

106. In determining the appropriate amount of the bidding credit, we propose to consider several factors. First, our analysis of the telecommunications industry suggests the possibility that incumbent telecommunications providers may be able to utilize existing infrastructure and thus enjoy economies of scope in the provision of many of the services that may develop in this spectrum. Therefore, these incumbents may have the ability to bid more than first-time operators. Second, as indicated in the Competitive Bidding docket, we note that very few incumbent telecommunications providers are owned by minorities or women, so that a substantial discount may be necessary to put these designated entities on equal footing with incumbents in bidding for these licenses.

107. Finally, we consider the bidding credits established for businesses owned by minorities and women in other contexts. For the Interactive Video and Data Service and the nationwide narrowband PCS licenses, the bidding credit afforded to minority- and/or women-owned businesses was 25 percent. In the nationwide narrowband PCS auction, none of the licenses was won by minority or women-owned bidders, suggesting that the bidding credit may have been insufficient. In contrast, in the regional narrowband PCS auction, we used a higher bidding credit of 40 percent for businesses owned by women and minorities, regardless of size, on all regional narrowband PCS licenses on two channels. In addition to those bidding credits, we adopted an installment payment plan for women and/or minority owned businesses that obtain a regional narrowband PCS license on the same two channels.¹⁸⁴ The result of the narrowband auction was that 11 of the 30 licenses went to women or minority-owned firms.

108. We propose a bidding credit of 25 percent that would be available on one of the five proposed spectrum blocks. We seek comment on the appropriateness of the proposed bidding credits and installment payments for auctions in the 4660-4685 MHz band. In particular, commenters should address whether it is sufficient to provide installment payments as financial assistance solely to small businesses, which will include small businesses owned by women and minorities and rural telephone companies that meet the small business definition.

109. It is difficult to assess whether the greater participation by women and minorities in the regional narrowband PCS auction was attributable to the higher bidding credit or installment payments, or the combination. However, based on informal comments by several of the bidders in that auction, it appears that installment payments may have been the more effective method of attracting capital, possibly because it shifts some of the financial risk of future failure of these enterprises to the Government. Our proposal to use installment payments for all of the licenses in the 4660-4685 MHz band should result in significant participation by minorities and women and may reduce the need for bidding credits.

¹⁸⁴ Implementation of Section 309(j) of the Communications Act -- Competitive Bidding, Order on Reconsideration, PP Docket No. 93-253, 9 FCC Rcd 5306, 5306-07 (1994).

Comments are requested on this proposal. We also seek comment on the exact nature of the installment payment plan we should adopt in this context.

110. To prevent unjust enrichment by women and minorities trafficking in licenses acquired through the use of bidding credits or installment payments, we propose imposition of a payment requirement on transfers of such licenses to entities that are not owned by women or minorities. Female and minority-owned businesses seeking to transfer a license to an entity that is not owned by women or minorities would be required to reimburse the government for the amount of the bidding credit, plus interest at the rate imposed for installment financing at the time the license was awarded, before the transfer will be permitted. The amount of the penalty would be reduced over time so that a transfer in the first two years of the license term would result in a payment of 100 percent of the value of the bidding credit; in year three of the license term the payment would be 75 percent; in year four the penalty would be 50 percent and in year five the payment would be 25 percent, after which there would be no payment.

(2) Eligibility Criteria

111. In the Competitive Bidding Second Report and Order, we adopted eligibility criteria for businesses desiring to benefit from the established special provisions for designated entities. Specifically, we determined that in order to be deemed a business owned by minorities and/or women, minorities or women must have at least 50.1 percent equity ownership and a 50.1 percent controlling interest in the designated entity. For limited partnerships, we determined that the general partner must be a minority and/or a woman (or an entity 100 percent owned and controlled by minorities and/or women) that owns at least 50.1 percent of the partnership equity. We also indicated that, for the most part, the interests of minorities and women in designated entities would be calculated on a fully-diluted basis.¹⁸⁵ In the broadband PCS context, we also established an alternative definition for minority- and female-owned businesses.¹⁸⁶ We seek comment on whether either of these definitions is appropriate for purposes of determining designated entity eligibility in the 4660-4685 MHz band, or whether we should adopt an alternative definition. We also propose to apply to the 4660-4685 MHz applicants the same affiliation and attribution rules for calculating equity and stock ownership that we have previously adopted in the PCS context. We propose to require the establishment of a "control group" for women and minority-owned firms and would require that the control group maintain both de facto and de jure control of an applicant.¹⁸⁷ We seek comment on this proposal.

¹⁸⁵ Competitive Bidding Second Report and Order, 9 FCC Rcd at 2396, para. 277.

¹⁸⁶ See 47 C.F.R. § 24.720(c).

