Before the
Federal Communications Commission
Washington DC 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
SENNHEISER ELECRONIC CORPORATION

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Sennheiser Electronic Corporation ("Sennheiser") files these comments in response to the Notice of Proposed Rulemaking in the above-captioned proceeding.[1]

Sennheiser Electronic Corporation is a wholly-owned subsidiary of Sennheiser electronic GmbH & Co. KG, headquartered in Germany. The parent company is a global leader in microphone technology, RF-wireless and infrared sound transmission, headphone transducer technology, and active noise cancellation. The U.S. subsidiary, based in Old Lyme, Connecticut, represents Sennheiser products in the United States and distributes a variety of other professional audio lines.

[1] *Revisions to Rules Authorizing the Operation of Low Power Auxiliary Stations in the 698-806 MHz Band*, WT Docket Nos. 08-166, 08-167, Notice of Proposed Rulemaking and Order, FCC 08-188 (released Aug. 21, 2008) ("Notice").

A. SUMMARY

Modern wireless microphones deliver high audio quality and reliability, good range and wall penetration, and long battery life. They contribute to the high production standards of U.S. news and entertainment content, one of the country's most important exports.

Sennheiser supports the proposal to establish a General Wireless Microphone Service ("GWMS") in vacant UHF TV bands. GWMS microphones should be licensed by rule, and should be available to users who may not qualify under Part 74. At the same time, however, we urge the Commission to maintain Part 74 licensing, for those who qualify. Both GWMS and Part 74 microphones should be subject to the same technical standards. But Part 74 microphones should have interference priority over GWMS, and should have access to more spectrum than GWMS, as described below.

We oppose the suggestion of the Public Interest Spectrum Coalition ("PISC") that unlicensed "white space" devices be co-equal in spectrum priority with GWMS wireless microphones. The Commission's Rules have always put unlicensed devices dead last in the interference food chain. This arrangement has worked well – vast numbers of unlicensed devices share spectrum successfully with other users – and should not be changed.

The question of priority is important here because white space devices could pose a very real interference threat to wireless microphones, especially if they are authorized at higher powers than wireless microphones. Co-equal rights in name will be far from co-equal in practice. White space device users will be able to protest interference from wireless microphones, which are few in number and usually stay at one location. But interference from ubiquitous, portable white space devices will be impossible to track down. Supposedly co-equal status would thus allow white space devices to gain protection for themselves while interfering

with impunity. This would disrupt not only TV and motion picture production, but also live coverage of professional sports, political conventions, and other events of great interest to the American public.

To relieve this problem, we propose to divide the spectrum. White space devices would have the use of locally vacant TV channels 38-51, while GWMS microphones would be confined to channels 14-36, minus channels 14-20 in the thirteen cities where those frequencies are used for public safety communications. Part 74 wireless microphone licensees could use both categories of channels, and would have priority over both GWMS and white space devices in cases of interference.

Separately, the Commission proposes to ban the manufacture and sale of wireless microphones above 698 MHz effective next February, and – most troubling – their use as well. This is far shorter notice than the Commission has ever given for the discontinuation of any product. Even manufacturers of devices known to cause actual harmful interference have invariably been given more time to cease marketing, and users were allowed to continue operating indefinitely. Except as to public safety channels 63-64 and 68-69, the proposed transition is unnecessarily harmful to the industry and to customers who bought the equipment in good faith long before the Commission announced any action.

The proposal to allocate 2020-2025 MHz to wireless microphones, while welcome, does little to ease either the transition out of 698-806 MHz or the threat of interference from white space devices below 698 MHz. This is a small band, less than 5 percent of the 698-806 MHz spectrum being lost, with propagation characteristics far inferior to UHF TV frequencies.

Finally, Sennheiser vigorously opposes PISC's proposal that manufacturers be required to replace 698-806 MHz wireless microphones at their own expense. PISC starts from a badly

mistaken assumption – that the industry originally marketed these microphones unlawfully to ineligible customers. Sennheiser markets only to distributors and to large, sophisticated users. But nothing in the Commission's Rules expressly prohibits marketing to ineligible parties. Such a rule would be hard to administer in any event, as a manufacturer cannot reliably assess eligibility from a purchase order. But even if we granted all of PISC's allegations, still, nothing in the Communications Act or the case law authorizes the Commission's requiring a manufacturer to expend its own finds to clear spectrum of previously lawful equipment for someone else's benefit.

