

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

In the Matter of)	
)	
Revisions to Rules Authorizing the)	WT Docket No. 08-166
Operation of Low Power Auxiliary)	
Stations in the 698-806 MHz Band)	
)	
Public Interest Spectrum Coalition)	WT Docket No. 08-167
Petition for Rulemaking Regarding Low)	
Power Auxiliary Stations, Including)	
Wireless Microphones, and the Digital)	
Television Transition)	

REPLY COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

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In the Matter of)	
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Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band)	WT Docket No. 08-166
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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

REPLY COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

CTIA – The Wireless Association® (“CTIA”) respectfully submits these reply comments in response to the Commission’s Notice of Proposed Rulemaking and Order (“Notice”) regarding proposed amendments to its rules regarding the operation of broadcast low power auxiliary stations.¹ CTIA supports the Commission’s proposal to prohibit the operation of low power auxiliary stations in the 700 MHz band after the DTV transition.² CTIA agrees that such a rule is necessary to protect new commercial and public safety operations in the band from harmful interference caused by wireless microphones. CTIA, however, opposes the creation of a General Wireless Microphone Service (“GWMS”) at 2020-2025 MHz, as this spectrum plays an important role in the deployment of advanced wireless services (“AWS”). Finally, CTIA agrees that the Commission should hold manufacturers of wireless microphones found to be in violation

¹ Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band, Notice of Proposed Rulemaking and Order, 23 FCC Rcd 13106 (2008) (“Notice”).

² *Id.* at ¶ 13.

of Commission rules accountable for their actions and responsible for remedying the situation.

I. INTRODUCTION AND SUMMARY

The Digital Television Transition and Public Safety Act of 2005 set February 17, 2009 as the deadline by which television broadcasters operating in Channels 52-69 must vacate these channels.³ The Commission has already allocated this spectrum for public safety and commercial use – indeed, much of the commercial spectrum has been successfully auctioned – and is obligated to ensure that this spectrum is available to licensees upon the completion of the DTV transition.⁴

The Commission also has permitted low power auxiliary stations to operate on a secondary basis in a variety of spectrum bands, including 614-806 MHz, and the Commission’s rules dictate that low power auxiliary devices operating in this spectrum not cause harmful interference to TV broadcast operations in the band.⁵ The Commission has long contemplated that these low power auxiliary devices would need to vacate the 700 MHz band by the date of the DTV transition, and CTIA supports the Commission’s proposal to adopt a rule to this effect.

³ *Id.* at ¶ 1.

⁴ *Service Rules for the 698-746, 747-762 and 777-792 MHz Bands*, Report and Order and Further Notice of Proposed Rulemaking, 22 FCC Rcd 8064, at ¶ 17 (2007) (“700 MHz First Report and Order”) (“These statutory changes will effectively clear the spectrum in both the Upper and Lower 700 MHz Bands as of February 17, and consequently eliminate any uncertainty regarding when this spectrum will be available for public safety, commercial, and other wireless services.”).

⁵ 47 C.F.R. § 74.803(b) (“The selection of frequencies in the bands allocated for TV broadcasting for use in any area shall be guided by the need to avoid interference to TV broadcast reception. In these bands, low power auxiliary station usage is secondary to TV broadcasting and land mobile stations operating in the UHF-TV spectrum and must not cause harmful interference. If such interference occurs, low power auxiliary station operation must immediately cease and may not be resumed until the interference problem has been resolved.”).

The Public Interest Spectrum Coalition (“PISC”) filed an Informal Complaint and Petition for Rulemaking (“PISC Petition”) in which PISC made several proposals on which the Commission sought comment in its Notice.⁶ Specifically, PISC asked the Commission to (1) commence an investigation against wireless microphone manufacturers it alleges “willfully and knowingly market[ed] and [sold] wireless microphones to unauthorized users;” (2) grant a general amnesty to all unauthorized users of wireless microphones on the basis that they were misled by manufacturers; (3) immediately reclassify all licensed wireless microphone systems operating pursuant to Part 74, Subpart H of the Commission’s rules as secondary to commercial and public safety operations in Channels 52-69; (4) order that manufacture, sale, and advertisement of wireless microphones operating on Channels 52-69 cease immediately, and (5) create the GWMS on vacant UHF broadcast channels below Channel 52 as well as at 2020-2025 MHz.⁷ As stated below, CTIA supports PISC’s proposals for a rulemaking addressing clearance of wireless microphones from 700 MHz spectrum, but does not support creation of a GWMS at 2020-2025 MHz.

