

Before
INDUSTRY CANADA
Ottawa, Ontario, Canada

In the Matter of) Notice Number
Licence Exempt-Local Area) DGTP-010-98
Networks in the 5GHz Range) June 1998

COMMENTS OF IEEE 802 LAN/MAN STANDARDS COMMITTEE.

Introduction

IEEE 802, the LAN/MAN Standards Committee (“the Committee”) respectfully submits the following comments in response to the document entitled “Proposed Spectrum Policy For Licence Exempt Wireless Local Area Networks in the 5GHz Range.”

The Committee shares Industry Canada’s concern about the development of a diversity of wireless access facilities to promote a world-class information infrastructure and particular interest in high-speed computer connections and the delivery of multimedia services.

The Committee’s standard on Wireless LAN Media Access Control and Physical Layer Specification, IEEE Std 802.11 - 1997, operates in the 2400-2483.5 MHz band (henceforth, the 2450 MHz ISM band) using spread spectrum procedures under 47 CFR 15.247. The Committee has initiated work on a draft standard for operation in the 5.15-5.25GHz, 5.25-5.35GHz and 5.725-5.825GHz bands, to support a wide range of innovative LE-LAN system and device applications.

The Institute of Electrical and Electronics Engineers, Inc. (IEEE) is a USA-based international professional organization with more than 325,000 members representing a broad segment of the computer and communications industries. More than 58,000 members are from outside the USA. Within the IEEE, the IEEE Standards Association (IEEE-SA) is an ANSI accredited standards development organization.

The IEEE 802 LAN/MAN Standards Committee (IEEE 802) operates under the IEEE-SA to produce specific interoperability standards for Local Area Networks. The Local Area Network standards provide for data transfer between computers and/or computer terminals and include such widely known standards as Ethernet and Token Ring as well as the Wireless LAN standard. Many of the IEEE 802 standards have been adopted by the ISO/IEC as International Standards.

In 1997, the Committee adopted IEEE Std 802.11 - 1997, a standard for wireless Medium Access Control and Physical Layer protocols using the 2450 MHz ISM band for data rates up to 2 Mbit/s. Participants have a major investment in the development of the standard. Since 1990 when the effort started, the IEEE 802.11 Working Group has assembled 6 times a year to develop the draft, with an average of 80 persons participating. The participants are employed by companies from industries, such as manufacturers of computers, computer peripherals and chips and radio equipment, as well as aircraft manufacturers, service industries, government agencies and heavy industry. In addition to participants from the USA, there are participants from locations over the world, such as Europe, Japan, Israel, Korea and the Republic of China.

The ISO/IEC international standards organizations adopted an updated version of IEEE Std 802.11 - 1997 as an International Standard. The combined IEEE/ISO/IEC standard will be published in October of this year.

Additionally, the IEEE 802.11 Working Group is working to extend the standard for operation at higher data rates in the 5GHz range.

The strong interest in wireless local area networking is evidenced by the number of individuals and corresponding company sponsorships in the IEEE P802.11 working group. The IEEE 802.11 Working Group currently has 86 voting members employed by 58 companies.

The following is a partial list of companies that are already offering or have announced standards-based components or products:

-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-
-

The growing market acceptance of wireless LANs is evidenced by an industry growth rate of
accelerate wireless LAN adoption.

Wide regional and global designation of spectrum for similar usage is important to the

Higher Speed Working Group intends to coordinate the IEEE 5GHz draft standard with the ETSI

high-speed computer connections. The Working Group has selected a modulation, 48-carrier Orthogonal Frequency Division Modulation, which is also a leading candidate for ETSI standardization, and has appointed a liaison to ETSI for the purpose of defining common modulations.

Lower and Middle Band Distinctions

Industry Canada asks for comments on what limitations on characteristics and operation should be imposed on LE-LAN devices in 5150-5250 MHz (the lower band) to assure compatibility with aeronautical radionavigation and fixed satellite services (insert footnote for section 3.1a of DGTP-010-98).

The Committee notes that there are restrictions to inside-only operation and severe limits to the permissible power level in the lower band in the US and that such restrictions are being considered for other countries. We request that Industry Canada permit the lower band power level be the same as that of the middle band and that no restrictions on outside operation should be imposed.

The lower band restrictions were imposed in the US because of a misconception concerning the interaction on LE-LAN (U-NII devices in the US) with the Fixed Satellite Service (FSS) feeder uplinks. WINForum has shown that with liberal assumptions on LE-LAN device population and other operational parameters the effect of LE-LAN devices on FSS feeder uplinks is undetectable. Even with the most extreme presumptions concerning the population and

operational patterns, the effect on FSS feeder uplinks is less than 0.1% capacity reduction [For

always either transmitting or receiving), would cause a reduction in the baseband signal-to-noise ratio of only about 0.003 dB, and a capacity reduction (according to the AirTouch formula) of

(e.g., a 1% average duty cycle), the impact would be vanishingly small. Considering that the Globalstar forward link includes more than 13 dB of margin, it is clear that the LE-LAN devices

WINforum Ex-Parte presentation attachment, capdegr3.doc. Must check on how to reference this - possibly an excerpt is needed).

operation in two 100MHz bands sharing a common boundary, as a channel can be made to span the common boundary with minimal implementation complexity.

The Committee requests that Industry Canada harmonize the 5.15-5.35GHz lower and middle bands with ETSI 5.15-5.30GHz HIPERLAN 1 regulations and United States Unlicensed-National Information Infrastructure 5.25-