

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

In the Matter of

Improving Public Safety Communications in  
the 800 MHz Band

Consolidating the 900 MHz Industrial/Land  
Transportation and Business Pool Channels

WT Docket No. 02-55

**COMMENTS OF UTAM, INC.**

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## SUMMARY

UTAM submits the following comments in response to the Commission's Notice of Proposed Rule Making ("NPRM") regarding potential reallocation of the UPCS band to provide "replacement spectrum" for SMR licensees relocating from the 800 MHz land mobile band to remedy interference to public safety operations in the band. The reallocation of the UPCS frequencies—especially with respect to the 1920-1930 MHz band—would plainly be inappropriate and severely detrimental to the public interest. This proposal appears to reiterate the proposal to relocate the 1910-1930 MHz band for 3G services in Docket 00-258. For the reasons detailed in UTAM's comments in that docket and below, reallocation of the UPCS band is entirely inappropriate and would:

- upset the reasonable expectations of UPCS equipment manufacturers, distributors and end-users who have invested considerable efforts and resources in good-faith reliance upon—and in compliance with—the FCC's stated intents and requirements;
- leave hundreds of thousands of UPCS users, including public safety systems, who have come to rely upon UPCS services to satisfy critical service needs, without service and without adequate substitutes; and
- threaten the rollout of a variety of new UPCS devices—primarily nomadic devices—that otherwise would soon be feasible upon full clearing of the band.

At a minimum, the Commission should recognize that UTAM and its industry members have expended considerable efforts and financial resources in clearing the UPCS band and in deploying UPCS products consistent with the strict Part 15 etiquette. Additionally, many of these members are either small enterprise organizations or independent product groups that are dependent upon this product market. Any action that impacts the UPCS bands must, at a minimum, fully reimburse UTAM for the \$60 million of relocation costs already expended in migrating incumbent microwave licensees. Further, until such time as all relocation costs are

recovered and the band is fully cleared of incumbents UTAM should continue to be recognized as the designated frequency coordinator for these bands.

Rather than reallocate any portion of the UPCS band, UTAM urges the Commission instead to affirmatively promote the development of UPCS by moving forward to permit cross-use of the 1910-1920 MHz band by isochronous devices. Such measures will ensure that the UPCS band is used fully and efficiently and will permit the introduction of needed new and expanded applications.

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UTAM, Inc. (“UTAM”), the Commission’s designated frequency coordinator for the unlicensed personal communications services (“UPCS”) band,<sup>1</sup> hereby respectfully submits its comments in response to the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Proposed Rule Making (“NPRM”) in the above-captioned docket.<sup>2</sup> In its NRPM, the Commission seeks comment on the reallocation of Specialized Mobile Radio (“SMR”) frequencies in the 800 MHz band to mitigate interference to public safety systems operating in the band. Candidate bands for the relocation of SMR users include, among other proposals, the 1910-1920 MHz and 1920-1930 MHz frequency bands that are currently allocated to UPCS use. As discussed in greater detail below, UTAM urges the Commission to maintain the present

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<sup>1</sup> The voting membership of UTAM, Inc., currently consists of Alcatel USA, ASCOM Wireless Solutions, Avaya (formerly the Enterprise Network Group of Lucent Technologies), Cortelco, CTP Systems, ECI Telecom, Inc., IWATSU America, Motorola, Inc., NEC America, Inc., Nitsuko America, Nortel Networks Inc., Siemens Information and Communication Networks, Inc., SpectraLink Corporation and Toshiba. UTAM also has numerous associate members.

<sup>2</sup> In the Matter of Improving Public Safety Communication in the 800 MHz Band, Consolidating the 900 MHz Industrial/Land Transportation and Business Pool Channels, WT Docket No. 02-55 (Mar. 15, 2002) (*Notice of Proposed Rulemaking*) (“800MHz NPRM”).

allocation for UPCS applications. UTAM has previously addressed a similar proposal to relocate UPCS operations from the 1910-1930 MHz band to accommodate advanced wireless services, including 3G wireless systems.<sup>3</sup> As previously discussed by UTAM, any reallocation of this band will upset the reasonable and legitimate expectations of industry members and end users who have expended considerable efforts and funds to develop this market space. Just as reallocation was inappropriate and technically infeasible in the 3G context, the arguments against reallocation apply with equal force in this proceeding. Far from reallocating the UPCS band, as discussed herein, the Commission should affirmatively promote UPCS development within the 1910-1930 MHz band.