B. INTRODUCTION

This proceeding raises two distinct issues. They are best taken up separately.

One is the need to address broadcast auxiliary equipment, including wireless microphones, in the 698-806 MHz band. Sennheiser concurs that the recent auction and eventual build-out of wireless and public safety services will require that sales of this equipment cease. We disagree with the Commission's proposed schedule, but have no dispute with the principle involved.

The other issue concerns the future of wireless microphones below 698 MHz – specifically, their availability to users who may not qualify under Part 74, and their co-existence with unlicensed "white space" devices, in the event the Commission ultimately authorizes those.[2]

PISC proposes a new General Wireless Microphone Service that excludes 698-806 MHz but would include a new allocation at 2020-2025 MHz.[3] The service would be open to users

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[2] We use the term "white space device" for a class of unlicensed personal/portable devices the Commission has proposed to allow in the TV allocation on channels that are vacant in a given market. *Unlicensed Operation in the TV Broadcast Bands*, 21 FCC Rcd 12266 at paras. 23 *et seq*. (2006).

who do not presently qualify for TV-band wireless microphones. PISC favors a "license by rule" regime that would not require individual license filings.

PISC also wants wireless microphone manufacturers to replace end-user equipment in the 698-806 MHz band with GWMS-compliant products at the manufacturers' own expense.[4] As we show in Part E(3), below, PISC is mistaken in thinking the Commission's authority extends that far.

PISC may have omitted an element from its statement of interest. It took the trouble to research, draft, and file its 54-page Petition because, it says:

- PISC members have the right to use 700 MHz wireless services without interference;[5]
- PISC members must sometimes violate Commission rules by using microphones provided at corporate events;[6]
- some PISC members have purchased wireless microphones in the mistaken belief that they could use them lawfully;[7] and
- two PISC members represent equipment manufacturers for 700 MHz C block licensees, and would be financially harmed by interference.[8]

Missing is any mention of the fact that PISC and some of its members have made multiple filings in the Commission's "white space" proceeding, some running to hundreds of

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[3] Notice at para. 21(5); Informal Complaint and Petition of the Public Interest Spectrum Coalition at 27-33 (filed July 16, 2008) ("PISC Petition").

[4] PISC Petition at 33-36.

[5] PISC Petition at 37.

[6] PISC Petition at 36.

[7] PISC Petition at 36.

[8] PISC Petition at 37.

pages.[9] Those filings generally agree with Microsoft, Google, *et al*. in supporting white space devices in vacant TV spectrum. PISC's present Petition is consistent with those views. In particular, although PISC does not make the point obvious, it seeks to elevate white space devices in priority over wireless microphones.

White space devices, if authorized, will operate in the same locally vacant TV channels that wireless microphones have long used. PISC concedes that wireless microphones do not cause interference to TV reception.[10] They might, however, cause interference to unlicensed white space devices. PISC proposes to avoid that problem by giving white space devices "co-equal rights" with GWMS wireless microphones.[11] As we show in Part D(3), below, this would give white space devices an effective interference priority over wireless microphones. That would be a startling departure from decades-long Commission practice, which has always made unlicensed devices subordinate to any licensed service, whether licensed by rule or otherwise.[12] This is not merely a question of regulatory doctrine. Because white space devices may operate at higher powers than wireless microphones, they could pose a very real interference threat.[13]

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[9] *See* ET Docket No. 04-186.

[10] "[Y]ears of unauthorized use have demonstrated clearly that even unsupervised, widespread, and often intense use of wireless devices in the vacant broadcast bands *does not* interfere with television broadcast service." PISC Petition at 28 (original emphasis).

[11] PISC Petition at 32.

[12] "Operation of an [unlicensed device] is subject to the conditions that no harmful interference is caused and that interference must be accepted that may be caused by the operation of an authorized radio station, by another [unlicensed device], by industrial, scientific and medical (ISM) equipment, or by an incidental radiator." 47 C.F.R. Sec. 15.5(b). There is a minor exception for certain unlicensed devices in the 902-928 MHz band. *See* 47 C.F.R. Sec. 90.361.

[13] For comparison, note that mobile Wi-Fi-type unlicensed devices are permitted to use EIRP powers sixteen times higher than wireless microphones. *Compare* 47 C.F.R. Sec.

