

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)	
)	
Unlicensed Operation in the TV Broadcast Bands)	ET Docket No. 04-186
)	
Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band)	ET Docket No. 02-380
)	

SUPPLEMENT TO EMERGENCY REQUEST

The Association for Maximum Service Television, Inc. (“MSTV”),¹ the National Association of Broadcasters (“NAB”),² the Association of Public Television Stations (“APTS”)³ and the ABC, NBC, CBS, and Fox Television Networks hereby supplement the Emergency Request filed on October 17, 2008 in response to the release by the Office of Engineering and Technology (“OET”) of a 400-page report detailing the results of the testing of prototype TV-band white space devices (“WSDs”)⁴ and simultaneous announcement that the Commission would vote on November 4, 2008 to authorize WSDs based on the flawed conclusions in the Report.

¹ MSTV is a nonprofit trade association of local broadcast television stations committed to achieving and maintaining the highest technical quality for the local broadcast system.

² NAB is a nonprofit trade association that advocates on behalf of more than 8,300 free, local radio and television stations and also broadcast networks before Congress, the Federal Communications Commission, the Courts, and other federal agencies.

³ APTS is a non-profit organization whose membership comprises the licensees of nearly all of the nation’s CPB-qualified noncommercial educational television stations. The APTS mission is to support the continued growth and development of a strong and financially sound noncommercial television service for the American public.

⁴ *Evaluation of the Performance of Prototype TV-Band White Spaces Devices: Phase II*, FCC/OET 08-TR-1005 (rel. Oct. 15, 2008) (“OET Report”).

As recent comments by white spaces proponents show, it is absolutely critical for the Commission to protect the public's free, over-the-air broadcasting service not just from interference from white spaces devices but from a movement to totally eliminate television broadcasting.

The Commission must also evaluate both the risks and the benefits of any proposed white spaces regime. The undersigned parties here provide the Commission with a more detailed analysis of the serious risks to the public's television service that would be posed by 40 milliwatt WSD adjacent-channel operations (which are reportedly under consideration by the FCC). This analysis targets the 40 mW power limitation for adjacent channel operations. This is in addition to the point made in the Emergency Request that the findings of the OET Report do not support, and in fact rebut the conclusion in the Report that the tests provide a "proof of concept" for sensing as a reliable means of avoiding interference,⁵ especially since once such devices are in the field by the hundreds of thousands, there is no practical cure for prior miscalculation. The signatories also propose a path forward that would allow use of the white spaces without compromising the public's free, over-the-air television service.

I. WHITE SPACES PROPONENTS ARE INDIFFERENT TO TELEVISION BROADCASTS, AND SOME EVEN AIM FOR THE COMPLETE CESSATION OF OVER-THE-AIR BROADCASTS.

Certain white spaces proponents have made no secret of their antipathy – indeed, hostility – towards the public's television service. They disregard the fact that television broadcasting provides the public – all the public – with important news programming, emergency information and disaster coverage, and other critical services. It is still the only video

⁵ Motorola and Google share the view that spectrum sensing alone is not a viable solution.

service that is free, local and universal. Forty-five million Americans rely on over-the-air television exclusively. Cable, satellite, and telco subscribers view over-the-air broadcast content nearly half the time. Over 90% of the top-rated programs each week are broadcast-originated. Local broadcast news is highly valued and highly rated. Neither Congress nor the Commission has adopted the position that the FCC should administer euthanasia to the public's over-the-air service.

But these white space proponents have now made clear their agenda:

“[I]n a few years a second phase of the DTV transition should get TV off the air.”

“‘Take TV off the air’ in a few years.”

“[O]ver-the-air broadcasts should be replaced entirely by cable, satellite and Internet viewing.”

“The FCC proposes to limit devices to 40 milliwatts of power in white-space channels adjacent to TV stations, but ‘we’re going to push that up over time,’ Calabrese said. Mark McHenry, CEO of Shared Spectrum Co., said ‘the FCC is going to start conservatively, but we’re going to wear them down. In a few years, we’re going to be at 10 W all over the place.’”⁶

The end-game for these groups is, over the next few years, to increase the power of personal, portable devices to dangerously high levels, with complete disregard for the effects on the public's television broadcasting service (as well as on licensed wireless microphone operations and cable).

