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

In the Matter of	)	
	)	
Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band	)	ET Docket No. 02-380
	)	
	)	

To: The Commission

COMMENTS OF COX BROADCASTING, INC.

Cox Broadcasting, Inc. ("Cox"), by its attorneys, hereby submits these comments in response to the Commission's *Notice of Inquiry* in the above captioned-proceeding.[1] Through subsidiaries, Cox owns fourteen commercial television stations licensed to various-sized communities throughout the United States and broadcasts on the spectrum that would be shared, as contemplated in the *NOI*, with unlicensed devices. Cox supports the concept of allowing non-interfering unlicensed devices to operate in the broadcast spectrum and believes it is reasonable to begin considering at this early juncture the best means for testing and implementation. Nevertheless, to prevent unnecessary interference and avoid needless uncertainty, the Commission should refrain from the actual introduction of any unlicensed devices into the broadcast spectrum until after the close of the DTV transition.

The Commission's unlicensed operation policies thus far have been extremely successful. By creating a regulatory structure for unlicensed devices that minimizes harmful interference and optimizes widespread usage – without unduly restricting the types of applications that may be

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[1] Additional Spectrum for Unlicensed Devices, ET Docket No. 02-380, *Notice of Inquiry*, FCC 02-328 (rel. Dec. 20, 2002) ("*NOI*"). According to publication in the *Federal Register*, these comments are timely filed. *See* 68 Fed. Reg. 2730 (Jan. 21, 2003).

offered – the Commission has unleashed market forces and entrepreneurs, resulting in a wide variety of innovative Part 15 products for consumers. It is reasonable, then, for the Commission to desire to expand on these successes and attempt to identify additional spectrum for unlicensed operations.

Cox believes, however, that broadcast spectrum should not be opened to unlicensed operation until the DTV transition is completed. Introducing yet another unknown and uncertain element to the DTV mix during the transition only will complicate and extend it. Cox respectfully recommends that the Commission establish a timetable for coordinating the introduction of non-interfering unlicensed devices into the broadcast spectrum with the close of the DTV transition. This schedule would ensure that these new devices could function properly in a now-uncertain digital environment and in a manner consistent with the Part 15 principles that are responsible for their commercial success heretofore.

I. THE COMMISSION SHOULD FOCUS ON CREATING CERTAINTY AND PREVENTING INTERFERENCE.

The commercial success of unlicensed devices is due in no small part to the assurances provided by the Commission's Part 15 rules and equipment authorization procedures, which are designed to ensure that unlicensed devices are unlikely to cause harmful interference to licensed operations.[2] The certainty that results gives entrepreneurs and engineers confidence to invest in developing unlicensed devices and their concomitant applications. Although the Commission's rules explicitly prohibit operators of unlicensed devices from causing actual interference to

[2] Or to other unlicensed devices. *See, e.g.,* Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems, *First Report and Order*, 17 FCC Rcd 7435, ¶ 6 (2002).

licensed operations,[3] such a restriction alone cannot explain the commercial success of unlicensed devices, because widespread consumer usage and source identification difficulties make case-by-case enforcement of interference rules virtually impossible.[4] The success of unlicensed devices under the Part 15 rules is due in large part to the Commission's reliance upon design constraints for unlicensed devices to prevent interference and allow for efficient and intensive use of the spectrum – an *ex ante* concept Congress authorized in 1968 by empowering the Commission to "deal with the interference at its root source" and shift from "an after-the-fact approach to controlling interference."[5]

As it considers comments in this proceeding, the Commission should not stray from these policies that are responsible for the commercial success of unlicensed devices. The Commission should focus both on creating regulatory certainty for entrepreneurs and design engineers and on preventing interference to licensed (and unlicensed) operations. Only in this manner can the Commission create the successful environment envisioned for unlicensed operations in the broadcast spectrum. Accordingly, Cox urges the Commission to adopt a methodical approach in this proceeding. If the Commission follows the same Part 15 policies and establishes the *ex ante* prevention of interference to licensed operations as an unambiguous and absolute criterion, then

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[3] 47 C.F.R. § 15.5(b).