**I. UPCS APPLICATIONS ARE RELIED UPON TO SATISFY CRITICAL NEEDS OF MANY USERS; CONSEQUENTLY, ANY REALLOCATION OF THE UPCS BAND WOULD RESULT IN SIGNIFICANT INJURY TO THE PUBLIC INTEREST.**

In 1994, the Commission allocated 20 MHz of spectrum exclusively to UPCS operations. The 1910-1920 MHz band was allocated to “asynchronous” packet data devices, while 1920-1930 MHz was allocated to “isochronous” devices, which use regular, periodic transmissions typical of circuit-switched communications. In the *Memorandum Opinion and Order* allocating the UPCS spectrum, the Commission recognized the importance of unlicensed operations, including numerous short-range applications and possibilities for efficient spectrum utilization.<sup>4</sup> In reliance upon the Commission’s decision, UTAM and UPCS industry members have proceeded to develop the UPCS band at considerable cost and effort. As a result of these efforts, the UPCS band currently provides much-needed services to end users, which would be

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<sup>3</sup> Comments of UTAM, Inc. In the Matter of Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to the Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258 (filed Oct. 11, 2001).

<sup>4</sup> Amendment of the Commission’s Rules to Establish New Personal Communications Services, *Memorandum Opinion and Order*, 75 RR 2d 491, 9 FCC Rcd 4957 (1994) (“1994 Order”).

disrupted—and even discontinued—in the event that UPCS frequencies are reallocated for other services. Moreover, upon relocation of the final incumbent microwave licensees from the UPCS band, the industry finally will be capable of bringing long-awaited nomadic data devices to the public. Consequently, any reallocation of the UPCS band would come at great cost to the public welfare and interest.

**A. Industry Members Have Expended Vast Efforts and Funds To Clear the UPCS Band and Deploy UPCS Devices In Reliance Upon the FCC’s Existing Allocation Scheme.**

UTAM and its members have invested considerable resources both to successfully clear and manage the UPCS band, as well as to develop products to meet customer demands, while simultaneously complying with strict and onerous Part 15 etiquette requirements. These efforts were undertaken in good faith reliance upon the Commission’s decision to allocate spectrum for UPCS use, and that such an allocation would serve the public interest. Reallocation of the 1910-1920 MHz and 1920-1930 MHz bands at this juncture, just as this band is nearly cleared of incumbent microwave licensees, could well precipitate the collapse of many of these companies, and even the UPCS industry at large. This is especially true given current economic conditions that have depressed the entire telecommunications industry.

**1) UTAM and the UPCS Industry Have Expended Considerable Financial and Other Resources To Relocate Incumbent Microwaves Users Consistent With Commission Policy.**

In its *Second Report and Order*, the Commission designated UTAM as the coordinating body to oversee the spectrum transition from fixed microwave operations to UPCS and to manage the transition to full-band clearing.<sup>5</sup> As described in UTAM’s Report to the FCC submitted in January 2002, UTAM has expended considerable efforts and resources to further its relocation efforts, and has achieved great success in clearing incumbent microwave licensees

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<sup>5</sup> See 1994 Order at ¶ 209.

from the UPCS band.<sup>6</sup> The band-clearing has taken place with much cooperation from—and at great cost to—from all members of the industry. For example, UTAM has spent and incurred in liabilities over \$60 million to date in clearing the UPCS band; indeed, band clearing costs, administrative expenses, up front manufacturers’ investments and database development have totaled in excess of \$30 million for each band.

In its efforts to clear the UPCS band, UTAM has submitted Prior Coordination Notices (“PCNs”) to the Microwave Clearinghouses consistent with its obligations under the FCC Microwave Relocation Cost Sharing rules.<sup>7</sup> In doing so, it has initiated obligations consistent with the rules. Furthermore, UTAM recently has expanded the comprehensive cost sharing agreement reached with the PCIA Clearinghouse<sup>8</sup> and its members.<sup>9</sup> The agreement, which allows UTAM to share the costs of relocating microwave links with the PCS carriers responsible for the relocation, has helped continue the acceleration of the UPCS clearing process by opening up many additional counties and major metropolitan areas to unencumbered deployment of UPCS devices. UTAM has worked extensively with its Prime Frequency Coordinator, Comsearch, in undertaking the PCN procedure for candidate counties.

