

~~94-13~~

90-314

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

RECEIVED

APR 11 1994

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Amendment of the Commission's)
Rules to Establish New)
Personal Communications)
Services)

GEN Docket No. ~~90-314~~
RM-7140, RM-7175, RM-7618

**WRITTEN STATEMENT OF UTAM, INC.,
IN SUPPORT OF REMARKS OF
SANDY ABRAMSON, PRESIDENT, UTAM, INC.**

PCS TASK FORCE PANEL

April 12, 1994

R. Michael Senkowski
Robert J. Butler
Suzanne Yelen
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006
(202) 429-7000

April 7, 1994

No. of Copies rec'd 2
List ABCDE

TABLE OF CONTENTS

	<u>Page</u>
EXECUTIVE SUMMARY	ii
I. WHAT IS UTAM?	2
II. WHY WAS UTAM CONDITIONALLY DESIGNATED AS FREQUENCY COORDINATOR FOR UNLICENSED PCS?	4
III. WHAT IS UNLICENSED PCS?	5
IV. WHAT ARE COORDINATABLE UNLICENSED PCS SYSTEMS AND DEVICES?	7
V. WHAT ARE THE PUBLIC BENEFITS FROM UNLICENSED PCS?	8
VI. WHY DOES UNLICENSED PCS REQUIRE THE FULL 40 MHz OF SPECTRUM NOW ALLOCATED?	10
VII. WHY IS THE 1890-1930 MHz ALLOCATION CRITICALLY IMPORTANT FOR UNLICENSED PCS?	11
VIII. WHAT WOULD BE THE CONSEQUENCES WERE THE FCC TO MOVE THE UNLICENSED SPECTRUM ALLOCATION TO THE 2100 MHz BAND?	13
IX. WHAT WOULD BE THE CONSEQUENCES IF THE FCC GRANTED APPLE COMPUTER'S PETITION AND ALLOCATED 1910-1930 MHZ FOR DATA DEVICES AND SYSTEMS ONLY?	14
X. WHAT IS THE CURRENT STATUS OF UTAM'S EFFORTS TO EXPEDITE THE DEPLOYMENT OF NOMADIC DATA UNLICENSED PCS PRODUCTS?	17
XI. WHAT IS THE STATUS OF UTAM'S PLAN FOR FUNDING AND RELOCATING MICROWAVE FACILITIES FROM THE UNLICENSED PCS SPECTRUM?	18
XII. WHAT SHOULD THE FCC DO TO FACILITATE DEPLOYMENT OF UNLICENSED PCS?	20

EXECUTIVE SUMMARY

UTAM's Membership and Goals. UTAM is a non-profit corporation formed by unlicensed PCS manufacturers. Voting membership is open to any manufacturer intending to sell products for use in the spectrum allocated for unlicensed PCS. Non-voting members include representatives of microwave licensees and other potentially affected industries. UTAM's members represent the full range of future providers of data and voice unlicensed PCS products. Its goal is the fastest practicable relocation of all microwave links from the unlicensed PCS spectrum. A list of current members and the UTAM Board of Trustees members is attached.

UTAM's Responsibilities for Unlicensed PCS. The FCC has designated UTAM as frequency coordinator for unlicensed PCS, conditioned upon submission of an acceptable plan for funding and relocating incumbent 2 GHz microwave licensees from spectrum allocated for unlicensed PCS. UTAM's responsibilities under the FCC rules include developing a mechanism, based on the Second Report and Order, for funding the \$300 - \$500 million in microwave relocation costs, establishing a plan for relocating microwave links and serving as frequency coordinator to ensure that unlicensed PCS systems and devices deployed prior to full relocation of all microwave links in the unlicensed PCS spectrum do not cause interference to microwave licensees. UTAM was established because no existing organization was willing or able to assume these responsibilities.

Unlicensed PCS and Its Public Benefits. Unlicensed PCS is a family of data and voice systems or devices that consumers own or lease to meet their telecommunications needs. Unlicensed PCS includes wireless local area networks, wireless PBXs, advanced cordless phones, personal digital assistants, devices for linking laptop and desktop computers and two-way telemetry. Unlike licensed PCS, there is no need for a service provider, no air time charges and products will be available anywhere in the country once band clearing has occurred. End users can easily purchase and use devices without cumbersome licensing procedures. This will permit a broad range of important business, consumer, education and health applications for the office, home, classroom and hospital. With finalization of FCC rules, U.S. manufacturers can continue global leadership in the unlicensed telecommunications industry -- a field which can play an important role in meeting the needs of less developed countries.

