

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

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| In the Matter of |) | |
| |) | |
| Expanding the Economic and Innovation |) | GN Docket No. 12-268 |
| Opportunities of Spectrum Through |) | |
| Incentive Auctions |) | |
| |) | |

REPLY COMMENTS OF SHURE INCORPORATED

Shure Incorporated (“Shure”), by its undersigned counsel, hereby submits reply comments in response to the Federal Communications Commission (“FCC” or “Commission”) Public Notice Seeking Comment on Defining Commencement of Operations in the 600 MHz Band (“*Notice*”) in the above-captioned proceeding.¹ The Commission’s transition procedures for the 600 MHz Band permit certain operations to remain in service until a 600 MHz licensee “commences operations” in that spectrum but force other operations, including wireless microphones, out of the band at an earlier deadline potentially well before actual use by any 600 MHz licensee. Shure urges the Commission to revisit this unnecessary and unduly burdensome transition deadline for wireless microphones. As an alternative transition deadline, Shure supports recent comments filed by CP Communications, LLC, urging the Commission to afford licensed professional microphone users the same transition plan out of the 600 MHz Band as adopted for low power television (“LPTV”) and TV translator stations, as further discussed

¹ *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Public Notice: Comment Sought on Defining Commencement of Operations in the 600 MHz Band, FCC 15-38 (rel. Mar. 26, 2015) (“*Notice*”).

herein.² Shure also offers these comments in general support of the Commission’s proposed definition of the term “commence operations,” which would be triggered in the late stages of deployment of commercial wireless services when the licensee begins site commissioning tests and which would be confined to the particular areas covered by a wireless licensee’s commercial service infrastructure deployment.³

I. INTRODUCTION

Shure is a leading U.S.-based manufacturer of high-quality wireless microphones⁴ and other professional audio products⁵ classified as low-power auxiliary devices authorized under Part 74 of the Commission’s Rules to operate on a secondary basis in the TV broadcasting spectrum.⁶ Wireless microphones have successfully operated, on a secondary basis, on unassigned channels in the TV spectrum for decades. Wireless microphone use has grown rapidly and today, these devices provide critical support to a wide range of sectors including TV broadcasting, news casting, theater, live music, sports, religious, civic and academic institutions. The Commission procedures and timeline for the transition of some portion of the 600 MHz band is critical to users in these sectors and to wireless microphone manufacturers compelled to

² *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Comments of CP Communications, LLC (filed May 1, 2015) (“*CP Communications Comments*”).

³ *Notice* at ¶¶ 5-6.

⁴ “Wireless microphones,” as used herein, includes a variety of audio devices authorized under Part 74 and/or Part 15 of the Commission’s Rules as secondary users of locally unoccupied television channels. In addition to microphones, this equipment includes in-ear monitors, wireless intercoms, wireless assist video devices (“WAVDs”) and wireless cueing (“IFB”) systems.

⁵ “Professional audio” microphones are used as a medium for transmission of multimedia and artistic content, and have corresponding and unique performance requirements. They must capture full audio range, have less than three (3) milliseconds of transmission latency (for some applications less than one (1) millisecond), and have reliability that meets or exceeds the expectations of a wired microphone user. These performance requirements necessitate a wider emission and require adequate, clean spectrum.

⁶ Although some wireless microphone applications operate successfully on a secondary basis in the VHF band and in certain Industrial, Scientific and Medical bands under Part 15 unlicensed rules, the vast majority of wireless microphones, particularly those in professional applications, operate on a secondary basis in the UHF television bands pursuant to Subpart H of Part 74. See 47 CFR §§ 74.801-74.882.

ensure that the dramatic change in available UHF spectrum resulting from the Incentive Auction and TV broadcast rebanding does not disrupt existing operation of wireless microphones or stymie continued availability of high quality wireless microphone equipment.⁷

To this end, Shure urges the Commission to authorize licensed professional wireless microphone users to make productive use of valuable 600 MHz spectrum until they receive written notice that a 600 MHz wireless licensee intends to “commence operations,” as defined in the *Notice*, and are informed that the microphone user is likely to cause harmful interference to the wireless licensee’s operations in that area.

