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

In the Matter of)
)
)
Redevelopment of Spectrum to)
Encourage Innovation in the)
Use of New Telecommunications)
Technologies)
_____)

ET Docket No. 92-9

AT&T'S COMMENTS

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SUMMARY

AT&T supports the Commission's efforts to make adequate spectrum available for emerging technologies. The demand for cellular services alone, both in the United States and the other industrial nations, has grown enormously in the last seven years and continues to increase; moreover, other nations have already started to introduce new wireless products and services based on emerging technologies. The Commission has appropriately chosen 2 GHz for emerging technologies, consistent with the decisions reached at the 1992 World Administrative Radio Conference, where numerous countries agreed to create a worldwide allocation for PCS-like systems at 1.885-2.025 GHz. For the United States to compete effectively in this environment, an allocation of 220 MHz of spectrum between 1.85 and 2.20 GHz for personal communications services ("PCS") and other emerging spectrum-based technologies is essential.

It is equally essential that this spectrum be assigned promptly to qualified licensees. As shown in Part I of these Comments, AT&T urges the Commission to adopt its proposal for a market-based assignment mechanism. Such a mechanism would give licensees incentives to use spectrum economically and efficiently, while allowing users to compare the relative values of different applications of spectrum. To discourage

pure speculators, AT&T suggests adoption of a modified lottery proceeding in which applicants, among other things, must meet strict entry requirements and post a significant performance bond before being permitted to enter the lottery. Applicants who "win" the lottery would then gain the right to negotiate for spectrum with existing licensees.

Part II demonstrates that the Commission's proposal should be modified in certain respects. The Commission should not adopt its proposed 10 or 15-year transition period for incumbent licensees. Such a lengthy transition does not give incumbents sufficient incentive to relocate expeditiously and thus would frustrate the Commission's objective to promote rapid development of emerging technologies. It has been estimated that regulatory delay in bringing cellular service to the market caused a loss of \$86 billion to the United States economy. Moreover, the proposed transition is unnecessary; the negotiation process will appropriately address the Commission's stated concern that a transition is needed in order to capture the value of incumbents' existing equipment. Part II also shows that there does not appear to be any justification for the Commission's proposal to allow state and local government agencies to occupy 2 GHz spectrum indefinitely; they should be treated no differently from any other incumbent.

Part III demonstrates that an allocation for non-licensed spectrum uses should be included in the emerging technologies bands. By definition, the users of this spectrum are non-licensed and therefore have no negotiable interests which could form the basis for a market-based assignment mechanism. The spectrum should simply be cleared, and, in particular, the Commission should adopt Commissioner Barrett's suggestion that the Government Band at 1.71-1.85 GHz be used for non-licensed products or services.

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AT&T'S COMMENTS

Pursuant to the Commission's Notice of Proposed Rulemaking ("NPRM"), released February 7, 1992, American Telephone and Telegraph Company ("AT&T") respectfully submits its Comments in support of the Commission's proposal to establish a 220 MHz allocation at 2 GHz for emerging spectrum-based technologies.

INTRODUCTION

The NPRM (¶ 1) proposes to designate 220 MHz of the spectrum between 1.85 and 2.20 GHz ("2 GHz") as a spectrum allocation for emerging technologies.* Under the Commission's plan (NPRM, ¶ 20), all existing private and common carrier fixed microwave operators currently using spectrum in the designated bands would be encouraged to

* Emerging technologies include personal communications services ("PCS"), generic mobile - satellite service, digital audio broadcasting service and Low Earth Orbit satellite (NPRM, ¶ 4).

relocate to one of the several higher frequency fixed microwave bands or to other media.* During a transition period of 10 or 15 years, existing 2 GHz fixed licensees would be permitted to continue occupying the frequencies on a co-primary basis with emerging technologies for which spectrum is allocated. The Commission proposes that state and local government licensees, including public safety agencies, would be exempt from any mandatory transition periods. At the end of the 10 or 15-year transition, the existing licensees could continue to operate in the 2 GHz band on a secondary basis (NPRM, ¶¶ 24-25).