Challenges Facing UTAM In Developing a Funding and Relocation Plan. UTAM is developing a responsible funding plan that raises \$300 - \$500 million from a combination of membership payments, voluntary "seed money" contributions and clearing fees from sales of equipment. A critical component of relocation and revenue raising is the ability to deploy "coordinatable" products prior to full band clearing. UTAM is developing equitable and practical priorities for relocating microwave links from the unlicensed PCS spectrum and a system for permitting the deployment of coordinatable unlicensed PCS systems and devices prior to relocation of all microwave licensees. This work is being done on a consensus basis with participation open to

competing manufacturers as well as microwave interests. Once completed, the plan will be submitted to the FCC for public comment and Commission approval.

Progress Report on UTAM's Plan. Based upon the Second Report and Order, members of UTAM have already contributed over \$1 million and thousands of hours of effort. UTAM has received pledges for voluntary contributions in excess of \$6 million that are absolutely essential to fund initial band clearing efforts. Goldman Sachs has been retained for financial advice, Business Information Strategies for demand studies, and Comsearch for database services. Laboratory and on-site studies of microwave interference and coordination techniques have been conducted. A draft of the plan for funding and relocating microwave licensees from the unlicensed PCS spectrum is currently being prepared.

FCC Actions to Facilitate Unlicensed PCS. The FCC's spectrum allocation Order last fall set a sound framework for meeting unlicensed PCS needs. The Commission could facilitate efforts to make unlicensed PCS a reality by promptly reaffirming those actions. In such respects, four points must be emphasized:

- The current allocation of at least 40 MHz of spectrum is critical to meet consumer needs for unlicensed PCS. The record before the Commission confirms the enormous demand for unlicensed PCS.
- The current allocation of 1890-1930 MHz for unlicensed PCS remains crucial to the economic feasibility of the industry because the costs of nationwide banding clearing of microwave facilities is prohibitively expensive in any other Emerging Technologies frequencies. For example, the current allocation has roughly 2,000 links which will cost \$300 to \$500 million to relocate, while frequencies at 2100 MHz have over 7,000 microwave links which will cost as much as \$2 billion to clear.
- The current equal division of the extremely lightly populated 1910-1930 MHz between asynchronous (mostly data) and isochronous (mostly voice) products is essential to afford meaningful spectrum opportunities for both types of products as well as to secure the funding to clear microwave links from the entire unlicensed PCS spectrum.
- The Commission should establish expedited procedures for reviewing and approving UTAM's plan for funding and relocating microwave links from the unlicensed PCS spectrum.

These four simple steps can resolve uncertainties and facilitate the fastest possible deployment of a broad family of new unlicensed PCS systems and devices. Tens of millions of dollars and hundreds of thousands of hours of industry effort have already been spent in developing products based upon the current allocation. Any changes at this late date would either delay or jeopardize the future of unlicensed PCS.

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

In the Matter of)	
)	
Amendment of the Commission's)	GEN Docket No. 90-314
Rules to Establish New)	
Personal Communications)	RM-7140, RM-7175, RM-7618
Services)	

WRITTEN STATEMENT OF UTAM, INC.,
IN SUPPORT OF REMARKS OF
SANDY ABRAMSON, PRESIDENT, UTAM, INC.

UTAM, Inc., hereby submits its written statement in support of the remarks of Sandy Abramson, President of UTAM, at the PCS Task Force hearings of April 12, 1994.¹ Herein, UTAM has attempted to address a number of important issues affecting unlicensed Personal Communications Services ("PCS") to assist the Commission in evaluating the current status of the agency's decisions in the above-captioned docket. For the reasons set out below, UTAM urges the Commission to reaffirm its existing allocation of spectrum for unlicensed PCS in all respects and to move expeditiously to finalize the rules and policies governing the deployment of such products.

¹ See FCC News Release, No. 42480 (Apr. 4, 1994); Letter from Ralph Haller, Chairman, PCS Task Force, to Sandy Abramson (Apr. 1, 1994).

