and that the possibility that this will result in joint ventures is pure speculation, lacking any data to support it. The strength of the Bluetooth industry has its roots in providing a vital, low cost communications tool for billions of devices and the people that use them every day. The viability of a technology and the industry it creates should be based on the need it fills, and not the regulations that give it an advantage over others competing for the same spectrum.

In the same paragraph Globalstar states that they will be “...deploy[ing] 20,000 free access points to public and non-profit schools, community colleges and hospitals in the United States...”. In this very low margin, highly competitive wireless networking industry, the Commission should not be encouraging this type of anti-competitive practice. We find this to be challenging legally, inappropriate, and showing a lack of concern for and understanding of the industries they will be impacting if this rulemaking is approved.

The value and efficiency of their TLPS network is overstated at best

The test results cited in Paragraph 6 do little to prove the Globalstar claims of gains of “...5 times the effective distance and 4 times the effective capacity...” over conventional Wi-Fi, or of “...no impact on public Wi-Fi...”. The test summary indicates that the tests were apparently run under highly controlled conditions, in channel 14, where no interference exists, and then compared to Wi-Fi operation in a congested channel 6. This is not uncharacteristic of conventional Wi-Fi, and must be taken into consideration when reviewing the test results. If the Commission is to authorize the establishment of TLPS networks, the test data should be clear and complete, and its conclusions should not be exaggerated to overstate the value and understate the impact of their technology on the other users of this spectrum.

No impact data is presented, and Bluetooth is not even mentioned in the test results or anywhere in the June 10, 2013 filing. With the greatest possible negative impact of the Globalstar use of 2473 to 2483.5 MHz being the disruption of Bluetooth device operation, test data supporting their claim of low impact must be presented as well.

Globalstar ignores the contribution of Bluetooth to the public good

Since filing their petition for rulemaking, Globalstar and their representatives (Jarvinian and legal counsel) have filed 21 Ex Partes in RM-11685. Of those only four even mention Bluetooth. The January 29, 2013, May 27, 2013 and August 2, 2013 letters state that Bluetooth “will be able to coexist”. Their only mention of Bluetooth, in the December 13, 2013 letter, simply mentions that their SPOT service utilizes Bluetooth pairing. Their August 2nd letter erroneously stated that the Bluetooth SIG is asking for exclusivity in the 2473 to 2483.5 MHz band. We addressed in our August 8, 2013 reply, and are uncomfortable with their simply dismissing this fact. There has never been an impact statement or data indicating what that impact might be, or even a contention that this will be low impact.

The bottom line is that the Bluetooth technology, that is so essential to hundreds of millions of users in the 2.5 billion devices shipped in 2013 alone; 10s of billions in just the last five years, including health and wellness wireless medical devices, is given zero consideration in the Globalstar filings. Certainly, for the most part, most Bluetooth devices can and will adapt to interference. However, the Bluetooth Low Energy (LE) devices utilize (Bluetooth) channel 39, in the 2473 to 2483.5 MHz band, as an “advertising” channel, and therefore would find it difficult to pair in the presence of an

interferer in that band. Globalstar has chosen to ignore this fact with their “will be able to coexist” assertion.

Globalstar “enhancements” will favor subscribers at the expense of the general public

Ignored in most of the discussion of the TLPS service is that it only benefits Globalstar TLPS subscribers. The Commission would better serve the public good by opening the 2473 to 2483.5 MHz together with the today scantily utilized 2483.5 to 2495 MHz spectrum, for Part 15 unlicensed access. Under the provisions of Part 15.5(b), the Globalstar MSS licensed operations would be protected from interference, and the general public would have access to an additional 22 MHz of spectrum, which would truly provide a public benefit by reducing overall congestion in that band.

With these concerns in mind, we would like to address the Commission’s specific questions

In paragraph 16 in general terms, and then more specifically in paragraph 23 the Commission asks about “any potential detrimental impact on existing unlicensed devices in the 2400-2483.5 MHz band.” Today, the 10s of billions of Bluetooth devices currently operating in the homes, offices, and automobiles and even in the pockets of every smartphone user must deal with the other most widely deployed unlicensed wireless technology, Wi-Fi. As a result, the upper channels employed by Bluetooth are often heavily used. For Bluetooth low energy, channel 39, which sits at 2480 MHz is one of only three advertising channels; the other two are in Wi-Fi channels 1 and 6. Bluetooth LE, with its low power consumption, looks to become dominant, especially for mobile, battery-powered devices. A TLPS network, which operates at 2480 MHz, has a huge potential for causing catastrophic failures of Bluetooth LE devices, including the medical devices now under development and in the process of being deployed.

