

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

In the Matter of

Revisions to Rules Authorizing the Operation of
Low Power Auxiliary Stations in the 698-806
MHz Band

WT Docket No. 08-166

Public Interest Spectrum Coalition, Petition for
Rulemaking Regarding Low Power Auxiliary
Stations, Including Wireless Microphones, and
the Digital Television Transition

WT Docket No. 08-167

COMMENTS OF THE WHITE SPACES COALITION

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INTRODUCTION AND SUMMARY

The White Spaces Coalition (“Coalition”) welcomes the Commission’s Notice of Proposed Rulemaking seeking comment on the Informal Complaint and Petition filed by the Public Interest Spectrum Coalition (“PISC”).¹ The Coalition is committed to bringing consumers powerful and innovative wireless technologies using vacant spectrum in the television broadcast bands (the “white spaces”).

Because of the advantageous properties of TV band spectrum, permitting unlicensed use of the white spaces will enable a new generation of broadband access and networking devices that could be on store shelves next year. As importantly, it will create a spectrum platform for innovation that will benefit the public for decades. However, all of these benefits could be put at risk unless the Commission addresses the widespread unauthorized use of TV band microphones.

The Petition for Rulemaking filed by PISC proposes a number of steps to address the widespread unauthorized use of wireless microphones which has been caused by the unlawful marketing practices of wireless microphone manufacturers. Many of these proposals should be adopted. First, the Coalition joins PISC’s call for the imposition of appropriate penalties and remedial duties on those manufacturers that have, for years, marketed equipment authorized solely for broadcast auxiliary use to individuals and organizations that could not possibly obtain a broadcast auxiliary license, and for uses

¹ *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band; Public Interest Spectrum Coalition, Petition for Rulemaking Regarding Low Power Auxiliary Stations, Including Wireless Microphones, and the Digital Television Transition*, WT Docket Nos. 08-166, 08-167, Notice of Proposed Rulemaking and Order (Aug. 15, 2008) (“NPRM”) (citing *Complaint of Public Interest Spectrum Coalition (PISC) Against Shure, Inc., Nady Systems, Inc., VocoPro, Audio2000, Sennheiser Electronic Corporation, Audix Microphones, Electro Voice, Hisonic International, Inc., Pyle Audio, et al.*; *Petition To Create a General Wireless Microphone Service (GWMS), Informal Complaint and Petition for Rulemaking* (filed Jul. 16, 2008) (“PISC Petition”)).

that could not possibly comply with the Commission's rules. We also agree with PISC that users operating unauthorized microphones in the TV bands have done so only because they were misled by the marketing of wireless microphone manufacturers, and that no action against these users seems necessary. Finally, we agree that some currently unauthorized wireless microphone uses could be accommodated in portions of the TV bands.

What the Commission should *not* do, however, is reward the illegal conduct of wireless microphone manufacturers by allocating the most desirable TV band spectrum to a new "General Wireless Microphone Service" (GWMS). Doing so would allow currently unauthorized uses to proliferate, greatly reducing the potential of the white spaces to provide innovative broadband applications – particularly in urban areas. Rather, the Commission should accommodate a relatively narrow subset of currently unauthorized TV band microphone uses that are in the public interest – such as uses by houses of worship and public theaters – by expanding the existing Part 74 authorization for TV band wireless microphones. Other unauthorized users, such as karaoke bars, should be moved to existing or future alternatives for wireless microphone operations outside of television channels 21-51, including other unlicensed spectrum.

I. ALL MICROPHONES OPERATING IN 700 MHZ SHOULD BE RELOCATED, BUT ONLY SOME SHOULD GO TO CHANNELS 21-51.

The Coalition supports the Commission's determination that television channels 52-69 should be "fully available for public safety as well as commercial wireless services at the end of the DTV transition,"² and agrees with PISC that manufacturers should bear

² NPRM ¶ 14.

the costs of relocating wireless microphone systems in that spectrum.³ However, relatively few of these users should be relocated to the channels the Coalition has proposed for white space operations (channels 21-51). Instead, the Commission should mandate that only existing licensed users may relocate to channels 21-51, along with entities operating in 700 MHz that are eligible for a Part 74 license (including any additional entities such as houses of worship and large scale performing arts venues if the Commission elects to expand the existing Part 74 wireless microphone authorization). All other microphones should be relocated, but they should go either to TV channels below channel 21, or to one of the many other non-TV band alternatives already provided by the Commission.

