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

EMERGENCY REQUEST

THE ASSOCIATION FOR MAXIMUM SERVICE TELEVISION, INC. ("MSTV"),
THE NATIONAL ASSOCIATION OF BROADCASTERS ("NAB"),
THE ABC, NBC, CBS, AND FOX TELEVISION NETWORKS, AND
THE OPEN MOBILE VIDEO COALITION ("OMVC")

SUMMARY

The Association for Maximum Service Television, Inc. ("MSTV"), the National Association of Broadcasters ("NAB"), the ABC, NBC, CBS, and Fox Television Networks, and the Open Mobile Video Coalition ("OMVC") request that the Commission issue a public notice seeking comment from members of the public on the 400-page report released on October 15, 2008 by the Office of Engineering and Technology ("OET").

The OET's report provides detailed results of extensive laboratory and field tests of prototype white space devices. The underlying data contradict the conclusions that are made in the report, including the assertion that there has been a "proof of concept" of spectrum-sensing devices. The data show that spectrum sensing cannot be used to determine accurately whether a television channel is occupied or vacant.

The Chairman has announced that the Commission will vote in 14 business days to adopt rules authorizing TV band white space devices based on the conclusions in the OET's report. If the Commission adopts rules hastily based on a flawed reading of the OET test results, WSDs will be let into the broadcast band without the protections that are necessary to prevent widespread interference to television and cable reception. Yet the Commission has not allowed members of the public to review and comment meaningfully on the results of the OET tests. Millions of viewers of digital television and cable services have a stake in the results of this proceeding. In light of the complexity of the report and critical issues raised by this proceeding, the Commission should issue a public notice seeking comment on the 400-page OET report, with initial comments be due within 45 days of the release of that public notice and with reply comments due 25 days thereafter.

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Two days ago, the Commission's Office of Engineering and Technology ("OET") released a 400-page report with "detailed results of laboratory and field interference tests of several prototype TV band white space devices," and conclusions purportedly based on those results.[1] Simultaneously, in a press conference, the Chairman announced that the Commission will vote to adopt, in fourteen business days, rules authorizing TV band white space devices ("WSDs") based on those conclusions.[2] On the same day, the FCC released its tentative agenda for the meeting placing this decision as the eighth item of the November 4th open meeting. In

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[1] *Evaluation of the Performance of Prototype TV-Band White Spaces Devices: Phase II*, FCC/OET 08-TR-1005 (rel. Oct. 15, 2008) ("OET report"). This laboratory and testing process took place over a six month period, during most of which the broadcast industry was represented by Bruce Franca, former Chief of the OET. His views and those of other experts, as well as the public, should be taken into account before the Commission authorizes unlicensed services that will jeopardize the public's broadcast service and that cannot effectively be policed once millions of devices are at large. Indeed, under the Data Quality Act (DQA), 44 U.S.C. § 3516 n., and the Office of Management and Budget Guidelines implementing the DQA, agencies are required to apply "stricter quality standards to the dissemination of information that is considered 'influential.'" 67 Fed. Reg. 8452, 8454 (Feb. 22, 2002). Under the FCC's own data quality guidelines, the study here is "influential" since it will have "a clear and substantial impact on important public policies." See Information Quality Guidelines, 17 FCC Rcd 19890, 19895 (2002). OMB has established that important scientific information must be peer-reviewed by qualified specialists before it is disseminated by the federal government. 70 Fed. Reg. 2664, 2665 (Jan. 14, 2005).

[2] With the meeting in fourteen days, and taking account of the Sunshine Period, only nine business days remain for the public to discuss these issues with Commissioners and staff.

addition to running afoul of the Commission's usual practice of seeking public comment prior to adopting a major rule, this plan relies on conclusions that directly contradict the data contained in OET's report. Moreover, the OET Report contains conclusions that are patently in conflict with these data. The results show that the parameters that the Commission reportedly intends to adopt for WSDs will fail to protect viewers of digital television stations and cable services. If the Commission adopts rules hastily based on a flawed reading of the OET test results, WSDs will be let into the broadcast band without the protections that are necessary to prevent widespread interference to television and cable reception. Accordingly, the Association for Maximum Service Television, Inc. ("MSTV"), the National Association of Broadcasters ("NAB"), the Association of Public Television Stations ("APTS"), the ABC, NBC, CBS, and Fox Television Networks, and the Open Mobile Video Coalition ("OMVC") urge the Commission to issue a public notice seeking comment from members of the public concerning the OET report.

I. THE COMMISSION'S CURRENT PLANS DEVIATE NOT ONLY FROM THE COMMISSION'S ESTABLISHED COURSE BUT ALSO FROM SOUND PRACTICES OF ADMINISTRATIVE PROCEDURE.