I. WHAT IS UTAM?

UTAM is a non-profit membership corporation open to all companies and organizations concerned about unlicensed PCS. Current UTAM members include manufacturers, microwave operators, and industry associations. The member companies' interests cover the full range of unlicensed PCS voice and data products of both a coordinatable and non-coordinatable nature. In addition, because meetings are open to all interested parties, numerous entities participate in UTAM without any formal affiliation. All of these companies share a common goal, to completely clear the allocated spectrum as soon as practicable and make unlicensed PCS a reality.

UTAM has been charged with developing, pursuant to the Second Report and Order, a financing and microwave system relocation plan to permit deployment of unlicensed PCS systems and devices in the spectrum allocated by the FCC for that purpose.² In addition, UTAM has been conditionally designated as the frequency coordinator for the unlicensed PCS spectrum to permit deployment of coordinatable unlicensed PCS systems and devices prior to full band clearing.³ For these purposes,

² Amendment of the Commission's Rules to Establish Personal Communications Services, 8 FCC Rcd 7700, 7738 (1993) (hereinafter "Second Report and Order"). Full voting membership in UTAM is available to any entity planning to deploy unlicensed PCS systems or devices in the band. A fee of \$10,000 to be credited with interest against future clearing fees is required. Non-voting membership is available for a nominal payment of \$500 to help defray administrative costs. A list of current members and the Board of Trustees is appended as Attachment 1.

³ Id.

UTAM has been delegated a number of important responsibilities under the Second Report and Order.⁴

First, UTAM must create a plan for generating and collecting the revenues necessary to reimburse the costs of relocating microwave links from the spectrum allocated for unlicensed PCS.⁵ Second, it must develop a plan for managing and completing the process of moving in-band microwave links to other frequencies or transmission media. Third, as frequency coordinator, UTAM is required to ensure that the deployment of coordinatable systems and devices does not interfere with microwave operations.⁶ Finally, UTAM must ensure the fastest practicable deployment of "nomadic" or "non-coordinatable" unlicensed PCS systems and devices, particularly data PCS products.⁷ These obligations are addressed in substantially greater detail below.

⁴ Id.

⁵ Id.

⁶ Id.

⁷ Id.

II. WHY WAS UTAM CONDITIONALLY DESIGNATED AS FREQUENCY COORDINATOR FOR UNLICENSED PCS?

Because many unlicensed PCS systems and devices are consumer products -- available off-the-shelf and easily portable -- they require clear spectrum in which to operate. There is simply no way to control where an individual might attempt to use his or her cordless phone or personal digital assistant. Indeed, both the unlicensed PCS industry and microwave incumbents in the band agree that sharing of the unlicensed frequencies is not feasible. In order to clear the allocated spectrum and fully deploy voice and data PCS products, approximately 2,000 microwave links must be relocated at a cost of \$300 - \$500 million.⁸

But, unlike with the licensed PCS industry, there is no one company with exclusive rights to any of the spectrum and, concomitantly, the incentive to move any of the microwave links. The spectrum is open to anyone whose products comply with the rules, but no one has responsibility for the burdens of band clearing. Thus, it is not surprising that no company or organization stepped forward to assume this role.

Obviously, a mechanism is needed to collect funds and undertake the microwave relocation on behalf of the entire industry so that all manufacturers will share the costs of band clearing. UTAM was formed to meet this need for the unlicensed PCS

⁸ These figures are based on an average cost of \$150,000 to \$250,000 to move each vintage analog microwave link. UTAM understands that the cost of moving digital microwave systems may be substantially higher. See Creating New Technology Bands For Emerging Telecommunications Technology, Office of Engineering and Technology, OET/TS 91-1, at 31-35 (Dec. 1991) (Report filed in ET Docket 92-9).

industry. Moreover, as explained above, before band clearing occurs a central frequency coordinator is likewise required to ensure that deployment of coordinatable unlicensed PCS products does not cause interference to incumbent microwave systems prior to their relocation. Such interim coordinated deployments are essential to generate revenue -- in the form of clearing fees assessed on unlicensed PCS equipment sales -- to fund the microwave relocation process.