¹⁸⁷ See, e.g., Competitive Bidding Fifth Memorandum Opinion and Order, 10 FCC Rcd at 446-51, paras. 77-86.

c. *Small Businesses*

(1) Specific Special Provisions

112. Based on the list of special provisions for designated entities established in the Competitive Bidding Second Report and Order, we seek comment on whether to adopt installment payments for small businesses bidding for licenses in the 4660-4685 MHz band. The record in the Competitive Bidding proceeding suggests that the most significant barrier for small business participation in the auctioning of 4660-4685 MHz spectrum will be access to adequate private financing to ensure their ability to compete against larger firms in the competitive bidding process. In the Competitive Bidding Second Report and Order, we concluded that a reduced down payment requirement coupled with installment payments is an effective means to address the inability of small businesses to obtain financing and will enable these entities to compete more effectively for the auctioned spectrum.¹⁸⁸ We seek comment on whether such a mechanism would be an appropriate special provision for small businesses bidding for licenses in the 4660-4685 MHz band, and on whether any additional or alternative special provisions should be provided for small businesses in the 4660-4685 MHz context.

113. To ensure that large businesses do not become the unintended beneficiaries of installment payment provisions meant for small businesses, we also propose to make the unjust enrichment provisions adopted in the Competitive Bidding Second Report and Order applicable to installment payments by small business applicants. Specifically, if a small business making installment payments seeks to transfer a license to a non-small business entity during the term of the license, we will require payment of the remaining principal balance as a condition of the license transfer. We seek comment on this proposal including whether additional unjust enrichment provisions are necessary for the 4660-4685 MHz band.

(2) Eligibility Criteria

114. In the Competitive Bidding Second Report and Order, we adopted the existing SBA net worth/net income size standard as the generic eligibility criteria for small businesses.¹⁸⁹ Under this definition, an entity would qualify as a small business if its net worth is not in excess of \$6 million with average net income after Federal income taxes for the two preceding years not in excess of \$2 million. For broadband PCS, however, we defined a small business as any firm, together with its attributable investors and affiliates, with average gross revenues for the three preceding years not in excess of \$40 million.¹⁹⁰ In the Competitive Bidding Reconsideration Order, we concluded that it was more appropriate to

¹⁸⁸ See Competitive Bidding Second Report and Order, 9 FCC Rcd at 2390, para. 238.

¹⁸⁹ Id. at 2395-96, para. 271.

¹⁹⁰ 47 C.F.R. § 24.720(b).

define the eligibility requirements for small businesses on a service-specific basis because of the diversity of services that may be subject to competitive bidding and the varied spectrum costs and build-out requirements associated with each service.¹⁹¹ We contemplated that such an approach would allow us to take into account the capital requirements of each particular service in establishing the appropriate threshold. We therefore seek comment on whether we should utilize the SBA definition initially adopted in the Competitive Bidding Second Report and Order or, in the alternative, adopt a gross revenue standard like that used in the broadband PCS context. We ask commenters who believe that a gross revenue standard should be used as the eligibility criteria for small businesses to address the gross revenue threshold appropriate for the 4660-4685 MHz context along with any estimates of costs associated with build-out requirements. We also propose to apply to the 4660-4685 MHz applicants the same affiliation and attribution rules for calculating revenues that we have previously adopted in the PCS context. We seek comment on this proposal.

d. Rural Telephone Companies

115. We seek comment on whether we should provide bidding credits or other special provisions for rural telephone companies. Because it is unclear what specific uses may emerge in the 4660-4685 MHz band, it is difficult to assess the likelihood that such services would be attractive for implementation by rural telephone companies. We are similarly unable to determine with any certainty the potential prices these licenses may bring in rural areas. If prices in such areas are low, they should not present significant barriers to rural telephone companies. Also, under one possible approach, the degree of flexibility we would afford in the use of this spectrum, including provision for partitioning or leasing spectrum, should assist in satisfying the spectrum needs of rural telephone companies at low cost. Finally, as with other incumbent providers of telecommunications services, rural telephone companies may be able to benefit from the use of their existing infrastructure in the provision of certain services in this spectrum. Such economies of scale would give rural telephone companies an advantage in the bidding for such licenses. For these reasons, we do not believe that special preferences are needed to ensure adequate participation of rural telephone companies in the provision of services in this spectrum. However, comments on this analysis are requested.

e. Additional Special Provisions

116. In addition to the special provisions proposed above for the various classes of designated entities, we seek comment on whether additional special provisions should be adopted that would enhance our goal of ensuring their participation in the competitive bidding process for licenses in the 4660-4685 MHz band. We request that commenters give particular attention to the alternatives described below.

¹⁹¹ Competitive Bidding Reconsideration Order, 9 FCC Rcd at 7269, para. 145.

(1) Reduced Upfront Payments.

117. In the Competitive Bidding Second Report and Order, we concluded that upfront payment requirements would ensure that bidders are qualified and serious and would provide the Commission with a source of funds in the event of default or bid withdrawal.¹⁹² We also noted that reduced upfront payments may be particularly appropriate for auctions of spectrum specifically set aside for designated entities as a means of encouraging participation in the auctions, particularly by all eligible designated entities. As a result, in adopting competitive bidding procedures for broadband PCS, we reduced the upfront payment requirement for the entrepreneurs' blocks, observing that requiring full compliance with the upfront payment requirement could discourage auction participation by designated entities.¹⁹³ We seek comment on whether there should be a similar reduction in upfront payment for any class of designated entities for any licenses auction in the 4660-4685 band. In addition, we ask commenters to address the costs and benefits with respect to auction administration and designated entity participation associated with a reduced upfront payment for licenses in the 4660-4685 band in the absence of a spectrum set-aside.

