

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

In the Matter of)	
)	
Promoting Spectrum Access for Wireless Microphone Operations)	GN Docket No. 14-166
)	
Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions)	GN Docket No. 12-268
)	
)	

**COMMENTS OF
AEROSPACE AND FLIGHT TEST RADIO COORDINATING COUNCIL, INC.
ON PETITIONS FOR RECONSIDERATION**

Aerospace and Flight Test Radio Coordinating Council, Inc. (“AFTRCC”) hereby submits its Comments on the petitions for reconsideration of the Commission’s August 11, 2015, Report and Order in the above-captioned proceedings.¹

As an initial matter, AFTRCC applauds the Commission’s recognition in the *Order*, when making the 1435-1525 MHz band (the “L-Band”) available for licensed, secondary use by wireless microphones by professional users, that protection from interference to primary aeronautical mobile telemetry (“AMT”) operations in the L-Band “is of paramount importance.”²

¹ *Promoting Spectrum Access for Wireless Microphone Operations*, GN Docket No. 14-166, and *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Report and Order, 30 FCC Rcd 8739 (rel. Aug. 11, 2015) (“Order”). The four petitions were filed on December 17, 2015, by Shure Incorporated (“Shure”), Sennheiser Electronic Corporation (“Sennheiser”), Lectrosonics, Inc. (“Lectrosonics”), and Audio-Technica U.S., Inc. (“A-T”). The Commission published notice of and sought comment on these petitions on February 12, 2016. See Federal Communications Commission Petitions for Reconsideration of Action in a Rulemaking, 55 Fed. Reg. 7,491 (Feb. 12, 2016). As such, these Comments are timely submitted to the Commission.

² *Order*, ¶ 118.

AFTRCC is pleased that the Commission codified the need, not only for prior coordination, but that authentication of wireless microphones for use be based on an automated mechanism and be repeated “regularly”³ to ensure that operation of wireless microphones occurs only at pre-coordinated times and places. Pursuant to the rules that the Commission adopted, AFTRCC has continued its discussions with the wireless microphone manufacturer community to explore development of a coordination framework and mechanism.

One of the rules adopted in the *Order* of which Shure, Sennheiser, Lectrosonics, and A-T (collectively, the “Petitioners”) all seek reconsideration is the Commission’s requirement that “[a]ll LPAS devices operating in a particular area in the band [*i.e.*, 1435-1525 MHz] may have access to no more than 30 megahertz of spectrum in the band at a given time.”⁴ Shure argues that

no basis exists in the record for the 30 megahertz limit. The Commission did not seek comment on restricting secondary wireless microphone access to the band in such a manner, nor did the Order cite to any comments filed in support of such a limitation. As such, the Commission should correct this inadvertent oversight by making the entirety of the 1435-1525 MHz band available to licensed wireless microphone users pursuant to successful coordination with AFTRCC and federal and non-federal incumbent users.⁵

³ *Id.* ¶ 119. The Commission stated that “we will require manufacturers to design, and operators to use, software-based controls (or similar functionality) to prevent devices from operating in the band except in the specific channels coordinated with AFTRCC for any given location.” *Id.*

⁴ 47 C.F.R. § 74.803(d). *See also Order*, ¶ 118 (“we will authorize all microphones operating in a particular area to access no more than 30 megahertz in the 1435-1525 MHz band.”).

⁵ Petition for Reconsideration of Shure at 7. Shure also contends that the restriction is contrary to the Commission’s stated objective of making adequate spectrum available for wireless microphones at large venues and is unnecessary to facilitate successful coordination with AMT. *Id.* at 8-9. *See also* Petition for Reconsideration of Sennheiser at 3-6 (the 30 MHz restriction violates the Administrative Procedure Act because there was inadequate notice that such a restriction might be imposed, is not supported in the record, and is unduly restrictive as well as technically unnecessary); Petition for Reconsideration of A-T at 5-6 (the 30 MHz restriction is contrary to the Commission’s purpose of making spectrum available for use at large events); Petition for

AFTRCC does not oppose the Petitions for Reconsideration of Shure and the other Petitioners on this issue. In terms of coordinating wireless microphone proposed uses in the band, the 30 MHz restriction adopted by the *Order* offers no particular advantage to AFTRCC as coordinator or to its members as users of the AMT spectrum for flight testing. The Commission stated in the Order that it envisions that wireless microphone users could seek STA to use more than 30 MHz for “extraordinary situations or special events.”⁶ As coordinator, however, AFTRCC would treat a request for coordination of 60 MHz or 90 MHz the same, whether it consists of a request for coordination under the rule in question for 30 MHz and a separate request for the remainder pursuant to an STA application or whether it consists of a single request under a wireless microphone license to use 60 or 90 MHz of L-Band spectrum. If a proposed wireless microphone operation can be coordinated (and the equipment is certified to meet the L-Band authentication and geolocation verification requirements of the new rules) and if AFTRCC (and federal government coordinators) find it to not present an interference concern to planned AMT operations or other prior coordinated uses, AFTRCC submits that it should not matter whether the requested spectrum requested is greater or less than 30 MHz – or involves the entire 90 MHz band, for that matter. AFTRCC would not have an issue attempting to coordinate any such use request, although whether coordination could be successfully accomplished would depend upon the specific circumstances of the request and the AMT operations in the area and during the time of the request.⁷

Reconsideration of Lectrosonics at 4-5 (provided coordination with AFTRCC is successful, there is no need for a limit on how much of the L-Band wireless microphones should be permitted to use).

⁶ *Order*, ¶ 118.