III. WHAT IS UNLICENSED PCS?

Unlicensed PCS is a family of voice and data systems or devices that consumers may own or lease to meet their telecommunications needs. Unlicensed PCS is today expected to encompass a wide variety of new products, including wireless local area networks, wireless PBXs, advanced cordless phones, personal digital assistants, devices for linking laptop and desktop computers, and two-way telemetry. Moreover, communications firms are continuing to develop a host of additional innovative and exciting wireless applications and equipment.

Unlicensed PCS products differ from licensed PCS in important, but complementary, respects. Unlicensed PCS systems and devices will be used primarily in buildings with wireline voice quality and data services and will be characterized by a very high density of users -- in the order of 100,000 users per square mile. This will be accomplished by using low power systems which yield very small cells and improved frequency re-use. In contrast, licensed PCS will be deployed primarily in

outdoor applications using relatively large cells and, thus, will be capable of serving fewer users in comparable amounts of spectrum.

Unlicensed PCS products also exhibit a number of other unique attributes that enhance the value they offer users. First, the customer can purchase or lease unlicensed PCS systems or devices from a retail or wholesale outlet without cumbersome licensing procedures. This permits easy and prompt deployment of new wireless telecommunications capabilities.

Second, unlicensed PCS products are not limited to parts of the country a service provider chooses to serve. They can be deployed anywhere, without regard to licensing restrictions or service providers' coverage plans. Because they operate in the same frequencies throughout the nation, fully compatible equipment can be purchased by multistate enterprises and installed at all locations, subject only to microwave interference concerns. Once microwave coordination or relocation occurs, they will be available to all consumers wherever they live or work.

Third, there are no limits on the number of manufacturers selling products in the band. It is a robustly competitive industry with competitive pricing. Any manufacturer can market products complying with FCC rules. Finally, customers need not incur airtime charges for using the system or device. Unlicensed PCS is owned or controlled by the customer. This ready and wide availability of unlicensed PCS products together with their expected affordability gives consumers important flexibility in choosing how to satisfy their telecommunications needs.

IV. WHAT ARE COORDINATABLE UNLICENSED PCS SYSTEMS AND DEVICES?

The FCC's rules define a special class of "coordinatable" unlicensed PCS systems and devices. A coordinatable device is one which "incorporate[s] measures to assure that it cannot be activated until installation at its authorized location is verified by UTAM, Inc.," as well as a "mechanism for disabling operation in the event it is moved outside the geographic area where its operation has been coordinated by UTAM, Inc."⁹ In essence, coordinatable systems and devices are those which are associated with a fixed infrastructure such that they are intended for communications over limited geographic areas. Coordinatable systems include associated portable devices provided that the portable devices have been designed to operate only within the limited service area of the fixed base station or comparable unit.¹⁰

UTAM will be responsible for establishing a database of existing microwave links in the band against which proposed installations of coordinatable systems and devices can be evaluated for their interference potential. Once a location is coordinated, the limited geographic scope of coordinatable device operations and the required disabling mechanisms ensure that an installed device cannot be moved to another area without recoordination.¹¹

⁹ 47 CFR §§ 15.307(d) and (e).

¹⁰ Second Report and Order at 7738-39.

¹¹ Id. at 7739-40.

While total band clearing is necessary for unrestricted deployment of unlicensed PCS products, interim deployment of coordinatable systems and devices on a non-interference basis is required for a number of reasons. The early deployment of coordinatable devices before all microwave links are relocated will ensure (1) that revenue is available to finance the microwave relocation process; (2) that manufacturers can begin "market making" for unlicensed PCS; and (3) that the public can begin to enjoy the benefits of unlicensed PCS products as soon as possible. In particular, deployment of coordinatable products is expected to be the principal source of the substantial funding needed to provide microwave systems entitled to protection from interference from unlicensed PCS systems and devices the full cost compensation and comparable alternative facilities guaranteed to relocated licensees under the rules.¹²

V. **WHAT ARE THE PUBLIC BENEFITS FROM UNLICENSED PCS?**

Unlicensed PCS products will provide tremendous public benefits. Deployment of these systems and devices will provide a cost-effective and flexible extension of the National Information Infrastructure that will ensure economical and portable telecommunications capabilities. The enormous public demand for such products is already well-documented in the record of this proceeding.