For good reason, the Commission's established practice has been to seek comment from the public on studies before issuing a final rule that relies substantially on those studies. For example, OET sought public comment after releasing its study concerning use of the 2500-2690 MHz spectrum for third generation wireless systems and before adopting rules to that end.[3] Similarly, before the Commission adopted revisions to the newspaper/broadcast cross

[3] Public Notice, *FCC Releases Staff Final Report "Spectrum Study of 2500-2690 MHz Band: The Potential for Accommodating Third Generation Mobile Systems" Seeks Comment on Final Report in Pending Spectrum Allocation Proceeding*, ET Docket No. 00-258, 16 FCC Rcd 10272 (rel. Mar. 30, 2001); *see also, e.g.*, Public Notice, *Media Bureau Seeks Comment on Experimental Economics Study Examining Horizontal Concentration in the Cable Industry*, CS Docket No. 98-82, et al., 17 FCC Rcd 10544 (rel. June 3, 2002); Public Notice, *Comment*
(continued…)

ownership rules in December 2007, it sought comments from the public on its media ownership studies in July 2007.[4] It sought public comment on the technical studies submitted during the Northpoint/DBS proceeding.[5] In 2003, the Commission asked the public to comment on studies addressing use of the separate antennas for the analog and digital components of hybrid FM IBOC signals.[6] And just last year, in this proceeding, the Commission sought public comment on two of OET's technical reports providing initial measurement studies for prototype personal/portable white space devices.[7] Simply put, until two days ago, it has been the Commission's practice to adopt rules based on complex data only *after* allowing the public an opportunity to comment on that data. Failure to provide adequate opportunity for public comment on information so central to the outcome of this proceeding raises serious questions about compliance with the Administrative Procedures Act.[8]

Sought on National Radio Systems Committee DAB Subcommittee's "Evaluation of the iBiquity Digital Corporation IBOC System," MM Docket No. 99-325, 16 FCC Rcd 22436 (rel. Dec. 19, 2001).

[4] *See* Public Notice, *FCC Seeks Comment on Research Studies on Media Ownership*, MB Docket No. 06-121, 22 FCC Rcd 14313 (rel. July 31, 2007). It is worth noting that the 2007 proceeding was required after the courts sent the rules back to the FCC, noting that the rules were adopted without being released to the public for comment.

[5] *See* Public Notice, *Comments Requested on The MITRE Corporation Report on Technical Analysis of Potential Harmful Interference to DBS from Proposed Terrestrial Services in the 12.2-12.7 GHz Band*, ET Docket 98-206, 16 FCC Rcd 8417 (rel. Apr. 23, 2001)

[6] *See* Comments Sought on Use of Separate Antennas to Initiate Digital FM Transmissions, DA 03-3898, 18 FCC Rcd 25676 (rel. Dec. 8, 2003).

[7] *See* Public Notice, *The Office of Engineering and Technology Announces the Release of Reports of Initial Measurements on TV White Space Devices*, ET Docket No. 04-186, 22 FCC Rcd 13846 (rel. July 31, 2007); *see also Am. Radio Relay League v. FCC*, 524 F.3d 227 (D.C. Cir. 2008) (recognizing the importance of seeking notice and comment on a technical report).

[8] Similarly, under the FCC's guidelines implementing the DQA, the agency has committed to the "quality, objectivity, utility and integrity" of the information it disseminates. 17 FCC Rcd at 19894. Here this means that the agency must have meaningful, public peer review of the OET study and its conclusions. *See* 67 Fed. Reg. at 8454; *see also* 70 Fed. Reg. at 2670 ("public participation in peer review is an important aspect of obtaining a high quality product through a credible process.").

In fact, Chairman Martin has stated previously that the Commission must not only seek public comment, but also must fully consider the arguments made in these comments, before the Commission takes further action on a matter. On November 25, 2002, the Spectrum Policy Task Force released a report on the operation of Part 15 unlicensed devices and the possibility of allowing these devices to operate in other frequency bands. The Commission subsequently sought public comment on the conclusions of this report.[9] Less than a month after the report was released, however, the Commission initiated a Notice of Inquiry seeking public input on the viability of allowing unlicensed devices to operate in additional frequency bands, including the TV broadcast spectrum. Then a Commissioner, Chairman Martin issued a separate statement approving in part and dissenting in part, in which he stated:

> Finally, I question the timing of this item. This item is based around several recommendations of the Commission's Spectrum Policy Task Force Report. We only recently put that Report out for comment, with comments not even due until January 9, 2003, and reply comments not due until February 10, 2003. It seems odd to me to initiate this proceeding before we even receive any comments on the Task Force's recommendations. If the Task Force Report was unnecessary for this item, the Commission could have released this item months ago, instead of delaying action for the Task Force to write its Report. If, on the other hand, the Task Force's work was instrumental to this item, it would make more sense to wait for comment on the Report before proceeding.[10]

In fact, Commissioner Copps expressed a similar sentiment with respect to similar reports:

> This is not the way to do rational, fact-based, and public interest-minded policy making. It's actually a great illustration of why

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[9] Public Notice, *Commission Seeks Public Comment on Spectrum Policy Task Force Report*, ET Docket No. 02-135, 17 FCC Rcd 24316 (rel. Nov. 25, 2002).

