ORIGINAL

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

In the Matter of	)	
	)	
Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use	)	ET Docket No. 94-32

REPLY COMMENTS OF AT&T CORP.

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Dated: January 6, 1995

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Summary

The comments in response to the proposal in the NPRM to allocate the 2402-2417 MHz band generally to Fixed and Mobile services demonstrate overwhelmingly that that proposal should not be adopted. Rather, the Commission should insure that that band remains usable by spread spectrum Part 15 devices. Those devices perform many useful functions today and will do even more in the future as a result of effort and resources expended by manufacturers in reliance on Commission decisions opening up the entire 2400-2483.5 ISM band for spread spectrum Part 15 devices. On the other hand, if the Commission were now to undercut those earlier decisions by making a portion of that band unusable by Part 15 devices, the technological leadership and competitiveness of United States wireless equipment manufacturers in world markets would be greatly harmed.

In contrast to the weight of this evidence, there was virtually no support for the general allocation proposal in the NPRM. Moreover, no meaningful proposals were made for specific uses of the 2402-2417 MHz band. Therefore, the Commission should allocate that band to the incumbent users.

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Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use	)	ET Docket No. 94-32

REPLY COMMENTS

AT&T Corp. ("AT&T") respectfully submits the following reply comments in response to the Commission's Notice of Proposed Rulemaking ("NPRM"), FCC 94-272, released November 8, 1994.

The NPRM proposes to (i) amend § 2.106 of its rules (the Table of Frequencies Allocations) to allocate generally to Fixed and Mobile services the 50 MHz of spectrum recently transferred from Federal Government to private use[1]; (ii) provide technical flexibility in the

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[1] Those 50 MHz consist of three segments: 2390-2400 MHz, 2402-2417 MHz and 4660-4685 MHz. AT&T's Reply Comments focus on the 2402-2417 MHz segment. In addition, AT&T supports allocation of 2390-2400 MHz to unlicensed PCS. In its decision reducing to 20 MHz the 40 MHz previously allocated to unlicensed PCS (Amendment of the Commission's Rules to Establish New Personal Communications Services, 9 FCC Rcd 4957 (1994)), the Commission agreed that unlicensed asynchronous and isochronous devices may both need more spectrum than the 10 MHz allocated to each (id. at fn. 115) and committed to identify such additional spectrum (id. at 4991, 5036).

(footnote continued on following page)

provision of those services; and (iii) make that spectrum available to licensees by means of competitive bidding.

AT&T opposes that proposal as to the 2402-2417 MHz segment because of the adverse impact on spread spectrum Part 15 devices which operate in that band subject to the technical requirements of § 15.247 of the Commission's Rules (47 CFR § 15.247).[2] AT&T did, however, suggest that if the Commission determined that some licensed services could operate in the band, they be allowed to do so only under technical rules comparable to those governing the Part 15 devices.

I. THE COMMENTS OVERWHELMINGLY DEMONSTRATE THAT THE 2402-2417 MHZ BAND SHOULD REMAIN USABLE BY PART 15 DEVICES.

The comments of others contain an outpouring of opposition to any licensed services in the 2402-2417 MHz band.[3] By AT&T's count, 29 parties, consisting of large and small manufacturers as well as users, based their opposition

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Allocating 2390-2400 MHz to unlicensed PCS would partially fulfill that commitment.

[2] This usage is secondary to use by Industrial, Scientific and Medical ("ISM") devices (47 CFR § 18.301) and amateurs (47 CFR § 97.301).

