

Mimosa Networks

5 GHz U-NII Bands – Antenna Gain and Emissions Rules

Talking Points

June 13, 2014

Mimosa filed a Petition for Partial Reconsideration of the 5 GHz U-NII technical rules adopted March 31, 2014. (Petition was filed June 2, 2014, and has not yet been placed on Public Notice.)

Key Points

- The rules adopted regarding emissions limits for the U-NII-1 (5.15 – 5.25 GHz) and U-NII-3 (5.725 – 5.850 GHz) bands will have the unintended consequence of disrupting efforts to bring fixed broadband services to rural America.
- Compliance with the low emissions limits will be very expensive and impractical.
- The low emissions limits are not necessary to prevent harmful interference to Doppler Radar in the 5600 – 5650 MHz band.
- Mimosa's proposal: for transmit antennas with a directional gain greater than 6 dBi, permit an increased emission limit that matches the amount by which the gain of the antenna exceeds 6 dBi. Narrow beam width, directional nature of radiation pattern will eliminate risk of interference.

Specifics

- NPRM sought to harmonize the antenna gain requirements in Sections 15.247 and 15.407 to apply more stringent 23 dBi maximum gain to fixed point-to-point systems.
- In its Order, the FCC wisely decided not to adopt this proposal. Instead, the FCC modified Section 15.407 to permit point-to-point operations under the same gain requirements currently contained in Section 15.247.
 - FCC recognized that the current unlimited gain rules would allow providers to deploy cost-effective wireless links in high-cost areas.
- BUT, FCC then proceeded to undo the benefits of not applying more stringent antenna gain requirements by applying the more restrictive out-of-band emissions limits in Section 15.407 to unlimited gain antennas, rather than applying the less restrictive emissions limits currently in Section 15.247.

- Mimosa urges the FCC to reconsider these more restrictive requirements, for the following reasons:
 - The stricter requirements will severely undercut the ability of fixed wireless Internet access providers to provide broadband in remote rural areas. Compliance with the requirements will result in shorter link distances, and thus, require additional access points – thereby substantially increasing the cost.
 - Stricter requirements will also negatively impact use of this spectrum for public safety and utility applications.
 - There is NO evidence of interference by point-to-point users to incumbent services.
 - Enhanced security required by the FCC’s Order will significantly reduce the risk of interference – which was caused by certain operators using devices in bands for which the equipment was not authorized.
 - Not surprising that there was not interference: U-NII-3 band is separated from Doppler Radar band by 75 MHz.
 - Further, most Doppler Radar stations are located in, or close to, major metropolitan areas.
 - Options for meeting the highly restrictive limits imposed by the FCC would be costly, impractical and ineffective.
 - Amplifiers
 - Filtering
 - Pre-distortion techniques