Whether a white spaces proponent is motivated by the goal of destroying television or is just indifferent to the consequences that flow from embracing sensing technologies that have failed and from an adjacent-channel power limit (40mW) that would

⁶ See “Clear All TV from Spectrum for Wireless Broadband, Says New America,” *Communications Daily* (Oct. 22, 2008).

destroy service, the result is the same. These latest revelations as to the goals of some proponents underscore that the Commissioner cannot responsibly authorize unlicensed devices (except fixed rural broadband) without, at least, obtaining public comment on OET's report.

II. FORTY MILLIWATT WSD OPERATIONS ON CHANNELS ADJACENT TO TELEVISION CHANNELS WOULD CREATE WIDESPREAD INTERFERENCE TO TELEVISION OPERATIONS.

It is reported that the rules under consideration by the Commission would permit unlicensed devices to operate at 40 mW on first-adjacent channels to television operations serving the public.⁷ This power level would adversely affect television broadcasting, creating the potential for interference to viewers' DTV sets throughout 77% of a station's service area.

Assuming median receiver performance and flat terrain,⁸ WSDs operating at 40 mW will:

- at approximately 25 miles from the television tower, interfere with television sets operated at a range of 10 meters from the WSD; and
- at approximately 50 miles from the television tower, interfere with television sets operated up to 45 to 50 meters from the WSD.

If a household is using a lower-quality DTV set, then the WSD may cause interference even when operating at much greater distances. For example, a receiver with below-median receiver performance – and by definition, 49.9% of all receivers are below median – located 50 miles from the television tower could suffer interference from a 40 mW WSD operating at a range of 250 meters, not 45 to 50 meters.

⁷ See Howard Buskirk, "High Tech Poised for Big Win on TV White Spaces," *Communications Daily* (Oct. 16, 2008).

⁸ These calculations were performed by MSTV using the free space propagation model. See Attachment 1.

Further, WSDs will cause interference even closer to the broadcast towers than 25 miles in cases where viewers are using indoor antennas and in high-density urban areas.

Although the walls of a building may weaken the undesired WSD signal, the DTV signal will also be reduced by the walls and will be susceptible to being overwhelmed by the WSD's signal. Consequently, the potential for interference to DTV sets could be much greater than 77% of a station's service area.

Therefore, broadcasters urge the Commission to reject a 40 mW power authorization for devices that will operate on the first adjacent channel to television operations. The proposed 40 mW power level creates an unacceptable risk of interference to viewers located in 77% of a station's service area.

III. BROADCASTERS HAVE PROPOSED A WORKABLE SOLUTION THAT ADVANCES THE PUBLIC INTEREST BY PERMITTING WHITE SPACE UTILIZATION WHILE PROTECTING THE PUBLIC'S OVER-THE-AIR BROADCASTING SERVICE.

The Commission should adopt a white space solution that promotes valuable new uses of the white spaces while preserving the integrity of the public's television broadcasting service and other licensed uses of the spectrum. All of the elements of this solution were placed before the Commission beginning on September 23.⁹ There is a pragmatic, careful, and constructive two-step path forward.

First, the Commission should move forward on November 4 to authorize appropriate rural broadband deployment. Broadcasters have long supported using the white spaces for fixed rural broadband uses, and believe that the Commission need not hold off on authorizing rural broadband purposes while it puts out the OET Report for public comment and

⁹ See Ex Parte Presentation, MSTV, ET Docket Nos. 04-186 and 02-380 (filed Sept. 24, 2008), attached hereto as Attachment 2.

more careful and thorough evaluation. In other words, the proceeding should be bifurcated and the Commission may move forward promptly with this aspect of the proceeding.