In addition, UTAM has gone to considerable lengths to provide easily accessible and up-to-date information to its members on the status of the band-clearing. UTAM has worked to

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<sup>6</sup> See In the Matter of Amendment of the Commission’s Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, UTAM Report to the FCC (filed July 1, 2001).

<sup>7</sup> A prior coordination notice (“PCN”) is submitted to the microwave clearinghouse, and to existing users in the area, prior to commencing operations in a given area. Based upon the PCN, the clearinghouse then determines whether the proposed base station would have interfered with a relocate microwave link. If it would have created interference, then the clearinghouse will notify the PCS provider in order to facilitate sharing of relocation costs.

<sup>8</sup> The PCIA Clearinghouse is one of two designated entities established by the FCC to track the relocation of microwave links that operate on the Licensed and Unlicensed PCS frequencies, to notify affected entities of such relocations, and to facilitate the sharing of microwave link relocation costs by such affected entities.

<sup>9</sup> The signatories to the PCIA Clearinghouse agreement are: Aerial; AT&T Wireless; BellSouth; Cook Inlet; DiGiPH PCS; PacBell; Powertel; Qwest Communications; Sprint PCS; Verizon; Inc., and VoiceStream.

make its Database Management System (DBMS) available to members *via* an Internet interface. UTAM has also instituted its own website, available at <<http://www.utam.org>>, that provides anyone the ability to get information on UTAM, check the band clearing process, or communicate directly with UTAM. UTAM has used this enhanced interface to answer inquiries regarding its objectives and processes, and to provide information to interested parties as needed. In addition, through its members, UTAM also participates in other industry-wide seminars and trade shows to increase the awareness of the market for UPCS devices.

Finally, whatever the ultimate path taken with respect to the UPCS band, UTAM's singular knowledge of the band and resources provide a compelling basis for continuing UTAM's role as a frequency coordinator in this band. UTAM should retain its role as frequency coordinator until such time as all relocation costs have been recovered, the band has been cleared of incumbent microwave licensees, and all outstanding obligations and indebtedness have been duly repaid.

**2) Equipment Manufacturers Have Carefully Complied With Onerous Technical and Financial Requirements to Deploy UPCS Products.**

Not only has UTAM invested considerable resources (with the cooperation of industry members and from frequency coordinators and other entities), but manufacturers also have separately made significant contributions of funds and other resources. In addition to providing UTAM with \$6 million in initial funding to jump-start the clearing process—an outstanding obligation that has yet to be repaid—manufacturers have invested hundreds of millions of dollars in the development of products to operate in the UPCS band, based upon their legitimate understanding that the band would continue to be available for UPCS products. From the time of its original allocation, the UPCS industry has worked steadily to deploy UPCS products, notwithstanding the many restrictions and encumbrances that come with this spectrum, not the

least of which is the presence of incumbent microwave licensees:

- To control interference to fixed operations during the transition, the Commission required any unlicensed PCS device or system to be coordinated through UTAM before being initially deployed or subsequently relocated. The Commission also required that labels be placed on coordinatable unlicensed PCS equipment indicating that any relocation of the device must be coordinated through and approved by UTAM.
- The Commission also instituted rules to ensure that each application for equipment authorization contained an explanation of all measures for ensuring that the device cannot be activated until installation at the authorized location is verified by UTAM and for automatically disabling the device in the event that it is relocated outside its intended geographic area.
- The Commission further mandated use of licensed technicians to install and relocate equipment, and a full description of the features used to control the activation and disabling of the device.<sup>10</sup>

These requirements, put in place by the Commission to allow immediate deployment of UPCS devices, added significant burdens and complexities to deployment of devices in this band.

While these measures were done to ensure that the devices could be coordinated and used in a manner that does not cause interference, they created obstacles to product deployment by imposing additional development and equipment costs.

As a final matter, as the Commission is aware, unlike other unlicensed bands that are not saddled with microwave incumbents, each product deployed in the UPCS band is under an obligation to fund, in part, common relocation efforts. Currently, there is a \$20 clearing fee assessed to each manufacturer for each UPCS device.<sup>11</sup> These costs further raised the end user's price in a highly competitive market.

Having borne considerable expenses in reliance upon the FCC's prior determination that

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<sup>10</sup> See 47 C.F.R §§ 15.303 - 15.311; *see also* 1994 Order at ¶ 222.