[4] *See*, *e.g.*, CBS, Inc. Petition to Exempt Digital Electronic Organs From Part 15 of the FCC Rules, *Order*, 98 FCC 2d 1071, ¶ 7 (1984) ("it must be recognized that sources of radio frequency interference are often difficult to identify and locate"). Source identification is even more difficult if the unlicensed devices are mobile. See Review of Part 15 and other Parts of the Commission's Rules, *First Report and Order*, 17 FCC Rcd 14063 , ¶ 11 (2002) ("identifying each individual source of interference . . . is not practical . . . because these devices are mobile").

[5] S. Rep. No. 90-1276 (1968), *reprinted in* USCCAN 2486, 2488, reporting enactment of 47 U.S.C. § 302(a).

entrepreneurs and design engineers could obtain the certainty needed to develop the type of novel devices contemplated for unlicensed operation in the broadcast spectrum.[6]

II. THE COMMISSION SHOULD NOT INTRODUCE UNLICENSED DEVICES INTO THE BROADCAST SPECTRUM UNTIL THE DTV TRANSITION ENDS.

A. With Licensed Operations in Flux, the Commission Should Avoid Creating Even More Uncertainty for Broadcasters' Digital Plans.

To ensure the future success of unlicensed devices in the broadcast spectrum and prevent interference to television viewers, the Commission should not allow unlicensed devices to operate on the broadcast spectrum until the close of the DTV transition. DTV still is at a nascent stage, and a number of issues accordingly are in flux. Broadcasters continue to encounter implementation obstacles – including interference issues, which Commissioner Martin asserted in the *NOI* "already threatens to impede the introduction of digital television."[7] With only about a fourth of stations operating thus far at full DTV power,[8] a number of well-known DTV interference cases not only exist but remain unresolved.[9] In addition, questions remain about the robustness of over-the-air reception of DTV signals, which has resulted in, among other things,

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6 *NOI*, ¶ 13.

7 *Id.*, Separate Statement of Commissioner Kevin Martin.

8 FCC List of DTV Stations On-the-Air (Mar. 12, 2003) <http://www.fcc.gov/mb/video/files/dtvonair.html>.

9 *See*, *e.g.*, Todd Shields, *Running Interference*, Mediaweek (Nov. 4, 2002) <http://www.mediaweek.com/mediaweek/headlines/article_display.jsp?vnu_content_id=1754095>. Station KSPX(TV) (Sacramento, California), for example, reports widespread DTV interference well into its community of license, but the Commission has not taken any action more than two years after the interference complaint was filed. *See* Complaint Regarding Interference Received From KPIX-DT (San Francisco, California) as Caused to KSPX(TV) (Sacramento, California) (Jan. 10, 2001). The Commission's reluctance to take action gives broadcasters little comfort that their own interference complaints will be promptly addressed, further supporting Cox's view that interference problems from unlicensed devices be addressed *ex ante*.

the contemplated imposition of receiver standards[10] and novel transmission schemes such as distributed systems that would alter the dispersion of transmitted energy throughout stations' service areas.[11] Allowing unlicensed devices to operate in the band during the transition not only would complicate the implementation of digital television and efforts to solve problems with nascent technology, but the unlicensed devices also could be blamed – correctly or otherwise – as being the cause of the problems.

The business plans of broadcasters also are in flux. The Commission authorized DTV stations to provide ancillary and supplementary services to help engage in facilities-based competition in the digital age. This decision opened the door for broadcasters to expand offered services beyond HDTV ranging from multicasting to datacasting to time-shifted programming.[12] With technology still relatively immature and regulatory issues such as cable carriage and interoperability unsettled, broadcasters are not in a position to develop business plans with a reasonable degree of confidence.