In paragraph 27 the Commission seeks comment on their proposal of “an exception from the integrated services rule for the proposed low-power deployment.” This would enable Globalstar to operate the TLPS MSS ancillary terrestrial component in the 2473 to 2483.5 MHz band even though MSS is not deployed there. As we already stated, any new allocation in this band has potential for serious harm for Bluetooth devices, including medical sensors and body area Bluetooth LE networks. Additionally, we are concerned that extending the MSS ATC into the ISM band, and allowing a large

scale deployment would enable Globalstar to repurpose this for general, service provider managed networks that have a much greater potential for interference than a true MSS ancillary component, as although their MSS has a limited subscriber base, a service provider network could be operated on a much larger scale.

If the Commission does approve the Globalstar TLPS plan, we agree that the transmit power limits should comply with the current rules in Part 15.247 as discussed in paragraph 28, assuming the out-of-band emissions are also conformed to.

Paragraph 29 is a discussion of the possible harm to Wi-Fi channel 11. Globalstar “argues that its access points and higher powered terminal devices will be equipped with high selectivity passband filters, which will further segregate Channel 14 operations from those on Channel 11.” This would also impact even more of the Bluetooth channels. It is impossible for us to make a proper assessment without real data to support this claim, especially as they also claim that they will use conventional Wi-Fi access points with software modifications. These seem to be contradictory, and therefore in need of further testing and full disclosure of the test results.

One final note of caution

In addition to not providing a Bluetooth impact statement as previously addressed in this filing, Globalstar has claimed that their TLPS network will not cause harm to Wi-Fi networks, and base this on results of testing done under the provisions of their experimental license. A test report has been submitted to support this claim, however, this test report is a mere summary of what appears to be very limited and controlled testing. Considering the potential harm to the hundreds of millions of users of Bluetooth devices and Wi-Fi networks, the Commission should require a much higher standard for proof. We would never accept a summary in lieu of a full and comprehensive test plan, one that we could duplicate to corroborate the results, and would not expect the Commission to accept it either. Until such proof is forthcoming, we ask the FCC to reject the Globalstar plan. Should Globalstar submit a full test report, we would ask the Commission to allow us the proper time to evaluate it, not possible with a summary, to do our own testing to verify their results, and to provide our own analysis of the results. Until it is known that their claim is valid, the Commission should not allow this rulemaking to go forward.

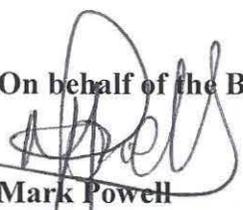
Conclusions

The Bluetooth SIG would like to thank the Commission for this opportunity to have our opinions in this proceeding considered. As the global trade organization for over 23,000 member companies, most of whom operate and provide jobs within the United States, and the many billions of devices in the field that depend upon unlicensed access to the 2.4 GHz band, we believe our concerns should be heard.

It is clear to us that Globalstar has not fully studied the impact of their proposed TLPS network on the current occupants of the band they are asking to use for an ATC for their MSS, especially when some of their claims appear to be contradictory. We believe it is incumbent upon them to do so before any rulemaking can proceed. This should take into consideration not only the currently shipping Bluetooth devices, but also those that will be available before any TLPS deployment, including Bluetooth medical devices, especially those utilizing Bluetooth LE.

We also ask the Commission not to grant a special favored status to Globalstar in this proceeding, as they have requested. Their commercial viability and their rapid system rollout should not be assisted by an FCC rulemaking. The Bluetooth and Wi-Fi industries have grown tremendously by serving the greater public good, in a cost effective manner, without benefit of special consideration. The success of both of these industries can be inextricably linked to the free and open nature of the unlicensed spectrum. We believe the Commission should therefore give serious consideration to opening the full 2.4 GHz band, from 2400 to 2495 MHz, for Part 15 unlicensed access, to alleviate the existing congestion and provide additional channels in support of the coming Internet of Things revolution.

On behalf of the Bluetooth SIG,



Mark Powell
Executive Director
Bluetooth SIG, Inc.
425.691.3530
mpowell@bluetooth.com