¹² Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, 8 FCC Rcd 6589, 6603-04 (1993).

Unlicensed PCS systems and devices offer important business, consumer, education and health applications. Business applications include bringing affordable portability to factories and offices. Consumers will enjoy personal digital assistants and advanced cordless phones that individuals can carry with them to receive and transmit both data and voice information. Unlicensed PCS will allow classroom computers to network with databases and other school computers free from expensive, and sometimes impossible, wiring requirements. American health care will benefit from use of wireless patient monitoring capabilities as well as systems that allow doctors and nurses instant access to laboratory reports from hospital beds.

In turn, deployment of unlicensed PCS and products with such exciting capabilities will help to strengthen the American economy by creating new jobs and improving business efficiency. These systems and devices will ensure continued U.S. technological leadership in the global marketplace, with many unlicensed PCS products having particularly important implications for less developed nations. Competitive opportunities in world markets will similarly be enhanced as other countries move forward with compatible PCS allocations and policies. Last, but not least, unlicensed PCS will be available to all Americans, from the inner cities to the most rural areas, when the unlicensed PCS industry goal of relocating existing microwave links from the allocated spectrum is achieved.

VI. WHY DOES UNLICENSED PCS REQUIRE THE FULL 40 MHz OF SPECTRUM NOW ALLOCATED?

In its PCS order, the Commission allocated 40 MHz of spectrum for unlicensed PCS devices and systems: 20 MHz for isochronous, primarily voice products (1890-1900 MHz and 1920-1930 MHz) and 20 MHz for asynchronous, primarily data products (1900-1920 MHz).¹³ All prospective manufacturers of both voice and data unlicensed PCS equipment agree, and the evidence in this docket demonstrates, that this 40 MHz allocation is the minimum amount of spectrum necessary to meet the substantial demand for and realize the enormous benefits of unlicensed products.¹⁴ In particular, a study by six companies concluded that at least 40 MHz would be required to serve isochronous voice and data needs alone.¹⁵ Another study submitted by the technical subcommittee of WINForum showed that 40 to 80 MHz was necessary to fully satisfy both isochronous and asynchronous demand.¹⁶

¹³ Rules to Establish PCS at 7738.

¹⁴ See, e.g., Comments of Hitachi Telecom, GEN Docket 90-314 (filed Nov. 9, 1992) (citing a Dataquest Study of May 1992 estimating wireless PBX revenues as high as \$300 million by 1998); PCS Demand Forecast, Telocator, May 1, 1992 (predicting unlicensed office telephones will serve as many as 16 million users within five years after spectrum authorization); Comments of the Wireless Information Networks Forum, ET Docket 92-9 (filed June 5, 1992) (discussing need for at least 40 MHz for unlicensed spectrum).

¹⁵ See Ex Parte Filing, GEN Docket No. 90-314, from SpectraLink Corp., Ericsson Corp., Motorola, Inc., Northern Telecom, AT&T, and Rose Communications (Feb. 12, 1993).

¹⁶ See Ex Parte Filing, GEN Docket No. 90-314, from WINForum (Sept. 7, 1993).

Further, allocation of any lesser amount of spectrum would decrease opportunities for deployment of coordinatable systems and devices and, thereby, delay the band clearing process and the ultimate deployment of nomadic products. Accordingly, the current allocation of 40 MHz provides a sound starting point for meeting unlicensed PCS spectrum needs.

VII. WHY IS THE 1890-1930 MHz ALLOCATION CRITICALLY IMPORTANT FOR UNLICENSED PCS?

The FCC recognized that, unlike licensed PCS, all existing 2 GHz microwave licensees must be relocated from these bands to permit full deployment of unlicensed PCS products.¹⁷ Because the cost of clearing the most heavily utilized 2 GHz microwave spectrum would have been prohibitive, the 40 MHz allocation of 1890-1930 MHz included the 1910-1930 MHz frequencies which are relatively lightly populated by microwave licensees.¹⁸ This was a critically important action because the allocation of any other frequencies would have made deployment of unlicensed PCS impossible.

The 1910-1930 MHz band contains only approximately 450 microwave systems. In contrast, as discussed in more detail below, other Emerging Technologies spectrum

¹⁷ Second Report and Order at 7738-40.

