INFORMATION TECHNOLOGY INDUSTRY COUNCIL

July 10, 1995

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Mr. William F. Caton
Acting Secretary
Federal Communications Commission
Room 222
1919 M Street, N.W.
Washington, D.C. 20554

Re: RM-8653 and RM-8648 - Comments of the Information Technology Industry Council

Dear Mr. Caton:

I am enclosing an original and five copies of comments of the Information Technology Industry Council (ITI) in response to RM-8653, "Allocation of Spectrum in the 5 GHz Band To Establish a Wireless Component of the National Information Infrastructure," and RM-8648, "Petition for Rulemaking to Allocate the 5.1 - 5.35 GHz Band and Adopt Service Rules for a Shared Unlicensed Personal Radio Network."

Sincerely,

Fiona J. Branton

Fiona J. Branton
Director, Government Relations and
Regulatory Counsel
Information Technology Industry Council

Enclosures

cc: Mark Corbitt, Director, Technology Policy,
Office of Plans and Policy

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

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

In the Matter of	)	
	)	
Allocation of Spectrum in the 5 GHz Band To Establish a Wireless Component of the National Information Infrastructure	)	RM-8653
	)	
In the Matter of	)	
	)	
Petition for Rulemaking to Allocate the 5.1 - 5.35 GHz Band and Adopt Service Rules for a Shared Unlicensed Personal Radio Network	)	RM-8648

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COMMENTS OF THE INFORMATION TECHNOLOGY INDUSTRY COUNCIL

The Information Technology Industry Council ("ITI") hereby submits its comments on the above-referenced petitions filed by Apple Computer, Inc. ("Apple") and the Wireless Information Networks Forum ("WINForum") (the "Petitions"), respectively. The two petitions address similar issues, and in accordance with the Commission's recommendation,[1] ITI is submitting a single set of consolidated comments in each of the above dockets.

ITI is a recognized representative of the information technology industry, including manufacturers, integrators, and service providers. For more than two decades, ITI and its predecessor, the Computer and Business Equipment Manufacturers Association ("CBEMA"), have played a leading role in the development of rules governing the design, development, and marketing of computing devices.[2]

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1 See Order Extending Time, DA-95-1254 (released June 8, 1995).

2 As with most industry organizations, the positions expressed herein represent the current views of ITI's members. Individual member companies may file comments regarding the two petitions expressing their views on particular subjects.

ITI strongly supports an allocation of spectrum for unlicensed services in the 5 GHz range, as proposed by Apple and WINForum. At present, ITI is not prepared to choose between the two proposals, but does not believe a choice has to be made. At this stage, the information technology industry's objective is that the Commission issue a notice of proposed rulemaking regarding an substantial allocation at 5 GHz for unlicensed, wireless data networks. The Petitions accurately describe the important role such data networks increasingly will play in meeting the communications needs of businesses, educators and students, researchers and scientists, and most other individuals in the coming years.

In particular, ITI believes that the Petitions appropriately identify the need for a 250-300 MHz spectrum allocation in the 5 GHz frequency band. Such an allocation will: (i) support applications that cannot be satisfied using other existing or proposed frequency bands or services, and (ii) build upon the European HIPERLAN allocation and, thereby, create new opportunities for U.S. manufacturers worldwide. ITI, therefore, urges the Commission promptly to proceed with a rulemaking to implement such an allocation.

I. UNLICENSED WIRELESS DATA NETWORKS WILL BE A VITAL COMPONENT OF THE NATIONAL INFORMATION INFRASTRUCTURE.

Recent experience has demonstrated America's appetite for information that can be obtained flexibly, easily, quickly, and on-the-go. Less than a decade ago, documents were sent by mail, telephones were wired to the wall, and computer networks were, to the extent they existed at all, in their infancy. Today, documents are shipped from coast-to-coast, or around the world, in minutes via fax and in seconds via electronic networks. An estimated sixty million cordless telephones are currently in use. Over 24 million Americans currently subscribe to cellular telephone systems — a number that is expected to nearly triple by the end of the decade. Millions more travelers use telephones on airplanes to remain "connected" even while flying at 30,000 feet. Laptop and palmtop terminals make it possible to take, use, and, in some cases, share information wherever one goes. Teleconferencing systems link offices and individuals, enabling people in different cities to have "face-to-face" meetings without leaving their office buildings.