II. THE COMMISSION SHOULD PROHIBIT OPERATION OF WIRELESS MICROPHONES IN THE 700 MHZ BAND.

The Commission should prohibit the operation of low power auxiliary stations in the 700 MHz band, as the devices operating on these stations will cause significant and harmful interference to public safety and commercial systems licensed to operate in the band. The interference threat posed by the operation of wireless microphones in the 700

⁶ Notice at ¶ 13.

⁷ Informal Complaint and Petition of The Public Interest Spectrum Coalition at i-ii (filed July 16, 2008) (“PISC Petition”).

MHz band has been widely acknowledged by commenters in this proceeding and repeatedly observed by the Commission.

Commenters warned of the grave interference risk posed by wireless microphones operating at 700 MHz. Verizon Wireless stated that “[d]espite their ‘low power’ status, the interfering signals from broadcast auxiliary devices . . . would be strong enough to disrupt the operations of both mobile and base station receivers.”⁸ MetroPCS echoed Verizon Wireless’ concerns, noting that “[s]ince 700 MHz handsets will operate with very low power levels, proximate low power auxiliary stations could interfere with the reception of wireless handsets, or the ability of wireless base stations to receive wireless handset signals, all of which could cause dropped calls and degradation of call quality.”⁹

The interference caused by wireless microphones poses a particular threat to public safety operations. The Association of Public-Safety Communications Officials – International (“APCO”) expressed concern that wireless microphones “could interfere with first responders’ 700 MHz public safety radios in the vicinity.”¹⁰ Motorola confirmed that “approximately 45 public safety agencies have already deployed equipment in the upper 700 MHz band” and that “[a]ll of these users are now subject to potential interference from nearby operation of uncoordinated wireless microphones.”¹¹

V-COMM, L.L.C. (“V-COMM”) submitted a detailed technical analysis of the

⁸ Comments of Verizon Wireless, WT Docket No. 08-166, at 4 (filed Oct. 3, 2008).

⁹ Comments of MetroPCS Communications, Inc., WT Docket No. 08-166, at 3 (filed Oct. 3, 2008).

¹⁰ Comments of APCO, WT Docket No. 08-166, at 2 (filed Oct. 3, 2008).

¹¹ Comments of Motorola, Inc., WT Docket No. 08-166, at 3 (filed Oct. 3, 2008).

interference from wireless microphones to CMRS and public safety systems.¹² It predicted that a co-channel low power auxiliary device would propagate at levels that could cause loss of service on commercial or public safety mobiles within 700 feet, and that the range of interference would be even greater in the case of narrowband public safety operations or the operation of a wireless microphone at a base station location.¹³ V-COMM further found that “OOBE from the [low power auxiliary] devices that are close enough to CMRS base stations may [be] strong enough to interfere with CMRS mobiles that are located further away and received at lower power levels at the base station.”¹⁴ Finally, V-COMM noted the risk of intermodulation interference, stating that “[t]he use of multiple [low power auxiliary] devices at concerts, stadiums, and sporting events is well known. Using multiple [low power auxiliary] devices in a venue can create Intermodulation products transmitting on other channels and thus causing harmful interference to the CMRS or [public safety] receivers.”¹⁵

The FCC has stated that “[i]t is incumbent on the Commission to take all the steps necessary to make [700 MHz] spectrum effectively available both to public safety as well as commercial wireless services,”¹⁶ and it re-affirmed this obligation in the Notice.¹⁷

¹² Report of V-COMM, L.L.C., WT Docket No. 08-166 (filed Oct. 1, 2008).

¹³ *Id.* at 6-7 (“The same co-channel argument can be justified for a [low power auxiliary station] interfering at a CMRS or public safety base station location. Assuming a base station height of 20 meters, 250 milliwatt [low power auxiliary station] output power, and a clutter loss of 10 dB, the Egli model predicts these co-channel [low power auxiliary] devices will interfere with CMRS or Public Safety (PS) base stations within 1.8 km (1.1 miles). Again, with no clutter, the Egli model predicts the range of interference is increased to 3.3 km (2.1 miles).”).

¹⁴ *Id.* at 7.

¹⁵ *Id.* at 8.

¹⁶ 700 MHz First Report and Order at ¶ 2.

Prohibiting the operation of wireless microphones in the 700 MHz band is necessary to fulfill this objective. Indeed, the Commission has previously recognized the potential for interference from low power auxiliary station devices to 700 MHz operations¹⁸ and, consistent with these findings, should prohibit the use of wireless microphones in the band.