¹⁸ Id. at 7734. When microwave licensees are relocated, they are guaranteed full cost compensation and comparable alternative facilities under the FCC's rules. See supra note 13.

blocks contain many times that number of links.¹⁹ The economics of the unlicensed PCS market will not permit the industry to shoulder the resulting increased cost burden.

A UTAM-commissioned market demand study for unlicensed PCS is currently underway. This study was requested by UTAM to provide market data for the financial plan. While the study has not been completed, it has yielded some overall demand numbers which are instructive.

Information available to date suggests that the market is extremely price sensitive. Data for the fifth year after introduction show that, at some assumed price levels, a 33% increase in the per user price would reduce the total market from over 10 million users to just 3.6 million. A 66% increase in the per user price would reduce the total market to under 1 million users. It follows that if a spectrum change makes excessive clearing fees necessary, unlicensed PCS equipment could be priced out of the market.

Moreover, tens of millions of dollars and hundreds of thousands of hours have already been expended by the unlicensed PCS industry in developing products in reliance on the Second Report and Order. Any spectrum changes at this late date would risk wasting this investment and delay or threaten the future of unlicensed PCS.

¹⁹ According to recent Comsearch data, spectrum at 2130-2150 MHz is home to more than 7,000 microwave paths. (Presented at the conference on "PCS and Local Exchange Services: The End of the Monopoly," sponsored by Alexander Resources in Phoenix, Arizona, on March 24-25, 1994). See discussion, infra.

VIII. WHAT WOULD BE THE CONSEQUENCES WERE THE FCC TO MOVE THE UNLICENSED SPECTRUM ALLOCATION TO THE 2100 MHz BAND?

The FCC specifically chose the lightly populated 1910-1930 MHz band for unlicensed PCS because of the unique and enormous cost burdens associated with deployment of these products. Other frequencies, such as those in the 2100 MHz band, are the home of substantially greater numbers of microwave operations. Moving the unlicensed PCS allocation to that spectrum would effectively derail all efforts to deploy unlicensed systems and devices for two inescapable and interrelated reasons.

Simply put, the total costs of relocating the vastly increased number of links would be more than the industry could afford. For example, there are approximately 450 microwave stations at 1910-1930 MHz and less than 2,000 in 1890-1930 MHz as a whole. In contrast, Emerging Technologies spectrum at 2130-2150 MHz and 2180-2200 MHz contains more than 7,000 such facilities. This would translate into an increase in relocation costs from \$300-500 million to \$2 billion.

The change in frequencies would give rise to additional costs and problems as well. The costs of producing higher frequency equipment are generally greater because transmitter complexity increases due to difficulty of design, reduced chip wafer yields, and a decrease in battery efficiency. This adverse cost impact is most likely to affect sales of residential and educational products, which tend to exhibit a higher level of price sensitivity. Moreover, achievement of interoperability between licensed and

unlicensed PCS should be easier and less expensive if unlicensed products remain in the 1890-1930 MHz band contiguous to the licensed allocations.

Equally important, the fees from the deployment of coordinatable systems and devices -- which are to be the primary source of relocation cost funding -- would be dramatically reduced because the loss of the uniquely unencumbered spectrum at 1910-1930 MHz would mean that fewer interference free areas would exist given the higher concentration of microwave systems. As a result, opportunities for deployment of coordinatable products would dramatically diminish, band clearing could not be completed, and non-coordinatable products would never be deployed. Indeed, it is likely that companies would simply pull out of the unlicensed PCS market because it would no longer be economically viable.

IX. WHAT WOULD BE THE CONSEQUENCES IF THE FCC GRANTED APPLE COMPUTER'S PETITION AND ALLOCATED 1910-1930 MHZ FOR DATA DEVICES AND SYSTEMS ONLY?

