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

In the Matter of	)	
	)	
Amendment of the Commission's Rules with Regard to Commercial Operations in the 1695-1710 MHz, 1755-1780 MHz, and 2155-2180 MHZ Bands	)	GN Docket No. 13-185
	)	
Service Rules for Advanced Wireless Services in the 2155-2175 MHz Band	)	WT Docket No. 07-195 (Proceeding Terminated)
	)	
Service Rules for Advanced Wireless Services in the 1915-1920 MHz, 1995-2000 MHz, 2020-2025 MHz, and 2175-2180 MHz Bands	)	WT Docket No. 04-356 (Proceeding Terminated)
	)	
Applications for License and Authority to Operate in the 2155-2175 MHz Band	)	WT Docket No. 07-16 (Proceeding Terminated)
	)	
Petitions for Forbearance Under 47 U.S.C. § 160	)	WT Docket No. 07-30 (Proceeding Terminated)

To: The Commission

COMMENTS OF AEROSPACE AND FLIGHT TEST RADIO COORDINATING COUNCIL

Aerospace and Flight Test Radio Coordinating Council ("AFTRCC"), by its counsel, hereby submits its comments on the Notice of Proposed Rulemaking and Order on Reconsideration ("Notice") in the above-captioned proceeding (FCC 13-102, released July 23, 2013). AFTRCC's comments address those portions of the Notice dealing with carrier access to the band 2360-2390 MHz, and the question regarding Federal access to non-Government spectrum on federal lands.

BACKGROUND

AFTRCC is an association of the nation's principal aerospace manufacturers (see Attachment). AFTRCC was founded in 1954 to serve as an advocate for the aerospace industry on matters affecting spectrum policy. AFTRCC is also the recognized non-Government coordinator for the shared, Government/Non-Government spectrum allocated for flight testing including aeronautical mobile telemetry ("AMT") spectrum. AFTRCC works closely with Government Area Frequency Coordinators, who are responsible for Federal Government use of the spectrum, in an effort to ensure that interference-free flight test operations are preserved, and flight safety maximized.

The Notice looks toward implementing the requirements of the Middle Class Tax Relief and Job Creation Act of 2012.[1] In particular, the Notice proposes to adopt rules for commercial mobile use of the bands 1695-1710 MHz, 1755-1780 MHz, 2020-2025 MHz, and 2155-2180 MHz. Among the many issues raised are proposals by CTIA – The Wireless Association for an LTE allocation in 2095-2110 MHz, which is used for broadcast news and sports programming, among other things, and the response thereto by the Society of Broadcast Engineers ("SBE"); as well as the above-referenced proposal to allow Federal access to non-Government spectrum.

DISCUSSION

In the course of its discussion of the 2095-2110 MHz band as a possible LTE allocation, the Notice references as an alternative an SBE proposal for use of the band 2360-2390 MHz.[2] This is a principal band used for flight test telemetry.

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[1] Pub. L. No. 112-96, 126 Stat. 156 (2012).

[2] *Id.* at page 21.

There is no basis for this proposal. First of all, it takes no account of the Commission's action last year to authorize Medical Area Body Network systems ("MBANs") in 2360-2390 MHz on a secondary basis to AMT.[3] In the First Report and Order in that proceeding, the Commission made the world's first allocation for MBANs devices subject to a detailed framework for sharing the spectrum with AMT on a non-interference basis. MBANs are a new type of medical technology which promises significant benefits in terms of patient care and reduced costs for the delivery of medical care. The Commission's decision was innovative not only from the medical technology standpoint, but also as a matter of spectrum management inasmuch as the framework for coordination between AMT and MBANs represents a creative resolution to a complex and controversial proceeding.

The MBANs rulemaking is not yet complete. Still pending for resolution are issues presented in the Further Notice of Proposed Rulemaking; namely, a determination of the criteria which should be used for the selection of a coordinator (or coordinators) for the medical community. Petitions for reconsideration of various implementation details have also been filed. The bottom line is that the stringent coordination regime adopted for the protection of the primary service, AMT, has not yet been implemented, much less tested out in actual practice. Introduction of another system in the band at this juncture -- least of all one as ubiquitous and as fraught with potential for interference as LTE -- would be extremely disruptive.

An LTE allocation in 2360-2390 MHz would cause interference to AMT operations. The 2.3 GHz band is used for real-time transmission of data to ground-based engineers regarding the performance and condition of aircraft undergoing flight tests. The antennas used to gather such data are large parabolic dishes which track the test article based on their ability to receive an

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[3] *In the Matter of Amendment of the Commission's Rules to Provide Spectrum for the Operation of Medical Body Area Networks*, 27 FCC Rcd 6422 (2012).

extremely weak and fluctuating signal at distances of 200 miles and more. Interference causes loss of data and the consequent need to re-fly particular maneuvers, or even entire flights; in certain cases it can cause the antenna to lose its ability to track the test article.[4] This kind of interference is, by definition, harmful for flight safety.