Simply put, Americans do not want to be tethered by wires. As the price of wireless connections go down and the capabilities of these connections goes up, individuals increasingly will choose the flexibility and freedom associated with wireless communications to meet an ever-expanding range of communications needs. Users will expect that they will be able to connect to information resources — their office "e-mail" network, the Internet, the Library of Congress, database services, and the like — wherever they are, whenever they choose, and will demand an infrastructure that can support a full range of communications offerings at a reasonable price. Some applications will be refinements of existing offerings; others will be new creations made possible by technological developments.

Each of the licensed wireless services, including cellular telephone, PCS, cellular, "Big" and "Little" LEOs, DBS, MDS/MMDS, and the like will satisfy a wide range of users' requirements, but no single service can satisfy every need of each user. Licensees have the incentive to build high quality networks and to provide services that are in high demand within the service area. Some users are obviously very willing to pay monthly fees and airtime charges for these services, as is demonstrated by the growth of cellular telephone subscribership. However, other users — or even the same users, at different times — may prefer a more limited service that is available at a lower cost or without charge.[3] Still others may not have a choice, because they are not served by a licensed network and, in some cases, never will be. Still others have communications requirements, such as a need for high data rates, that cannot be supported by the licensed network. For these users, unlicensed wireless services will be crucial.[4]

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[3] Today's cordless telephone is, perhaps, the most ubiquitous reminder of this tradeoff. Cordless telephones offer a level of freedom and flexibility that cannot be provided with a hard-wired network; yet most users do not need, and would not pay, cellular telephone rates for cordless telephone mobility. This, then, is a need that can be satisfied only with unlicensed wireless technologies. Yet cordless telephones are not a substitute for other wired and licensed-wireless services.

[4] See First Report and Order and Second NPRM, ET Docket No. 94-32, at ¶ 32 (discussing the variety of consumer and business oriented services provided by unlicensed devices and their "potential to benefit virtually every person and business in the nation, as well as to promote American competitiveness abroad"); Letter from Larry Irving, NTIA Administrator, to Reed Hundt, FCC Chairman,

In the coming years, a wide range of products will be developed that will provide users with the benefits of wireless communications without the constraints of a licensed wireless service. These products will include, for example, devices providing wireless connections to wired networks; devices capable of communicating on an *ad hoc* basis with other devices across the conference table, down the hospital corridor, or to the other side of the exhibition hall at a trade show; and a variety of wireless local area networks. In addition, with an appropriate spectrum allocation, unlicensed communications could also make possible longer range communications networks, for example in areas unserved by cost-effective alternatives.

While the size and scope of the unlicensed communications market will grow dramatically over time, its defining characteristic will not. Spectrum devoted to unlicensed communications is and will remain a valuable public resource that will be shared by all users. It is thus fundamentally different from every licensed wireless network and every wired network.

II. A 5 GHZ ALLOCATION WILL AUGMENT EXISTING AND PROPOSED UNLICENSED ALLOCATIONS.

As the Commission and industry have recognized the potential benefits of unlicensed communications technologies, they have worked together to identify and allocate suitable spectrum for this service. In addition to traditional Part 15 operation, particularly in ISM bands, the Commission recently has allocated spectrum for unlicensed voice and data PCS and has proposed a substantial unlicensed allocation in the millimeter wave bands above 40 GHz.[5]

ET Docket No. 94-32, ET Docket No. 94-124, PR Docket No. 93-61 (the FCC should consider designating spectrum for protected unlicensed operation).

[5] It has been suggested that the 18 GHz frequencies allocated to point-to-multipoint systems under 47 C.F.R. § 94.65(m)(8) could be used for some of the applications envisioned for the proposed 5 GHz allocation. This frequency band, however, carries a licensing requirement with it, which significantly effects its utility for the requirements identified in the Petitions. These licensing requirements, as well as other rules governing operation in this band, could, and probably should, be modified to make the 18 GHz band more hospitable to unlicensed wireless data networks. A 5 GHz allocation, however, still is appropriate, since there are only 100 MHz of spectrum available at 18 GHz and

Each of these existing and proposed bands should be viewed as part of the spectrum resources that, taken together, will be capable of meeting the overall demand for unlicensed wireless communications services. While there is a certain degree of overlap between the products and services that can be supported within each band and while these will change over time as technology develops and user requirements evolve, a 5 GHz allocation will be capable of satisfying certain needs that cannot be met with existing or proposed bands. Therefore, a 5 GHz allocation constitutes a vital part of the matrix of unlicensed spectrum being created by the Commission. In particular:

- The proposed 250-300 MHz allocation would support higher aggregate data rates than the existing Part 15 and Data-PCS allocations. Thus, for each user, it would provide improved access to networks and make it possible to send more data-intensive communications over unlicensed wireless networks. In addition, within a given community of users, it would support a larger number of devices operating at any given time and speed.