CTIA echoes the concern shared by other commenters regarding the risk of harmful interference. As CTIA has previously stated, interference protection is “necessary to provide licensees with certainty as they continue to build out networks and innovate” as well as “necessary for consumers, who purchase equipment and services in reliance on that protection.”¹⁹ The services planned for the upper 700 MHz band will enhance consumers’ wireless experience and advance public safety’s wireless communications needs. It is therefore critical that the Commission enact rules necessary to protect these systems from harmful interference.

Finally, some commenters have argued in favor of a gradual phase-out process for

¹⁷ Notice at ¶ 9.

¹⁸ *Unlicensed Operation in the TV Broadcast Bands*, First Report and Order and Further Notice of Proposed Rulemaking, 21 FCC Rcd 12266, at ¶ 2 (2006) (“We will further consider whether appropriate provisions can be developed to permit low power personal/portable devices to operate in this spectrum without causing harmful interference. To minimize the risk of interference to certain authorized services in the TV bands, we will not permit operation of TV band devices . . . on TV channels 52-69, as that spectrum has been reallocated for other services and will no longer be part of the TV bands after the digital television (DTV) transition.”); *Revisions to Broadcast Auxiliary Service Rules in Part 74 and Conforming Technical Rules for Broadcast Auxiliary Service, Cable Television Relay Service and Fixed Services in Parts 74, 78 and 101 of the Commission’s Rules*, Report and Order, 17 FCC Rcd 22979, at ¶ 155 (2002) (“Finally, WAVDs will not be allowed to use channels above 698 MHz (channel 51) in the UHF-TV band due to a recent spectrum reallocation of those channels to uses other than broadcasting. We find that these exclusions are justified to protect existing operations in these bands.”).

¹⁹ Comments of CTIA – The Wireless Association, ET Docket No. 04-186, at 2 (filed Jan. 31, 2007).

licensed wireless microphone operations in the 700 MHz band.²⁰ As stated above, the Commission has repeatedly prohibited the use of low power auxiliary devices at Channels 52-69 in anticipation of the DTV transition. The Commission therefore should adopt an expeditious timeframe for band clearance that concludes no later than February 17, 2009. A longer timeframe is unnecessary and places an inappropriate burden on 700 MHz commercial and public safety licensees to clear the spectrum and prevent interference to their operations. Interference protection, particularly where public safety is involved, is a crucial policy goal of the Commission. Consistent with this objective, the FCC should prohibit the operation of low power auxiliary stations at Channels 52-69.

III. THE COMMISSION SHOULD NOT CREATE A GENERAL WIRELESS MICROPHONE SERVICE AT 2020-2025 MHZ.

Although CTIA is generally supportive of the proposals raised in the PISC Petition, it does not support the creation of a GWMS at 2020-2025 MHz, as doing so would preclude the use of this spectrum for advanced wireless service and is not necessary to accommodate users of wireless microphones.

As CTIA has maintained in the Commission's AWS proceedings, allowing uplink

²⁰ Comments of the Association for Maximum Service Television, Inc., and the National Association of Broadcasters, WT Docket No. 08-166, at 3 (filed Oct. 3, 2008) ("Under this plan, all wireless microphone use in the 700 MHz band would end by February 17, 2012. Prior to that date, however, a commercial wireless or public safety entrant could cause operations to cease by notifying licensed users of the date on which the entrant intends to commence service. That notice would specify the frequencies on which the entrant will operate, an applicable geographic area, and the date on which service will begin (which date should not be sooner than 120 days of the date on which the notice was sent). Within sixty days prior to the date of commencement specified in the notice, the licensed wireless microphone user would cease all operations throughout the applicable geographic area on the frequency listed."). *See also* Comments of Shure Incorporated, WT Docket No. 08-166, at 6 (filed Oct. 3, 2008) ("Shure Comments") ("Shure specifically proposes that users, other than those operating in the Part 90 Safety Bands, be given 24 months from the effective date of the rules in order to 'transition' to wireless microphone operations using other spectrum.").

operations in the 2155-2175 MHz band would cause substantial interference to adjacent-band operations.²¹ CTIA has proposed, for example, that the AWS-3 block be used for downlink only or pairing a downlink-only 2155-2180 MHz block with uplink operations in the 2020-2025 MHz band.²² Allowing operation of wireless microphones in this spectrum would render sound band plans impossible.