To provide maximum flexibility in the relocation process, the Commission (NPRM, ¶ 26) also proposes that parties seeking to implement new technologies negotiate arrangements with incumbents for access to and continued use of the spectrum through the transition period. The Commission (NPRM, ¶ 26) notes that "[s]uch arrangements

* The Commission, in proposing this band, relied upon a study entitled "Creating New Technology Bands for Emerging Telecommunications Technology," FCC/OET TS92-1 (January, 1992). AT&T supports this evaluation by the Commission and a similar draft analysis by National Telecommunications and Information Administration ("NTIA") regarding the possible availability for non-government use of government frequencies in the 1.71-1.85 or 2.20-2.29 GHz band. AT&T urges the Commission to adopt Commissioner Barrett's proposal that it participate in "ongoing legislative efforts taking place between Congress and the NTIA to identify additional spectrum for commercial uses." (NPRM, Separate Statement of Commissioner Andrew C. Barrett).

would allow market forces to achieve a balance between the need to minimize the reaccommodation cost to existing operators and the immediate need for the spectrum to permit provisions of these new services."

The Commission (id.) requests comment on these proposals.

I. THE COMMISSION SHOULD ADOPT ITS PROPOSAL TO ALLOCATE SPECTRUM FOR EMERGING TECHNOLOGIES AND TO PERMIT IT TO BE ASSIGNED TO NEW LICENSEES ON THE BASIS OF NEGOTIATED ARRANGEMENTS WITH INCUMBENTS.

As the Commission, AT&T, and numerous other parties have observed, the extraordinary growth of cellular subscribers demonstrates the significant demand for wireless communications.* Seven years ago, cellular subscribers in the United States numbered fewer than 100,000. Today, there are "more than 5 million cellular phones, with a market growth of approximately 50% per year."** By the end of the decade, that figure could

* See, Final Acts of the World Administrative Radio Conference, Malaga-Torremolinos, 1992; See also, An Inquiry Relating to Preparation for the International Telecommunication Union World Administrative Radio Conference for Dealing with Frequency Allocations in Certain Parts of the Spectrum, GEN Docket No. 89-554, released June 20, 1991. International competitors have also been actively pursuing spectrum allocation. E.g., "The Economics of Frequency Allocation," Organization for Economic Co-operation and Development ("OECD") seminar in Paris, April 27-28, 1992.

** Testimony of Craig O. McCaw, Chairman, McCaw Cellular Communications, Inc., En Banc Hearing, p. 3, December 5, 1991.

exceed 40 million, with cellular service available to more than 90 percent of the country's population.* Europe and Japan are experiencing similar rates of growth.** As a result, there exists "an environment in which new [wireless] services are vying with each other and with existing users for relatively small slivers of spectrum that are incapable of supporting full implementation of new service" (NPRM, ¶ 4).

In light of this explosive growth in demand for cellular services and the concomitant potential demand for a variety of other wireless services, it is essential that there be made available sufficient amounts of usable spectrum to support development of emerging technologies. The Commission has appropriately selected 2 GHz for these technologies. The propagation characteristics of this spectrum are ideal for wireless services, and there already exist substantial amounts of equipment in the marketplace which could be adapted to introduce new services based on this spectrum promptly. Moreover, the recent World Administrative Radio Conference, at the strong urging of the United States, has allocated similar

* Testimony of Lawrence J. Gitten, AT&T Bell Laboratories, before the Subcommittee on Communications, United States Senate, p. 2, April 11, 1991.

** See Financial Times, 10/7/91, "Fastest cellular growth is now taking place in Southeast Asia and Latin America" and Fintech Mobile Communications, 8/1/91, "cellular subscribers in Europe increased from 3 million to 4 million in 11 months."

frequencies in the 2 GHz band for PCS-type services, and several nations, particularly Britain and Japan, are proceeding rapidly to make this spectrum available to licensees in order to encourage the rapid availability of new services to consumers.

