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October 27, 2008

EX PARTE

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Unlicensed Operation in the TV Broadcast Bands, ET Docket No. 04-186 and Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GG\Hz Band, ET Docket No. 02-380

Dear Ms. Dortch:

Throughout this proceeding, the cable industry has supported the introduction of new wireless communications devices in the so-called "white spaces" that will become available in the broadcast spectrum after the transition to digital television. But the Commission's guiding principle is, and should be, to balance the benefits of new TV band devices with the need to protect existing television and other authorized services from harmful interference.[1] Recent reports of imminent Commission action in this proceeding do not reflect this balance. Instead, there seems to be a complete disconnect between what the Commission's technical analyses have shown and what the Commission is proposing to adopt.

The potential harmful effects of proposed TV band devices on cable consumers have been established by the FCC itself. The Office of Engineering and Technology ("OET") released a report on October 15, 2008, detailing the results of laboratory and field interference tests of several prototype TV band white space devices. This Report confirms *once again* that unlicensed devices operating at very low output power, as low as 5 mW, will disrupt cable service in the home. The Commission's Laboratory tests confirmed interference at a similar

[1] *In the Matter of Unlicensed Operation in the TV Broadcast Bands*, ET Docket Nos. 02-380 and 04-186, First Report and Order and Further Notice of Proposed Rulemaking, (rel. Oct. 18, 2006) at ¶ 1.

level a year ago. And almost two years ago NCTA's technical analyses predicted virtually the same result. The OET field study is thus the *third* source of uncontroverted evidence of direct pick-up interference to television sets connected to cable.[2]

Nevertheless, reports indicate the Commission is poised to vote on an item at its November 4th meeting, barely two weeks after the report's release, to authorize unlicensed operation of portable TV band devices at a power level that completely ignores and contradicts the Commission's own findings. According to the Chairman's press statements, the proposed item would allow devices to operate at *100 mW* – 20 times the power that has been shown to cause interference to cable television reception of both analog and digital signals. This is frankly inexplicable.

We urge the Commission not to rush to a decision that would ignore the unique and proven hazards of such devices to cable television viewers. Even assuming a policy that some level of interference has to be tolerated by existing television services in an effort to advance the introduction of new emerging services, it is unreasonable to accept interference at an extreme level that will risk serious harm to consumers by degrading or wiping out their television picture. This trade-off would be even more egregious in apartments and other multi-dwelling unit buildings where consumers would have no control over interfering devices in adjacent units, assuming such devices can even be located.

As a practical matter, the disruption in cable service from interfering white spaces devices will confuse cable customers and result in increased costs. Consumers will not know if the degraded or missing picture on the channel they are watching is the TV malfunctioning or a problem with the cable system. They will likely either call their cable operator or local retailer where they purchased the TV set, or contact the TV manufacturer. Assuming they can even determine that it is white spaces interference that is causing the problem, the consumer may need to change the cable wiring in their home, install a cable set-top box on their cable-ready TV, or even attempt to determine if a neighbor is using a white spaces device that is causing the interference. And the neighbor will be under no obligation to turn off the device to eliminate the interference. All around, this will be a frustrating experience for potentially millions of cable customers.

There is every reason, therefore, for the Commission to more appropriately consider the balance that should be struck in this proceeding and rule on the side of lowering the permissible output power. As experience is gained from the devices in the field, the Commission can always permit increases in the power output and other technical modifications. At a minimum, we believe the Commission should proceed cautiously by issuing a Notice explaining its conclusions and giving affected services the opportunity to fully comment on the complex technical issues raised in the OET Report.

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[2] *Evaluation of the Performance of Prototype TV-Band White Spaces Devices: Phase II*, FCC/OET 08-TR-1005 (rel. October 15, 2008) ("OET Report").