An extensive record was developed by AFTRCC during the course of the MBANs proceeding on the potential for interference from low power (1 mW), uncoordinated MBANs devices.[5] LTE equipment transmits at much higher power levels (e.g. 200 mW for user equipment and 1640 watts/MHz EIRP for non-rural base stations[6]), would be deployed in far greater numbers, and would be ubiquitous. The potential for interference to AMT is accordingly much greater in the case of LTE operations. Moreover, LTE base stations may be highly susceptible to interference from flight telemetry transmissions.

Indeed, Working Group 5 of the Commerce Spectrum Management Advisory Committee ("CSMAC") recently concluded that "sharing between [the] two disparate applications [AMT and LTE] is problematic given the significant geographic distances required to protect both services."[7] While reasonable minds may differ over the exact size required for exclusion zones, the work done thus far indicates that the distances will be large, i.e. as much as 140 km for the protection of AMT receivers from LTE user equipment, and from 100 to over 560 km for the protection of LTE base stations from telemetry transmissions.[8] When it is further considered that

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[4] The antennas follow the aircraft or missile based on the received telemetry signal, not via radar.

[5] *See, e.g.,* AFTRCC Comments filed May 27, 2008; Reply Comments filed November 4, 2009. The Commission's decision contemplates a robust coordination regime and technological measures to protect AMT from MBANs interference.

[6] See Rule 27.50(d)(2); cf. Notice at para. 102.

[7] Working Group 5 Final Report, July 22, 2013, page 5.

[8] *Ibid*, Table 4.

aircraft manufacturing facilities – and, thus, flight test ground station sites – are typically located in or near metropolitan areas like Dallas-Fort Worth, St. Louis, Wichita, Seattle, and Tucson, to name a few locations, the difficulties associated with any LTE use of 2360-2390 MHz are apparent.

An LTE allocation at 2360-2390 MHz would not only create threats to the continued effective operation of safety-of-life AMT operations but place at risk the successful deployment of MBANs devices in hospitals and clinics throughout the country. In a word, such a new allocation would undo essential premises underlying the coordination regime adopted in the First Report and Order.

In short, there is no basis for the SBE proposal whether viewed from an administrative regularity standpoint, or from a technical compatibility standpoint.

The Notice also poses the question as to whether Federal systems should be allowed access to non-Federal spectrum, especially on Federal lands like "military training ranges in otherwise unpopulated areas."[9] AFTRCC supports such Federal access. To this point, spectrum sharing has been a one-way street: Spectrum has been transferred routinely from the Government inventory to the non-Government (FCC's) inventory, the instant proceeding being the most recent case on point. As the commercial value of spectrum below 6 GHz has grown in

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[9] *See id.*, para. 81. The Notice does not specify whether the Commission has in mind allowing access on a user-specific, case-by-case basis, or whether it contemplates spectrum reallocations, or both. Given the requirement that spectrum availability be assured before new DOD systems are fielded, AFTRCC urges that the Commission implement its proposal via reallocations to the extent possible. In this way, Federal users will be able to plan ahead with greater confidence that spectrum will indeed be available.

recent years, Government users are under increasing pressure to relinquish use of bands important for national security and other public interest applications. Further transfers of Federal spectrum could have material adverse effects on the military's ability to train as it fights. Further transfers may likewise undermine the nation's ability to properly test advanced technologies critical to U.S. security and international interests. Federal access to non-Government spectrum, while not a panacea, can help mitigate such losses, particularly at military test and training ranges.[10] Such access could also facilitate Federal users being able to leverage commercial technologies for certain of their communications needs. Given these factors, failure to allow Federal use of FCC spectrum in areas like these would be the contrary to the Commission's spectrum conservation mandate.

Making non-Government spectrum available for Federal users on a shared basis can be accommodated with little risk of interference. Major military test and training ranges often encompass thousands of square miles, and many thousands more when airspace is factored in. For example, the Nevada Test and Training Range is the largest contiguous air and ground space available for peacetime military operations in the U.S. occupying 12,000-square nautical miles.[11] Nonetheless, to the extent considered necessary to allow Federal use of non-Government spectrum, the Commission could utilize the kind of field strength and/or coordination rule for range boundaries which has for years effectively controlled interference between adjacent PCS licensee coverage areas. See Rules 24.236 and 24.237. Given these factors, failure to allow

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[10] Whether access would help alleviate losses in a particular situation would require the examination of a number of factors, including the ability to retune or refit equipment to operate in the "new" band.

[11] http://www.nellis.af.mil/library/factsheets/factsheet.asp?id=18506

Federal use of FCC spectrum in areas like these would be the contrary to the Commission's spectrum conservation mandate.

CONCLUSION

For the reasons set forth above, AFTRCC urges that no further consideration be given to suggestions for use of 2360-2390 MHz as a source of spectrum for LTE. AFTRCC further urges that non-Government spectrum be made available for sharing with Federal users at military test and training ranges.

Respectfully submitted,

AEROSPACE AND FLIGHT TEST RADIO
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