[3] The comments referenced in these reply comments and the abbreviations used to identify them are listed in the Appendix.

on adverse impact on Part 15 devices.[4] Ten others did so because of the adverse impact on amateur operations,[5] and one party because of incompatibility with its ISM devices.[6] Moreover, an additional six parties urged that some or all of the 50 MHz be allocated for private use, including by public safety agencies.[7] A few of those commenters also endorsed AT&T's alternative proposal that any licensed services be required to comply with technical rules comparable to the spread spectrum rules applicable to Part 15 devices.[8]

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[4] AT&T, Andrew, AMD, API, Apple, CMI, Compaq, DOI, EIA/CEG, Cylink, IEEE P802, IBM, Metricom, Microsoft, Motorola, Norand, The Coalition, Robinson, Rockwell, SMC, Symbol, TAL, 3 COM, TIA, UTC, WMC, Windata, WINForum and Xircom.

[5] Adamson, ATN, Bell, Burns, Couch, PARC, AMSAT, San Bernardino, SCRRBA and WSMVS.

[6] Fusion.

[7] AAR, APCO, FIT, ITA, Los Angeles, and LA County Sheriff. None of those parties addressed the decidedly negative input regarding the usefulness of the 2402-2417 MHz band for private service which the Commission received in response to its Notice of Inquiry ("NOI") in this docket. That material was summarized by AT&T in its reply comments on the NOI (pp. 4-7). Only the LA Sheriff dealt with this issue, merely asserting that that band "may be appropriate" for public safety use because placing receivers in non-residential areas "could alleviate" the problem of interference from microwave ovens.

[8] ATN (p.2); Rockwell (p.4). Pegasus, recognizing that adding Fixed and Mobile to existing uses would create a "congested band that is only of limited use to anyone," proposed a regional mobile service for video production, operating at low power. Couch's opinion was that amateur

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Commenters pointed out that the 2402-2417 MHz band is not useful for licensed services, apart from the need to protect Part 15 devices and amateurs. API reported the "veritable deluge" of 8.5 million microwave ovens and ranges shipped for the U.S. market per year, which create emissions in the 2.4 GHz band (p. 8). EIA/CEG concluded that: "This noise problem would make licensed operations difficult, if not impossible" (p. 5).[9]

The parties urging that the 2402-2417 MHz band remain usable by spread spectrum Part 15 devices supplemented information provided in response to the NOI. Those parties supported their position by illustrating the many valuable uses to which such devices are presently put,[10] and discussing emerging uses for such devices.[11]

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operations could tolerate very low power licensed services.

[9] Accord Norand (p. 9); The Coalition (p. 5).

[10] E.g. AMD (p.3) (fire and security alarms, remote utility meter reading, retail surveillance, and wireless bar code readers); Norand (p.2) (mobile computer products for real-time wireless data exchange); The Coalition (p. 2) (digital cordless telephones, airborne and marine collision avoidance systems, data network products that allow for Internet access and interactive computer applications). The installed base of Part 15 devices numbers in the millions and billions of dollars are spent annually on such devices, EIA/CEG (p.3).

[11] E.g. IBM (p.9) (connecting every classroom, library and hospital to the national information superhighway as

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These parties also explained that manufacturers expend vast sums to develop these products in justifiable reliance on prior Commission action opening up the ISM band to spread spectrum devices[12] and to take away what had been granted would adversely affect the future of the industry.[13] AT&T also agrees with IBM's similar point (p. 17):

> "In order to promote investment of the NII [National Information Infrastructure] and enable the U.S. economy to benefit from its opportunities, it is imperative that the Commission provide clear and unequivocal reassurance that it does not intend to change the rules of the road."

Commenters noted the adverse effect of the Commission's proposal on United States exports and employment. They reported that years of effort by an IEEE Committee has led to the creation of a wireless LAN standard, now out for letter ballot, using the 2400-2483.5 MHz band for computer data transfer pursuant to

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President Clinton and Vice-President Gore have urged); Microsoft (p. 2) (many wireless applications).

[12] E.g. Andrew (pp. 5-6); CMI; IBM (p. 2).