<sup>11</sup> These fees are used to pay the costs of clearing the band of incumbent microwave operations. Indeed, this is UTAM's principle task—negotiating the clearing of the microwave band and spreading the costs of such relocation in an equitable manner across the industry.

UPCS devices serve the public interest, manufacturers should be provided the opportunity to recoup their investment and deliver services to the public, as envisioned, and consumers should be able to continue to rely upon their UPCS devices. Manufacturers have not yet had the opportunity to recover their investment, and consumers have not yet reaped the full benefits of UPCS devices. With the anticipated full clearing of the UPCS band, however, vendors will finally be in a position where they can deploy new UPCS products, particularly nomadic devices, and end users will be able to enjoy expanded service offerings.

**3) End Users Have Invested Considerable Funds in UPCS Systems.**

Based upon the foregoing, it is patently evident that any reallocation of the UPCS band would not only undercut the reasonable expectations of members of the UPCS industry, but also the expectations of end users who have come to rely upon UPCS products. Contrary to the statement that “the band is lightly used for unlicensed devices” because only forty-five such devices have been approved by the Commission, hundreds of thousands of end users have come to rely on UPCS products for essential business operations.<sup>12</sup> These end users willingly have paid additional money for UPCS devices that operated in an unencumbered band, pursuant to the quite reasonable expectation that they would be able to continue using their UPCS systems.

End users have been willing to invest in UPCS technology because the UPCS band, unlike other unlicensed bands, offers end users reasonable assurances that communications will be free from interference. Unlike other unlicensed spectrum allocations, the strict enforcement of Part 15 etiquette, including the “listen before talk” protocol, has produced a level of comfort that UPCS devices can be used without triggering notable interference concerns. Digitized voice packets must be transmitted and received, interference-free, at regular intervals to ensure high-

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<sup>12</sup> 800 MHz Band NPRM at ¶ 51.

quality reception. The isochronous etiquette provides reasonable assurance that a channel, once selected, will remain free of intermittent interference for a reasonable time interval (*e.g.*, many thousands of frames). This assurance is necessary because isochronous systems typically use a “dynamic channel selection” protocol to select a clear channel for the communication link. Retransmission of packets corrupted by interference usually is not an option for such systems, due to the rigid time-delay limits associated with time-bounded traffic. As such, the isochronous band reliably can support many “mission-critical” voice and data applications because the Part 15 etiquette virtually assures interference-free communications for these systems. Among unlicensed spectrum allocations, the UPCS band is unique in this regard, and as described above, end users willingly have invested large amounts of capital in exchange for this assurance.

**B. UPCS Devices Presently Support Public Safety Operations, As Well As a Myriad of Other End-User Needs.**

Although the types of products deployed in the UPCS band do not have a high degree of public visibility, UPCS technology is essential to the domestic telecommunications infrastructure, including public safety. Any proposal to relocate UPCS operations to accommodate relocated SMR operators would have the effect of hampering some public safety operations, instead of facilitating their operations, which was the primary goal of the NPRM.<sup>13</sup> UPCS devices provide services that are critical to the public safety and reallocation of the UPCS band could come at great cost to the public health and welfare. Public safety uses for UPCS devices include the following:

- Doctors and nurses in hospitals are now equipped with wireless handsets so that they can communicate directly from the patient’s bedside rather than paging the doctor from the nurses’ station and waiting to receive a call from the doctor. Hospitals have also equipped operating room set-up staff with wireless handsets and have reduced

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<sup>13</sup> 800 MHz NPRM at ¶ 1 (stating that “[t]he Commission has long recognized the nation’s public safety community requires effective radio communications systems free of harmful interference is public safety agencies are to adequately protect the safety of lives and property”).

room preparation time significantly, allowing the hospitals to perform operations more efficiently and without the need for additional operating rooms. One manufacturer has UPCS installations in over 1,000 healthcare facilities, including leading institutions such as Mt. Sinai and Columbia HCA, where the instant communication and low-power operation inherent in the UPCS band allow critical-care staff to save lives and improve the comfort of patients every day;

- State and local governments have employed UPCS devices in providing services to their constituents—for example, at Ground Zero in New York City (a Zone 1 county where microwave incumbents have been cleared), UPCS systems could be deployed immediately to provide communications without pre-coordination delays. These systems provided much-needed relief to other wireless systems, such as cellular systems, which were overtaxed and operating at capacity. Furthermore, UPCS systems can be integrated with wide-area systems to provide seamless communications for public safety emergency systems;
- Prison guards are able to use UPCS devices to request immediate assistance in the event of an emergency.

