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Before the
Federal Communications Commission
Washington D.C. 20554

FCC 92-20
38323

In the Matter of	)	
	)	
Redevelopment of Spectrum to	)	
Encourage Innovation in the	)	ET Docket No. 92-9
Use of New Telecommunications	)	
Technologies	)	

NOTICE OF PROPOSED RULE MAKING

Adopted: January 16, 1992; Released: February 7, 1992

Comment Date: April 21, 1992
Reply Comment Date: May 21, 1992

By the Commission: Commissioner Marshall not present; Commissioners Barrett and Duggan issuing separate statements.

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INTRODUCTION

1. By this Notice, the Commission proposes to establish new areas of the spectrum to be used for emerging telecommunications technologies. These new frequency bands would be designated from 220 MHz of the spectrum between 1.85 and 2.20 GHz. We further propose to provide a regulatory framework that will enable the existing fixed microwave users in these bands to relocate to other fixed microwave bands or alternative media with minimum disruption to their operations. We believe this can best be accomplished through the use of a flexible negotiations approach that permits financial arrangements between incumbents and new service providers during an extended transition period. We also propose to permit state and local government facilities, including public safety, to continue their current operations on a fully protected basis by exempting such facilities from any mandatory transition period. Establishment of these emerging technologies bands will ensure the availability of spectrum for the continued growth and development of new and innovative services made possible by emerging and anticipated future technologies.

BACKGROUND

2. In the early 1970s, the Commission employed the concept of setting aside spectrum for new and existing uses when it reallocated 115 MHz of spectrum in the 800/900 MHz bands from UHF-TV broadcasting and the federal government to land mobile services in Docket No. 18262.[1] This action, one of the largest and most significant reallocation actions undertaken by the Commission to date, was taken to meet the growing needs of the land mobile industry. Initially, 40 MHz of the newly available spectrum was allocated for new "high capacity" common carrier land mobile technologies, i.e., cellular radio, and another 30 MHz was allocated to conventional and new trunked operations, and private radio operations, including specialized mobile radio (SMR) services. Most significantly, in response to suggestions from the commenting parties the Commission also established eight "land mobile reserve bands" with a total of 45 Mhz of spectrum. These eight bands were not allocated to any specific service, but rather were set aside to accommodate new land mobile services and unexpected growth in existing services.

3. Subsequent developments have proven the advantages of having spectrum available in a single range of frequencies for new services and technologies. As envisioned in Docket No.

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[1] See generally First Report and Order and Second Notice of Inquiry, Docket No. 18262, 35 Fed. Reg. 8644 (June 4, 1970); Second Report and Order, Docket No. 18262; 46 FCC 2d 752 (1974), reconsidered, Memorandum Opinion and Order, Docket No. 18262, 51 FCC 2d 945 (1975); aff'd sub nom. NARUC v. FCC, 525 F. 2d 630 (D.C. Cir. 1976), cert. denied, 425 U.S. 992 (1976).

18262, the 45 MHz of 800/900 MHz spectrum has been used to introduce new services, foster new technology and provide for expansion of existing services. For example, spectrum from the reserve has been used for the new air-to-ground telephone service. These frequencies are also being used to introduce new technologies. In particular, the National Plan for Public Safety Services employs new spectrum efficient technologies, advanced private radio systems are using trunked and narrowband channels, and cellular radio operators are now implementing new advanced digital systems.[2] Finally, the 1970's reserve spectrum is being used by both the common carrier cellular and private land mobile communities to meet expanded demand.

NEED FOR EMERGING TECHNOLOGIES BANDS

4. In recent years, technological advancements in digital and signal processing systems have opened possibilities for the development of a broad range of new radio communication services. These technological advances have increased the need for spectrum to foster the growth and development of new services, primarily for mobile applications. However, this has created an environment in which new 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. The Commission currently has pending before it a number of requests for new services and technologies for which sufficient spectrum is unavailable. These requests include: 200 MHz for new personal communications services (PCS);[3] 40 MHz for data PCS;[4] 33 MHz for a generic mobile-satellite service;[5] 70 MHz for a digital audio broadcasting service;[6] and 33 MHz for low-

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[2] See Report and Order GEN Docket Nos. 84-1231, 84-1233, 84-1234, 2 FCC Rcd 1825 (1986); see also Report and Order in GEN Docket No. 87-390, 3 FCC Rcd 7033 (1988).