[13] E.g. Andrew (p. 8) (If the Commission now "chases" Part 15 operations from the 2.4 GHz band, users will be reluctant to invest in equipment experience has shown can be rendered useless by subsequent Commission action); Cylink (Purchasing decisions have in fact been "frozen" or abandoned after issuance of the NPRM because of belief that Part 15 devices do not have reliable access to the 2402-2417 MHz band).

the spread spectrum rules in 47 CFR § 15.247. If 2402-2417 MHz were not available in the United States, the new standard could not be used for frequency hopping spread spectrum devices because that standard requires at least 75 MHz of spectrum.[14] In addition, the direct sequence spread spectrum devices would lose two or three of the specified six channels and, in fact, the best channels because furthest away from potentially interfering ISM devices. Moreover, European countries have agreed, or are in the process of so doing, on use of the 2.4 GHz band by spread spectrum devices, along the lines permitted by the Commission's present rules. The Commission's proposal would deny to the United States manufacturers the opportunity to achieve necessary economies of scale by producing a world-standard product, thus threatening their ability to compete in foreign markets.[15]

Finally, many commenters quoted from very recent Commission and NTIA documents demonstrating that the proposal in the NPRM is unwise.[16] The particular Commission

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[14] E.g., IEEE P802 (p. 3); Motorola (p. 12); SMC.

[15] Andrew (pp. 8-9); EIA/CEG (pp. 5-6); Motorola (p. 13); WINForum (p. 4).

[16] AT&T and other commenters also quoted from various Commission decisions articulating the importance of permitting spread spectrum Part 15 devices to use the ISM band, including 2402-2417 MHz.

language referred to is from the Commission's Report to the Secretary of Commerce. After explaining that licensed services could not likely share the 2402-2417 MHz band with Part 15 devices, the Commission stated:

> "Any future changes to this band could jeopardize significant private sector investment already made in this band and could result in a loss of benefits to the public and the Federal Government."[17]

The NTIA language quoted by commenters is from a letter from NTIA Administrator Larry Irving to Chairman Hundt, dated December 12, 1994. Administrator Irving wrote that the "critical importance of [unlicensed Part 15] wireless systems to the future development of the National Information Infrastructure (NII) is well recognized and supported," and that the availability of unlicensed bands provides "significant opportunities for innovators and small companies to make contributions to the overall mix of products and services available through the NII."

Although AT&T and other commenters elaborated on the already overwhelming evidence that the 2402-2417 MHz band should remain usable by Part 15 devices, the approach of Apple (p. 8) is quite apt:

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[17] FCC Report to Ronald H. Brown, Secretary, U.S. Department of Commerce, Regarding the Preliminary Spectrum Reallocation Report, FCC 94-213, Released August 9, 1994, at § 51.

> "Apple will not attempt to repeat or duplicate the information regarding the adverse effects of reallocating the 2400 MHz ISM band that has previously been filed with the Commission and that likely will be filed in response to this NPRM, as the case has been made effectively and thoroughly. Apple will, however, join these other parties in reiterating that the FCC should take its own counsel, that of the NTIA, and the nearly unanimous verdict of industry, and reaffirm its commitment to the existing allocation of this band."

II. NONE OF THE PROPOSALS IN THE COMMENTS FOR USE OF THE 2402-2417 MHZ BAND FOR LICENSED SERVICES HAS MERIT.

In stark contrast to this wealth of information on the public interest imperative of insuring that the 2402-2417 MHz band remain usable for spread spectrum Part 15 devices, there was a striking lack of interest in using that band for licensed services.[18] WCAI and WHI supported the general Fixed and Mobile allocation proposed in the NPRM because in the future the three segments could be used by wireless cable operators in connection with interactive services.[19]

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[18] The presence of huge numbers of microwave ovens in this band, discussed above, is the likely reason for this lack of interest.

[19] WCAI (p. 2) explained that it contemplates use for the return path of such services and that cost factors make use for the outgoing path impractical. WHI (pp. 4-5) was not explicit regarding the direction it has in mind. A third commenter, ATI, expressed a lack of interest in the 2402-2417 MHz band for wireless cable because of the presence of microwave ovens in the home (pp. 4-5).