(2) Entrepreneurs' Block

118. Finally, we seek comment on whether to facilitate designated entities' participation in providing service in the 4660-4685 MHz band by designating one 5 MHz spectrum block as an "entrepreneurs' block." Even considering the special provisions for designated entities discussed above, we remain concerned in light of our experience with PCS that designated entities may have difficulties competing for 4660-4685 MHz licenses against large firms with significant financial resources. We seek comment on this analysis. We also seek comment on whether the Commission should establish an entrepreneurs' block or blocks if we license the spectrum in different size blocks.

119. If we adopt an entrepreneurs' block approach, we also seek comment on how eligibility for the block should be defined. In the first instance, we ask commenters to address whether applicants other than designated entities should be eligible to bid for entrepreneurs' block licenses. In our broadband PCS rules, we required entrepreneurs to comply with financial caps on the assets and gross revenues of the applicant, its affiliates, and major investors. These caps were set at a higher level than the caps for designated entity small businesses, but were nevertheless intended to exclude large, well-financed entities from eligibility. We seek comment on whether the same financial caps should be applied for determining eligibility for 4660-4685 MHz entrepreneurs' block licenses.

¹⁹² Competitive Bidding Second Report and Order, 9 FCC Rcd at 2377, 2379, paras. 169, 176.

¹⁹³ Competitive Bidding Fifth Report and Order, 9 FCC Rcd at 5599-5600, para. 154.

120. We also seek comment on how designated entities should be treated within the entrepreneurs' block in terms of eligibility criteria and special provisions. Specifically, we ask commenters to address whether the definitions for small businesses and businesses owned by minorities and/or women should be different for purposes of determining eligibility for the entrepreneurs' block, what specific special provisions should be afforded to designated entities within the entrepreneurs' block, what type of attribution and affiliation rules should apply, and what additional measures are needed to protect against unjust enrichment. We also seek comment on what special provisions designated entities should receive within an entrepreneurs' block. For example, one alternative would be to provide bidding credits to designated entities within the block. In addition, small businesses and minority- and/or women-owned businesses within an entrepreneurs' block could be afforded an installment payment option combined with reduced upfront payments. We seek comment on these alternatives and on other special provisions that may be appropriate.

H. Technical Rules

121. The fact that we are proposing a new radio service for this band that can be used to provide any mobile or fixed communications service, regardless of whether that service is subscriber based or not, argues for general and minimal technical restrictions. Generally, different types of technical parameters would be used depending on whether the system involves fixed or mobile communications. Because this spectrum may be used for either, we must develop technical operating parameters that can accommodate both fixed and mobile services. To this end, we tentatively conclude that the rules adopted for PCS provide the best model for this new band. Specifically, we propose to limit the field strength at licensees' service area boundaries to 55 dBu unless licensees operating in adjacent areas agree to higher field strengths along their mutual border.¹⁹⁴ Licensees would be expected to coordinate their operations at the service area boundaries. Unlike PCS, where we required the power of any emission outside of the licensee's frequency block to be attenuated below the transmitter power (P) by at least 43 plus $10\log_{10}(P)$ or 80 decibels, whichever is less, we do not propose to establish adjacent-channel interference limits at the frequency boundaries between licensees in this band. Instead, we would encourage licensees to resolve adjacent channel interference problems.

122. We believe this approach provides licensees with the maximum amount of technical flexibility. We do, however, propose to require licensees to attenuate the power below the transmitter power (P) by at least 43 plus $10\log_{10}(P)$ or 80 decibels, whichever is less, for any emission at the edges of the 4660-4685 MHz band. We request comment on these proposals and any other technical rules that commenters believe are appropriate. We are especially interested in knowing whether the proposed signal strength limit is appropriate

¹⁹⁴ The minimum field strength required for a good quality service for mobile reception in an urban environment is 35 dBu (CCIR Report 358-5) and the proposed 55 dBu field strength limit allows 20 dB additional for location variability.

to provide co-channel protection to systems operating in adjacent areas, while still providing licensees adequate signal strength to serve the geographic area for which they are licensed. We also request comment on whether a maximum transmitter power or maximum effective radiated power is necessary or whether licensees should be permitted to use any power that they believe is appropriate, provided that they do not exceed the maximum permissible field strength at the border of their licensed area. In addition, we specifically request comment on the feasibility of our proposal to not limit out of band emissions. Commenters addressing this issue should consider the effect that unlimited transmitter power may have on out of band emissions. Commenters should also specifically address the need for out of band emission at the edges of the entire 4660-4685 MHz (this is as opposed to a limit on out of band emissions within the band but between spectrum blocks. If commenters desire different or additional interference criteria, we request that they include very specific alternative proposals and rationale.