The Commission tentatively has concluded that removing broadcast auxiliary microphones from the 700 MHz band will have minimal impact on other TV band operations because devices will continue to have access to “more than 300 megahertz of spectrum in which low power auxiliary stations may operate under our rules.”⁴ While this is undoubtedly true for licensed low power broadcast auxiliary operations – for which there are fewer than 1,000 total licensees in the entire United States – this manifestly will not be the case if the Commission’s rules are expanded to include the large numbers of currently unauthorized microphone systems, as well as the rush of additional new users who would take advantage of a new GWMS, if one is created.⁵ Thus, although the Commission should act quickly to address the issue of existing

³ See PISC Petition at 22. See also Section II below.

⁴ NPRM ¶ 19.

⁵ See PISC Petition at 31-33.

wireless microphone operations in the 700 MHz band, any solution necessarily must take into account the impact of introducing numerous additional wireless microphone operations in the remaining TV bands.

II. WIRELESS MICROPHONE MANUFACTURERS SHOULD FUND THE MEASURES TO REMEDY WIDESPREAD UNAUTHORIZED TV BAND MICROPHONE OPERATIONS.

As the Commission observes in the *NPRM*, wireless microphones are permitted to use TV band spectrum only as licensed, low power broadcast auxiliary stations.⁶ Part 74 of the Commission's rules limits licensees to six categories of entities that are in some manner responsible for television programs and/or motion pictures, and then only for uses relating to these programs.⁷ Yet as over 200 pages of analysis and exhibits filed by PISC make clear, *wireless microphone manufacturers have been illegally marketing and selling devices certified subject to Part 74 limitations* that they know are – and which they fully intend to be – routinely used in violation of these rules. Since Shure and other wireless microphone manufacturers are responsible for widespread unauthorized use throughout the TV bands, they should be subject not only to the Commission's forfeiture power, but also required to disgorge the profits realized by their unauthorized activities to help the Commission and unauthorized users resolve this issue.

Rarely, if ever, has there been such a widespread and deliberate flouting of FCC rules. By the Commission's count, there are only 943 active low power broadcast auxiliary licenses in the entire United States.⁸ Yet PISC has reasonably estimated that there are the hundreds of thousands – and perhaps millions – of unauthorized TV-band

⁶ See *NPRM* ¶ 5 (citing 47 C.F.R. Part 74 Subpart H—Low Power Auxiliary Stations).

⁷ See 47 C.F.R. § 74.831-832.

⁸ *NPRM* ¶ 7.

microphones systems in use.⁹ But this is not, as PISC has suggested, merely the result of “benign neglect” by the Commission.¹⁰ This is the result of deliberate conduct by a handful of wireless microphone manufacturers that put profit ahead of the law. In response to earlier calls to relocate TV band microphones, wireless microphone manufacturer Shure, Inc. told the Commission that, “[w]hile undoubtedly there are wireless microphone users [in the TV bands] that have not fully documented their license,” this “is the case in every wireless service licensed by the Commission”¹¹ Yet Shure knew full well that it and certain other wireless microphone manufacturers were actively marketing Part 74-certified equipment for unauthorized uses, and to users that were ineligible even to apply for a Part-74 license, let alone “fully document” one.

The Coalition is encouraged to learn that the Enforcement Bureau is investigating the marketing practices of several of these manufacturers,¹² and trusts that the resolution of these investigations will reflect the uniquely widespread rule violations they have caused. At minimum, however, wireless manufacturers should be required to pay the relocation costs of TV band microphone users currently in the 700 MHz band, as well as any other relocation costs associated with bringing their customers into compliance with new rules determined by the Commission to address the widespread unauthorized use of wireless microphone systems in the TV bands that they have brought about.

⁹ PISC Petition at 16.

¹⁰ *Id.* at vi.

¹¹ Reply Comments of Shure, Inc., ET Docket No. 04-186 at 12 (filed Mar. 2, 2007).

¹² NPRM ¶ 22.

III. THE COMMISSION SHOULD NOT ACT AGAINST USERS OF UNAUTHORIZED TV BAND MICROPHONES, AND SHOULD LICENSE CERTAIN PUBLIC INTEREST USES.

The PISC Petition makes clear the vast majority of unauthorized TV band microphone users had every reason to believe that they could use the products marketed to them by the microphone manufacturers, and could use them in the ways those manufacturers described.¹³ Thus, the Coalition agrees with PISC that it would be inequitable for the Commission to initiate any forfeiture action against these users.¹⁴

Moreover, as the record in the white spaces proceeding indicates, certain unauthorized uses such as services in houses of worship and artistic performances in the professional theaters found on Broadway could be deemed to be in the public interest. The Commission could authorize these users and permit them to stay in the TV bands alongside white space devices if they so choose. Indeed, given the unique benefits of these uses, the Coalition in the white spaces docket also has proposed a compromise that would allow unauthorized users operating in the public interest to remain in the TV bands by broadening the Part 74 wireless microphone authorization to include these uses on a licensed basis.¹⁵ For example, the Commission could expand the class of eligible TV band microphone users and uses to include houses of worship and performing arts venues with a capacity of 500 seats or more.