Thus, the Commission has correctly designated 2 GHz spectrum for emerging technologies in the United States. The issue remains, however, how best to make that spectrum available for these new products or services and how to transfer it from existing licensees to new licensees so that new products and services can be developed and introduced in this country promptly, as is being done in other nations. In that regard, AT&T strongly endorses the Commission's proposal to permit market-based transfers to assign newly allocated spectrum. As the Commission has correctly noted in other proceedings, a competitive marketplace and licensees' incentives and abilities to meet market demands will have a greater positive impact on the quality and scope of service than other assignment processes.*

* See, In the Matter of Amendment of Parts 0, 1, 2, and 94 of the Commission's Rules to Provide for Interactive Video Data Services, 6 FCC Rcd. 1368, 1371 (1991); See also, In the Matter of Amendment of the Commission's Rules to Allow the Selection from Among Mutually Exclusive Competing Cellular Applications Using Random Selection or Lotteries instead of Comparative Hearings, Report and Order, CC Docket No. 83-1096, 98 F.C.C.2d 175, 185-185 (1984), Memorandum Opinion and Order on Reconsideration, 101 F.C.C.2d 577 (1985), Memorandum Opinion and Order on Further Reconsideration, 2 FCC Rcd. 176 (1987).

Market-based assignment mechanisms give licensees incentives to use spectrum economically and efficiently, allow users to compare the relative values of different uses of spectrum, reduce or eliminate time-consuming regulatory proceedings, and require far less regulatory oversight. Negotiated arrangements also allow greater flexibility in implementing new, emerging technologies and in modifying them over time in response to technological changes and consumer demand.

The Commission solicits "information on how this process should be carried out and what restrictions, if any, the Commission should place on negotiated arrangements." (NPRM, ¶ 26). AT&T suggests that in the absence of statutory authority to use an auction-based assignment scheme,* the Commission should implement a modified lottery proceeding. Such a proceeding most closely simulates a marketplace approach and can be structured to address the Commission's concern that pure lotteries result in undue speculation.** To deter such speculation, applicants would be required to meet strict

* Since 1985, the Commission has repeatedly proposed to Congress that it be permitted to use auctions to award licenses. There are encouraging signs of support in the current Congress.

** See In the Matter of Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Band by the Private Land Mobile Radio Services, Report and Order, 6 FCC Rcd. 2356 (1991) (certain entry and implementation requirements are required to narrow the applicant pool and deter speculative activity).

entry requirements and post a significant performance bond, which would be applied toward the development of the licensees' service, before they would be permitted to enter the lottery. Lottery "winners" would gain the exclusive right to obtain in Commission-designated markets a license for any unassigned spectrum and to negotiate with existing licensees for additional spectrum within specific frequency ranges.*

The entry requirements should include a submission of certified data (such as SEC-required reports for publicly traded corporations) demonstrating that an applicant has available and committed financing from a reliable source to construct 60 percent of its proposed system and operate it for three years. Additionally, each applicant should be required to provide evidence that the product or service it plans will satisfy the Commission's use, coordination, and other technical requirements.

Each applicant also should be informed, prior to receiving a ranking based upon the outcome of the lottery, that if it obtains a license and successfully negotiates with incumbents for a portion of spectrum, certain

* The Commission should also consider limiting individual licensees to a particular initial quantity of spectrum -- perhaps 25 MHz -- until the applicant demonstrates a need for more spectrum for its particular application(s). See Transcript of En Banc hearing testimony of Dale E. Stone, Director of AT&T's Personal Communications Networks, p. 8, 1991 ("Stone Testimony").

implementation requirements will be imposed. For example, once an applicant has entered the lottery, its filing fees would be non-refundable. The Commission should also impose construction deadlines upon new licensees, which would require them to construct and commence operating their service in each market for which they receive a license within 3 years of licensing. Any proofs of sufficient financial resources should be strictly scrutinized to assure that a change of control will not occur if capital is infused after a license grant.*

If at any time one or more implementation requirements are not met, the licensee should be required to forfeit its license to the next-ranked applicant without any further regulatory processing, and its bond to the bond holder. The newly licensed applicant also would have to meet the same implementation standards or forfeit its license and development bond.