I. License Term

123. The Communications Act allows the Commission to establish a license term of up to 10 years, except for television or radio broadcasting stations, which may have a license term of up to 5 and 7 years respectively.¹⁹⁵ Previously, the Commission has established a 10 year license term for CMRS, but has used a 5 year license term for private services. For services in the 4660-4685 MHz band, we propose to establish a term of 10 years for licenses in this band, with a renewal expectancy based on that of PCS and cellular telephone licensees. This relatively long license term, combined with a high renewal expectancy, should help provide a stable regulatory environment that will be attractive to investors and, thereby, encourage development of this new frequency band. We note, however, that commenters have proposed using this band for auxiliary broadcast service and the statute requires that the term of any license for the operation of any auxiliary broadcast station or equipment must be concurrent with the term of the license for such primary television station.¹⁹⁶ Therefore, commenters should address whether we should allow differing license terms in this band. We seek comment on our general proposal and any other viable alternatives that commenters may suggest.

J. Construction Requirements

124. The very wide array of potential services that could be offered in this band makes it very difficult to develop construction requirements that can be applied fairly and equitably, without skewing the workings of the market. We also recognize our responsibility to assure that spectrum we assign is used effectively. Therefore, we propose to require build-out rules modeled on those adopted for broadband PCS. Specifically, we propose that within

¹⁹⁵ 47 U.S.C. § 307.

¹⁹⁶ 47 U.S.C. § 307(c).

five years, licensees in this band offer service to one-third of the population in area in which they are licensed. Further, licensees would have to serve two-thirds of the population in the area in which they are licensed within ten years of being licensed. Failure by any licensee to meet these construction requirements will result in forfeiture of the license and the licensee will be ineligible to regain it. We request comment on this proposal and on whether it could unnecessarily limit the type of services provided. For instance, if a potential licensee wished to provide AAVS in this band, would such a service be able to meet the proposed construction requirements? We also request comment on whether these requirements are appropriate for private radio licensees who may not have to serve particular population segments within their service area. In addition, we seek comment on whether the Commission should establish a licensee defined service area, such as a cellular geographic service area (CGSA) which would allow the Commission to license areas to a different party where the existing licensee has not constructed. Such a proposal might encourage licensees to cover a larger geographic area or allow a new license to provide a service where the existing licensee believes that it is uneconomical to provide service in that area.

K. Regulatory Status

125. The Communications Act and Commission regulation often apply differing requirements based on the type of service and the regulatory status of licensees. For example, common carriers are generally subject to the provisions of Title II of the Act, but other licensees are not subject to these provisions. Also, Section 309 requires that the Commission provide public notice of tentative selectees for licenses and allow interested parties 30 days to file Petitions to Deny license applications for common carriers. As discussed above, the statute limits foreign ownership of common carrier licensees, but prohibits only foreign governments from obtaining private licenses. In addition, recent changes to the Communications Act have created different standards for Fixed and Mobile services for determining the regulatory status of a licensee. The Budget Act of 1993 created new statutory categories for mobile services: commercial mobile radio service (CMRS) and private mobile radio service (PMRS). CMRS is defined as a mobile service that "is provided for profit and makes interconnected service available (A) to the public or (B) to such classes of eligible users as to be effectively available to a substantial portion of the public. . . ." ¹⁹⁷ The statute provides that commercial mobile radio services are treated as common carriers, but allows the Commission the authority to forbear from regulating certain section of Title II. ¹⁹⁸ The statute also preempts state regulation of rates and entry for both CMRS and PMRS, but allows states to petition the Commission for authority to regulate the rates of CMRS

¹⁹⁷ 47 U.S.C. § 332(d)(1). See also Implementation of Sections 3(n) and 332 of the Communications Act, Regulatory Treatment of Mobile Services, Second Report and Order, GN Docket No. 93-252, 9 FCC Rcd 1411 (1994) (CMRS Second Report and Order).

¹⁹⁸ Specifically, the Commission may forbear from applying any section of Title II, except Sections 201, 202, and 208. Communications Act, § 332(c)(1)(A).

providers. For Fixed services, however, the Commission applies a judicial standard for determining whether a licensee is providing a common carrier service.¹⁹⁹ The Commission does not have the express authority to forbear from applying any provision of Title II to Fixed service common carriers. In addition, in the absence of a Commission decision to preempt, states are not preempted from regulating the intrastate rates or intrastate entry for Fixed common carrier services.²⁰⁰

126. We have decided to propose a new GWCS for the 4660-4685 band that would allow licensees to provide a variety or combination of Fixed and Mobile services. Under this service, both Fixed and Mobile applications would be permitted and an individual licensee could provide a number of Fixed and Mobile services. We note that, under our proposed approach, it may be difficult to determine the regulatory status of each licensee. We propose to rely on applicants to specifically identify the type of service or services they intend to provide, and that they include sufficient detail to enable the Commission to determine if the service will be Fixed or Mobile, and whether it will be offered as a commercial mobile radio service, a private mobile radio service, a common carrier Fixed service, or a private Fixed service. We note that the type of radio service provided may depend on our conclusions after reviewing the record in this proceeding. For instance, licensees may not be permitted to provide subscriber based services in this spectrum or in portions of this spectrum depending on the rules we ultimately adopt. We request comment on the most efficient manner in which to administer the requirements of the Communications Act and our rules, and grant licensees as much operational flexibility as possible.