⁷ If the Commission were to deny the Petitions and retain some limit on spectrum use at a given location, it should clarify the rule in several respects. First, there is ambiguity

The Petitioners also object to the Commission’s wireless microphone emissions mask adopted in the *Order* which will apply to wireless mikes operating in the L-Band, as well as other bands. Specifically, the four Petitioners seek reconsideration of the modifications to the adoption, in Section 74.681 of the rules, of ETSI EN 300 422-1 v1.4.2 (2011-08), *Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement*.⁸ Under the new rules, the Commission modified the ETSI standard as written by providing that “[o]utside of the frequency range where the ETSI masks are defined (one megahertz above and below the wireless microphone carrier frequency), [it] will require that emissions comply with same limit as the edge of the ETSI masks, specifically, 90 dB below the level of the unmodulated carrier.”⁹ The Petitioners raise concerns regarding the potential adverse impact of the rule on grounds of technical feasibility and the prospects for global harmonization.¹⁰

surrounding what it means to “operat[e] in a particular area in the band”? (47 C.F.R. § 74.803(d)). What is the scale or boundary of a “particular area”? Second, may two or more licensees coordinate up to 30 MHz of spectrum use each at different coordinates but in the same “particular area”? Third, when referring to “all LPAS devices,” does the rule mean, in effect, all LPAS devices of a given licensee, or will wireless microphones of two or more licensees “operating in the particular area” be limited to 30 MHz in combination? Must the 30 MHz be contiguous? While, again, the 30 MHz limitation does not particularly serve AFTRCC’s needs as a coordinator and its members’ needs as AMT users, as coordinator in the band, AFTRCC would like to receive a clearer understanding of any spectrum use limitation rule that is maintained.

⁸ Petition for Reconsideration of Shure at 2-7; Petition for Reconsideration of Sennheiser at 6-7; Petition for Reconsideration of A-T at 2-5; Petition for Reconsideration of Lectrosonics at 2-3.

⁹ *Order*, ¶ 32. See also 47 C.F.R. § 74.861(d)(4).

¹⁰ For example, A-T suggests that, by adding onto the ETSI standard, the Commission may have undermined out-of-band emission (“OOBE”) “accuracy and compliance” and may have made standardized levels and globally applicable test methods impossible to

AFTRCC notes in this regard that, if the Commission relaxes the wireless microphone emissions mask in the L-Band within spectrum beyond one MHz below and above the carrier frequency, AFTRCC, in conducting its coordination of wireless microphones in the band, would have to take this into account. As a consequence, relaxation of the emissions mask may, as a practical effect, depending upon the circumstances, make it more difficult for AFTRCC to coordinate fully a proposed use or set of uses of L-Band spectrum by wireless microphones. The Commission may wish to consider this when addressing the Petitions on this issue.

Respectfully submitted,
**AEROSPACE AND FLIGHT TEST RADIO
COORDINATING COUNCIL, INC.**



Daniel Robinson
President
AEROSPACE AND FLIGHT TEST
RADIO COORDINATING COUNCIL, INC.
616 E. 34th Street North
Wichita, KS 67219
Telephone: (316) 821-9516

Edward A. Yorkgitis, Jr.
KELLEY DRYE & WARREN LLP
3050 K Street NW
Suite 400
Washington, D.C. 20007
Telephone: (202) 342-8400

Its Attorney

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implement, if not technically infeasible. Petition for Reconsideration of A-T at 3-4. Lectrosonics asserts that out-of-band emissions “are very difficult to attenuate by greater than 90 dB relative to the carrier given the size, power and cost constraints according to which we must design wireless microphone transmitters,” and argues for a 1uW OOBE limit above 1 GHz. Petition for Reconsideration of Lectrosonics at 2. *See also* Petition for Reconsideration of Shure at 5 (AWS-3 and Citizens Band Radio Service transmitters have not been required to adhere to a similarly strict OOBE standard); Petition for Reconsideration of Sennheiser at 6-7 (the Commission, in violation of the APA, gave insufficient notice that it might be considering adoption of a stricter OOBE limit extending beyond the frequency range the ETSI standard applies to).

CERTIFICATE OF SERVICE

I hereby certify that on February 29, 2016, true and correct copies of the foregoing *Comments of Aerospace And Flight Test Radio Coordinating Council, Inc. on Petitions for Reconsideration* were provided via first class U.S. Mail to the following:

Catherine Wang
Timothy Bransford
Denise Wood
Morgan, Lewis & Bockius LLP
2020 K Street, N.W.
Washington, DC 20006
Counsel to Shure Incorporated

Mark Brunner, Senior Director, Global Brand
Management
Edgar C. Reihl, P.E., Director, Spectrum Policy
Ahren J. Hartman, Senior Director, Engineering
Shure Incorporated
5800 West Touhy Avenue
Niles, IL 60714

Laura Stefani
Fletcher, Heald & Hildreth, P.L.C.
1300 North 17th Street, 11th floor
Arlington VA 22209
*Counsel for Sennheiser Electronic
Corporation*

Gordon Moore, President
Robert Cunnings, Vice President of Engineering
Lectrosonics, Inc.
581 Laser Rd.
Rio Rancho, NM 87124

Howard S. Shapiro
Erin P. Fitzgerald
Bennet & Bennet, PLLC
6124 MacArthur Blvd.
Bethesda, MD 20816
Counsel for Audio-Technica U.S., Inc.

Jacquelynn A. Green, V.P. R&D/Engineering
Audio-Technica U.S., Inc.
1221 Commerce Dr.
Stow, OH 44224

/s/ Jennifer Wainwright

Jennifer Wainwright