Entry barriers such as these would further the Commission's objectives to deter speculation in the spectrum-licensing process and to award licenses to entities that are both financially well qualified and serious in their intent to introduce new technologies to

* Accord, In the Matter of Amendment of Part 90 of the Commission's Rules to Provide for the Use of the 220-222 MHz Bands by the Private Land Mobile Radio Services, 4 FCC Rcd. No. 25, Notice of Proposed Rule Making, released December 15, 1989.

the market. Only in this fashion can the Commission realize its goal (NPRM, ¶ 4) to foster the rapid development and deployment of emerging technologies for the benefit of consumers.

II. CERTAIN MODIFICATIONS TO THE COMMISSION'S PROPOSAL ARE NECESSARY.

Although the Commission's market-based proposal is both appropriate and necessary, it should be modified in certain respects in order to realize more fully its objectives. As shown below, there should not be a 10 or 15-year transition period for existing licensees, and no incumbent licensees should be permitted to remain at 2 GHz indefinitely.

A. The Commission Should Not Adopt a 10 or 15-Year Transition Period for Incumbent Licensees.

If the Commission's market-based approach is to be successful, certain elements of its proposal described in the NPRM need to be modified. Most importantly, the Commission's proposed transition period of 10 or 15 years, during which existing 2 GHz licensees could continue to occupy these frequency bands on a co-primary basis with new services (NPRM, ¶ 25), is unacceptably long. A 10 to 15-year period provides no incentive for incumbents to relocate expeditiously, even if both spectrum and financial compensation are available to cover their reasonable transition costs.

There is enormous cost to the public in delaying the licensing of emerging technologies. For example, the regulatory delay in bringing cellular service to the market caused an estimated \$86 billion loss to the United States economy.* Moreover, the United States now must operate in an ever more competitive global arena where major industrial rivals are strongly promoting the 2 GHz band as the preferred vehicle for emerging technologies such as PCS, advanced cordless telephones (CT-2 and CT-3) and a pan-European mobile system (NPRM, ¶ 5).** A 10 or 15-year transition period to the full availability of this spectrum would severely retard the development and implementation of emerging technologies in the United States -- directly contrary to the Commission's central purpose in initiating this proceeding.***

* See written statement of Dr. Charles L. Jackson, National Economic Research Associates, Inc., before the FCC En Banc Hearing, p. 4, December 5, 1991, see also, Communications Daily, p. 5, November 18, 1991 (discussing NERA study).

** For example, the 1992 World Administrative Radio Conference identified the 1.885-2.025 GHz and 2.110 -2.200 GHz bands as available for implementation of PCS-type services. In addition, a European Community Directive, adopted by 12 countries, requires each to allocate the spectrum at 1.8-1.9 GHz for PCS. Further, Japan has determined that spectrum at 1.9 GHz shall be for PCS and Singapore, Hong Kong and Thailand also have allocated 1.85-1.99 GHz for PCS.

*** "The FCC's approach to meeting spectrum requirements will be critical to the rapid development of new wireless technologies, the introduction of new

(footnote continued on following page)

Moreover, a 10 or 15-year transition period is unnecessary. The NPRM (§ 24) asserts that a 10-year transition would "provide for a complete amortization of existing 2 GHz equipment," and a 15-year period "would extend the relocation period through the useful life of that equipment." The negotiation process, however, will accommodate these concerns. The price which an incumbent will demand will undoubtedly reflect the value of his existing equipment in light of its remaining useful life, as well as the cost of relocating it. Thus, the parties, through negotiations, will compensate the incumbent for his equipment without the need for a Commission-fixed transition period.