PISC argues that its proposal gives legitimacy to previously unauthorized wireless microphone users.[14] Sennheiser emphatically favors a rule change that recognizes the value of wireless microphones outside the Part 74 context. But PISC gives no reason why legitimizing new applications for wireless microphones should require novel and extraordinary protection for unlicensed devices.[15]

C. UHF-BAND WIRELESS MICROPHONES UNIQUELY FILL IMPORTANT NEEDS.

This proceeding arises in part because of the huge successes achieved by TV-band wireless microphones. They are reportedly in wide use in Broadway theaters, music venues, houses of worship, business centers, and convention sites, among other places.[16] About 600,000 units were purchased in the United States last year (although some became components in larger systems). Their popularity comes despite relatively high costs. Prices for a small system can range from several hundred to thousands of dollars. But people who need high-quality microphones buy these products because they work. A well-engineered unit delivers high audio fidelity, useful range, effective penetration of walls and other obstacles, and long battery life.

Wireless microphones are essential to the production of virtually all non-studio broadcast events (and many studio-produced programs as well). These include professional and college team sports, from local college broadcasts up to the Superbowl, the World Series, the Final Four, and the Stanley Cup; the Democratic and Republican political conventions; the Oscar, Emmy,

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15.247(b)(3), (4) (unlicensed digital modulation devices allowed 1 Watt plus 6 dBi antenna gain) *with* 47 C.F.R. Sec. 74.861(e)(1)(ii) (UHF TV band wireless microphones allowed 1/4 Watt).

[14] PISC Petition at 32.

[15] In any event, inasmuch as the Commission did not incorporate this proposal in the NPRM, it cannot be lawfully adopted without a further notice.

[16] Sennheiser does not sell directly to any of these markets. See Part D(1), below.

and Grammy shows; events such as the Olympics, NASCAR races, the Kentucky Derby, and major golf and tennis tournaments; and news reporting from the scene. These broadcasts routinely attract millions of viewers.

The U.S. public has come to expect the very highest standards of production quality in all forms of television, radio, film, and live entertainment. Driven by these demanding expectations, U.S. news and entertainment content is globally acknowledged as the best in the world. Thanks to widespread popularity of these products, entertainment content has become one of the nation's leading exports.

Wireless microphones are one of the production tools that fuel this success. Loss of the 698-806 MHz band – on any schedule – is a major challenge to the industry. The possible introduction of white space devices into remaining spectrum further exacerbates the shortage.

There is no adequate substitute for UHF TV-band frequencies. Unlicensed wireless microphone products are available in the 49 MHz, 902-928 MHz, and 2.4 GHz bands, but these are generally unsuited to professional applications. The low available power and high interference levels makes them unreliable, while the narrow bandwidth of most units impairs audio quality. One manufacturer offers an unlicensed microphone using ultra-wideband technology. In principle it should be capable of high audio quality, but is necessarily limited in range and wall penetration.[17]

Given the demand for wireless microphones and the lack of alternative frequencies, it is in the public interest for the Commission to legitimize their use by parties not presently eligible under Part 74.

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[17] Commission rules tightly restrict the power of ultra-wideband devices, and require them to operate at frequencies high enough that building materials cause significant attenuation. *See* 47 C.F.R. Sec. 15.517.

D. THE COMMISSION SHOULD ADOPT A LICENSING MECHANISM TO EXPAND THE PERMISSIBLE USES OF WIRELESS MICROPHONES.

Two facts, taken together, argue strongly in favor of dropping the Part 74 restriction on wireless microphones. First, wireless microphones fill an important public need, as evidenced by their widespread use. Second, there have been few, if any, reported incidents of interference to TV reception. Legitimization of wireless microphones will thus serve an important public need without causing harm.

1. The present rules do not prohibit Sennheiser's marketing practices.

PISC repeatedly accuses Sennheiser and its competitors of marketing wireless microphones illegally.[18] Sennheiser does not speak for other manufacturers, but for itself, denies having violated Commission rules. Even though technical progress and other developments over the years have made the rules difficult to apply, Sennheiser has remained in compliance under any reasonable interpretation. The company does not market directly to small end users. It has no retail operations of its own. Its U.S. website does not accept orders for wireless microphones, but instead sends buyers to local dealers.[19] Sennheiser sells only to retailers and distributors, and to large end users and professional service providers – sophisticated entities having their own sources of legal advice on eligibility. These sales are lawful.