In addition, a wide number of industry segments have demonstrated an effective use of unlicensed wireless services within their everyday business activities; hundreds of thousands of UPCS handsets already have been deployed and the applications of unlicensed products have provided real benefits. Other examples of UPCS applications include:

- Over a dozen commercial nuclear power plants within the United States use a UPCS product for facility-wide communications, and rely heavily upon this system during the high-risk reactor refueling process;
- Schoolteachers now have access to a telephone in their classrooms and elsewhere on school grounds, allowing them instantly to report security problems or request medical assistance in emergency situations;
- All United States stock and commodity exchanges use a UPCS product and view the UPCS system as critical for facilitating trading, especially where the ability to act quickly is a business necessity;
- College students and administration on the campuses of major universities communicate use UPCS devices for facilitating communications;
- Convention centers use UPCS systems to provide wireless telephone service to attendees wherever they are located within the center;
- Customer service representatives in both large and small companies are able to seek assistance from more senior employees in answering customer questions and are not constrained to one location;

- Facilities and maintenance crews are able to directly receive calls requesting assistance without the need of a central dispatcher; and
- Warehouse staff members, in settings such as “Home Depot,” are able to communicate directly with those placing service orders without the need to locate a conventional wired telephone and therefore have seen an increase in customer satisfaction.

These uses represent only several examples of the myriad ways in which the public uses UPCS products. If the Commission were to reallocate the UPCS band, these UPCS users would be unable to procure and install alternative wireless systems without significant—and, in some cases, prohibitive—cost, financially and operationally.

As UTAM’s non-exhaustive list of product deployment scenarios demonstrates, the use of unlicensed wireless devices has improved productivity and has made communications more convenient. Furthermore, because UPCS systems use different spectrum than licensed systems, UPCS users incur no air time charges, and there is no need to make arrangements for spectrum-sharing with local cellular or PCS operators, making UPCS systems attractive to businesses seeking a single solution that can be deployed nationwide. Finally, UTAM notes that sales of UPCS products are essential to the deployment of PBX systems. There is much interest, on the part of customers, to integrate a wireless solution as a component of a larger solution. By way of example, a significant number of PBX lines in Europe are wireless. UTAM submits that, but for the unique challenges presented by the Part 15 etiquette and the need to relocate incumbent microwave licensees, levels of wireless PBX system usage would be similar in the United States.

**C. The 1910-1930 MHz Band is Technically Unsuitable for Uses Other Than UPCS.**

In addition to the public safety functions in the UPCS band, the band presently serves the critical function of acting as a guard band for adjacent, licensed PCS users.<sup>14</sup> High-powered

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<sup>14</sup> See Comments of the Cellular Telecommunications & Internet Association (“CTIA”) In the Matter of Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services

uses, such as relocated SMR services, would create unacceptable interference levels with these licensed uses. Even if it were desirable to consider pairing the spectrum to create opportunities for licensed mobile use, additional spectrum would be required elsewhere to maintain adequate transmit/receive separation; this separation is currently 80 MHz for licensed PCS in the United States. Even if such spectrum were found, the end result would be that the lower power mobile transmit band, currently from 1850-1910 MHz, would be expanded to be immediately adjacent to the higher power base transmit band, currently from 1930-1990 MHz, or vice-versa. UTAM believes that the UPCS band, as allocated to low power devices that receive no interference protection, serves a necessary and critical function as a guard band to protect the integrity of licensed PCS services.

**D. New UPCS Products Are on the Verge of Deployment.**

Notwithstanding the many present uses of UPCS, as explained earlier, the UPCS market is only now starting to emerge fully, as one of the primary hindrances—the presence of incumbent microwave licensees in the 1910-1920 MHz and 1920-1930 MHz bands—is on the verge of being removed entirely. Under UTAM’s direction, 98 percent of the isochronous band (1920-1930 MHz) and 90 percent of the asynchronous band (1910-1920 MHz) has been cleared of incumbent microwave licensees. And, the remaining encumbered counties are primarily rural in nature. Full-band clearing will be a watershed event, as the ability to deploy nomadic devices will open broad new market vistas for UPCS products.