The Commission therefore should not adopt its proposal for a 10 or 15-year transition period. Rather, to allow market incentives to work and to encourage incumbents to negotiate with the winners of the modified lottery process described above, the Commission should notify the current occupants of the frequency bands subject to this inquiry that they will not automatically receive a license renewal. The Commission should deem

(footnote continued from previous page)

services to American consumers and the ability of the American telecommunications industry to contribute to a vigorous economy and compete with global competitors who are poised to lead in providing new and innovative wireless services if we do not." Stone Testimony at p. 2.

expired any current license that is contested and has not otherwise expired in accordance with its terms by January 1, 1997.*

This modification to the Commission's proposal would accelerate the transfer and use of the spectrum in a cost-effective way. Eager to implement new technologies, lottery winners would seek to gain exclusive use of up to the maximum permitted in each market if they are willing and able to pay for it. Incumbents would have the incentive to strike deals promptly, because their licenses would have no value after expiration. Newcomers would have the incentive to pay incumbents' moving costs in order to get them out of the spectrum quickly.

Alternatively, a potential licensee might approach an incumbent with whom it can operate on a co-primary basis, and the parties could negotiate to share that portion of the spectrum for the duration of the new license. The incumbent would then be able to remain beyond the term of its current license, and the new licensee would gain earlier access to the spectrum. Even if the new licensee were unable to use the frequency on a co-primary basis, it might seek to negotiate and pay appropriately for early, exclusive entry to incumbent's frequency.

* In order to permit reasonable notice and to allow an initial negotiation period, contested licenses that would expire before January 1, 1995, should be extended to that date.

Regardless of the methods used to restrict eligibility, the Commission ought not to prohibit incumbent and new licensees from transferring their rights and freely negotiating license terms.* Marketplace incentives would efficiently assign spectrum for the provisions of new services, without the necessity for detailed regulatory oversight.

B. No Incumbent Licensees Should Be Permitted To Continue To Operate At 2 GHz Indefinitely.

The Commission also should not adopt its proposal (NPRM, ¶ 25) to allow state and local government 2 GHz fixed microwave facilities to operate at 2 GHz indefinitely, at the discretion of the state and local government licensees. These licensees should be treated the same as all others, i.e., their licenses should not extend beyond January 1, 1997, if contested, and they should negotiate with providers of new services for the use of the spectrum.

Although the NPRM (¶ 25) asserts that state and local government agencies "would face special economic and operational considerations in relocating their 2 GHz fixed microwave operations," it is not self-evident that the problems faced by these agencies in relocating are so

* See, Stone Testimony at pp. 7-8

disproportionate as to justify allowing them to occupy such valuable spectrum indefinitely and thereby possibly to inhibit the development of new services that further the public interest.

In all events, the negotiation process can resolve whatever "special considerations" state and local government licensees may face in relocating. As part of the negotiations, the government licensees undoubtedly will insist on any necessary operational assistance and adequate compensation for relocating. As the Commission acknowledges NPRM (§ 26), negotiated arrangements regarding these issues "would allow market forces to achieve a balance between the need to minimize the reaccommodation cost to existing operators and the immediate need for the spectrum to permit provision of these new services."

III. SPECTRUM FOR NON-LICENSED USERS SHOULD BE CLEARED.

"Potential data PCS" (NPRM, § 4) is one of the emerging technology services which the Commission seeks to foster. The Commission should also consider treating other wireless product applications as emerging technologies. Today, wireless products are confined either to the cordless telephone channel allocation or to ISM bands. The cordless channels are more appropriate for

voice products and already are heavily utilized.* The ISM bands are the only available alternative, but the rules for non-licensed uses of these bands do not preclude unpredictable and uncontrollable interference from other ISM band users. Thus, in order to bring high quality, non-licensed, voice and data products to home, office and factory environments, manufacturers and consumers need an allocation of clear spectrum with rules that establish and enforce "good neighbor" relationships among competing products. Some industry groups have begun considering rules (or etiquettes)** that would permit co-existence of a variety of low power, wireless devices, but a spectrum allocation is essential.