127. We request comment on whether the Commission should develop a new application long form for this general allocation or require an applicant to be responsible for filing the appropriate license application based upon the nature of the service designated by the applicant. Based on the showing made in the application form and actual service provided, the licensee would be subject to those rules and statutory requirements that apply to such service. We seek comment on this proposal. We also request that commenters address whether it is necessary for the Commission to require licensees to notify the Commission if they change the type of service offered using some or all of their licensed spectrum even though the new use would be permissible under our rules.

L. Licensing Issues

128. We request comment on whether the Commission is required or should find it is in the public interest to adopt additional licensing rules in order to comply with the statutory requirement that we adopt assignment rules before August 10, 1995. For example, Section

¹⁹⁹ See *National Association of Regulatory Utility Commissioners v. FCC*, 525 F.2d 630, 642 (D.C. Cir.), cert. denied, 425 U.S. 999 (1976) (NARUC I).

²⁰⁰ See *Louisiana Public Service Commission v. FCC*, 476 U.S. 355 (1986).

309(b)(1) of the Communications Act requires all applications for common carrier station authorizations (other than minor amendments excepted under Section 309(c)) to be placed on public notice for 30 days prior to grant, and Section 309(d) allows petitions to deny to be filed against such applications during the public notice period. Because some licensees may provide common carrier service, we seek comment on whether the Commission should adopt public notice and petition to deny procedures for some or all applicants in the 4660-4685 MHz band. If we do adopt such procedures, we propose to use rules similar to those contained in Section 22.130 of our Rules. We seek comment on this proposal. We also seek comment on whether to adopt rules regarding the amendment of applications and/or license modifications.

129. Finally, we request comment on whether any existing application or regulatory fees would apply if we develop a new service. In addition, we note that Section 310(d) of the Communications Act provides that no construction permit or station license may be transferred, assigned, or otherwise disposed of without Commission approval based on a finding that the public interest, convenience, and necessity will be served by the transaction. We request comment on specific rules we should adopt in order to implement this provision of the Communications Act for purposes of licensing services in the 4660-4685 MHz frequency band.

IV. ORDERING CLAUSE

130. IT IS ORDERED that Parts 2 and 15 of the Commission's Rules and Regulations IS AMENDED as specified in Appendix F, effective 30 days after publication in the Federal Register. Authority for issuance of this Report and Order and Second Notice of Proposed Rule Making is contained in Sections 4(i), 303(g), 303(r), 309(j), 332(a), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(g), 303(r), 309(j), 332(a), and 403, and Section 115(a) of the National Telecommunications and Information Administration Organization Act, 47 U.S.C. § 925(a).

V. PROCEDURAL MATTERS

Ex Parte Rules - Non-Restricted Proceeding

131. This is a non-restricted notice and comment rule making proceeding. Ex parte presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in Commission rules. See generally 47 C.F.R. §§ 1.1202, 1.1203, and 1.1206(a).

Regulatory Flexibility Analysis

132. The analysis required by the Regulatory Flexibility Act of 1980, 5 U.S.C. Section 608, is contained in Appendices D and E.

Comment Dates

133. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415 and 1.419, interested parties may file comments on or before March 20, 1995 and reply comments on or before April 4, 1995. To file formally in this proceeding, you must file an original and four copies of all comments, reply comments, and supporting comments. If you want each Commissioner to receive a personal copy of your comments, you must file an original plus nine copies. You should send comments and reply comments to Office of the Secretary, Federal Communications Commission, Washington, DC 20554. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, Room 239, 1919 M Street, N.W., Washington, DC 20554.

Contact Persons

134. For further information concerning this proceeding, contact Steve Sharkey, Office of Engineering and Technology, (202) 739-0723, or Martin D. Liebman, Wireless Telecommunications Bureau, (202) 418-0620.

FEDERAL COMMUNICATIONS COMMISSION


William F. Caton
Acting Secretary

APPENDIX A

NTIA Preliminary Spectrum Reallocation Plan

Bands Identified for Reallocation	Reallocation Status	Reallocation Schedule
1390-1400 MHz	Exclusive	January 1999
1427-1432 MHz	Exclusive	January 1999*
1670-1675 MHz	Mixed	January 1999**
1710-1755 MHz	Mixed	January 2004
2300-2310 MHz	Exclusive	January 1996
3650-3700 MHz	Mixed	January 1999
4635-4660 MHz	Exclusive	January 1997*

* Protection for a limited number of facilities would be required for an additional period of time.