The OET Report Confirms Already-Documented Interference to Cable and Should Be Taken Into Account in the Commission's Decision

The Commission's lab study, released in July 2007, demonstrated that unlicensed devices operating as low as 4.3 mW (6.3 dBm) can cause harmful interference to cable DTV reception at a distance of six feet.[3] The OET field study found that interference occurred at 5 mW (+7 dBm EIRP) at a distance of 3 feet and "was also noted on an analog TV in an adjacent room … in the form of a complete loss of picture" – presumably at greater distance and through an intervening wall.[4] The OET Report's digital receiver tests further show that the customer's in-home wiring, connectors and other equipment are a factor in the susceptibility of the television picture to interference.[5]

Nothing in the record disputes the OET findings, nor NCTA's technical analyses which were quite similar.[6] And nothing in the record supports authorizing a power level in the device that is so at odds with OET's analysis. OET describes the field tests as "anecdotal" but even these limited test results are consistent with OET's earlier findings and NCTA's predictions. Direct pickup interference to cable television reception from high-powered unlicensed TV band devices will occur – even when the device is much farther away from the television set than the distances used in the OET tests.

To give some perspective on output power vs. distance, in order to avoid interference, a 100 mW device would need to be 65 feet away from the television receiver (assuming no antenna gain and at least one intervening wall in the home). At a power level of 50 mW, the

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[3] *See* "Direct Pickup Interference Tests of Three Consumer Digital Cable Television Receivers Available in 2005," FCC Office of Engineering and Technology Laboratory, released July 31, 2007 at iii. The current proposal calls for a 100 mW power level combined with the 6 dBi antenna. In addition to DTV receiver interference, the Commission should take into account that approximately 120 million analog television sets (and approximately 93.9 million VCRs) are in cable households today. Data from SNL Kagan, 1Q 2008 and cable MSO industry benchmarks (online).

[4] OET Report at 34.

[5] *Id*. at 35. As we have previously pointed out, television receiver shielding is inadequate to protect against signal interference from proposed white spaces devices. Customers with poor in-home wiring are particularly vulnerable to interference from such devices. This type of interference could adversely affect all services on the cable system – video, high-speed data and voice. *See also* Motorola *ex parte* presentation, ET Docket No. 04-186, 02-380, filed December 7, 2007.

[6] S*ee* "Analysis of the FCC Laboratory's Report on Direct Pickup Interference Testing," David Large Consultants, Inc., attached to NCTA Comments, August 15, 2007; NCTA Reply Comments, filed March 2, 2007, n. 2 (using 0 dBi unlicensed device antenna gain and scaled to the distances used in the FCC tests); *see also* "The Potential Adverse Effects of Unlicensed Operation of New Devices in TV Broadcast Bands on Cable Customers' Reception of Cable Service," David Large Consultants, Inc., NCTA Comments, January 31, 2007, Appendix I.

device would need to be 46 feet away from the TV, and at a power level of 30 mW the device would need to be 34 feet away.[7]

In sum, the OET Report concludes that "direct pick-up interference to cable television reception was demonstrated at transmit power levels consistent with those reported in previous FCC measurement efforts."[8] The Commission should not proceed with an order authorizing TV band devices at 100 mW given the demonstrated likelihood of interference to cable at very low power. Once these devices are deployed in the marketplace, they will only frustrate and anger cable customers and it will be impossible to effectively mitigate the interference to their cable service.

The cable industry, therefore, seeks a significant reduction in the proposed output power of TV band devices in order to minimize the adverse effects of such devices on the 67 million households that receive their television service via cable.

The Commission Should Require All Devices to Contain a Geo-Location Database to Protect Cable Headend Reception of Distant Broadcast Stations

While the Commission did not conduct field tests of interference to rural cable headends, the OET test results demonstrate the potential for interference to headend reception of distant broadcast signals from white spaces devices operating at much lower powers than the proposed 100 mW.[9] The high risk of interference to rural cable headend antenna reception has been a concern of the cable industry since the outset of this proceeding.