Even fundamental spectrum issues are unsettled. The Commission acknowledged in the *NOI* that the comparative spectrum landscape during and after the end of the DTV transition would be very different.[13] During the transition, both analog and digital stations are operating on channels 2-69, but after the transition, digital-only operations will be repacked to channels 2-51 –

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[10] Interference Immunity Performance Specifications for Radio Receivers, ET Docket No. 03-65, *Notice of Inquiry*, FCC 03-54, ¶ 36 (rel. Mar. 24, 2003).

[11] *See* Second Periodic Review of the Commission's Rules and Policies Affecting the Conversion to Digital Television, MB Docket No. 03-15, *Notice of Proposed Rule Making*, FCC 03-8, ¶¶ 99-106 (re. Jan. 27, 2003) ("*Second Periodic Review NPRM*").

[12] *See*, *e.g.*, Advanced Television Systems and Their Impact Upon the Existing Television Broadcast Service, MM Docket No. 87-268, *Fifth Report and Order*, 12 FCC Rcd 12809, ¶¶ 27-36 (1997).

including some 175 new DTV stations that must be accommodated. Stations have yet to elect a permanent "core" channel,[14] and there is no real sense of how much vacant spectrum would be available for unlicensed operation after the close of the transition. Moreover, the amount of vacant spectrum will vary significantly from market to market, depending on the density of DTV stations. Furthermore, a number of applicants for full-power and Class A television stations seek spectrum,[15] and the Commission has yet to commence, much less complete, a DTV proceeding for LPTV stations.[16]

Introducing unlicensed operation into the broadcast spectrum while an unusually large number of issues are in flux would needlessly complicate broadcasters' implementation of DTV. Until these important DTV matters are settled, it would be unreasonable to add another element of uncertainty by allowing unlicensed devices to operate in the broadcast spectrum. Broadcasters already have numerous open issues that they must consider while implementing their digital plans. Given the significance of recovering analog spectrum,[17] the Commission should focus on expediting – not extending – the DTV transition.

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13 *NOI*, ¶ 10.

14 The Commission has proposed May 1, 2005 as the date by which some stations, but not all, would have to elect a permanent DTV channel, and subsequent agency approval of such election still likely would be required. *Second Periodic Review NPRM*, ¶ 25.

15 *See* Mass Media Bureau Announces Window Filing Opportunity for Certain Pending Applications and Allotment Petitions for New Analog TV Stations, *Public Notice*, DA 99-2605 (rel. Nov. 22, 1999); Establishment of a Class A Television Service, MM Docket No. 00-10, *Report and Order*, 15 FCC Rcd 6355, ¶¶ 100-103 (2000).

16 *See Second Periodic Review NPRM*, n.107.

17 *Id.*, ¶¶ 41-46.

B. The Commission's Approach to Preventing Interference from Unlicensed Devices Is Predicated on a Level of Certainty That Will Not Exist for Some Time.

The Commission says its Part 15 rules are intended to ensure that there is a "low probability" that unlicensed devices will cause harmful interference to other spectrum users.[18] With so many DTV issues in flux, however, not only would introducing unlicensed devices into the broadcast spectrum threaten the DTV transition, it more fundamentally would increase that probability for harmful interference. As previously discussed, preventing interference from unlicensed devices to licensed operations largely is accomplished *ex ante* through device design constraints, and an unsettled DTV environment plainly is not the time to be locking unlicensed devices into a design. For example, to prevent unlicensed devices from causing harmful interference to others, the Commission typically restricts the power of the transmitted signals. Accordingly, the Commission asks in the *NOI* for comment on the appropriate power level for unlicensed devices in the broadcast spectrum.[19] Such a question, however, presumes a level of certainty that will not exist for some time. With rules prohibiting actual interference from unlicensed devices virtually impossible to enforce, the error cost of locking-in some flawed design is high.[20] Once the genie is out of the bottle, if the Commission subsequently realizes it has an interference problem with unlicensed devices, it will be too late. Furthermore, there also

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[18] *See*, *e.g.*, Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems, ET Docket 98-153, *First Report and Order*, 17 FCC Rcd 7435, ¶ 6 (2002).