Pac Bell Mobile supported the proposal in the NPRM, but urged the Commission to clarify that that proposal permitted PCS in the 2390-2400 MHz segment and relocation of incumbent 2GHz microwave users to the 4660-4685 MHz segment. Pac Bell Mobile identified no potential use of the 2402-2417 MHz segment.

Leaco, a telephone company serving 900 customers in a 4500-square mile area straddling the Texas-New Mexico border, urged the Commission to make some of the 50 MHz available to rural telephone companies based on specific proposals by them regarding use of that spectrum. While Leaco's situation may be extreme, even for rural telephone companies, it is noteworthy that OPASTCO[20] did not join Leaco in this regard but rather only supported use of the 2390-2400 MHz segment for wireless local loop service.

None of the proposals of these four commenters addressed the 2400-2417 MHz segment specifically or mentioned the existence of spread spectrum Part 15 devices in that band. Thus these commenters did not deal with the impact of their proposals on those devices. Those sketchy proposals do not counter the overwhelming evidence that licensed services should not be permitted to impair the usefulness of that band for Part 15 devices.

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[20] OPASTCO is a trade association of more than 400 telephone companies serving rural areas (pp. 1-2).

The remaining proposal for use of the 50 MHz of spectrum, by LQP, is that all of that spectrum be allocated to the Mobile Satellite Service (MSS) and specifically that the 2402-2417 MHz segment be allocated in the space-to-Earth direction (i.e. downlink). This represents an unexplained change in position by LQP. At the NOI stage in this proceeding, LQP advocated the Earth-to-Space direction (i.e., uplink) for 2402-2417 MHz.[21] Strikingly, although LQP says that it believes that Part 15 devices (and ISM devices) would have only insignificant impact on the proposed MSS downlinks, it fails to address the impact of its new proposal on the Part 15 devices. AT&T agrees with 3Com (p. 4) that additional information on this proposal is needed before the Part 15 industry can provide meaningful responses.[22] There is obviously insufficient time to flesh

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[21] Footnote 11 to LQP's comments on the NPRM, describing LQP's previous position, is garbled.

[22] AT&T's reply comments on the NOI (pp 6-7) reference the undertaking of LQP to conduct tests and provide further information regarding its thereafter abandoned uplink proposal. LQP now provides no data regarding its current downlink proposal. AT&T (id.) also noted that American Mobile Satellite Corporation ("AMSC") "hopes" to present results of its analysis of the utility of 2402-2417 MHz for MSS downlinks in its comments in the WRC docket (IC 94-31). However, the Technical Appendix to AMSC's comments in that docket merely asserts, without supporting detail, that 2390-2410 MHz should be considered for MSS downlinks "insofar as the noise and interference problems would become local to receiving mobile earth stations." It is noteworthy that AMSC did

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out LQP's proposal and to obtain detailed comments thereon before the statutorily required February 10, 1995 date for allocation of this spectrum.[23] Therefore, the Commission should not adopt LQP's proposed MSS allocation.

The only conclusion supported by the record in this docket is that the Commission should allocate the 2402-2417 MHz band to its incumbent users and not to any licensed services.[24] If, however, the Commission elects to permit some licensed services to operate in that band, such operation should be under technical rules comparable to those applicable to spread spectrum Part 15 devices.[25]

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not file comments on the NPRM. Finally, AT&T noted (id.) Motorola's recognition that further study was needed.

[23] Omnibus Budget Reconciliation Act of 1993, § 6001(a)(3), codified as 47 USC § 925(a).