Second, with respect to personal portable devices, the Commission should:

- Require geolocation. Broadcasters support the use of personal portable devices that use the white space spectrum, but it is critical that the Commission not compromise when it comes to the integrity of the public's over-the-air television service. Broadcasters have worked very hard with the data, testing results, and technical calculations to create a workable solution that will allow these devices to utilize the white spaces. Geolocation, in combination with a comprehensive and accurate database, will help to avoid interference to television broadcasts.
- Do not allow devices in the band that rely exclusively on so-called "spectrum sensing." As documented in the Emergency Request, the laboratory and field tests show that spectrum sensing devices have failed generally and have specifically failed to provide necessary protection to television broadcasts.
- Limit power on the first adjacent channel to 5 mW. As noted above and in Attachment 1, a 40 mW power limit for devices operating on channels adjacent to television operations will not provide sufficient protection to over-the-air broadcasts and the viewers who rely on those broadcasts. Broadcasters believe that 5 mW will provide sufficient protection,¹⁰ and further note that 5 mW is generally greater than the power level that would be permitted under the Motorola proposal.
- Protect licensed wireless microphones. In order to protect the licensed wireless microphones used in reporting news and sporting events and for other purposes, the Commission should set aside several channels for exclusive use by wireless microphones as a "safe harbor" from WSD operations.
- Protect cable. The Commission should limit power on the remaining adjacent channels in order to avoid direct pick-up ("DPU") interference to cable subscribers using digital cable ready sets.

* * *

¹⁰ We note, however, that even 5 mW operation will be challenging for DTV receivers to handle on adjacent channels when the desired signal is very low. Given a received -84 dBm minimum desired signal, even the best performing receiver in the FCC tests (-40 dB D/U for adjacent channel) could withstand an adjacent channel signal at a level no higher than -44 dBm. A 5 mW device at 10 meters yields a received level of -41 dBm, 3 dB stronger than the limit for adjacent channel immunity on that receiver. For the reasons stated in this footnote, and in light of the likely widespread distribution of such devices, Fox does not support ANY use of the first adjacent channel.

The undersigned parties urge the Commission (1) to protect nation's free, over-the-air broadcast television service, licensed wireless microphone use, and cable operations, and (2) to move forward with the compromise proposal submitted by MSTV on September 30.¹¹ And, in any event, the Commission should not provisionally, conditionally, or in any other manner authorize devices that rely exclusively on sensing or adjacent-channel operations at more than 5 mW without first putting out for public comment the OET Report with particular focus on whether the data it lays out in great detail support the conclusions set forth in the first few general paragraphs of the report.

Respectfully submitted,

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¹¹ See Notice of Ex Parte Communication, MSTV, ET Docket Nos. 04-186 and 02-380 (filed Oct. 1, 2008), attached hereto as Attachment 3.

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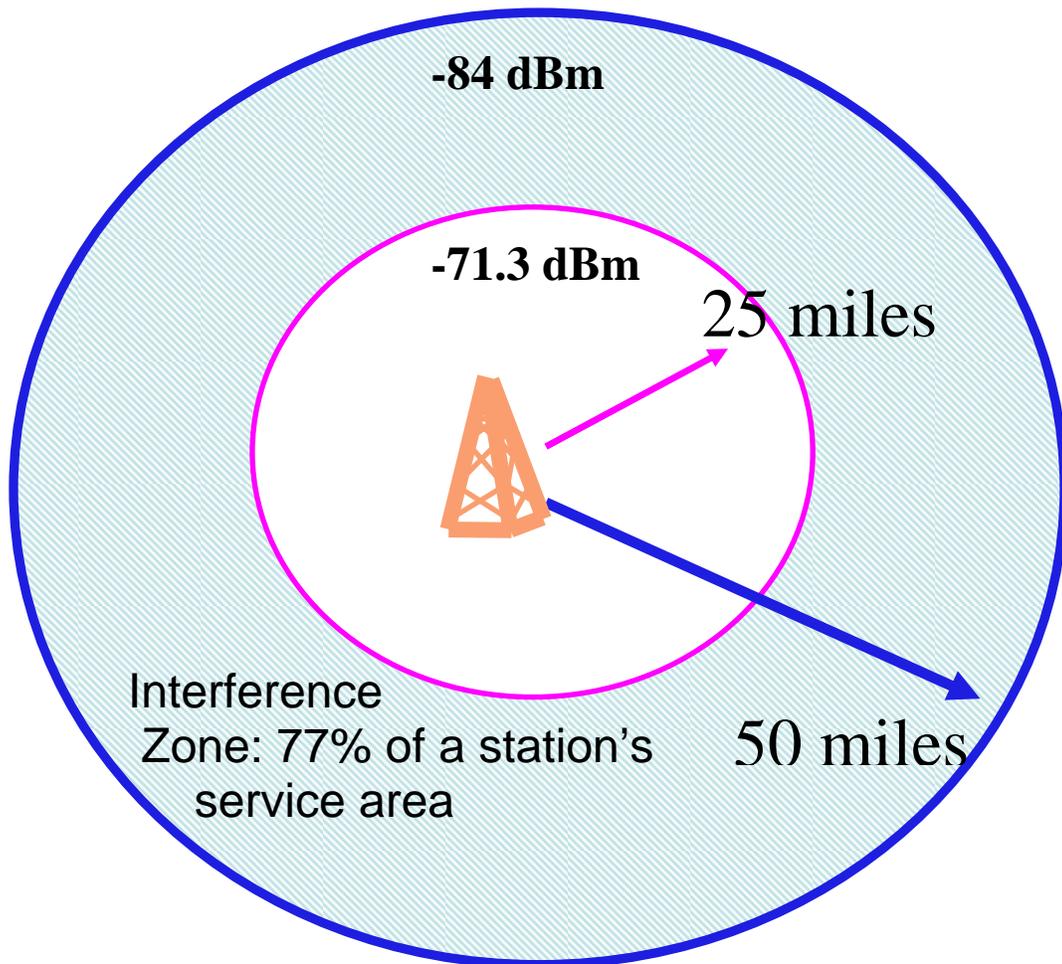
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Attachment 1