II. LICENSED WIRELESS MICROPHONE USERS SHOULD BE PERMITTED TO OPERATE IN THE 600 MHZ BAND UNTIL THEY RECEIVE NOTIFICATION OF A WIRELESS LICENSEE’S COMMENCEMENT OF OPERATIONS

In the *Incentive Auction Order*, the FCC determined that wireless microphones that operate in the repurposed 600 MHz bands may continue to operate during the post-auction transition period but must cease operating no later than 39 months after release of the Channel Reassignment Public Notice.⁸ The Commission reasoned that “establishing a hard date by which all licensed and unlicensed microphone operations must cease operations provides needed certainty and clarity that wireless microphones cannot continue operations in spectrum assigned

⁷ In addition to the Commission’s Broadcast Incentive Auction proceeding in GN Docket No. 12-268, Shure has participated extensively in various Commission proceedings grappling with the existing and growing spectrum needs of wireless microphones, such as ET Docket 04-186 (the “White Spaces Proceeding”), GN Docket No. 14-166 (the “Wireless Microphone Proceeding”), and the 3.5 GHz proceeding in GN Docket No. 12-354. Shure’s contributions on spectrum-related issues affecting wireless microphones are reflected in numerous seminal FCC decisions. *See, e.g., Incentive Auction Order* at ¶ 300 (2014) (citing to Shure’s comments when addressing the importance of wireless microphones to the creation of multimedia content). *See also Unlicensed Operation in the TV Broadcast Bands*, Second Report and Order and Memorandum Opinion and Order, 23 FCC Rcd 16807 (2008) (discussing throughout Shure’s contributions to the development of spectrum sharing technologies).

⁸ *Incentive Auction Order*, 29 FCC Rcd at 6573, 6846, ¶¶ 11, 687; *Promoting Spectrum Access for Wireless Microphone Operations; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket Nos. 14-166, 12-268, Notice of Proposed Rulemaking, FCC 14-145, at ¶¶ 45, 96 (rel. Sept. 30, 2014) (“*Wireless Microphone NPRM*”).

to wireless licensees and helps ensure that wireless providers can operate without interference.”⁹ In contrast, LPTV, TV translator stations, fixed broadcast auxiliary service Operations and unlicensed television white space (“TVWS”) devices may continue operating in the repurposed spectrum until a 600 MHz Band licensee “commences operations,” pursuant to procedures set forth in the *Incentive Auction Order*.¹⁰ The Commission fails to reconcile the disparate treatment of microphone operations and other services that share the same ultimate responsibility to cease operations in advance of the deployment of new wireless services in the 600 MHz Band. As the Commission has recognized, “wireless microphone operations generally are low power and short range, and have generally shared frequency bands on a secondary or unlicensed basis with other users.”¹¹ Wireless microphone users are equally capable of vacating the 600 MHz Band relative to other services that are permitted to remain in the band until they receive advance written notice that a wireless licensee intends to commence operations and that the licensed microphone user may cause harmful interference to the licensee’s operations in that area.

Given the potential for significant disruption and economic hardship to microphone users, Shure agrees with CP Communications that licensed professional microphone users should be permitted to continue to operate indefinitely in any 600 MHz channel until they receive written notice that a 600 MHz wireless licensee intends to commence operations and that the microphone user is likely to cause harmful interference to the wireless licensee’s operations in that area.¹² Licensed microphones should not be subject to the same transition standards as full-

⁹ *Incentive Auction Order*, 29 FCC Rcd at 6846, ¶ 687.

¹⁰ *Notice* at ¶ 4; *Incentive Auction Order*, 29 FCC Rcd at 6835-47.

¹¹ *Wireless Microphone NPRM* at ¶ 3.

¹² *CP Communications Comments* at ¶ 3.

powered broadcasters¹³ and more onerous requirements than LPTV and TV translator stations or unlicensed TVWS devices.

As discussed in prior filings, Shure has emphasized that the pending 600 MHz Band transition presents significant challenges to wireless microphone users.¹⁴ A large percentage of the equipment in the 600 MHz Band was only recently acquired in the last two to five years to replace 700 MHz equipment whose operation was prohibited in 2010 at the conclusion of the digital television transition, although we understand that significant swaths of 700 MHz spectrum remain unoccupied today.¹⁵ Much of this equipment is state-of-the-art, and spectrally efficient given the rigorous demands of a professional audio microphone user, resulting in significant capital expenditures by wireless microphone users.

