
IEEE P802.15
Wireless Personal Area Networks

Project	IEEE P802.15 Working Group for Wireless Personal Area Networks (WPANs)		
Title	IEEE letter to the FCC in response WCAI's petition		
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Source	[Abbie Mathew] [NewLANS, Inc.] [238 Littleton Road, Westford, MA 1886, U.S.A.]	Voice: [+1-617-283-1363] Fax: [+1-978-692-1619] E-mail: [amathew@newlans.com]	
Re:	[15-05-0562-00-003c-ieee-letter-to-fcc-in-response-to-wcais-petition]		
Abstract	[]		
Purpose	[]		
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Before the Federal Communications Commission
Washington, D.C. 20554

In re the petition of)
)
Wireless Communications Association) RM-11104
International, Inc.)

VIA the ECFS

Comments IEEE 802

IEEE 802¹ hereby respectfully offers its Opposition to the Petition for Rulemaking (the “Petition”) in the above-captioned Proceeding.²

The members of the IEEE 802 that participate in the IEEE 802 standards process are interested parties in this proceeding. IEEE 802, as a leading consensus-based industry standards body, produces standards for wireless networking devices, including wireless local area networks (“WLANs”), wireless personal area networks (“WPANs”), and wireless metropolitan area networks (“Wireless MANs”).

IEEE 802 is an interested party in this Proceeding and we appreciate the opportunity to provide these comments to the Commission. The 802.15.3c (“the Standard”) is a project that was formed in March 2005 and has the charter of developing a 60 GHz Wireless Personal Area Network (“PAN”) alternate Physical Layer standard-based on the IEEE Std 802.15.3-2003.

The past decade has seen considerable success in increasing the bandwidth from the core of a network to the home and the enterprise. However, the bandwidth in the home and the enterprise is inadequate or non-existent to support the new generation of applications such as high definition television (“HDTV”) connectivity, video gaming and file transfer. These applications will require data rate from 500 Mbps to over 2 Gbps. The Standard, which will be in full compliance with the Part 15.255 rules, will foster the development of semiconductor devices, software and equipment to fill this need.

¹ The IEEE Local and Metropolitan Area Networks Standards Committee (“IEEE 802” or the “LMSC”)

² This document represents the views of the IEEE 802. It does not necessarily represent the views of the IEEE as a whole or the IEEE Standards Association as a whole.

While still unproven, we expect the market for the Standard-based product to be large. Consider the market for HDTV, which is a good indicator of the potential market for the Standard-based product. According to the market research firm InStat³, about 10 million households currently have HDTV sets. This number is expected to soar to 52 million by 2009. The market driver for the Standard is to provide an inter-operable, scalable, low cost and high data rate mobile wireless solution to allow content delivery to these kinds of devices.

The existing rules under Part 15.255 are designed to accommodate both indoor and outdoor applications.

The petition RM-11104 filed by the WCA would effectively create two rules, one for the outdoor and the other for the indoor. They would be incompatible and unfair to the indoor product. The petition, if approved, will disrupt the performance of the WPAN products. Therefore, the IEEE strongly opposes the Petition for Rulemaking filed by the Wireless Communications Association International (“WCAI”) on the following grounds:

- (a) We expect the market for the Standard-based products to be extremely large, as pointed out above. The effort by the IEEE and the industry to develop a standard is a testament to the market potential. The ratification of the standard will drive the development of new technologies at 60 GHz and at higher millimeter wave frequencies.
- (b) The WCAI states that “the main limiter to the widespread usage of this valuable spectrum is the limited link distances that can be achieved under the current operating rules.”⁴ This problem has been addressed by the FCC’s opening the 70 GHz and 80 GHz bands,⁵ which provides more than 10 GHz of aggregated spectrum and longer link distance than at 60 GHz. Therefore, the WCAI should consider moving to 70 GHz and 80 GHz. The Commission adopted Part 15.255 rules in August 1998 for indoor and outdoor wireless applications. The IEEE and the industry have responded to the Commission’s action by taking the first step which is to create a standard based on the Part 15.255 rules.
- (c) The WCAI also states that the petition will not cause significant “potential for interference between links.”⁴ On the contrary, the power levels proposed in the petition will cause significant interference since links mounted inside windows will reflect energy and interfere with the Standard-based product. Since they are designed for energy efficiency, commercial

³ March 28, 2005, press release titled *High Definition TV Service Now in 10 Million Homes*.

⁴ See Reply Comments of the Wireless Communications Association Inc., RM-11105 (filed November 29, 2004).

⁵ See Allocations and Service Rules for the 71–76 GHz, 81–86 GHz, and 92–95 GHz Bands.

windows have high power reflectivity at millimeter wave frequencies . The reflected power from a window link may disrupt a Part 15.255-compliant network.

- (d) The WCAI's petition requests that "should the Commission determine that enforcement of section 15.255(i) continues to be in the public interest, it should treat window links as it would any outdoor link under the rule, and clarify that the transmitter ID requirement does not apply to point-to-point transmissions that are directed through a window." This request is problematic because, as stated in the previous paragraph, a significant portion of the transmitter power of a window link will reflect and may interfere with Part 15.255-compliant products. This is less likely to occur with an outdoor link. The transmitter ID is a powerful tool in identifying the interferer and expeditiously resolving the problem. Since a WPAN network is closely identified with a user, the ease with which interference can be resolved results in a positive experience with the technology.
- (e) The WCAI's request to increase the power level⁶ is very disturbing. As stated earlier, the reflected power from a window link may affect the performance of or possibly damage the Part 15.255-compliant products.
- (f) The Commission must note that if the WCAI's petition is approved, there is no safe guard to ensure that an unlicensed point-to-point transmitter with an EIRP of 77.3 dBm⁷ (54 kW) is pointing through a window. This raises the possibility of exposing the general population to high levels of RF radiation.
- (g) Finally, it should be noted that there are already many Part 15.255-compliant point-to-point link products on the market today that successfully operate in the unlicensed 57 – 64 GHz range. We see no reason to change the rules to allow a new higher-power class of products that may interfere with the operation of existing systems.

Working group level discussions have been initiated among several parties involved in this issue, including the WCAI, as part of the IEEE standards-setting process, in an attempt to reach a compromise and to mitigate the impact of any changes. During this process, a recommendation was made to the WCAI that it withdraw its petition. However, the WCAI has declined. Therefore, we recommend that the Commission hold in abeyance, until the discussions

⁶ According to the petition, "users of high gain, point-to-point antennas the 57-64 GHz band will be deemed in compliance with the rule if they transmit an average EIRP of no more than 82 dBm, with a reduction of 2 dB for every dB that the transmitting antenna gain is below 51 dBi."

⁷ As per WCAI's petition, an antenna with an aperture diameter of 24 inches (61 centimeters) can have a maximum EIRP of 77.3 dBm.

are concluded, or reject the WCAI's petition for rulemaking. It is anticipated that these discussions will be concluded at our November 2005 meeting.

Respectfully submitted,

/s/
Paul Nikolich
Chair, IEEE 802
18 Bishops Lane
Lynnfield, MA 01940
(857) 205-0050
p.nikolich@ieee.org

/s/
Michael J. Lynch
Chair, IEEE 802.18 Radio Regulatory TAG
2221 Lakeside Blvd.
Richardson, TX 75082
(972) 684-7518
mjlynch@nortel.com

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