A 40 Milliwatt Device Operating On The First Adjacent Channel Will Lead To Interference In Nearly 77% Of A TV Station's Coverage Area

For a television receiver of median quality, interference from operating a 40 milliwatt device on the first adjacent channel begins at about 25 miles from the TV tower. (However, interference may commence closer than 25 miles depending on the circumstances.) Interference distance from the unlicensed device to the TV set is approximately 10 meters at 25 miles from the tower and increases to 45-50 meters at the edge of the station's service area (50 miles).¹



¹ Based on data and using the "Egli Model" contained in the FCC's DTV Receiver Report, FCC/OET 07-TR-100, 22 FCC Rcd 6616 (rel. March 30, 2007).

Interference Analysis
40 Milliwatt Unlicensed Device Operating On The First Adjacent Channel

The interference caused by a WSD will be a function of (1) the station's DTV signal strength, relative to the signal strength of the WSD and (2) the television set's reception quality. For a television receiver of median quality, a DTV field strength necessary to avoid interference caused by a 40 mW WSD at a range of 10 meters from the television set is present at only 33% of the station's service area.

DTV Receiver tested by the FCC	D/U (Tested at adjacent channel at 68 dBm)	DTV field strength at which interference begins¹	Interference Area (Percent of DTV Station's Service Area)²	Free Space Interference Distance at Edge of DTV Contour³
FCC Best Receiver	-40.1	-72.1	73%	40 meters
FCC Worst Receiver	-37.9	-69.9	80%	50 meters
FCC 2 nd Worse	-38.0	-70	80%	50 meters
FCC Median	-39.3	-71.3	77%	45 meters
UK Receiver #1	-24	-56	95%	250 meters
UK Receiver #2	-31	-63	88%	110 meters
UK Receiver #3	-30	-62	90%	125 meters
CRC Receiver #1	-29.7	-61.7	90%	125 meters
CRC Receiver #2	-34.2	-66.2	85%	80 meters
CRC Receiver #3	-36.7	-68.7	83%	60 meters
CRC Receiver #4	-37.2	-69.2	80%	60 meters
CRC Receiver #5	-37.7	-69.7	80%	50 meters

¹ DTV field strength (FS) at which the measured D/U ratio for each tested DTV receiver would be violated and interference could be caused by a 40 mW device at 10 meters (-32 dBm).

² Percentage of DTV station's service that has a field strength equal to or less than required to meet the measured D/U ratio for each tested DTV receiver that would be therefore be subject to potential interference from a 40 mW device at 10 meters. Percentage values calculated using the model contained in the March 30, 2007 OET Report, *Interference Rejection Thresholds of Consumer Digital Television Receivers Available in 2005 and 2006*, FCC/OET 07-TR-1003.

³ The distance at which a 40 mW device could potentially cause interference to each tested DTV receiver at the edge of a DTV station's service area using the free space propagation model.