The FCC sought to ensure equitable deployment of both voice and data unlicensed PCS products by allocating one half of the lightly populated 1910-1930 MHz spectrum for asynchronous, (mostly data) products and the other half for isochronous, (mostly voice) products. This Solomon-like decision ensured that both data and voice systems and devices can be successfully deployed. However, Apple Computer has

filed for reconsideration of this decision, asking that the lightly loaded 1910-1930 MHz spectrum be assigned exclusively to data products.²⁰

If the Commission were to grant Apple Computer's request and allocate the lightly loaded spectrum from 1910-1930 MHz to data devices, the successful deployment of unlicensed PCS would be jeopardized. The result of forcing manufacturers of voice systems and devices to use only the more heavily loaded spectrum would be to shift approximately \$120-130 million in band clearing costs from data to voice products. Moreover, fewer voice devices could be deployed on a coordinated basis, decreasing available revenues for clearing the band because of the increased number of microwave links around which any early deployed products must be coordinated. As a result, UTAM has been advised by its Board and members that the changes sought by Apple would render unlicensed PCS economically infeasible for voice manufacturers, whose participation is essential to the viability of any band clearing plan. No one has suggested that the data industry alone can succeed in clearing even its own spectrum, particularly given adjacent channel interference problems.

Apple appears not to appreciate the seriousness of the problems that the heavily populated spectrum presents to manufacturers of unlicensed voice products.²¹ While

²⁰ Apple Computer Emergency Petition, GEN Docket 90-314, at 1 (filed Sept. 13, 1993).

²¹ See, Comments of Apple Computer, GEN Docket 90-314, at 8-9 (filed Nov. 8, 1993).

many voice and data devices will be coordinatable and can thus be utilized even before all microwave incumbents are relocated, coordination is not technologically possible for all PCS voice systems. Moreover, even for those devices and systems that are coordinatable, deploying on a coordinated basis is more costly, makes for a difficult sale, and limits the number of consumers who can enjoy such devices. Restrictions on initial installation and on subsequent relocation of equipment can be expected to chill demand. The more microwave systems using the spectrum, the fewer locations that will be available for coordinated deployment. Some areas simply will have to be denied unlicensed product prior to band clearing. This is antithetical to the philosophy underlying the market for unlicensed PCS: the purchase and installation of equipment by the customer for immediate use anywhere.

From UTAM's perspective, these potentially disastrous consequences for the entire PCS industry are particularly distressing. UTAM represents a demonstrated industry consensus in favor of moving forward in the best interests of the industry as a whole to permit all possible unlicensed PCS applications, not merely those representative of an idiosyncratic vision of the PCS future or advocated by a particular industry segment. Notably, UTAM came forward with its band clearing proposals -- which were predicated on equitable treatment of all participants -- when no other company or organization was willing to assume that responsibility. In fact, no practicable alternative has been put forward to date.

Notwithstanding that many in the industry -- including members of UTAM who intend to deploy data devices -- do not share Apple's vision of peer-to-peer communications among PDAs, UTAM has repeatedly solicited Apple's participation in its work. Unfortunately, Apple has neither shared with UTAM or the FCC a workable plan for industry clearing of the unlicensed spectrum consistent with the current rules, nor offered to undertake that burden itself. UTAM therefore requests that the Commission reaffirm the spectrum allocation for unlicensed PCS, including the current assignment for isochronous and asynchronous products, and urges Apple to join with UTAM to move forward consistent with that allocation to expedite unlicensed PCS deployment.

X. WHAT IS THE CURRENT STATUS OF UTAM'S EFFORTS TO EXPEDITE THE DEPLOYMENT OF NOMADIC DATA UNLICENSED PCS PRODUCTS?

In developing its band clearing philosophy and plan, UTAM is looking for means to maximize the revenues available for microwave relocation in order to expedite the deployment of nomadic devices for both voice and data applications. UTAM is also investigating options such as guardbands as an interim means to permit some non-coordinatable deployment until full clearing of all of the unlicensed spectrum can occur. The timeframe for band clearing remains dependent upon the success of individual manufacturers in creating and marketing unlicensed PCS products that can

provide a source of necessary revenues from clearing fees to fund the relocation process.

Moreover, recognizing that even if the Commission acts expeditiously to finalize its rules, there will be some time lag before unlicensed PCS systems and devices can begin to be deployed, a number of participants in UTAM have committed kick start funding to begin the band clearing process. Notably, however, Apple Computer is not among the companies committing such funds. UTAM nonetheless remains open to any input, whether financial or otherwise, from Apple that would assist in this endeavor.