Cable systems in rural communities often rely on tower-mounted, high gain directional antennas to receive broadcast signals from distant transmitters, and thus many of these headend sites are outside the broadcast stations' predicted Grade B contours (or digital contours as of February 18, 2008 for full-power broadcast stations). Today, there are thousands of distant out-of-market broadcast signals received by cable headends nationwide. In many cases, these stations are over 100 miles from the cable headend. Given the distance, the signal received at the cable headend is very weak. A white spaces device operating within this beamwidth, or even off axis, could interfere with a weak broadcast signal received by the cable headend. Even devices that transmit on adjacent channels of headend receiving antennas could cause interference for a considerable distance. In every case where headend interference occurs, consumers in these communities could lose the distant station's programming altogether.

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[7] This assumes the television set receiving digital signals meets the Commission's Part 15 rules regarding receiver shielding, which many sets in the marketplace today do not meet.

[8] OET Report at 37.

[9] OET Report, Table 4.2, at 32 (illustrating the potential for significant interference at extended distances, as predicted in the Large Study attached to NCTA's January 21, 2007 Comments in this proceeding).

It has not been shown that current signal sensing technology is capable of reliably detecting the availability of clear channels for unlicensed device transmission. Given the variability of signal strengths in rural locations, signal sensing must be combined with a geo-location technology for all personal/portable white spaces devices in order to identify and protect cable headends. With this approach, the geographical area that would need to be protected for each channel received would be a function of the contour of the cable headend receive antenna pattern, the strength of the desired signals, and the effective power of the proposed white spaces transmitting devices. Signal sensing would work hand-in-hand with a reliable database containing information on eligible channels as a function of location. Otherwise, cable consumers in rural and other communities could be deprived unnecessarily of diverse programming from distant broadcast stations.

The database should include voluntary cable headend information regarding broadcast signals received outside of the Grade B boundary. Portable white space devices near the cable headend should not transmit on channels, or adjacent channels, of those used to receive distant broadcast signals.

The Commission Should Follow Established Practice and Formally Seek Public Comment on the OET Report Before Adopting Final Rules

Finally, we are troubled that the Commission is prepared to adopt a final rule without formally seeking public comment on a major technical study. This would be a departure from established practice in this and other proceedings. OET sought public comment on two of its initial measurement studies of prototype personal/portable white space devices. It similarly sought public comment on its study of third generation wireless systems before adopting final rules.[10] And there are many other proceedings where this has routinely been the case. Yet, here, a highly complex proceeding with hundreds of filings involving diverse communications services, culminating in a long-awaited field study, will be resolved barely two weeks after the report's release to the public.

As noted above, the facts of the report lead to the conclusion that significant interference was measured at outputs 20 times lower than what is reportedly being considered for adoption. If the FCC does intend to rely on this Report it should first explain how it would propose to reach a conclusion so at odds with the observed interference through a Notice seeking comment on the Report. This would give affected parties an opportunity to address such an arbitrary and perplexing finding before the Commission adopts rules purportedly based on the Report.[11]

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[10] 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. March 30, 2001).

[11] *See e.g., American 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).

We therefore support the Association of Maximum Service Television (MSTV), the National Association of Broadcasters (NAB), and other broadcast organizations in their call for the Commission to issue a public notice seeking comment on the OET report.[12] Consumers can only benefit from this approach before the adoption of final rules.

Sincerely,

/s/ Daniel L. Brenner

Daniel L. Brenner
Loretta P. Polk

cc: Chairman Kevin Martin
Commissioner Michael J. Copps
Commissioner Jonathan S. Adelstein
Commissioner Deborah T. Tate
Commissioner Robert M. McDowell
Michelle Carey
Charles Mathias
Rick Chessen
Bruce Gottlieb
Renee Crittendon
Rudy Brioché
Wayne Leighton
Amy Blankenship
Angela Giancarlo
Rosemary Harold
Julius Knapp
Alan Stillwell
Ira Keltz

[12] Emergency Request filed by MSTV, NAB, ABC, NBC, CBS and FOX TELEVISION NETWORKS, and The Open Mobile Video Coalition, ET Docket No. 04-186, filed October 17, 2008.