The potential products that would use this spectrum (such as advanced cordless telephones, wireless Key/PBX/Centrex stations, computers, local and wide area data networks and numerous other commercial products), would be non-licensed devices provided to non-licensed users. Consequently, neither manufacturers nor spectrum

* AT&T has urged the Commission, either in conjunction with NTIA or on its own, to authorize additional channels for traditional cordless telephones. This could be accomplished either by rechannelizing within the current 46 and 49 MHz bands or by adding 300 to 500 kHz of spectrum adjacent to each band. See, also, TIA Petition for Rulemaking filed April 30, 1991.

** See, e.g., remarks of Victor Hayes for the IEEE standards project 802 submitted to the Federal Communications Commission's en banc hearing in Docket 90-314, December 5, 1991 and the statement of Apple computer, Inc. presented by Dr. David C. Nagel at the same hearing on the same date.

users would hold a license to occupy spectrum that could be the basis for implementing the modified lottery process described above and allowing negotiations among incumbents and new licensees to assign the spectrum.

Thus, the only way to create a viable environment for new non-licensed uses in this spectrum for emerging technologies is to clear a portion of the spectrum. In that regard, AT&T supports Commissioner Barrett's suggestion in his statement attached to the NPRM, that the 1.71-1.85 GHz ("Government Band") be considered for the provision of non-licensed spectrum. This could be accomplished by designating a portion of that band (say 1.80 to 1.85 GHz) for non-licensed products or services and relocating the incumbent government 2 GHz operators to the remaining portion of this or other adjacent government bands at Government expense. The majority of government users in the 1.71-1.85 GHz band are fixed, point-to-point microwave users that use off-the-shelf equipment similar to that employed by 2 GHz microwave users.* Indeed, the technical standards for 2 GHz band microwave users and those used in the Government Band are "virtually identical."** Utilization of this small segment of a

* Draft Federal Spectrum Usage of the 1710-1850 and 2200-2290 MHz Bands NTIA TR 92-285, p. 5-22, March 1992.

** UTC Petition at 18.

Government Band thus appears not only feasible, but preferable, because new non-licensed users could exploit the former Government spectrum that would become available, while prospective licensed users could negotiate relocations of all other 2 GHz incumbents.*

If, after the spectrum is cleared, the Commission feels that compensation should be paid to relocated Government incumbents, it could consider imposing an application or implementation fee on manufacturers of equipment for non-licensed spectrum usage.** The amount of the fee could be tied to the equipment's technical characteristics, e.g., required bandwidth, authorized power levels, and modulation techniques. The cost of entry for non-licensed users would then be based, to the extent practicable, upon which combination of the foregoing factors new non-licensed equipment utilizes: the more spectrum-efficient the equipment, the less costly its fee should be. The amounts generated by this fee system would be set aside in a fund to compensate dislocated incumbents.

* One of the alternatives proposed in the NPRM (¶ 27) is to adopt a phased spectrum allocation approach. If Government Band spectrum is not allocated for non-licensed uses, then the Commission would need to clear spectrum, perhaps in five-year increments, for non-licensed uses.

** Statutory authority might be required for the Commission to implement such a compensation scheme.

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If adopted, these proposals should promote the development of non-licensed products and services while at the same time providing a fair compensation mechanism for dislocated incumbents.

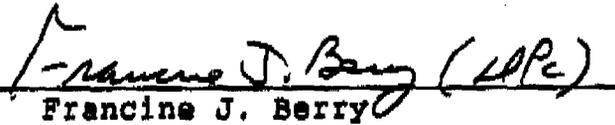
CONCLUSION

For the reasons stated above, the Commission should adopt its market-based proposal for the allocation of spectrum in the 2 GHz band, modified as described herein. The Commission should not adopt its proposed 10 or 15-year transition period and should not permit any existing 2 GHz licensees to retain their spectrum indefinitely. Spectrum for non-licensed users should be cleared in the manner described in these Comments.

Respectfully submitted,

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