XI. WHAT IS THE STATUS OF UTAM'S PLAN FOR FUNDING AND RELOCATING MICROWAVE FACILITIES FROM THE UNLICENSED PCS SPECTRUM?

UTAM was created as an ad hoc committee in January 1993 to address the challenges of successfully deploying unlicensed PCS. It was incorporated in July 1993 and held its first organizational meeting in December. The Board of Trustees consists of representatives of the following companies: AT&T, Ericsson, Motorola, Northern Telecom Inc., Omnipoint Corp., PCSI, Rolm, and Sony Corporation of America.

The members of UTAM have made significant progress in completing the work necessary to make unlicensed PCS a reality. Based upon the Second Report and Order, members of UTAM have already contributed over \$1 million and thousands of hours of effort. Four member companies have collectively pledged a total of more than \$6 million in "seed money" to fund initial UTAM efforts. In addition, expert consulting

firms have been retained to assist UTAM in completing its plan. Goldman Sachs has been selected as financial advisor and will review the financing plan before its submission to the Commission. Business Information Strategies has completed a study on the demand for unlicensed PCS products which will help UTAM determine the clearing fees necessary to raise sufficient revenue. In order to facilitate both the microwave relocations and the deployment of coordinatable unlicensed PCS devices and systems, Comsearch is developing a database identifying all microwave links in the band.

UTAM has established four committees that are meeting regularly to prepare for unlicensed PCS deployment. The Finance Committee is in charge of developing a funding plan and proposals for the manufacturers' clearing fees system. The Deployment Committee has worked on development of coordination procedures and methods for expediting early deployment of non-coordinatable systems and devices. The Adjacent and Co-Channel Interference Committee is conducting laboratory and on site studies to examine interference potential and coordination procedures as well as the feasibility of guard bands to permit early deployment of non-coordinatable systems and devices. The Structure Committee has been developing an organizational plan for UTAM, interviewing candidates for the position of Executive Director, and negotiating for administrative support services.

The current schedule of UTAM activities is as follows:

- UTAM Members Meeting 4/14/94
- Board of Trustees Meeting 4/15/94
- Adjacent Channel Committee Meeting 4/15/94
- First Draft of FCC Plan 4/15/94
- Second Draft of FCC Plan 5/26/94
- Review of Plan by Goldman Sachs 6/22/94
- Approval of Plan by Membership 7/8/94
- Submission of Plan to FCC 7/15/94²²

When filed, UTAM's Plan will be put out for public comment by the FCC and evaluated for compliance with UTAM's obligations under the rules. Once the Plan is approved by the agency, the delivery of unlicensed PCS products to the public can begin.

XII. WHAT SHOULD THE FCC DO TO FACILITATE DEPLOYMENT OF UNLICENSED PCS?

UTAM and its member companies have already expended millions of dollars and thousands of hours to develop a workable approach to deploying unlicensed PCS. Any changes the Commission makes to the unlicensed PCS rules will only delay, and possibly prevent, achievement of this goal. The Commission should, therefore, promptly take the following steps to ensure that the agency's and the industry's vision of unlicensed PCS will be realized.

²² A table of contents for the plan is set forth as Attachment 2. This schedule is contingent upon FCC resolution of all outstanding unlicensed PCS issues.

- **First, the FCC should reaffirm its basic spectrum allocation decision to provide 40 MHz for unlicensed PCS. This is the minimum amount of spectrum necessary to accommodate industry and consumer needs.**
- **Second, the Commission should reaffirm the specific allocation of spectrum from 1890-1930 MHz for unlicensed PCS. This is the only suitable location for these systems and devices, given that they are home to fewer microwave links that need to be relocated than are other parts of the Emerging Technologies bands which, consequently, would be prohibitively expensive to clear.**
- **Third, the Commission should reaffirm the allocation of 1890-1900 MHz and 1920-1930 MHz for voice products and 1900-1920 MHz for data products. This is an equitable and balanced approach that evenly divides the lightly populated 1910-1930 MHz band between the two unlicensed PCS sectors, affords each a meaningful opportunity for successful deployment, and makes possible generation of the funding necessary to clear the unlicensed PCS spectrum.**
- **Finally, the Commission should establish expedited procedures for reviewing and approving UTAM's plan for funding and managing the relocation of microwave links from the unlicensed PCS spectrum.**