Moreover, although Sennheiser does not knowingly sell to parties ineligible under Part 74, its doing so would not violate any rule. The Commission knows how to prohibit the marketing of equipment to ineligible parties.[20] It has not done so here.

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[18] PISC Petition at i, iv, v, xii, xiii, 4, 8, 17, 18, 19, 22, 29, 34, 37.

[19] *See* www.sennheiserusa.com.

[20] For example: "In some cases, the operation of UWB [ultra-wideband] devices is limited to specific parties, e.g., law enforcement, fire and rescue organizations operating under the

Even if such a rule were on the books, a manufacturer would have great difficulty in identifying the permissible target population. Eligibility under Part 74 includes not only broadcasters, but also radio and TV networks, cable operators that originate content, and motion picture and TV producers.[21] These categories may once have been clear-cut, but no longer. For example, PISC seems to think churches are automatically ineligible,[22] but many originate broadcasts on radio, TV, and cable. Some churches are even known as "broadcast ministries." Similarly, motion picture production today is no longer confined to a few large Hollywood studios. Inexpensive digital video equipment has turned loose a new generation of small, independent producers. They, too, are eligible under Part 74. Music venues often use wireless microphones. But many live music events are routinely recorded for possible later use on TV or as motion picture material, blurring the question of their eligibility.

2. The Commission should broaden eligibility for wireless microphones and institute licensing by rule.

Sennheiser proposes that the Commission acknowledge the current realities by authorizing GWMS wireless microphones that have no requirement for Part 74 eligibility. At the same time, Part 74 eligibles would have the use of more spectrum, and would have interference priority over GWMS users.

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auspices of a state or local government. The marketing of UWB devices must be directed solely to parties eligible to operate the equipment. The [certification grantee] is responsible for ensuring that the equipment is marketed only to eligible parties. Marketing of the equipment in any other manner may be considered grounds for revocation of the grant of certification issued for the equipment." 47 C.F.R. Sec. 15.507.

[21] 47 C.F.R. Sec. 74.832(a). Also eligible are BRS and ERS licensees and lessees. *Id.*

[22] PISC Petition at 5-8.

GWMS microphones should be subject to the same technical standards and certification requirements that presently apply to Part 74 microphones.[23] We agree with PISC that individual licensing should continue for traditional Part 74 users, with licensing by rule for GWMS users.[24] The numbers of general-purpose users would make individual licensing for the GWMS wholly impractical. More important, the traditional purpose of individual licensing – to provide a database for resolving interference incidents – is unnecessary here, because interference from wireless microphones is rare or non-existent. At the other extreme, unlicensed operation is equally unsuitable. Wireless microphone power levels would require changes to the Part 15 technical rules.[25] Moreover, with a few exceptions, unlicensed operation is associated with ubiquitous and inexpensive products such as cordless phones and Wi-Fi adapters. Sennheiser does not think wireless microphones should be placed in this category.

3. A "co-equal relationship" between wireless microphones and white space devices would be inequitable in practice.

We noted above that PISC and its members favor the Commission's authorizing unlicensed personal/portable white space devices in vacant TV spectrum.[26] Yet years of laboratory and field testing have failed to produce a consensus on whether such devices can

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[23] 47 C.F.R. Secs. 74.851, 74.861.

[24] Notice at para. 21(5); PISC Petition at 30-33.

[25] *See* 47 C.F.R. Secs. 15.209(a) (footnote to table), 15.231(b), 15.242. Unlicensed emissions in broadcast bands are stringently limited to protect TV viewers watching local channels. Wireless microphones, which are used only on vacant channels, can operate safely at much higher levels.

[26] PISC Petition at ii.

operate compatibly with broadcast TV and wireless microphones. The controversy has attracted some 29,000 filed submissions, and the outcome remains uncertain.[27]

PISC wants white space devices to have co-equal rights with GWMS microphones, so that neither would have a legal claim to interference protection from the other. PISC suggests that microphone users and white space-device users could resolve any interference issues through negotiation.[28]

This proposal, although superficially even-handed, in fact would greatly benefit white space devices at the expense of wireless microphones. White space devices would take the form of small, hand-carried consumer products that would number in the millions and move unpredictably across town and across the country. Wireless microphones, in contrast, will continue to be used in far fewer numbers, even if eligibility requirements are relaxed. They also tend to stay in the same place.

