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January 17, 2014

Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

**Re: Notice of Oral Ex Parte Presentation
ET Docket No. 13-49**

Dear Ms. Dortch:

On January 16, 2014, representatives of the Wireless Internet Service Providers Association (“WISPA”) met with personnel from the Commission’s Office of Engineering and Technology (“OET”) to discuss issues related to the above-referenced proceeding. Attending on behalf of WISPA were Alex Phillips, Dan Lubar, Jack Unger (by telephone) and the undersigned counsel. Attending on behalf of OET were Julius Knapp, Geri Matise, Mark Settle, Ira Keltz, Karen Rackley, Bryant Wellman and Aole Wilkins.

The meeting participants discussed the attached presentation. Messrs. Phillips and Lubar stressed the importance of preserving unlimited-gain antennas in the 5725-5850 MHz ISM band to provide affordable broadband connectivity to distant communities that lack choice. The WISPA representatives indicated that they were working with manufacturers and others within the WISP industry to help resolve interference to Terminal Doppler Weather Radar facilities resulting from illegally modified equipment. The meeting attendees reviewed the preliminary description of potential solutions listed on pages 6-7 of the attached presentation, which are intended as a starting point in the development of a more formal proposal once additional input from manufacturers, WISPA’s members and other stakeholders is received and considered.



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Pursuant to Section 1.1206 of the Commission's Rules, this letter is being filed electronically via the Electronic Comment Filing System in the above-captioned proceeding.

Respectfully submitted,

/s/ Stephen E. Coran

Stephen E. Coran

Enclosure

cc: Julius Knapp
Geri Matise
Mark Settle
Ira Keltz
Karen Rackley
Bryant Wellman
Aole Wilkins



TDWR Solution Effectiveness: Finding a Happy Medium

January 16, 2014



Overview

- WISPs rely heavily on the available 5 GHz spectrum for point-to-point and point-to-multipoint connectivity
 - Opportunity to access additional 5 GHz spectrum is a WISPA priority
 - 5725-5850 GHz band is especially useful for long-distance backhaul because there is no penalty for unlimited-gain antennas that allow distant communities to be served
- Harmonization across 5 GHz bands should be a baseline principle, but should not disrupt incumbent operations or preclude flexibility
 - For instance, higher EIRP should be permitted because interference potential would not increase

5725-5850 MHz Operations

- FCC should continue to allow operations in the 5725-5850 MHz band under the ISM rules (Section 15.247)
 - Only band that does not impose penalty for unlimited-gain operations
 - Enables connectivity at significantly longer distances than U-NII-3 rules (Section 15.407) allow
 - Narrower beamwidth of unlimited-gain antennas *decreases* potential for interference
- **No record that legally operating** unlimited-gain ISM operations in the 5725-5850 MHz band cause TDWR interference at 5600-5650 MHz
 - Rather, **illegal modification** of ISM equipment **has** contributed to TDWR interference

Effectiveness of Interference Mitigation Techniques

- Banning 5.8 GHz antennas in excess of 23 dBi
 - Not effective because they operate on a different frequency band
- Updating Bin-1 waveform detection algorithms
 - Limited effectiveness because may only apply in limited instances
- Requiring TDWR database registration if within 35 km of TDWR facility
 - Limited effectiveness because it requires operator or end-user awareness
- Certifying new U-NII-2C equipment only if DFS cannot be disabled
 - Somewhat effective, but still requires operator's TDWR frequency awareness
- Certifying new 5.8 GHz equipment only if it cannot be re-tuned out of the 5.8 GHz band
 - Very effective because cannot be tuned to TDWR frequencies
- Implement items on List of Potential Solutions
 - **Highly effective** because it involves all aspects of equipment, distribution and use

How WISPA is Helping

- FCC can substantially mitigate – if not completely eliminate – interference to TDWR **without** eliminating unlimited-gain antennas
- WISPA is working with manufacturers and its members to develop a package of recommended solutions
 - Will significantly deter ability of devices to be illegally modified
 - Will place acceptable burdens on manufacturers, distributors and operators
 - Will not substantially increase device cost

List of Potential Solutions

- Improve wireless system software to make it harder to reconfigure the radio to operate outside of legal parameters (e.g., to change sub-bands, defeat DFS, etc.)
- Require mandatory TDWR database registration for U-NII-2C, U-NII-3 and ISM band radios that are operated outdoors within 35 km (22 miles) of a TDWR site
- Require consumer disclosure (manufacturer's warning labels) regarding authorized use, database registration, approved antennas, etc.
- Require all non-U-NII-2C radios to contain an internal 5570-5680 MHz band notch filter that makes it impossible to operate (pass RF) in the TDWR frequency range

List of Potential Solutions

- Require built-in GPS functionality that will disable 5570-5680 MHz operation via a “phone home” software feature or a firmware lock-out feature whenever the radio is located within 35 km of a TDWR facility
- Require equipment housing to include features such as tamper-proof screws or epoxy coating
- Require that all TDWR interference-prevention features cannot be disabled by simple actions such as re-soldering a connection, clipping a wire or moving a switch
- Require equipment to include only those necessary user-accessible controls (i.e., eliminate buttons, knobs, controls, switches and codes) to deter a consumer from deactivating security features
- Continue WISPA’s TDWR education efforts