[3] See generally comments filed in response to the Notice of Inquiry, GEN Docket No. 90-314, 5 FCC Rcd 3995, and Petitions for Rule Making, RM-7175, filed by PCN America, November 7, 1989, and RM-7140, filed by Cellular 21, September 22, 1989.

[4] See Petition for Rule Making, RM-7618, filed by Apple Computer, Inc., January 28, 1991.

[5] See Notice of Proposed Rule Making GEN Docket No. 90-56, 5 FCC Rcd 1255 (1990).

[6] See Notice of Inquiry GEN Docket No. 90-357, 5 FCC Rcd 5237 (1990), and Petition for Rule Making, RM-7400, filed by Satellite CD Radio, Inc.

Earth orbit satellites.[7] Further, the interest and demand are demonstrated by the large number of applications for experimental authority to develop and test new technologies being submitted to the Commission. Currently, the Commission has authorized dozens of experiments with PCS-type technologies and requests for others are continuing to arrive.

5. Various forms of digital audio services are under development or being considered in Europe, Canada and Japan. These countries and Europe are also developing personal communications services (PCS). Some of the specific personal communications services currently being developed internationally include the British CT-2 advanced cordless telephone and CT-3 microcellular systems, Europe's general service mobile (GSM) system and Japan's "Handy Phone" service. In order to ensure the availability of spectrum for these services, the countries involved are allocating spectrum for new mobile services that use emerging technologies. For example, Europe and Japan recently have moved to allocate spectrum between 1 and 3 GHz for mobile services that use new technologies. In addition, the 1992 World Administrative Radio conference will address the allocation of spectrum for new mobile services.

6. We believe it also is in the best interest of the United States to make spectrum available for the development of new services and technology. We recognize that, because most of the spectrum is now heavily used, the conditions for finding spectrum for these new emerging technologies bands will be much more challenging than in the 1970s. Accordingly, the plan for use of these bands will have to take into account existing operations to a much greater extent than the earlier reserve. In particular, we cannot merely apply the "band clearing" method used in the 1970s. Rather, we will need to develop a new plan that includes specific provisions for minimizing impact on existing services. Nevertheless, we believe that establishing these emerging technologies bands is desirable and will again prove advantageous for facilitating the continuing development of new communications technologies and the growth and expansion of existing services.

7. As indicated above, the Commission has before it a significant number of requests for new services. New spectrum would permit the Commission to meet the needs of these services in an orderly manner. This spectrum would provide an available resource that could be drawn upon for the implementation of new services and the expansion of existing services. The new technology band concept also would foster the development of new technology by providing clear guidance on future use of these frequencies. The current lack of available spectrum tends to have a chilling effect on the incentives for manufacturers and

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[7] See Petitions for Rule Making, RM-7771, filed by Constellation Communications; RM-7773, filed by TRW, Inc.; RM-7805, filed by Ellipsat Corporation; and RM-7806, filed by American Mobile Satellite Corporation.

financial institutions to develop and fund new communications research. The emerging technologies bands would help provide some of the structure, in terms of frequency of operation and operating plan, that is needed to facilitate the development of equipment. At the same time, this new concept would provide considerable flexibility with regard to the types of technologies and services that can be authorized. In reaching this conclusion, we have considered that the spectrum reserve established in the early 1970s resulted in the introduction of new cellular and trunked technologies in the reserve bands.

8. Accordingly, we believe that the creation of emerging technologies bands would further the Commission's mandate to encourage the provision of new technologies and services to the public and encourage the larger and more effective use of radio in the public interest.[8] Moreover, such action would complement our recent pioneer's preference rules intended to foster the development of new technologies and services.[9]

SPECTRUM ISSUES

9. We recognize that establishment of bands for emerging technologies poses significantly more difficult challenges than were present in the early 1970s. At that time, spectrum was available in the lower frequency bands that was only lightly used and the licensees on those frequencies could be relocated relatively easily. The situation is, of course, much different today. There are substantial operations on virtually all of the lower frequency bands, so that establishment of emerging technologies bands will unavoidably necessitate relocation of significant numbers of existing users. The task, then, is to identify a relatively wide band of frequencies that can be made available with a minimum of impact on existing users and that also can provide suitable operating characteristics for new, primarily mobile, services.