Why does this matter? Suppose, for example, that a particular white space user often experiences interference at home on Sunday mornings. Across the street is a church, which our user reasonably suspects might be the source of the problem. PISC's proposal would entitle the user to knock on the church door and request negotiations to resolve the interference. A resolution might indeed be possible, perhaps by the church's shifting to different frequencies. Or, instead of a church, the white space user may have to visit a theater, community college, civic meeting hall, or other such location. In most cases, it will be easy to pinpoint the offending

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[27] *See* ET Docket No. 04-186. Some parties call for white space frequencies to be licensed on a per-link basis (for fixed point-to-point use), or to be licensed by auction. We limit the present comments to the issues that PISC has raised with respect to unlicensed white space devices, but may wish to revisit the matter if the Commission appears inclined to adopt a licensing proposal.

[28] PISC Petition at 32.

establishment. Wireless microphones are sparsely used (compared to white space devices), and their interference radius is relatively small.[29] Any source of interference will most likely be a close-by facility in which people routinely address audiences. Those should not be hard to identify.

But now suppose the situation is reversed. The church's wireless microphone system receives interference from a white space device. (This scenario is a very real possibility, and all the more so if white space devices are ultimately authorized to operate at higher powers than wireless microphones.) The white space device causing the problem could be in a home nearby, in a car idling at the curb, on a park bench across the street . . . almost anywhere. The church staff has no way to locate it, and hence no way to relieve the interference.

In practice, then, white space devices would be free to cause interference to wireless microphones, but not vice versa. The supposedly "co-equal" relationship gives unlicensed white space devices spectrum access superior to that of licensed microphones. This would not only violate the most basic principles underlying unlicensed operation, but would make wireless microphones unusable wherever white space devices might be used. PISC's proposal would sacrifice the known value of a long-established service in favor of unproven products whose benefits are wholly speculative.

4. The Commission should partition locally vacant UHF channels between white space device and wireless microphones.

The Commission can best promote compatibility between white space devices (if ever authorized) and wireless microphones by dividing the spectrum. A natural break occurs at 608-614 MHz (channel 37). Those frequencies, reserved for radio astronomy, are not used by

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[29] 47 C.F.R. Sec. 74.861(e)(1)(ii) (wireless microphone power in UHF TV bands may not

wireless microphones and are also closed to unlicensed devices.[30] We propose that the upper UHF channels at 614-698 MHz (channels 38-51) be reserved for white space devices, and that lower channels 470-608 MHz (channels 14-36) be reserved for GWMS wireless microphones. Both white space devices and GWMS microphones would be secondary to Part 74 microphones, which could operate on any unused UHF TV frequency below 698 MHz (except for channel 37). Although the range proposed for GWMS microphones looks much bigger, in fact wireless microphones must avoid 42 MHz of it in thirteen of the largest metropolitan areas, where channels 14-20 are used for public safety communications.

We think both wireless microphones and unlicensed white space devices will function more reliably if each has to contend only with broadcast TV, Part 74 microphones, and other units of its own kind.

E. THE TRANSITION OUT OF THE 700 MHZ BAND NEEDS CAREFUL PLANNING.

1. The Commission should rethink its schedule for the prohibition on marketing of 700 MHz wireless microphones.

Sennheiser does not dispute that sales of wireless microphones in the 698-806 MHz band must end. The parties that paid almost $20 billion for their licenses, the future winners of spectrum yet to be auctioned, and 700 MHz public safety users will all need to minimize the numbers of other devices in the band.

Lacking guidance from the Commission, Sennheiser began educating its customers about the coming 700 MHz transition in early 2007. Later that year, still moving on its own, Sennheiser notified customers that 700 MHz band microphones would be available only on a

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exceed 1/4 Watt).

[30] 47 C.F.R. Sec. 15.205(a).

special-order basis starting January 1, 2008. The special-order status enabled Sennheiser to give buyers specific warnings that their ability to use the band would eventually be impaired. Sennheiser has also made extensive changes to its production and internal distribution systems to prepare for the coming changes.