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to the Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems, ET Docket No. 00-258, at 3 (filed Oct. 22, 2001) (noting that the UPCS band “sits between the paired spectrum blocks currently used for PCS” and that “in considering options . . . the Commission must ensure that whatever services are authorized in this band do not interfere with adjacent PCS services. This constraint would as a practical matter limit the usefulness of the band for most advanced mobile wireless services because of the guardband requirements that would be necessary to protect existing PCS services from interference. It may, however, be appropriate for additional flexibility in this band to ensure it is used as efficiently as possible, but any such modifications should be done in a way that ensures there is no potential for interference with the adjacent PCS bands.”).

While UTAM is aware that the asynchronous band currently has low utilization levels, UTAM cautions the Commission that it should not consider this as “evidence” supporting a reallocation of the 1910-1920 MHz band. Any present underutilization is largely due to constraints imposed on the use of this band by the Part 15 etiquette, as well as the presence of incumbent microwave licensees—constraints which UTAM expects will be surmounted in the near future due to technical and practical advancements. UTAM fully anticipates that new asynchronous products in the 1910-1920 MHz band will be deployed in the near future. While the complete clearing of the UPCS band will require several more years, UTAM has taken steps to facilitate ease of deployment and accelerate the clearing process. UTAM has undertaken a regional clearing strategy to facilitate the conversion of the remaining counties with microwave operations within or near the county. Through this approach, UTAM will open up large contiguous areas of the country for unencumbered product deployment. With 98% clearance in the isochronous band and 90% clearance in the asynchronous band, vendors will soon have the technical ability to deploy much-awaited nomadic devices.<sup>15</sup> Furthermore, as discussed in more detail below in Section II, proceedings already are underway that may increase utilization of the 1910-1920 MHz band by permitting the crossover use of the band by isochronous devices.

**II. RATHER THAN REALLOCATE UPCS FREQUENCIES, THE COMMISSION SHOULD AFFIRMATIVELY SUPPORT MEASURES TO PROMOTE UPCS DEVELOPMENTS.**

Far from being underutilized, there are high density, geographic-specific applications in the UPCS band where sites are at full capacity. As discussed above, a wide array of services already has been deployed, and manufacturers stand ready to provide additional services, predicated upon their ability to obtain additional bandwidth. To this end, UTAM has submitted

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<sup>15</sup> In so doing, UTAM will be fulfilling the major component of its charter by the FCC to carry out a plan for band clearing to permit nomadic device deployment. *See* 1994 Order at ¶ 209.

comments supporting the Petition of Wireless Information Networks Forum (WINForum), seeking modification of the Part 15 rules and permitting the deployment of isochronous devices in the asynchronous band.<sup>16</sup> As discussed in detail below, UTAM reaffirms its support for crossover use of the asynchronous band. UTAM continues to believe that this would be an appropriate use of the 1910-1920 MHz band, given that many applications for unlicensed wireless are constrained by the use of only 10 MHz.

**A. Permitting the Use of Isochronous Devices in the 1910-1920 MHz Band Would Facilitate the Deployment of Innovative Service Offerings and Meet the Need for Additional Spectrum for Isochronous Applications.**

In the *1994 Order*, the Commission stated, “in the near future we will initiate a proceeding to consider allocation of new spectrum to meet long term spectrum requirements for unlicensed PCS devices.”<sup>17</sup> Since 1994, the FCC has made an additional 10 MHz of spectrum at 2390-2400 MHz available to asynchronous devices, as well as a substantial amount of spectrum at 5 GHz for wireless Local Area Networks. Notably, however, no additional spectrum has been allocated to isochronous UPCS devices specifically. As discussed below, the current 10 MHz allocation for isochronous applications already has reached its saturation point with respect to certain high-density, site-specific services, and the limited amount of available bandwidth is restricting the growth of UPCS products. In considering the impact of instituting the cross-over rule changes, because the 1910-1920 MHz band is currently unused by asynchronous devices, the effect of acting on the WINForum Petition on asynchronous device deployment remains negligible at this stage.<sup>18</sup> And, only minor modifications to existing isochronous UPCS

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<sup>16</sup> See Amendment of the Commission’s Rules for Unlicensed Personal Communications Services, Petition For Rulemaking of the Wireless Information Networks Forum, RM-9498 (Jan. 8, 1999) (“WINForum Petition”); see also Comments of UTAM, RM Docket No. 9498 (filed April 9, 1999).

<sup>17</sup> *Id.* at ¶ 207.