Shure recognizes that efforts are underway to supplement the UHF spectrum that will remain available to wireless microphone users after the Incentive Auction with newly identified spectrum in other spectrum locations.¹⁶ However, the process of identifying and conditioning additional spectrum that can support the burgeoning growth of wireless microphone operations is only at the very beginning stages. Such supplemental spectrum will not be available until completion of the FCC rulemaking proceedings governing spectrum allocations, new technical and services rules, and the needs of incumbent users (including government users) are addressed and the manufacturers' product development processes have enabled suitable high quality equipment to be made available. Those steps, even undertaken at an expedited pace, are certain

¹³ See *Incentive Auction Order*, 29 FCC Rcd at 6796, ¶ 559.

¹⁴ See *Promoting Spectrum Access for Wireless Microphone Operations; Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket Nos. 14-166, 12-268, Comments of Shure Inc., at 15 (filed Feb. 4, 2015).

¹⁵ See *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band, et al.*, Report and Order and Further Notice of Proposed Rulemaking, 25 FCC Rcd 643, at ¶ 2 (2010). See also *CP Communications Comments* at 2-3, ¶ 4.

¹⁶ See, e.g., *Wireless Microphone NPRM*.

to involve a multiyear process given the significant technical and policy challenges to reaching these goals. Against this background, it is even more important that the Commission’s Rules allow wireless microphones to continue operating in the portions of the UHF spectrum that will later be dedicated to cellular services as long as possible. Moreover, permitting licensed wireless microphones in the 600 MHz Band until such time as a new entrant turns on network facilities and notifies the wireless microphone user of its commencement of operations and possible interference by the wireless microphone user would advance the Commission’s objective of “promoting the best and most efficient use of spectrum.”¹⁷

III. SHURE GENERALLY AGREES WITH THE COMMISSION’S PROPOSED DEFINITION OF “COMMENCEMENT OF SERVICES”

The Commission proposes that secondary and unlicensed users authorized to operate in the 600 MHz Band until a wireless licensee “‘commences operations’ in an area when it begins site activation and commissioning tests, using permanent base station equipment and permanent antenna or tower locations” (“Site Commissioning Tests”).¹⁸ The Commission notes that Site Commissioning Tests “ordinarily take place in the late stages of a deployment, after the wireless licensee has completed construction of physical network infrastructure that will provide commercial service in the area” and “with all base station equipment, antennas, feed systems and other hardware installed and with all power systems and backhaul connectivity installed and operational.”¹⁹ Further, the Commission proposes that a wireless licensee’s notification of commencement of operations would be confined to the area actually served by the licensee’s infrastructure deployment.²⁰ Shure agrees with other commenters that the Commission’s

¹⁷ *Id.* at ¶ 3.

¹⁸ *Notice* at ¶ 2.

¹⁹ *Id.* at ¶ 5.

²⁰ *Id.* at ¶ 6.

proposed definition strikes an appropriate balance between protecting wireless licensees' rights to unencumbered spectrum access and promoting efficient use of spectrum, without allowing this valuable resource to lie fallow for extended periods of time.²¹ Shure would also urge the Commission to require, as part of the notification process, that the wireless licensee certify that it has begun Site Commissioning Tests, as defined by the Commission, and that all power systems and backhaul connectivity are installed and operational in order to protect against potential waste, fraud and abuse and to dispel any ambiguity from the requirements to achieve "commencement of service."

The Commission should not permit, in the alternative, an undefined claim of *any* testing completed by licensees to be deemed a "commencement of operations."²² Such an open-ended definition of commencement would result in waste of valuable spectrum resources that could otherwise be put to productive use while wireless facilities are in the preliminary stages of deployment and would run contrary to the Commission's spectrum policy of maximizing efficient use of spectrum.

IV. CONCLUSION

Shure supports the Commission's proposed definition of "commence operations" as it applies to the notification of secondary and unlicensed users authorized to operate in the 600 MHz Band until a wireless licensee "commences operations." However, given the significant challenges that the pending 600 MHz transition presents to wireless microphone users, Shure urges the Commission to permit licensed professional wireless microphone users to continue to operate indefinitely in any 600 MHz channel until they receive written notice that a 600 MHz

²¹ See, e.g., *Expanding the Economic and Innovation Opportunities of Spectrum Through Incentive Auctions*, GN Docket No. 12-268, Comments of CP Communications (filed May 1, 2015); Comments of Google Inc. (filed May 1, 2015); Comments of Microsoft Corporation (filed May 1, 2015).

²² Notice at ¶ 5.

wireless licensee intends to commence operations and that the microphone user is likely to cause harmful interference to the wireless licensee's operations in that area.

Respectfully submitted,

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