Now, after a long silence, the Commission's first word on the subject is a proposal to ban both the sale and the use of wireless microphones above 698 MHz, effective February 17, 2009 – less than six months after release of the Notice.[31]

This lack of notice is unprecedented. We cannot find any prior instance in which the Commission stopped the marketing of a previously lawful product with so little warning. Even vendors of devices known to cause actual, harmful interference have received more notice. In 1976, when the Commission tightened the rules on CB receivers to eliminate interference to licensed radio services, it allowed sales to continue for 17 months from release of the order,[32] which was several months after the NPRM.[33] More recently, after the Commission determined that radar detectors were causing harmful interference to VSAT satellite receivers, it required modifications to protect the VSAT band, but did not bar marketing of the original units until a

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[31] Notice at para. 17. The Notice also reviews statements in other proceedings relating to the DTV transition. *Id*. at paras. 9-12. But the only prior direct reference to wireless microphones came in a refusal to address their status. *Reallocation and Service Rules for the 698-746 MHz Spectrum Band*, 17 FCC Rcd 1022 at para. 33 (2002). The Commission added a reassurance that wireless microphones in the 698-746 MHz band would *not* likely "have to immediately cease all operation," *id*. – hardly fair warning of the opposite.

[32] *Receiver Certification Program*, 60 F.C.C.2d 687 (1976), *clarified*, 62 F.C.C.2d 623 (1976).

[33] *Receiver Certification Program*, 58 F.C.C.2d 839 (1976) (Notice of Proposed Rulemaking).

full year after the NPRM.[34] Noncompliant products sold before the deadline could continue operating indefinitely.

Those cases rested on findings of real interference. Here, the supposed victims of interference are not even in operation.[35] The Commission's haste is unfairly burdening the wireless microphone industry and its customers to no useful purpose.

2. The 2020-2025 MHz spectrum is no substitute for 698-806 MHz.

PISC proposes that the Commission allocate the 2020-2025 MHz band on a primary basis to the GWMS, ostensibly to help alleviate crowding below 698 MHz and to provide frequencies free of white space devices.[36]

Of course Sennheiser welcomes additional spectrum. But the 2020-2025 MHz band is no substitute for 698-806 MHz. It amounts to 5 MHz, less than a single TV channel and less than 5 percent of the bandwidth being lost in the DTV transition. Even if 2020-2025 MHz became available, Part 74 wireless microphones would still need the full range of 470-608 and 614-806 MHz, and GWMS microphones would still need 470-608 MHz. Moreover, the frequencies at 2020-2025 MHz will not propagate as well, and so will yield a shorter range, especially in a cluttered environment. A power increase could compensate, but that would reduce battery life.

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[34] *Review of Part 15*, 16 FCC Rcd 18205 (2001) (Notice of Proposed Rulemaking); *Review of Part 15*, 17 FCC Rcd 14063 (2002) (First Report and Order); *Review of Part 15*, 17 FCC Rcd 17003 (2002) (extending deadline by 30 days).

[35] Sennheiser exempts from this discussion channels 63-64 and 68-69, which some public safety agencies plan on putting into widespread use immediately after the DTV transition date.

[36] Notice at para. 21(2); PISC Petition at xi-xii, 33.

In short, Sennheiser supports a 2020-2025 MHz allocation, but does not expect it to help significantly with the problems raised by the DTV transition or the proposed introduction of white space devices.

3. PISC's proposal that wireless microphone manufacturers be required to replace the 700 MHz units in use has no basis in law or in common sense.

PISC wants the Commission to require that wireless microphone manufacturers replace "unauthorized equipment" with new products that avoid the 700 MHz band.[37] Otherwise, says PISC, migration out of the band would enrich the same manufacturers whose "willful and knowing violation" of the Commission's Rules put 700 MHz microphones into the hands of unauthorized users.[38] PISC offers theories on how the Commission might compel this outcome.

Sennheiser vigorously challenges the premise of the request – that Sennheiser engaged in illegal marketing – and, separately, disputes the Commission's authority to require Sennheiser to replace existing microphones.

Sennheiser has explained in detail that its marketing practices do not violate Commission rules.[39] There is no equitable basis for compelling Sennheiser to replace microphones in the field.

The lack of violations also eliminates one of PISC's mechanisms for forcing Sennheiser's cooperation. PISC suggests that the Commission punish past "illegal marketing or sale"[40] by assessing fines of $11,000 per day per offense, counting each piece of advertising as a separate

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[37] Notice at para. 21(3); PISC Petition at xiii, 29-30, 33-36.

[38] PISC Petition at 34.

[39] *See* Part D(1), above.