<sup>18</sup> The WINForum Petition proposed a minor modification to the asynchronous etiquette within the 2390-2400 MHz band.

devices—and the isochronous device rules—are needed to enable efficient and immediate utilization of the full 20 MHz band.

In support of permitting cross-over use in the asynchronous band, UTAM notes that such flexibility would permit UPCS providers to better meet the needs of current users in certain high-density environments. By way of example, UTAM notes that permitting the deployment of isochronous devices at 1910-1920 MHz will permit more effective UPCS deployment within multi-tenant buildings:

- While theoretical studies have shown that well-coordinated UPCS systems in multi-tenant high rise buildings can support wireless operation in 10 MHz or less of spectrum, these studies fail to account for the fact that most buildings have differing layouts such as hallways, firewalls, garages and basements that significant impact signal propagation and cell deployments. UTAM is aware that several manufacturers have seen that this theoretical spectrum re-use pattern varies greatly.
- Many deployment locations are in multi-tenant buildings and there often will be several uncoordinated systems competing for spectrum.
- While the etiquette allows such uncoordinated use on a relatively efficient basis, installing a new system in such a location typically has a detrimental impact on existing users.
- Many deployments are also expected to cover the end-user's full property, including the parking lot and grounds. In these instances, cells placed outdoors illuminate buildings that may be blocks away. This problem becomes especially severe when deploying UPCS systems to numerous buildings within an industrial park.

In each of these types of “hotspot” scenarios, access to additional spectrum is critical to meeting end-user needs. These realistic scenarios demonstrate that permitting isochronous use within the 1910-1920 MHz band would better support many locations where UPCS operations have found a home.

A common misconception about isochronous applications is that they support only voice applications. While the isochronous band is well-suited for “circuit switched” applications with time-bounded traffic, such as wireless telephony, isochronous applications can support data transfer as well, further exacerbating consumer demand problems. Indeed, isochronous

platforms support a number of innovative Digital Enhanced Cordless Telephony (“DECT”) applications in use and under development for Europe. Isochronous data systems are also efficient – both DECT and Personal Handyphone Service (“PHS”) offer data rates on the order of 384 to 552 kbs.<sup>19</sup> Providing isochronous devices with the full 20 MHz band would come closer to satisfying the long-term spectrum needs envisioned for these devices and make the amount of spectrum comparable to that available in Europe (DECT has a 20 MHz allocation) and Japan (PHS has a 23 MHz allocation).<sup>20</sup>

UTAM expects that a number of other factors will exacerbate the problem described above. As the technology continues to become less expensive, it is expected to create wider demand for these systems both in the volume and size of systems deployed, as users opt to provide coverage over greater areas of their business and expand the use of these devices to more employees. While the ability to deploy nomadic devices will make UPCS products viable for many consumer and retail applications, this onslaught of uncoordinated devices will have a major impact on existing UPCS installations. These additional factors support making available the full UPCS band for isochronous operations, as all UPCS systems will suffer without sufficient spectrum capacity. Indeed, the availability of a full 20 MHz for isochronous applications will play a key role in the expansion and future success of the UPCS band.

In sum, allowing isochronous devices to crossover into the 1910-1920 MHz band would

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<sup>19</sup> In Japan, the public PHS systems have seen data traffic exceed voice traffic.

<sup>20</sup> Both DECT and PHS are similar, in technology and in application, to isochronous UPCS systems. While the spectrum allocation for both DECT and PHS is available exclusively for a single technology, the UPCS spectrum is shared among multiple technologies, and coexistence is managed by the isochronous etiquette. However, compliance with the etiquette increases operational complexity, and as explained in the WINForum Petition, it imposes a slight spectrum-efficiency penalty. Where several different air interface technologies coexist in the same vicinity, the spectrum-efficiency penalty increases because different systems that use different air interfaces do not share spectrum as efficiently as different systems that use the same air interface (as do both DECT systems and PHS systems). It is therefore reasonable that the spectrum available to isochronous UPCS applications in the U.S. be at least comparable to that amount available for similar applications overseas.

promote greater spectrum efficiency and utilization, facilitate entry into the UPCS marketplace by new entities, make it more practical to develop larger scale customer applications, and alleviate any future concern in those geographic areas where spectrum availability may be constrained or where a customer application requires additional bandwidth. In turn, increased deployment will help to rapidly deliver new and innovative UPCS products to consumers and will promote the clearing of incumbent microwave operations from the UPCS spectrum band by generating additional clearing fees used to fund UTAM's relocation efforts.<sup>21</sup>

