

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)
) ET Docket No. 04-186
Unlicensed Operation in the TV Broadcast Bands)

WI-FI ALLIANCE PETITION FOR RECONSIDERATION

The Wi-Fi Alliance hereby respectfully submits its Petition for Reconsideration of the Commission’s November 4, 2008, decision in the above-captioned rulemaking relating to Part 15 devices operating on vacant TV channels (“white spaces”). We appreciate the opportunity to express our concerns and seek clarifications and/or modifications to some of the rules adopted by the Commission for this proceeding.

INTRODUCTION

On November 4, 2008, the Commission adopted a Second Report and Order (Second R&O) that establishes rules to allow wireless devices to operate in broadcast television spectrum on an unlicensed basis at locations where that spectrum is available. (This unused TV spectrum is now commonly referred to as television “white spaces”). We view this as a significant opportunity for the Wireless LAN industry to participate in developing new technology and applications for wireless services.

A FEW CHANGES IN THE COMMISSION’S ADOPTED RULES WOULD GREATLY INCREASE THE FEASIBILITY OF IEEE 802.11 COMPLIANT DEVICES OPERATING IN THE WHITE SPACES

Working with the IEEE 802.18 group (the Radio Regulatory Technical Advisory Group), many of our members participated in an earlier filing to the Commission.¹ IEEE 802.18 supported the Commission’s first Report and Order findings that the protection of incumbent operations in the TV bands is a much more tractable problem when devices are limited to fixed operation. Fixed point to multipoint systems with a master/client relationship between base stations and user terminals, geolocation/database techniques, and transmitter power control, can provide a viable means of bringing broadband fixed access services to less densely populated rural areas and other unserved/underserved areas where spectrum is available.

In the case of personal/portable devices, where power sources must be portable and sustain operation for reasonable time period between charges, the sensing requirements represent a significant challenge to the usability of such devices. We have studied this issue and believe there are alternate approaches for these devices that meet both the intent of this instant proceeding and the functionality requirements. Therefore we believe the Commission needs to clarify or consider modifying its rules on issues and/or topics listed below so as to allow for the most efficient and economical use for operation in this band.

A – THE DATABASE SYSTEM PLAN AND OPERATION SHOULD BE AUGMENTED TO ALLOW ONLINE, REALTIME OPERATION

¹ (reference the IEEE 802.18 January 2007 Comments)

The database system plan and operation (204-207) is specified for day-to-day contact and operation, but many Internet transaction systems operate continuously, with redundant elements and very high reliability. One alternative to required daily contact is to allow each master device to receive a certificate of time-limited operation from the TV bands database. When the certificate expires the master must renew it or cease operation. The time-limit would be variable, based on the location of operation and activities of others. For example, the certificate in Pasadena might end four hours before the start of the Rose Bowl Parade. The wireless microphone database has specific months, days and times when and where the microphones are used, and time-limited certificates would increase the time available for TVBDs to operate in the neighborhood of scheduled wireless microphone operation. In this alternative, the requirement for daily contact with the TV bands database is replaced by the requirement to cease operation when the certificate's time limit is reached.

Another alternative is to have each master mode device provide an Internet contact address, and the TV bands database push changes in channel availability to affected master devices. In this alternative, the requirement for daily contact with the TV bands database is replaced by the requirement for master mode devices to verify their Internet connectivity hourly or cease operation. There are a broad range of standards-based paging and messaging technologies available that the TV bands database could use to push channel availability messages to master mode devices.

**B- TVWS DEVICES SHOULD BE RELIEVED OF SENSING OBLIGATIONS
WHERE THE DEVICE HAS FREQUENT CONTACT WITH THE DATABASE**

The DFS rules for the 5GHz band allow a master radar sensing device for all stations that operate under its control – the sensor may be mounted on the roof and communicates with all RLANs in the building. The same approach should be allowed for devices that are in a network and receive messaging from the TV bands database. Where the device itself, or its master device, has registered to receive changes in channel availability from the TV bands database, all the devices in the network benefit from current information. The rules for TVWS devices should be changed to remove sensing requirements.

C- THE SENSING REQUIREMENT FOR LOW POWER AUXILIARY DEVICES SHOULD BE REMOVED

The TV bands database approach enables TVWS devices to avoid causing harmful interference to television stations by providing the location of service contours, and affords similar protection to licensed wireless microphone systems and other low power auxiliary services by allowing registration of the locations where these systems operate.² This feature, coupled with the availability of other television channels for wireless microphone use, provides ample assurance that licensed low power auxiliary services will receive the protection to which they are entitled. Thus, a mandate that TVWS devices with access to TV bands database information also sense individual wireless microphone signals as weak as -114 dBm provides little additional benefit.

Although a sensing requirement would not provide much in the way additional protection for licensed wireless microphone services, it is clear that this requirement will impose

² *Second R&O ¶ 198.*

significant additional implementation and equipment costs. Detecting low power auxiliary signals at extremely weak levels will add substantial TVWS development time and expense. Moreover, unlike a database approach, spectrum sensing technology cannot distinguish between licensed operations entitled to protection and those systems that operate illegally. The Wi-Fi Alliance recommends the Commission eliminate any requirement for sensing wireless microphones.

If the Commission does retain the sensing requirement, it will be critical to address the above issues. Accordingly the Wi-Fi Alliance recommends that if the sensing requirement is retained then the sensing threshold should be significantly raised above the current -114 dBm levels found in the Commissions decision.

D – EMISSIONS MASK OF 15.709(c)(1) NEEDS CLARIFICATION

Emissions masks in paragraph 15.709(c)(1) should be clarified to indicate that the 55 dBr in channels adjacent to the operating channel refers to the average total power over the operating bandwidth:

(1) On adjacent channels to the TVBD, its emissions in a 100 kHz measurement shall be at least 39 dB below the average total power over the operating bandwidth.

CONCLUSION

The Wi-Fi Alliance recognizes that permitting operation of unlicensed devices in the TV band is a complex issue, and that great care has been taken in devising the rules in order to avoid interference with licensed systems. Our intention in this petition is to provide the

Commission with our best engineering and technical assessment of the required changes in the current rules to allow for the most efficient and economical operation of fixed and personal/portable TVBDs, while enabling our industry to develop devices that are commercially feasible and protective of the licensed users of this spectrum.

Respectfully submitted,

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/s/

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