[40] PISC Petition at 34.

offense, and thus running up a large total obligation.[41] The Commission would then offer a consent decree under which manufacturers would agree to swap old equipment for new and pay a reduced fine.[42]

We think it offensive to suggest the Commission would accuse a manufacturer of wrongdoing, and deliberately escalate the penalties, solely to coerce activities that are otherwise beyond the Commission's authority to compel. But the ethical argument is moot. A rational company signs on to a consent decree only when it knows the Government has evidence to support penalties in excess of the agreed-upon settlement. Here, lacking any violation, there is no basis for the Commission to levy fines, much less for Sennheiser to accept a consent decree. PISC's strategy collapses.

PISC's also tries three arguments for what it calls the Commission's "broad authority" to order an equipment replacement program.[43] But it fails to present any trace of valid legal support for any of them.

PISC first offers up a small blizzard of statutory citations.[44] But it stops with the citations. PISC does not try to explain how any of the provisions would authorize compelling a non-violating manufacturer to fund a replacement program.

Second, PISC points to Section 4(i) of the Communications Act.[45] This is the "necessary and proper" clause that enables the Commission to carry out responsibilities assigned

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41 PISC Petition at xiii, 34

42 PISC Petition at xiii, 35.

43 PISC Petition at xiii, 34.

44 PISC Petition at xiii, 34.

to it elsewhere in the Act. The section does not confer separate powers to do anything.[46] The case that PISC cites on Section 4(i) concerns a different question: whether Section 4(i), read in conjunction with other, directly relevant statutory provisions, authorizes the Commission to charge for a license it had earlier planned to issue for free.[47] The decision turns on how later statutory enactments affect prior Commission rulings, and particularly on the role of Section 4(i) in implementing the later enactments. The case has no bearing on the present question, in which PISC attempts to invoke Section 4(i) without any supporting provisions.

Finally, PISC cites two cases for the proposition that the Commission can order licensees and equipment manufacturer to pay the cost of migrating spectrum users.[48] Both address the now-familiar problem of a new technology moving into a band that houses incumbents. The Commission has often conditioned use of a band on the newcomers' relocating the incumbents to some other band. The principle is fair on its face and widely accepted, despite occasional disagreement on the details. All such provisions in the Commission's Rules – and both of the cases cited by PISC – entail *the incoming user of the spectrum* paying the costs of relocation.[49]

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[45] "The Commission may perform any and all acts, make such rules and regulations, and issue such orders, not inconsistent with this chapter, as may be necessary in the execution of its functions." 47 U.S.C. Sec. 154(i).

[46] "Section 154(i) provides the Commission no independent substantive authority; it merely provides that the Commission may issue orders that are necessary in the execution of its functions as described under other provisions of the Act, while not contravening any other provisions." *Southwestern Bell Tel. Co. v. FCC*, 168 F.3d 1344, 1350 (D.C. Cir. 1999).

[47] *Mobile Communications Corp. Of America v. FCC*, 77 F.3d 1399 (D.C. Cir. 1996), *cited by* PISC Petition at 29-30, 35.

[48] PISC Petition at xiii, 29-30.

[49] *Teledesic LLC v. FCC*, 275 F.3d 75 (D.C. Cir. 2001) (incoming satellite licensee must pay to relocate incumbent fixed microwave licensees), *cited by* PISC Petition at xiii, 29-30; *Use of New Telecommunications Technologies*, 8 FCC Rcd 6589 (1993) (manufactures of equipment

The incoming user takes these expenses into account as part of the cost of the spectrum, and adjusts its auction bidding accordingly. There has been no case in which a third party, not a spectrum beneficiary, has been required to bear the costs of relocation. And there is no statutory provision that would allow such action.

In short, PISC presents neither authority nor precedent for its notion that the Commission can require Sennheiser and other manufactures to replace previously purchased equipment.

CONCLUSION

Wireless microphones have provided important public benefits while causing no harm. The Commission should allow their use under a license-by-rule regime, while giving spectrum priority to Part 74 licensees. The Commission should not, however, set wireless microphones on a co-equal status with white space devices. Doing so would, in practice, make the microphones secondary to ubiquitous, inexpensive consumer products.

The Commission is putting the wireless microphone industry and users under unreasonable time pressure to migrate out of the 700 MHz band. Except perhaps for channels 63-64 and 68-69, the Commission can adopt a more flexible schedule without harm to the new 700 MHz licenses. And the Commission lacks both justification and authority to compel wireless microphone manufactures to replace 700 MHz band equipment.

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for incoming unlicensed PCS services must pay to relocate incumbent fixed microwave licensees), *cited by* PISC Petition at 35.

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