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### **Via Electronic Filing**

Marlene H. Dortch, Secretary  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, D.C. 20554

**Re: IB Docket No. 13-213 and RM-11685**  
**Ex Parte Filing of the Hearing Industries Association**

Dear Ms. Dortch:

On December 10, 2015, Andrew Bopp, Executive Director of the Hearing Industries Association (“HIA”), and the undersigned met with Edward Smith, Legal Advisor to Chairman Wheeler. The purpose of the meeting was to discuss the impact of Globalstar’s proposed system on Bluetooth Low Energy, and in particular on the current and future use of hearing technologies and assistive technologies in the 2.4 GHz band.

During the meeting, HIA noted that one-third of Americans over the age of 65 and two-thirds over the age of 75 suffer from hearing loss. Both hearing aids and hearing aid accessories are vital to these and other Americans as a means of staying connected and involved with the world around them. Studies have shown that untreated hearing loss is linked to higher rates of depression and falls, and according to new research is correlated with increased rates of dementia. Ensuring that hearing loss is addressed can lead to reduced health impairments and health care costs for many Americans.

Bluetooth Low Energy deployed in the 2.4 GHz band is vital to easier and increased adoption of hearing aids and hearing aid accessories. Wireless technology now enables people with hearing loss to better connect with the world by: using assistive listening device (“ALD”)

apps on their wireless devices; using companion microphone devices in classrooms or noisy environments; adjusting hearing aids from a remote device; routing telephone calls and streaming audio from television, MP3 devices and sound systems to their hearing aids; and enjoying the benefit of ear-to-ear (“E2E”) communications systems (for people who have total hearing loss in one ear).

Given the limited capacity of hearing aid batteries, Bluetooth Low Energy currently is the only mainstream technology that will allow hearing instruments to connect to other wireless devices and receive information from devices developed by other industries. While devices are on the market now, a forthcoming new Bluetooth Low Energy standard will provide the shared RF protocol essential for universal adoption of this technology. In short, the hearing instruments industry is entering a new era where reliance on Bluetooth technologies will enable Americans with hearing loss to fully participate in society.

The benefits to Americans are tremendous. While until recently people with hearing loss were left to specialized niche technologies, which over time delivered degraded functions that were increasingly difficult to support, they now have more ready access to new technologies, just like other Americans. Moreover, the transition to Bluetooth could bring an end to the burdensome Hearing Aid Compatibility (“HAC”) regulatory requirements imposed on handset manufacturers and carriers.

This promising solution is threatened by Globalstar’s proposed use of the 2473-2483.5 MHz portion of the 2.4 GHz band. As the Bluetooth SIG determined, based on the technical demonstration with Globalstar earlier this year, the functionality of hearing instruments will be greatly degraded due to unacceptable packet loss. While data loss concealment techniques can partially remedy packet losses (where lost packets are substituted when the actual transmission is not received), this substitution results in unacceptable sound quality degradation when packet losses become excessive. Only very limited retransmission of streaming audio packets are allowed before latency renders the re-sent packets unusably stale. Often, the missing samples create audio artifacts that sound like crackling or some other kind of noise, which is not acceptable to a hearing instrument user. This also degrades intelligibility of the audio stream, and therefore the devices’ effectiveness at treating hearing loss. If this degradation becomes widespread, this would result in limited adoption and use of important wireless assistive technologies.

Additionally, the Globalstar system could interfere with access to the three Bluetooth Low Energy advertising channels. These channels are vital to establishing Bluetooth Low Energy connections; interfering with these may render a device such as a hearing aid inoperable. The Globalstar system is most likely to make Bluetooth Low Energy inoperable at times and in locations where spectrum is crowded, such as hospitals, airport terminals, and meeting and convention centers. These are the very same situations where hearing instrument users most need to be able to function and maximize use of wireless connectivity, *i.e.* public areas where they need to overcome high acoustic background noise. The inability to access a Bluetooth Low Energy device during times of need would limit adoption of new technologies and prevent people with hearing loss from fully functioning with the hearing world.

Finally, the HIA noted that, while offering another means of providing broadband access to schools is an admirable public interest goal, it does not outweigh the public interest benefits

obtained from providing Americans with hearing loss the ability to fully participate in society. For these reasons, the Commission should not proceed with granting the proposed rulemaking.

Please direct any questions to the undersigned.

Respectfully submitted,



Laura A. Stefani  
*Counsel for The Hearing Industries Association*

cc: Edward Smith