¹³ PISC Petition at 28.

¹⁴ *Id.* Of course, as PISC observes, if the Commission discovers that a user knew or had reason to know that its operation of Part 74-authorized microphone systems would violate the Commission's rules and nevertheless began operation, the Commission should still consider enforcement action against such users on a case-by-case basis. *Id.* at 19 n.27.

¹⁵ *See* Letter from Edmond J. Thomas to Marlene H. Dortch, ET Docket No. 04-186 (filed Jun. 17, 2008) at 6 (“June 17 Ex Parte”).

Although the PISC Petition would also legitimize these unauthorized uses and allow them to operate in the TV bands below channel 52, the Coalition's proposal and the PISC Petition differ in one crucial respect. Under PISC's Petition, houses of worship, Broadway shows, and every other currently unauthorized TV band microphone use and user would fall under their proposed new GWMS using the vacant television channels also proposed for white space operations. Such a sweeping change is unnecessary, as those uses deemed to be in the public interest can be accommodated with minor adjustments to the existing TV band wireless microphone rules. As discussed below, moreover, other general purpose microphones should not operate in channels 21-51.

In addition, as PISC acknowledges, its GWMS approach would render wireless microphone services that are in the public interest and authorized to use the television white spaces ineligible for the protective beacons proposed for licensed wireless microphone users in the white spaces.¹⁶ Indeed, as the Coalition has explained, if the Commission decides to move forward with beacons, it will be essential to strictly limit their availability only to licensed low power broadcast auxiliary operations.¹⁷ While the Coalition strongly agrees with PISC that sensing technologies alone will provide more than adequate protection for Broadway shows and houses of worship just as it would for authorized TV band wireless microphone operations,¹⁸ a primary concern voiced by operators of large scale venues in the white spaces proceeding is that they could not avail

¹⁶ PISC Petition at 32.

¹⁷ June 17 Ex Parte at 5-6.

¹⁸ PISC Petition at 33.

themselves of the “belt and suspenders” protection provided by beacons.¹⁹ Thus, even though beacons are not necessary, their availability for these venues may play a role in allowing the Commission to move forward with final rules for white space operations, benefitting all Americans.

IV. AUTHORIZING WIDESPREAD USE OF UNAUTHORIZED TV BAND MICROPHONES WOULD SQUANDER THE WHITE SPACES.

Although the Commission should accommodate certain unauthorized TV band microphone uses, it should not grant a blanket authorization for a GWMS in the channels 21-51. As the Commission has explained, it seeks to use the white spaces to “benefit the public by allowing the development of new and innovative types of devices and services for businesses and consumers, without disrupting television and other authorized services.”²⁰ Indeed, the white spaces docket amply reflects the benefits unlicensed uses of the white space will provide, including affordable broadband access, wireless mesh networking, telemedicine applications, and numerous innovations yet to come—uses that the phenomenal success of Wi-Fi has only hinted at. Authorizing *any* additional wireless microphone systems in channels 21-51 necessarily will occur at the expense of some of this innovation. While this trade-off might make sense for uses by houses of worship and Broadway productions, the exciting new broadband applications the Commission envisions should not take a back seat to many of the currently unauthorized general uses

¹⁹ See Ex Parte Comments of the Broadway League, ET Docket No. 04-186 (filed Jun. 18, 2008).

²⁰ *Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, First Report and Order and Further Notice of Proposed Rule Making, 21 FCC Rcd. 12266 (¶1) (2006).

encouraged by manufacturers, including karaoke²¹ and aerobics instruction,²² particularly since other spectrum and technologies exist to accommodate these uses.

A. Including Channels 21-51 in a GWMS Would Reward Unauthorized Behavior and Undermine the White Spaces.

As PISC recognizes, it is critical that the Commission not reward unauthorized operation of devices by ineligible users by granting those uses a status above that of white space devices.²³ However, affording unauthorized microphones even the same status as white space devices in channels 21-51 will have the practical effect of granting them senior status in this spectrum. This is because the sensing technologies proposed for white space devices to avoid wireless microphone operations rely on detection of wireless microphone signals, and do not distinguish licensed broadcast auxiliary uses from the unauthorized uses promoted by microphone manufacturers.