10. The spectrum selected must meet the requirements of a broad range of possible services, including land mobile and satellite. The factors that must be considered include:

- Cost of equipment- If the spectrum chosen is in a range for which state-of-the-art equipment is not available, then high costs would delay the introduction of new services.

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[8] See 47 U.S.C. §§ 157 and 303(g).

[9] See Report and Order GEN Docket No. 90-217, 6 FCC Rcd 3488 (1991), reconsideration pending. The pioneer's preference rules are intended to encourage the development of new technologies and services by offering a licensing preference to entities that develop an innovative new service or a substantial enhancement to an existing service.

- Amount of spectrum- There must be enough spectrum available to allow substantial development and economies of scale.

- Feasibility of relocation- The existing licensees must be able to relocate with a minimum of cost and disruption of service to consumers.

- Non-government spectrum- In order to avoid the need for coordination and to speed the process of transition, the new bands should come entirely from spectrum regulated by the FCC.

- International developments- It is desirable for the spectrum chosen to be compatible with similar international developments. The WARC-92 most likely will focus on this spectrum for mobile use.

We intend to consider these factors in evaluating alternative plans for new spectrum. Interested parties are invited to comment on these evaluative factors and their use and to suggest modifications and additions.

11. Spectrum Study. With the above considerations in mind, the Commission's staff conducted a study to examine the possibility of creating emerging technologies bands.[10] This study identified the most suitable region of the spectrum, determined the existing users of that spectrum, explored alternatives for relocating those users to higher bands or other media with a minimum disruption of service, and examined the cost of such relocation.[11] The study concluded that 220 MHz in the

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[10] See "Creating New Technology Bands for Emerging Telecommunications Technology," FCC/OET TS92-1 (January, 1992). A copy of this report has been placed in the record of this proceeding and comments on the report are requested.

[11] The study only considered spectrum already primarily under the jurisdiction of the Commission. Spectrum allocated to the Government, which is under the jurisdiction of the National Telecommunications Information Administration (NTIA), was not considered because of the delay and uncertainty that would be involved in obtaining reallocation of such spectrum not under our jurisdiction. See H.R. 531 and S. 2904, 101st Congress, 1st Session (1991), the "Emerging Telecommunications Technologies Act of 1991." If adopted as proposed, these bills would require the Federal Government to make available up to 200 MHz of spectrum for Non-Government use. This may give the Commission additional spectrum that could be used for the same purposes as the spectrum being made available in this proceeding. However, the known requests for new spectrum already exceed what is proposed in the bills and it is uncertain that spectrum made available through this process will meet the needs of many of the proposed new services. It is still uncertain when such spectrum will be

1.85-2.20 GHz region could be designated for innovative technologies and services.

12. The study limited the consideration of candidate frequency bands to those in which mobile operations are practicable with current state-of-the-art electronic components and manufacturing capabilities. It found that while experimental mobile use is taking place at higher bands, the state-of-the-art technology for the compact, lightweight, portable electronic components expected to be used in new services generally will limit operations in those services to frequencies under 3 GHz.[12] Thus, the study concluded that frequencies above 3 GHz would not be acceptable. It next found that the spectrum below 1 GHz generally does not appear to offer any possibilities for spectrum availability. Most of this spectrum is used for broadcasting and land mobile services that would be very difficult to relocate. These services have very large numbers of users, particularly in the major urban areas, and there are no bands with similar technical characteristics to which the existing users could be relocated. The remaining frequencies below 1 GHz are narrow, scattered bands that would not provide sufficient spectrum.

13. For the above reasons, the study concentrated on the spectrum between 1 and 3 GHz. This region of the spectrum is also the subject of considerable research and developmental activities, both domestically and internationally. In fact, the 1992 World Administrative Radio Conference will address the allocation of spectrum in the 1 to 3 GHz range to meet emerging requirements for new mobile and satellite services.