- A 5 GHz allocation would provide a "bridge" between the unlicensed bands in the 1-3 GHz range and spectrum allocations in substantially higher bands (including both the 18 GHz licensed band and the proposed millimeter wave unlicensed bands). In the near term, developing products capable of operating reliably at 5 GHz and of being mass-produced at reasonable prices does not present the technological difficulties associated with immediately developing products for the 18 GHz and millimeter bands. This is particularly true for devices that require a low cost to achieve customer acceptance, as well as for devices with significant size or weight constraints. In the longer term, product development efforts at 5 GHz could speed and promote product development efforts for the higher bands.

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the propagation characteristics of this band make it unsuitable for some of the needs that could be served at 5 GHz.

- By building upon the European HIPERLAN allocation, a 5 GHz allocation would create new opportunities for exports and, perhaps, for equipment interoperability.[6]

- A 5 GHz allocation could be capable of supporting longer-distance communications, such as the "community networks" described in Apple's petition, which cannot be supported in other bands.[7]

III. THE SHARING RULES FOR THE 5 GHZ BAND SHOULD BE GOVERNED BY APPROPRIATE RULES DEVELOPED BY INDUSTRY CONSENSUS.

Both Apple and WINForum propose that the 5 GHz unlicensed bands be governed by equitable sharing rules, which would be developed by industry. ITI supports this recommendation. The industry groups involved in this process must, of course, represent a broad cross-section of the affected industries and employ a process to assure that all interests are fairly represented.

Certain portions of the Apple and WINForum technical proposals differ somewhat (including requested frequencies and use of channelization), and one or both petitions are silent on other technical matters (such as power and the use of directional antennas). These issues should be addressed both substantively and from a regulatory perspective (*i.e.*, whether they should be specified in the Commission's rules or in a standard adopted by an industry body) in the context of a rulemaking.

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[6] The proposals each relate to HIPERLAN differently. Apple's proposed NII Band would permit, but not require, HIPERLAN compatibility. Thus, devices capable of operating at HIPERLAN's very high minimum data rates would be permitted to operate in the United States, but manufacturers would also be free to develop and deploy devices that communicate at lower data rates. Apple Petition at 16-17. WINForum's proposed SUPERNet incorporates certain elements that are inconsistent with the HIPERLAN standard as currently proposed. As a result, although it apparently would not be possible for SUPERNet devices manufactured for the United States market to be exported to Europe (and *vice versa*), both the NII Band and SUPERNet would create a domestic market that would help position U.S. manufacturers for developing HIPERLAN-compliant devices. WINForum Petition at 13, 17, and Appendix C.

[7] The WINForum Petition focuses solely on local area applications and does not discuss the longer distance applications described by Apple.

IV. THE COMMISSION SHOULD PROCEED EXPEDITIOUSLY WITH THE PROPOSED RULEMAKING.

As discussed above, a 5 GHz unlicensed allocation will augment existing unlicensed allocations, satisfy demands that cannot be met with other existing and proposed services (whether licensed-wireless or wired), and provide a path toward full use of higher spectrum bands. If these benefits are to be made available in the near term, and in order for U.S. efforts to proceed in harmony with European HIPERLAN developments, however, the FCC must act promptly. For these reasons, the Apple and WINForum Petitions deserve the Commission's prompt action. ITI strongly urges the Commission to move quickly to adopt a Notice of Proposed Rulemaking to create a 5 GHz unlicensed spectrum allocation.

Respectfully submitted,

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July 10, 1995

CERTIFICATE OF SERVICE

I, Fiona J. Branton, do hereby certify that copies of the foregoing Comments were served by first-class mail, postage prepaid, on the 10th day of July, 1995, on each of the persons listed below.

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