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

In the Matter of	)	
	)	
Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies	)	ET Docket No. 92-9

To: The Commission

REPLY COMMENTS OF IEEE 802 LOCAL AREA NETWORK STANDARDS COMMITTEE

(Reference: Document IEEE P802.11-92/74

The IEEE 802 Local Area Network Standards Committee (the "Committee") offers the following brief Reply Comments in the above-referenced matter. The Committee has a vital interest in the Commission's proposal to establish Emerging Technologies Bands in the 2 GHz region of the radio spectrum.

In its initial Comments, the Committee set out the following essential elements that must be part of a spectrum allocation for wireless LANs:

• Wireless LANs have distinctive spectrum requirements and operating characteristics that must be accommodated in the Emerging Technologies Bands. Wireless LANs explicitly require a spectrum allocation exclusive to wireless data uses and a regulatory structure different from those adopted for carrier-provided services. Sharing with fixed microwave, or carrier-provided PCS, is not in the general case feasible.

• Up to 140 MHz of radio spectrum will be required to satisfy the foreseeable demand for wireless LAN services. There is, today, an immediate need for at least 70 MHz of RF spectrum.

• Individual user licensing is not appropriate for wireless LANs.

• International considerations support the placing of wireless LAN spectrum in the 2 GHz range.

• The Commission's proposals do not go far enough or take effect quickly enough to assure that adequate amounts of spectrum, cleared of existing microwave users, will be available in a timely manner to meet wireless connectivity needs that are already acute.

• The Committee is prepared to address reasonable means for clearing spectrum of incumbent fixed microwave users.

These elements contrast sharply with the comments of the 2 GHz microwave users in this proceeding, as discussed below.

I. Exclusive Frequency Allocations Are Required For Wireless LANs.

The Committee is sympathetic with the comments filed by those representing fixed microwave users, who share with the Committee an intense desire to achieve and maintain very high levels of reliability in their networks. Indeed, it is this concern with reliability that underlies the Committee's effort to secure new, cleared radio spectrum, in addition to the Industrial, Scientific and Medical ("ISM") bands that were previously the exclusive focus of the Committee's endeavors. The ISM bands are now subject to increased occupancy by ISM and other intentional radiators, including communications devices, that precludes effective operation of wireless LANs.

The Committee's concerns about interference also give rise to our reservations about the ability of wireless LAN to share frequencies with fixed microwave services or with carrier-provided PCS networks. Again, the issue is the technical integrity of both the wireless LAN service and any other service that might otherwise use the same frequencies. It is by no means certain that any radio service sharing the same spectrum could convincingly assure that there would not be, in some circumstance, destructive interference to another service.

Thus, it is of critical importance that the Commission move quickly to satisfy the spectrum requirements of wireless LAN developers. The Commission should immediately identify and allocate at least 70 MHz which the Committee has stated is the

minimum necessary to meet current needs for wireless LANs. The Commission also should specify in this proceeding the frequencies that will be available to accommodate the future expansion of the wireless LANs band, beyond the initial allocation, and should set out the terms and conditions for such expansion.

Once that is done, Committee members and others can and will develop advantageous, spectrum-efficient protocols optimized for effective data communications over radio.

II. Wireless LANs Cannot Be Licensed.

Wireless LANs, by definition, cover only a limited range and employ relatively low RF power which is related to the rate of the data which are conveyed. These characteristics justify permitting wireless LANs to operate without individual licenses, similar to Part 15 devices. It is, moreover, unnecessary and wasteful of public and private resources to require schools, businesses, individuals and institutions to obtain licenses to operate their own computer network services on their own premises.

Several respondents to the NPRM[1] pointed to a need for standards to establish order among radio users, in lieu of a licensing requirement. In this regard, the IEEE Committee offers its twelve year history of successfully developing voluntary standards for compatibility and interoperability among products designed and sold by numerous manufacturers as proof that licenses, with the attendant delays and encumbrances of the legal process, are not necessary to establish order among users.

III. International Considerations Require The Wireless LAN Spectrum to be In The 2 GHz Range.

Several respondents[2] to the NPRM take issue with assertions by the Commission of the value of common international spectrum allocations. The Committee is, by definition, concerned with the computer industry and its connectivity interests. We point out that the United States' computer industry is still the world leader in technology, and the U.S. balance of trade in our industry continues to be favorable. Unless the U.S. computer industry can develop the next generation of equipment that employs wireless LANs, it will not have the home market advantage that increasingly is needed to compete

1 See, e.g., Northern Telecom Inc. at pp. 11-13 and15-16.

2 See, e.g., El Paso Gas at pp. 6 and 19-20.

in the global marketplace. If that advantage is lost, the favorable U.S. balance of trade in information technologies will be jeopardized.

The 2 GHz range addressed by the NPRM is clearly the favored frequency domain for consistency with the recent WARC and other international frequency allocation trends and decisions described by the Commission and several respondents. [3] The Committee emphasizes that rationalizing wireless LAN frequencies with international allocations, and a decision by the Commission to put voice PCS and other new personal wireless technologies in nearby or possibly contiguous spectrum, will facilitate economic and timely deployment of all these technologies.

IV. The Commission's Proposals Do Not Go Far Enough Or Take Effect Quickly Enough.

The Committee's call for fixed microwave users to clear a block of spectrum for wireless LANs is countered by those in the microwave community who call for delays, continuation of the *status quo*, and outright obstruction of the Commission's already slow pace.

In view of these efforts to thwart the Commission's goal, we must repeat that, in the computer and other high-technology industries, product life-cycles evolve quickly and state-of-the-art advances take place at a very high rate. If the Commission is to provide a spectrum resource to support continuing U.S. pre-eminence in the worldwide computer industry, the Commission must authorize wireless LANs much more quickly than the schedule proposed in the NPRM.

V. The Committee Is Prepared To Address Reasonable Means For Clearing Spectrum Of Incumbent Fixed Microwave Users.

Several of the respondents to the NPRM raise ominous questions about costs of relocating existing fixed microwave users. The Committee repeats its previous position:

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[3] See, e.g., Time Warner Telecommunications Inc. at pp. 6 and 9, and Northern Telecom Inc at pp. 4-8 and 13.

it is prepared to address reasonable means for achieving the goal of a frequency band cleared of services that would prevent effective deployment of wireless LANs.

In summary, the Committee reemphasizes that the Commission immediately should allocate at least 70 MHz of 2 GHz fixed microwave frequencies, cleared of existing users over a two-year period, which the Committee has identified as the spectrum urgently needed to foster the long-overdue development of new wireless LAN technologies.

Respectfully submitted,

IEEE Project 802
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