[24] Such a Commission decision in the public interest would obviate any need to consider the legal arguments that allocation to licensed services violates § 706 of the Administrative Procedure Act because contrary to prior Commission findings and stated policies (Metricom, p. 4), and that the proposed general allocation to Fixed and Mobile services violates §§ 303 and 309(j) of the Communications Act in that the discrete classes of services offered over this spectrum would result from virtually unlimited flexibility given to winners at the auction, rather than from Commission decision. Metricom (p. 10); Motorola (pp. 15-17); TIA (pp. 4-5); WINForum (pp. 6-8).

[25] Metricom (p. 13); Norand (p. 11); Rockwell (p. 6); cf. Microsoft (p. 7) (any reallocation must protect incumbent users).

Moreover, the stability needed for further technological progress in Part 15 devices would be best served by also amending existing rules to give such devices primary status against any use of the ISM band authorized in the future.[26]

CONCLUSION

The Commission should adopt neither the proposal in the NPRM to allocate the 2402-2417 MHz band generally to Fixed and Mobile services, nor the specific proposals for services in that band made by other commenters. Rather, that band should be allocated to incumbent users. If,

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[26] AT&T's more modest proposal for co-primary status (p. 3) and Symbol's proposal that Part 15 devices be deemed not a source of harmful interference (p. 9), are other approaches.

however, licensed services are to be permitted in that band, the Commission should propose technical rules for them comparable to the present spread spectrum rules.

Respectfully submitted,

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Dated: January 6, 1995

APPENDIX

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Amateur Television Network	ATN
American Petroleum Institute	APT
American Telecasting, Inc.	
Apple Computer, Inc.	Apple
Association of American Railroads	AAR
Association of Public Safety Communications Officials	APCO
L. Stephen Bell	Bell
William A. Burns	Burns
Cincinnati Microwave, Inc.	CMI
Compaq Computer Corp.	Compaq
Consumer Electronics Group of the Electronic Industries Association	EIA/CEG
David R. Couch	Couch
Cylink Corporation	Cylink
Forest Industries Telecommunications	FIT
Fusion Systems Corporation	Fusion
Digital Ocean, Inc.	DOI
IEEE P802, the LAN MAN Standards Committee	IEEE P802
Industrial Telecommunications Association	ITA
International Business Machines Corporation, Inc.	IBM
Leaco Rural Telephone Cooperative, Inc.	Leaco
Loral/Qualcomm Partnership, L.P.	LQP
County of Los Angeles	Los Angeles
Los Angeles County Sheriff's Department	LA Sheriff
Metricom, Inc.	Metricom
Microsoft Corporation	Microsoft
Motorola, Inc.	Motorola
Norand Corporation	Norand
Organization for the Protection and Advancement of Small Telephone Companies	OPASTCO
Pacific Bell Mobile Services	Pac Bell Mobile
Palomar Amateur Radio Club, Inc.	PARC
The Part 15 Coalition	The Coalition
Pegasus Communications, Inc.	Pegasus
Personal Communications Industry Association	PCIA
Radio Amateur Satellite Corporation	AMSAT
Brian Robinson	Robinson
Rockwell International Corporation	Rockwell
San Bernardino Microwave Society	San Bernardino

Southern California Repeater and Remote Base Station Association	SCRRBA
Standard Microsystems Corporation	SMC
Symbol Technologies, Inc.	Symbol
Tetherless Access Ltd.	TAL
3 Com Corporation	3 Com
Mobile and Personal Communications Division and Fixed Point-to-Point Microwave Section of the Telecommunications Industry Association	TIA
UTC, The Telecommunications Association	UTC
Western Multiplex Corporation	WMC
Western States VHF - Microwave Socity	WMVMS
Windata, Inc.	Windata
Wireless Cable Association, Inc.	WCAI
Wireless Holdings, Inc.	WHI
Wireless Information Networks Forum, Inc.	WINForum
Xircom, Inc.	Xircom

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I, Geraldine A. Gowers, hereby certify that on this 6th day of January, 1995, copies of the foregoing "Reply Comments" were mailed, postage prepaid, to the following:

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