**B. UTAM Supports Limited and Conditional Use of the 1910-1920 MHz Band for Rural Wireless Telephone Service.**

UTAM has previously submitted comments regarding a petition for waiver of the rules governing the 1910-1920 MHz band by UTStarcom, for the deployment of wireless telephone service.<sup>22</sup> UTAM's comments expressed concern with respect to a waiver-based approach to obtaining Commission consent to non-conforming use of the asynchronous band. While UTAM continues to have reservations with respect to the appropriateness of a waiver for permitting such use of the 1910-1920 MHz band, UTAM submits that with the proper controls, it is feasible for this band to be utilized for both low-powered rural telephone service and for "spill-over" for

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<sup>21</sup> UTAM also notes that two separate waivers have been filed seeking to deploy systems in a manner consistent with the cross-over rulemaking, each of which would provide significant public interest benefits. These waivers suggest that upgrading UPCS devices to enable effective utilization of the full 20 MHz UPCS band is a simple modification and will significantly abbreviate time to market. Ascom Wireless Solutions Inc. requested a waiver to allow isochronous operations in the 1910-1920 MHz band because customers within Cook County, New York County, San Francisco County and Philadelphia County require very high-capacity indoor wireless communications. See Ascom Wireless Request for Waiver, *Public Notice*, December 15, 2000. Specifically, Ascom noted that the required wireless circuit densities for the Chicago Board Options Exchange ("CBOE"), the Chicago Board of Trade ("CBOT"), the American Stock Exchange ("AMEX"), the Pacific Stock Exchange and the Philadelphia Stock Exchange are so high that their needs cannot be met with only 10 MHz of spectrum. Ascom stated that if Freeset were permitted to operate in 20 MHz of spectrum it could satisfy customers' service capacity demands. In another pleading, Lucent Technologies requested a waiver to permit isochronous devices in the 1910-1920 MHz band for higher-capacity and enhanced wireless PBX services in Chicago.

<sup>22</sup> See Opposition of UTAM, Inc., *In the Matter of Request of UTStarcom and Drew University For Waiver of Sections 15.307; 15.311; 15.319(a),(c),(e); and 15.321 of the Commission's Rules*, DA 00-2061 (filed Oct. 10, 2000).

larger isochronous applications, as discussed above.

While UTAM would support, with certain constraints, the use of the 1910-1920 MHz band for non-asynchronous applications, UTAM notes that it strongly opposes placing higher power uses in the 1910-1920 MHz band. The use of high-powered devices in the asynchronous band, including by advanced service devices, would raise significant interference concerns with respect to the operations in the 1920-1930 MHz UPCS operations. UTAM therefore conditions its support of UTStarcom's Petition upon strict compliance with current industry standards and Part 15 spectrum etiquette. Furthermore, any users of the asynchronous band—at least in the near term—must accommodate any remaining microwave incumbents that are still operating in that band, and manufacturers must take part in cost-sharing mechanisms to finance the relocation of these microwave incumbents.

### **III. CONCLUSION**

As explained above, the UPCS band is integral to satisfying the needs of a wide range of end-users, including public safety systems. In addition, the UPCS band serves an important guard band function for PCS licensees that cannot be replaced with high power systems, such as SMR. UPCS industry members and end users alike have invested millions of dollars in UPCS systems, reasonably and fully relying upon the Commission's previously stated intent to provide for UPCS services at 1910-1920 MHz and 1920-1930 MHz. Any additional uncertainty regarding the continued use of this band for UPCS devices will inhibit continued growth in this market segment. Indeed, the deployment of isochronous devices in the 1920-1930 MHz band has even reached saturation levels in certain high-density, site-specific markets. In light of these circumstances, the UPCS band generally—and the isochronous UPCS band specifically—is unsuitable and inappropriate for reallocation. Reallocation of the UPCS band would injure the public interest and impose acute financial burdens upon an industry that is on the brink on

significant advancements, as the industry awaits full clearing of the UPCS band. As explained above, the Commission should instead increase efficient and full use of the UPCS band by permitting the use of isochronous devices in the asynchronous band, thereby ensuring that the 1910-1920 MHz band is fully utilized while providing much-needed additional spectrum for isochronous uses.

Respectfully Submitted,

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