** Limited immediate use of this spectrum would be considered.

APPENDIX B

Comments Filed in Response to the NPRM in ET Docket No. 94-32

1. 3Com Corporation (3Com)
2. A. Frank Adamson, Ph.D.
3. Advanced Micro Devices, Inc. (AMD)
4. Alcatel Network Systems, Inc. (Alcatel)
5. Amateur Television Network
6. American Radio Relay League, Incorporated (ARRL)
7. American Petroleum Institute (API)
8. American Telecasting, Inc. (ATI)
9. American West Airlines (AWI)
10. Andrew Corporation (Andrew)
11. Apple Computer, Inc. (Apple)
12. Association of Public-Safety Communications Officials International (APCO)
13. Association for Maximum Service Television, Inc and Other Major Television Broadcast Entities (MSTV)
14. Association of American Railroads (AAR)
15. AT&T Corp. (AT&T)
16. Avant-Garde Telecommunications, Inc. (AGT)
17. Bell Atlantic
18. Brian Robinson
19. Capital Cities/ABC, Inc. (ABC)
20. Cincinnati Microwave, Incorporated (CMI)
21. Claircom Communications Group, L.P. (Claircom)
22. Compaq Computer Corporation (Compaq)
23. Consumer Electronics Group of the Electronics Industry Association (EIA)
24. Continental Airlines (Continental)
25. Cornell University
26. County of Los Angeles (L.A. County)
27. Cylink Corporation (Cylink)
28. David R. Couch
29. Digital Ocean, Inc.
30. Forest Industries Telecommunications (FIT)
31. Fusion Systems Corporation (FSC)
32. Fusion Lighting, Inc. (FLI)
33. Home Box Office (HBO)
34. IEEE 802, the LAN MAN Standards Committee (IEEE)
35. In-Flight Phone Corporation (In-Flight)
36. Industrial Telecommunications Association, Inc. (ITA)
37. International Business Machines Corporation (IBM)
38. International Microwave Power Institute
39. L. Stephen Bell
40. Leaco Rural Telephone Cooperative, Inc. (Leaco)
41. Loral/Qualcomm Partnership, L.P. (LQP)

42. Los Angeles County Sheriff's Department (LA Sheriff)
43. Manufacturers Radio Frequency Advisory Committee, Inc. (MRFAC)
44. Metricom, Inc. (Metricom)
45. Microsoft Corporation (Microsoft)
46. Mike Cheponis
47. Motorola, Inc. (Motorola)
48. National Research Council (NRC)
49. Norand Corporation (Norand)
50. Northern California Packet Association (NCPA)
51. Northern Amateur Relay Council of California, Inc. (NARCC)
52. NYNEX Telephone Companies (NYNEX)
53. Organization for the Protection and Advancement of Small
54. Telephone Companies (OPASTCO)
55. Pacific Bell Mobile
56. Part 15 Coalition
57. Palomar Amateur Radio Club, Inc. (PARC)
58. Pegasus Communications Inc. (Pegasus)
59. Personal Communications Industry Association (PCIA)
60. Radio Amateur Satellite Corporation
61. Robert S. Bennett, PH.D.
62. Rochester Telephone Corporation (Rochestertel)
63. Rockwell International Corporation (Rockwell)
64. San Bernardino Microwave Society (SBMS)
65. Software Publishers Association
66. Southern California Repeater and Remote Base Association (SCRRBA)
67. Southwestern Bell Telephone Company (SWB)
68. SR Telecom Inc. (SRT)
69. Standard Microsystems Corporation (SMC)
70. Symbol Technologies, Inc. (Symbol)
71. Tadiran Telecommunications LTD (Tadiran)
72. TDS Telecommunications Corp.
73. Telecommunications Industry Association (TIA)
74. Tetherless Access Ltd. (TAL)
75. United States Telephone Association (USTA)
76. US West Communications (US West)
77. UTC
78. Western Multiplex Corporation (Western Multiplex)
79. Western States VHF-Microwave Society (Western States)
80. William A. Burns
81. Windata, Inc. (Windata)
82. Wireless Holdings, Inc. (HWI)
83. Wireless Information Networks Forum, Inc. (WINForum)
84. Wireless Cable Association International, Inc. (WCAI)
85. Xircom, Inc. (Xircom)

Late Filed Comments in Response to NPRM

86. Federal Highway Administration
87. Larus Corporation
88. New York University
89. Solectek Corporation
90. University of Arizona

APPENDIX C

Reply Comments Filed in ET Docket 94-32

1. Advanced Micro Devices, Inc.
2. Alarm Industry Communications Committee
3. Alcatel Network Systems, Inc.
4. Amateur Radio Council of Arizona
5. American Institute of Aeronautics and Astronautics
6. American Mobile Satellite Corporation
7. American Petroleum Institute
8. American Radio Relay League, Incorporated
9. American Telecasting, Inc.
10. Andrew Corporation
11. Apple Computer, Inc.
12. Association of American Railroads
13. AT&T Corp.
14. Claircom Communications Group, L.P.
15. Compaq Computer Corporation
16. Comsat Corporation
17. Cox Enterprises, Inc. and Comcast Corporation
18. Cylink Corporation
19. ETM Solar Works
20. Frontier Corporation
21. GTE Service Corporation
22. In-Flight Phone Corporation
23. Industrial Telecommunications Association, Inc.
24. Interdigital Communications Corporation
25. International Business Machines Corporation
26. International Space Power Program
27. James S. Kaplan
28. Metricom, Inc.
29. Micron Communications, Inc.
30. Mike Cheponis
31. Motorola, Inc.
32. National Telephone Cooperative Association
33. National Assoc. of Broadcasters & the Assoc. for Max. Service TV
34. Northern Amateur Relay Council of California, Inc
35. Part 15 Coalition
36. Personal Communications Industry Association
37. Radio Amateur Satellite Corporation
38. San Bernardino Microwave Society
39. Society of Broadcast Engineers, Inc.
40. Southern California Repeater and Remote Base Association
41. Southwestern Bell Telephone Company
42. Space Studies Institute

