

Comments by:

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In the Matter of)	
)	ET Docket No. 03-122
Revision of Parts 2 and 15 of the Commission's)	RM - 10371
Rules to Permit Unlicensed National Information)	
Infrastructure (U-NII) devices in the 5 GHz band)	

I. Introduction

Alvarion, as the global leader provider of wireless broadband solutions, in both licensed and unlicensed bands with over 1,500,000 units deployed globally, appreciates the opportunity to offer comment on this important matter. With over 800 Alvarion-based U.S. wireless broadband operators, the ultimate decision of the FCC will have tremendous impact, which will reverberate throughout the over 3,000 U.S. communities served by our operators. Currently, Alvarion operators are helping rural markets improve their economic environment and the quality of life of their residents. Leveraging their Alvarion license-exempt wireless broadband systems, our operator partners are providing diverse broadband applications, ranging from high-speed Internet, telemedicine, distance learning, corporate VPNs, remote transactions, remote video surveillance, vehicular traffic management, and even mobile broadband and voice for public safety.

Accordingly, we respond to this NPRM both in part of our own interests, but more importantly we do so on-behalf of our service providers and the communities they serve.

II. Discussion

Operation of unlicensed National Information Infrastructure (U-NII) devices, including Radio Local Area Networks (RLANs), in the 5.47–5.725 GHz band.

In response to discussion paragraph 18 of the NPRM, we (Alvarion) disagree with the Federal Communication Commission's (hereon known as Commission) statement that the 100 MHz of spectrum at 5.725 GHz – 5.825 GHz will remain sufficient for higher power operations. For Wireless Broadband Access (WBA) operation in these bands, any typical WBA operator will require at least 4 sectors for distribution, each sector requiring 1 channel (20 MHz), and 2 channels for feeding bandwidth to and from the distribution site. Assuming 1 channel of separation between point to point feeding links, a total of 7 channels, or 140 MHz is required. As it is, the 5.725 GHz – 5.825 GHz band is already in heavy use by point to point and point to multi-point RLAN devices (802.11a), numerous ISM devices and consumer devices such as cordless phones. Presently there is not enough spectrum to adequately address the requirements previously stated in rural market areas that require higher EIRP levels. For this reason, we feel the Commission should allow EIRP limits higher than 1 watt for UNII systems using antennas with directional gain in the 5.47 GHz – 5.725 GHz band. The additional spectrum will also foster friendly competition among WBA operators and permit the DFS mechanisms to avoid the incumbent radar systems without having to shut

down service on any particular link or sector. We also feel that by using automatic transmit power control methods, the higher EIRP levels will only be utilized in areas that really need it, further reducing the possibility of intra-band interference with other UNII devices and radars.

In regard to the proposed rules specified in Appendix B of the NPRM, Alvarion strongly feels that the Commission should use the rules imposed on digital modulators in section 15.247 of the FCC rules, with certain trade-offs made between directional gain and transmitter power. One such trade-off is the maximum peak transmit power being 250mW when using directional antennas with gain of 12dBi. If more than 12 dBi directional gain is used, then the transmitter power will be reduced one dB for dB exceeding 12 dBi. This change will reward the use of directional gain antennas and further promote frequency reuse and band sharing. We also feel the power spectral density limit of 8 dBm in any 3 KHz has been proven an effective limit for devices sharing the 5.725 GHz band. Future UNII devices based on 802.16a will have the abilities of operating in narrower bandwidths than those required by current 802.11a devices. The WBA operator can make the decision to deploy using smaller channels in the event the other channels are in use by other UNII devices, knowingly doing so at the cost of system capacity. The proposed UNII rules would penalize this operator by also requiring a reduction in EIRP. We feel as long as the power spectral density limits are met, narrower bandwidths can be used without a reduction in EIRP.

In regard to discussion paragraphs 20 and 21 of the NPRM on DFS as an interference mechanism, we agree that DFS can be effective in preventing interference to vital DoD radars. However, we want the rules to be clear on the implementation of DFS, since only the detection level and period is stated. For example, in a multi-cell UNII system using directional sector antennas, we feel that only the sector that detects the radar emission at or above the specified levels should change frequency. Other sectors on other cells using the same frequency, yet are pointing in directions other than towards the radar, need not change unless the radar signal is detected at that antenna too. Also, being under central control, the remote units can passively scan the band to find the new channel used by the base station radio. We also feel that more advanced UNII devices will detect the radar by its “signature” rather than by just received signal strength. This will prevent false DFS detections caused by other spurious emissions. For this reason, the Commission must provide more detail on how to differentiate the radar signal from other emissions.

III. Conclusion

The already proven devices in use today that comply with the higher EIRP limits are further proof that friendly spectrum sharing can be done. These rules with additions for transmit power control and dynamic frequency selection will impose further safeguards for incumbent radiolocation devices. The addition of the 5.47 GHz – 5.725 GHz band for UNII devices will further the explosive growth of the internet and bring more choices of service to our communities.

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