[19] *NOI*, ¶ 15.

[20] That error cost would include, as Commissioner Martin stated, the creation of "a new class of users with expectations for spectrum in these already crowded bands." *NOI*, Separate Statement of Commissioner Kevin Martin. How, for example, would the Commission react to consumer outcry if new distributed DTV transmission systems rendered inoperative any unlicensed devices that already were present in the broadcast spectrum?

is the issue of interference *caused to* the unlicensed devices by licensed operations. With so many DTV issues in flux, Cox questions whether entrepreneurs and engineers will have the certainty they need to develop functioning unlicensed devices and applications.

Concerns about interference to television viewers are not fanciful. The Commission has every reason to presume widespread commercial success of new unlicensed devices, so interference problems would be pervasive if they occur. Moreover, there are several unprecedented elements involved here. The Commission has not permitted extensive unlicensed operation in the broadcast spectrum, so there is little experience with its effects on television receivers. Also, the contemplated unlicensed devices apparently would rely on an attractive but unproven concept of frequency-agility,[21] which would require consideration and testing of a range of design features to ensure that interference to television viewers was prevented.[22] Accordingly, for all of these reasons, the Commission should wait until the end of the DTV transition before allowing unlicensed devices to operate in the band.

III. THE COMMISSION SHOULD ESTABLISH A TIMETABLE FOR TESTING AND EVALUATING UNLICENSED OPERATION IN THE BROADCAST SPECTRUM, COORDINATED WITH THE CLOSE OF THE DTV TRANSITION.

Cox believes it would be reasonable at this time for the Commission to establish a timetable of clearly defined stages and/or milestones that would be coordinated with the close of the DTV transition. These stages would allow the Commission (and interested members of the public) to evaluate a proof of concept rather than guess about the sufficiency of efforts to prevent

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[21] Or some sort of GPS/database combination, which at this point would seem incapable of accommodating inevitable changes to the Table of Allotments and the like.

[22] For example, the Commission must consider whether the unlicensed devices would be designed such that it is rendered inoperative if the "frequency finder" permanently fails. The

harmful interference. Not only would this approach give broadcasters the opportunity to comment meaningfully during development, it would provide entrepreneurs and engineers with real incentive to invest in new technology. These stages should be formulated methodically to answer the necessarily speculative questions raised in paragraphs 16 and 21 of the *NOI*. In addition, as an important part of this proceeding, the Commission should ascertain the amount of vacant spectrum that might be available permanently after the transition so that interested parties can begin to understand the extent to which unlicensed devices can operate. If the Commission and the public are convinced at the end of this process that interference to DTV viewers would be prevented, then it would be reasonable for the Commission to allow the marketing of unlicensed devices that would operate in the broadcast spectrum.

CONCLUSION

When the Commission last comprehensively considered the operation of unlicensed devices in broadcast spectrum, the agency concluded that, due to the "more intensive use of these bands" that may occur with DTV, "prudence dictates a conservative approach."[23] Nothing has changed that would warrant a different conclusion today. By methodically planning to introduce unlicensed devices into the broadcast spectrum after the close of the DTV transition, the Commission can best ensure that it will create certainty for all parties and prevent interference to all licensed operations. This approach will allow for the resolution of an inordinate number of in-flux issues that must be tackled if the heretofore commercial success of unlicensed operations is to be duplicated. Accordingly, while Cox supports the concept of allowing unlicensed devices

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Commission must decide what would happen to the unlicensed device if no vacant frequency is identified. The Commission also must prevent modification of the devices by consumers.

[23] Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License, *First Report & Order*, 4 FCC Rcd 3493, ¶ 50 (1989).

to operate in the broadcast spectrum, the Commission should refrain from permitting such until after the close of the DTV transition and rely on this proceeding to ensure that television viewers will be protected.

Respectfully submitted,

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