Legalizing the currently unauthorized uses would be disastrous for the utility of white spaces. Indeed, as PISC itself acknowledges, “authoriz[ing] the unauthorized users by rule ... may create significant crowding for GWMS users absent UHF Channels 52-69, given their secondary status to both full power broadcasters and licensed LPAS users.”²⁴ Moreover, while some manufacturers, like Shure, have shown little hesitation in marketing their products for unauthorized uses, other wireless microphone manufacturers have refrained from inappropriate marketing of TV band microphone systems, or only offer microphone systems in non-broadcast bands. Authorizing a GWMS in channels 21-

²¹ PISC Petition at 13 and Ex. N.

²² *Id.* at 9 n. 17.

²³ *Id.* at 32.

²⁴ *Id.* at xi.

51 undoubtedly would cause these law-abiding manufacturers to enter the market for widespread TV band microphone use, further reducing the spectrum available for white space applications.

As the Coalition previously has explained, it is simply inequitable to deny the public access to innovative broadband applications to accommodate unauthorized spectrum uses.²⁵ Yet this is exactly what will happen if the Commission includes channels 21-51 in a GWMS. Creating a vast new market in this spectrum for Shure and other manufacturers to exploit would be a gold-plated reward for unauthorized conduct, and serve only to encourage similar behavior in the future.

B. Other Options for Unauthorized Wireless Microphone Systems.

Because the unauthorized uses marketed by wireless microphone manufacturers do not require the unique propagation characteristics of the spectrum used by channels 21-51, they are best accommodated elsewhere. First, the Coalition notes that the Commission already provides several different options for non-broadcast microphone operations. Numerous entities, including businesses, schools, and charitable organizations, are eligible to hold licenses to operate wireless microphones in certain portions of VHF spectrum under Part 90 of the Commission's rules.²⁶ Users also may operate wireless microphones on an unlicensed basis pursuant to Part 15, which would include ISM bands as well as low power operation in the AM and FM broadcast bands.²⁷

²⁵ See Ex Parte Letter from Edmond J. Thomas to Marlene H. Dortch, ET Doc. No. 04-186 at 3 (filed Jul. 16, 2007).

²⁶ See 47 C.F.R. § 90.265(b).

²⁷ Although certain manufacturers have objected that it may be difficult to reproduce the fidelity of UHF microphones using this spectrum, the reality is that aerobics instructors and corporate boardroom meetings do not require the same fidelity needed to reproduce the voices of classically trained performers.

Microphone use in all of these bands is likely to become more efficient as microphones switch to digital technologies. Finally, manufacturers are already incorporating ultra wideband (UWB) technology into wireless microphones that can be operated without a license under Part 15,²⁸ and this promising technology alone will satisfy a substantial number of wireless microphone applications as it evolves.

To be clear, the Coalition is not opposed to the operation of general purpose wireless microphones, only the possibility that a GWMS would include the TV band spectrum that will be used to provide innovative white spaces applications. Thus, if the Commission wishes to allocate channels 2-20 for additional legal wireless microphone applications, the Coalition supports this spectrum being made available for other wireless microphone uses the Commission believes appropriate. But while the Coalition agrees with PISC that general purpose wireless microphones can serve useful purposes, the unique benefits of the white spaces should not be sacrificed to enable karaoke, hobbyists, and other applications that are much better accommodated elsewhere. To ensure that this does not happen, the Commission must exclude channels 21-51 from any GWMS, and clearly reaffirm that general wireless microphone use in those channels – as well as marketing and selling devices intended for general wireless microphone use in those channels – is illegal.

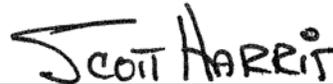
CONCLUSION

For far too long, it has been an open secret that wireless microphones in the television broadcast bands overwhelmingly are not being used by eligible licensees, and are not being used for broadcast auxiliary purposes. This proceeding makes abundantly

²⁸ See Ex Parte Comments of Marcus Spectrum Solutions at 2, ET Docket No. 04-186 (filed May 5, 2008).

clear that this has been the direct – and intended – result of wireless microphone manufacturers who market and sell TV band equipment. These manufacturers should be responsible for helping to resolve the issue of unauthorized microphone operations throughout the TV bands, and should be subject to additional penalties sufficient to deter such behavior in the future. In addition, the Commission must take special care to ensure that the vast innovations will be made possible through white spaces are not sacrificed merely to resolve expediently the issue of unauthorized TV band wireless microphone use.

Respectfully submitted,



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