[10] Notice of Inquiry, *Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band*, ET Docket No. 02-380, 17 FCC Rcd 25632, 25649 (Dec. 11, 2002).

> administrative agencies are required to operate under the constraints of administrative process —and the problems that occur when they ignore that duty. At the end of the day, process matters. Public comment matters. Taking the time to do things right matters. A rule reached through a slipshod process, and capped by a mad rush to the finish line, will — purely on the merits — simply not pass the red face test. Not with Congress. Not with the courts. Not with the American people.[11]

In stark contrast to the examples above, the Commission has announced that it intends to adopt rules based on the OET report without soliciting *any* public comment on the OET report. The relationship between the studies evaluated in the OET report, that report's conclusions, and the decision to be rendered in the underlying rulemaking could not be more integral. Yet the vote to adopt these rules will occur on November 4, and the sunshine period prohibition will go into effect seven days earlier — meaning that only nine business days will have elapsed before parties are prohibited from even filing an *ex parte* presentation concerning the OET report.[12]

II. THE TESTING EVIDENCE DOES NOT SUPPORT THE CONCLUSIONS IN FAVOR OF SPECTRUM SENSING.

While the below-signed parties have only begun to review the report, it is already clear that the OET report's conclusions are not supported and are in fact contradicted by the underlying data. These contradictions further the need for the Commission itself to take time to

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[11] Report and Order and Order on Reconsideration, *2006 Quadrennial Regulatory Review - Review of the Commission's Broadcast Ownership Rules and Other Rules Adopted Pursuant to Section 202 of the Telecommunications Act of 1996*, MB 06-121, et al., 23 FCC Rcd 2010, 2117 (Dec. 18, 2007).

[12] Press Release, *FCC Announces Tentative Agenda for November 4th Open Meeting* (Oct. 15, 2008). Thus, the Commission's notice stating that parties "may submit ex parte comments if they choose to do so" is no substitute for soliciting public comment and providing sufficient time for members of the public to evaluate the 400-page report and prepare considered comments. *See* Public Notice, *The FCC's Office of Engineering and Technology Releases Report On Tests of Prototype TV White Spaces Devices*, ET Docket No. 04-186, DA 08-2243 (Oct. 15, 2008).

study the test results and for the Commission to have the benefit of the evaluations of the report and the results provided by commenting parties.

The OET report concludes that there has been a "proof of concept" and that it is satisfied "that issues regarding future development and approval of any additional devices, including devices relying on sensing alone, can be addressed."[13] The OET report also concluded that "[s]pectrum sensing worked to some degree and it may be possible to authorize products that rely on spectrum sensing [alone], in the future, if it can be demonstrated that they will not interfere."[14] These are the conclusory statements included in the OET report. But the massive factual data set forth in the 400-page report show that spectrum sensing cannot be used to determine reliably and accurately whether a television channel is occupied or vacant.

OET's testing showed two distinct and common types of failures: (1) lack of sensitivity, resulting in devices that operate on channels already occupied by television signals and (2) oversensitivity, resulting in devices that return "false positives" on channels that are not occupied by television signals. A "proof of concept" must avoid both types of failures.[15] The first type of failure will cause interference to the public's free, over-the-air digital television service, while the second type of failure will result in an inefficient use of spectrum.

As reflected in the actual test data included in the report, the WSDs tested by OET showed a significant failure rate. The FCC's WSD proposals are premised on the absence of WSD operations within the protected contour of a DTV station. The absence of WSD operation

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[13] Executive Summary at iv.

[14] OET report at 115.