Allowing low power auxiliary stations to operate only on channels below Channel 52 is sufficient to accommodate wireless microphone users, where such operation is permitted, and use of additional spectrum is unnecessary. As noted by the Commission, low power auxiliary stations will retain access to more than 300 MHz of spectrum even if the Commission prohibits operations in 700 MHz spectrum.²³ Use of additional

²¹ Comments of CTIA – The Wireless Association®, WT Docket No. 07-195, at 38 (filed July 25, 2008) (“The *AWS-3 Notice* is full of references recognizing that, if the Commission were to allow TDD operations in the AWS-3 band, it would have to address the significant adjacent channel interference issues given that the FCC rules require FDD downlink operations in the adjacent 2110-2155 MHz band.”); Comments of CTIA – The Wireless Association®, WT Docket 07-195, at 2-3 (filed Dec. 14, 2007) (“While recognizing the potential of these technologies, the Commission notes that allowing mobile transmissions in the 2155-2175 MHz band could create a substantial risk of interference to adjacent AWS-1 and AWS-2 operations. . . . CTIA shares the Commission’s concerns.”).

²² Comments of CTIA – The Wireless Association®, WT Docket No. 07-195, at 28 (filed July 25, 2008) (arguing that the Commission adopt one of the following band plan options: (1) the downlink-only approach it raised in the *AWS-3 Notice*; (2) combine the J Block with AWS-3 spectrum into a single license, with the 2020-2025 MHz block used for uplink and the 2155-2180 MHz block used for downlink; (3) reconfigure the J Block so that a 2020-2025 MHz uplink band is paired with a 2155-2160 MHz downlink band, with the AWS-3 band moving to 2160-2180 MHz; or (4) pursue a structured uplink-downlink model that protects AWS-1 licensees from harmful interference.”).

²³ Notice at ¶ 18. The Commission tentatively concluded that “given the amount of spectrum available in these other bands, prohibiting the use of low power auxiliary stations from the 700 MHz band will have minimal impact on such operations.” *Id.* The Commission should, however, address the rights and responsibilities of wireless microphone users in any order on TV White Spaces.

spectrum is therefore unnecessary.²⁴ For this reason, creating the GWMS at 2020-2025 MHz would be spectrally inefficient and would undermine the Commission's efforts to facilitate the deployment of advanced services to wireless customers – both of which would run counter to the public interest.

IV. TO THE EXTENT MANUFACTURERS OF UNLICENSED WIRELESS MICROPHONES HAVE VIOLATED COMMISSION RULES, THE COMMISSION SHOULD HOLD THEM ACCOUNTABLE.

PISC has alleged that wireless microphone manufacturers have knowingly and willingly violated the Commission's rules by marketing the microphones to ineligible users in violation of Part 74, Subpart H.²⁵ PISC has therefore proposed that the Commission order wireless microphone manufacturers to pay for the migration of users by replacing the unauthorized equipment with new equipment that will not operate in 700 MHz frequencies.²⁶

CTIA notes that the Enforcement Bureau has initiated an investigation relating to the alleged illegal marketing practices of wireless microphone manufacturers.²⁷ If the Commission finds that certain wireless microphone manufacturers have violated its rules, CTIA supports holding them accountable. Because the deployment of new wireless services in the 700 MHz band is imminent, the Commission should promptly complete this investigation and hold violating wireless microphone manufacturers responsible for

²⁴ In rare cases where many wireless microphones operate in a single location, the microphones can be engineered to avoid both local channels and the other microphones in use at that location.

²⁵ PISC Petition at 3-15.

²⁶ *Id.* at xii-xiv.

²⁷ Notice at ¶ 22.

remedying the problem of unauthorized use of wireless microphones in 700 MHz spectrum.²⁸

V. CONCLUSION

The planned commercial and public safety services in the 700 MHz band will benefit tremendously consumers and first responders. It is imperative that the Commission takes all steps necessary to ensure that these new services may operate free from harmful interference, including prohibiting the operation of wireless microphones on Channels 52-69. Even after wireless microphones lose access to 700 MHz spectrum, there will remain ample spectrum for their operation, and for this reason the Commission should not undermine its AWS policies by creating a GWMS at 2020-2025 MHz. CTIA urges the Commission to act promptly to adopt rules to ensure the clearance of the 700 MHz band by the DTV transition date, and to hold those wireless manufacturers in violation of Commission rules responsible for remedying the unauthorized use of wireless microphones in 700 MHz spectrum.

²⁸ While CTIA acknowledges that there have been instances in which new entrants may pay to relocate existing licensees, the facts here are distinguishable. Licensed, authorized users have long been on notice that these low power auxiliary devices would need to vacate the 700 MHz band by February 17, 2009, and many have taken steps accordingly. Moreover, new 700 MHz licensees should not be forced to bear responsibility for relocating the many unauthorized, unlicensed low power auxiliary device users that pose the largest potential for interference to commercial and public safety licensees. Such an obligation would merely encourage further unlawful uses of licensed spectrum.

Respectfully submitted,

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