43. SR Telecom Inc.
44. SUNSAT Energy Council
45. Symbol Technologies, Inc.
46. Tetherless Access LTD.
47. Texas A&M University
48. United States Telephone Association
49. UTC
50. William A. Burns

Late filed Reply Comments

51. Amateur Television Network
52. Proxim, Inc.

APPENDIX D

FINAL REGULATORY FLEXIBILITY ANALYSIS

1. Need and purpose of this action: This Report and Order allocates 50 megahertz of spectrum that was transferred from Federal Government to private sector use. Transfer and allocation of this spectrum was required by the Omnibus Budget Reconciliation Act of 1993.

2. Summary of the issues raised by the public comments in response to the Initial Regulatory Flexibility Analysis: There were no comments submitted in response to the Initial Regulatory Flexibility Analysis.

3. Significant alternatives considered: Commenters in this proceeding supported allocating the spectrum under consideration for a number of various services. These services include wireless local loops, a ground-to-air aeronautical audio/video service, mobile satellite service, private services, unlicensed PCS devices, other unlicensed devices, amateur service, interactive data, audio and video services, fixed service, mobile services, and broadcast auxiliary services. This Report and Order considers all of these uses and provides analysis regarding each. As a result of this analysis, the Commission determined that the action taken in this Report and Order would provide the most beneficial use of the spectrum under consideration.

APPENDIX E

FURTHER INITIAL REGULATORY FLEXIBILITY ANALYSIS

1. **Reason for Action:** The proposals for technical rules service rules, and licensing mechanisms proposed herein are for use of spectrum that has been Transferred from Federal Government to private sector use. The Commission adopted allocations for this spectrum on February 7, 1995. Accordingly, these proposals are necessary to provide a structure for non-Government entities to use the spectrum.
2. **Objectives:** The Commission seeks to provide service, technical rules, and to issue licenses, for use of this spectrum in a manner that provides the greatest potential benefit to the public by providing for the introduction of new services and the enhancement of existing services. These new and enhanced services will create new jobs, foster economic growth, and improve access to communications by industry and the American public.
3. **Legal Basis:** The legal basis for these rule changes is found in Sections 4(i), 303(g), 303(r), 309(j), 332(a), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(g), 303(r), 309(j), 332(a), and 403 and Section 115(a) of the National Telecommunications and Information Administration Organization Act, 47 U.S.C. § 925(a).
4. **Reporting, Recordkeeping, and Other Compliance Requirements:** The proposals under consideration in this Notice of Proposed Rulemaking may impose certain reporting and recordkeeping requirements on licensees and others utilizing this spectrum.
5. **Federal Rules Which Overlap, Duplicate or Conflict With These Rules:** None.
6. **Description, Potential Impact, and Number of Small Entities Involved:** Many small entities could be positively affected by this proposal because the proposal will provide for the introduction of new, competitive communications and will foster new technologies resulting in new jobs, economic growth, and improved access to communications by industry, including small entities. The full extent of the impact on small entities cannot be predicted until various issues raised in the proceeding have been resolved. After evaluating the comments filed in response to the Notice, the Commission will examine further the impact of all final rules in this proceeding on small entities and set forth its findings in the Final Regulatory Flexibility Analysis.
7. **Any Significant Alternatives Minimizing the Impact on Small Entities Consistent with the Stated Objectives:** This Second Notice of Proposed Rule Making solicits comments on a variety of alternatives, including as to how our licensing mechanism, service rules, and technical rules can but structured to serve a variety of needs.

APPENDIX F

Final Rules

A. Part 15 of Chapter I of Title 47 of the Code of Federal Regulations are amended as follows:

PART 2 - FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AN REGULATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154, 302, 303 and 307, unless otherwise noted.

2. Section 2.106, the Table of Frequency Allocations, is amended to read as follows:

a. In the 2390-2450 MHz band and the 4500-4800 MHz band, revise all columns to read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

International table			United States table		FCC use designators	
Region 1-allocation MHz	Region 2-allocation MHz	Region 3-allocation MHz	Government	Non-Government	Rule Part(s)	Special-use frequencies
(1)	(2)	(3)	Allocation MHz (4)	Allocation MHz (5)	(6)	(7)
*	*	*	*	*	*	*
2300-2450 FIXED. MOBILE. Amateur. Radiolocation.	2300-2450 FIXED. MOBILE RADIOLOCATION. Amateur.	2300-2310 RADIOLOCATION. Fixed. Mobile. US253 G2	2300-2310 Amateur. US253	Amateur (97).		
		2310-2360 Mobile. Radiolocation. Fixed. 751B US276 US327 US328 G2 G120	2310-2360 BROADCASTING- SATELLITE. Mobile. 751B US276 US327 US328		Digital Audio Radio Services	
		2360-2390 MOBILE. RADIOLOCATION. Fixed. US276 G2 G120	2360-2390 MOBILE. US276			
		2390-2400 G122	2390-2400 AMATEUR. G122	Radio Frequency Devices (15). AMATEUR (97).		
		2400-2402 RADIOLOCATION. 664 752 G2	2400-2402 Amateur. 664 752	Amateur (97).		
		2402-2417 664 752 G122	2402-2417 AMATEUR. 664 752	AMATEUR (97). Radio Frequency Devices (15).		
		2417-2450 RADIOLOCATION. 664 752 G2	2417-2450 Amateur. 664 752	Amateur (97).		
664 751A 752	664 750B 751 751B 752					