[15] *See, e.g., Fundamental Design Tradeoffs in Cognitive Radio Systems or Fundamental Limits on Detection in Low SNR Under Noise Uncertainty* by Department of Electrical Engineering and Computer Science, University of California at Berkley.

within a station's DTV contour is particularly important given that WSDs can cause interference at a distance of 1 km or more.[16]

For example, the OET report in tables 5-61 to 5-66 show that:

A) Under "Condition I" (in which the WSD was operating within a station's DTV contour and its signal was viewable on a simple DTV receiver):

- Three of the WSDs (Adaptrum, I2R, and Motorola) failed to accurately detect DTV signals even when they were receivable by a simple $40 NTIA coupon-eligible converter box;[17]
- Motorola's WSD in sensing-mode failed to accurately detect occupied channels 10 percent of the time; and
- The Philips device had an oversensitivity failure on 85 percent of vacant channels.[18]

B) Under "Condition II" (in which the WSD was operating within a station's DTV contour, although the signal was not viewable in that specific location on a DTV receiver), device performance was even worse:

- I2R's device failed to identify 70 percent of channels within a station's DTV contour;[19]
- Adaptrum's device had a 49 percent failure rate;[20]
- Motorola's WSD in sensing-mode had a 52 percent failure rate;[21] and

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[16] *See* OET report at 37, finding that co-channel DTV operations "can experience interference at significant separation distances (data extrapolation indicates to up to 1.2 km) from the WSD transmitter when it is radiating a signal at ~150 mW EIRP."

[17] *See* OET report at 115. *See also id.* at vii (noting that "[i]n some instances, the Adaptrum, I2R, and Motorola (in sensing only mode) devices incorrectly reported channels as unoccupied (available) when the WSD was operated within a station's service contour and the signal was viewable"). In fact, on other radials, the extrapolated interference distance would be much greater than the 1.2 km shown.

[18] *Id.*

[19] *See id.* at 112.

[20] *Id; see also id.* at 115 (observing that the Adaptrum and I2R devices did not reliably detect occupied channels).

- The Philips device had an 8 percent failure rate, and a 27 percent failure rate when an attenuator was used to decrease its sensitivity so that vacant channels could be better identified.[22]

With respect to "Condition II" tests, and spectrum sensing more generally, it is important to note that the fact that a DTV signal is not received at one specific location within that contour does not mean that WSD operation at that location is acceptable. As the OET report notes, a WSD operating at that location could cause interference at distances of 1 km or more. This means that signals from a WSD could interfere with viewable DTV signal reception in surrounding locations.

The widespread WSD sensing failures, all documented in the report, rebut the report's conclusion that there has been a "proof of concept." Further, the concerns over the WSDs' widespread failure are exacerbated by the proven sensing difficulties due to adjacent channel operations[23] and the devices' sensing failures with respect to wireless microphone operations.[24] Nor do the results give any technical support to or shed any light on what is an appropriate "sensing threshold" to protect DTV viewers. Thus, there is no basis for concluding that devices that rely on spectrum sensing only, without geolocation, are feasible.

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[21] *See id.* at 113.

[22] *See id.* at 114.

[23] *See* OET report, at 26 (finding that "moderate-to-strong DTV signals occupying channels adjacent to the detection channel can significantly degrade detection capability, thereby affecting the ability of a device to reliably detect DTV signals").

[24] *See id.* at 141 (observing that "[a]t both sites and all the test locations, the Philips device reported all the channels on which the microphones were designated to transmit as occupied whether the microphone was transmitting or not. The I2R device indicated several channels as available even when the microphones were on.").

It is also reported that the proposed rules would permit unlicensed devices to operate at 40 mW on first-adjacent channels to television operations serving the public.[25] The risk of first adjacent-channel interference to the viewing public from operating at any power level has been fully documented in this proceeding. Moreover, this power level and the proposed 100 mW power level for the remaining adjacent channels will seriously interfere with cable viewing. The extent of this injury depends on the required power limits. Opportunity should be provided for informed comment on whether the test results documented in the most recent OET report and previous OET reports support the proposed power limits envisioned by the Commission. We believe that they do not.[26]

* * *

Millions of viewers of digital television and cable services have a stake in the results of this proceeding. If the Commission adopts rules hastily based on a flawed reading of the OET test results, WSDs will be let into the broadcast band without the protections that are necessary to prevent widespread interference to television and cable reception. If that happens, the Commission will have no ability to reverse course. It may be able to correct the mistaken rules, but it will not be able to recall millions of devices in the field or undo the resulting harm to the public interest. It thus is crucial that the Commission allow members of the public to review and comment meaningfully on the results of the OET tests.

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[25] *See* Howard Buskirk, "High Tech Poised for Big Win on TV White Spaces," *Communications Daily* (Oct. 16, 2006).

[26] Further, the OET report does not address the issue of what impact authorization for unlicensed devices with these power levels will have on mobile television broadcasting, which is expected to roll out next year to the benefit of millions of viewers.

Accordingly, the undersigned parties urge the Commission to issue a public notice seeking comment from members of the public on the 400-page OET report. In light of the complexity of the report and critical issues raised by this proceeding, initial comments should be due within 45 days of the release of that public notice, with reply comments due 25 days thereafter.

Respectfully submitted,

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