International table			United States table		FCC use designators	
Region 1-allocation MHz	Region 2-allocation MHz	Region 3-allocation MHz	Government	Non-Government	Rule Part(s)	Special-use frequencies
(1)	(2)	(3)	Allocation MHz (4)	Allocation MHz (5)	(6)	(7)

* * * * *

4500-4800	FIXED. FIXED-SATELLITE (space-to-Earth) 792A. MOBILE.	4500-4660 FIXED. MOBILE. US245	4500-4660 FIXED-SATELLITE (space-to-Earth). 792A US245		
		4660-4685 G122	4660-4685 FIXED. FIXED-SATELLITE (space-to-Earth). MOBILE. 792A US245		
		4685-4800 FIXED. MOBILE. US245	4685-4800 FIXED-SATELLITE (space-to-Earth). 792A US245		

* * * * *

b. The text of footnote G2 is revised and the text of footnote G122 is added to read as follows:

Government (G) Footnotes

* * * * *

G2 In the bands 216-225, 420-450 (except as provided by US 217), 890-902, 928-942, 1300-1400, 2300-2390, 2400-2402, 2417-2450, 2700-2900, 5650-5925, and 9000-9200 MHz, the Government radiolocation is limited to the military services.

* * * * *

G122 The bands 2390-2400, 2402-2417 and 4660-4685 MHz were identified for immediate reallocation, effective August 10, 1994, for exclusive non-Government use under Title VI of the Omnibus Budget Reconciliation Act of 1993. Effective August 10, 1994, any Government operations in these bands are on a non-interference basis to authorized non-Government operations and shall not hinder the implementation of any non-Government operations.

* * * * *

B. Part 15 of Chapter I of Title 47 of the Code of Federal Regulations are amended as follows:

PART 15 - RADIO FREQUENCY DEVICES

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: Sec. 4, 302, 303, 304, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. sections 154, 302, 303, 304, and 307.

2. The Table of Contents of Part 15, Subpart D, is revised to read as follows:

* * * * *

Subpart D -- Unlicensed Personal Communications Services Devices

* * *

15.321 Specific requirements for asynchronous devices operating in the 1910-1920 MHz and 2390-2400 MHz bands.

* * * * *

3. Section 15.301 is revised to read as follows:

§ 15.301 Scope.

This subpart sets out the regulations for unlicensed personal communications services (PCS) devices operating in the 1910-1930 MHz and 2390-2400 MHz frequency bands.

4. Section 15.303, paragraph (g) is revised to read as follows:

§ 15.303 Definitions.

* * * * *

(g) *Personal Communications Services (PCS) Devices [Unlicensed]*. Intentional radiators operating in the frequency bands 1910-1930 MHz and 2390-2400 MHz that provide a wide array of mobile and ancillary fixed communication services to individuals and businesses.

* * * * *

5. Section 15.311 is revised to read as follows:

§ 15.311 Labelling requirements.

In addition to the labelling requirements of Section 15.19(a)(3), all devices operating in the frequency band 1910-1930 MHz authorized under this subpart must bear a prominently located label with the following statement:

Installation of this equipment is subject to notification and coordination with UTAM, Inc. Any relocation of this equipment must be coordinated through, and approved by UTAM. UTAM may be contacted at [insert UTAM's toll-free number].

6. Section 15.319 is amended by revising the first sentence of paragraph (a) to read as follows:

§ 15.319 General technical requirements.

(a) The 1910-1920 MHz and 2390-2400 MHz bands are limited to use by asynchronous devices under the requirements of Section 15.323. * * *

* * * * *

7. Section 15.321 is amended by revising paragraphs (a) and (b) and the first sentence of paragraph (e) to read as follows:

§ 15.321 Specific requirements for asynchronous devices operating in the 1910-1920 MHz and 2390-2400 MHz bands.

(a) Operation shall be contained within either or both of the 1910-1920 MHz and 2390-2400 MHz bands. The emission bandwidth of any intentional radiator operating in these bands shall be no less than 500 kHz.

(b) All systems of less than 2.5 MHz emission bandwidth shall start searching for an available spectrum window within 3 MHz of the band edge at 1910, 1920, 2390, or 2400 MHz while systems of more than 2.5 MHz emission bandwidth will first occupy the center half of the band. Devices with an emission bandwidth of less than 1.0 MHz may not occupy the center half of the band if other spectrum is available.

* * * * *

(e) The frequency stability of the carrier frequency of intentional radiators operating in accordance with this section shall be ± 10 ppm over 10 milliseconds or the interval between channel access monitoring, whichever is shorter. * * *

* * * * *