14. The study identified three non-Government bands from this spectrum for consideration: 1.85-2.20, 2.45-2.50, and 2.50-2.65 GHz.[13] The study found the 2.45-2.50 GHz band, which is allocated for use by Industrial, Scientific, and Medical (ISM) equipment, less desirable because it has a limited amount of spectrum (50 MHz) and because there is no replacement band that offers the same physical characteristics for the existing ISM operations in that band. The 2.50-2.60 GHz band, which is used for multipoint distribution service (MDS) and instructional fixed television service (ITFS), also was eliminated because there are no other frequency allocations currently available to which existing MDS operations could be relocated.

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available and where in the spectrum it will be located.

[12] The study also found that while research is underway to increase this limit, there is no way to determine when more advanced equipment will be available.

[13] Most of the bands in this portion of the spectrum were eliminated from consideration because they are allocated for government use or do not offer a significant amount of spectrum.

15. The remaining 1.85-2.20 GHz band is used for fixed private and common carrier microwave services, public land mobile service, broadcast auxiliary operations, and multipoint distribution service. Specifically, the 1.85-1.99, 2.11-2.15 and 2.16-2.20 GHz bands are used for private operational fixed and common carrier microwave operations. The private operational fixed licensees are local governments (including public safety), petroleum producers, utilities, railroads, and other business users such as the manufacturing, banking, and service industries. Systems range from a few links to very large systems that use hundreds of links. They are used as part of communications systems for local government and public safety organizations. These facilities are also used to control electric power, oil and gas pipeline and railroad systems, and to provide routine business voice, data, and video communications. The common carrier licensees are telephone, cellular telephone, and paging providers. Telephone companies use this band to provide telephone service to remote areas, cellular companies to interconnect cell sites with mobile telephone switching offices, and paging companies for control and repeater stations.

16. The 1.99-2.11 GHz band is used for broadcast auxiliary services. The licensees in this service are television broadcasters and cable television operators. Broadcast auxiliary services include studio-to-transmitter links, inner city relays, and electronic news gathering (ENG) mobile operations. These services are used to transmit video programming from remote sites to the studio and from the studio to the transmitter sites. The 2.15-2.16 GHz band is used for multipoint distribution service (MDS) and its licensees are, for the most part, wireless cable television operators. MDS is used to supply video programming to subscribers over city-wide areas and to rural areas where it is not economical to install cable service.

17. The study finds that the private and common carrier fixed microwave operations using this spectrum can be relocated to higher frequency bands that provide for similar type services and can support propagation over similar path lengths. Further, it observes that there are other reasonable alternatives for fixed microwave such as fiber, cable and satellite communications, which can utilize off-the-shelf equipment to provide these services.

18. The study also concludes that it is not practicable at this time to relocate the broadcast auxiliary and the multipoint distribution services that use spectrum in the 1.85-2.20 GHz range. It finds that currently there is heavy use of the ENG bands and that the forthcoming introduction of broadcast advanced television service may result in more congestion in these bands. As a result, the future requirements of the broadcast auxiliary services for operating channels could grow significantly. The higher frequency bands that are suitable for these operations do not appear to have the capacity to support the existing 2 GHz operations and new growth. Since there currently are a large number of MDS applications before the Commission and the MDS

service is a developing industry, the study further finds that it would not be desirable to relocate the MDS channels at 2 GHz.[14]

19. Proposed Reallocations. Based on the findings of our staff study, we propose to reallocate 220 MHz of the 1.85 to 2.20 GHz band that is currently used for private and common carrier fixed microwave services. The specific frequencies proposed to be reallocated are the 1.85-1.99, 2.11-2.15, and 2.16-2.20 GHz bands.[15] We believe that this spectrum will meet the requirements of a significant number of new services and technologies. We recognize that establishment of emerging technologies bands in this spectrum will be considerably more difficult than the reserve established in the 1970s. The private and common carrier fixed microwave services operating in these bands provide important and essential services. Accordingly, we intend to pursue this reallocation in a manner that will minimize disruption of the existing 2 GHz fixed operations. We believe that this can be best achieved by providing for significant flexibility in negotiations between existing users and parties developing new services.

20. As indicated in the study, we believe that it is technically feasible to relocate these services to higher frequency bands or to alternative media. There appears to be adequate capacity in the higher frequency bands that are allocated to fixed microwave services and can support path lengths similar to those of the existing 2 GHz fixed operations. In this regard, we propose to make available all fixed microwave bands above 3 GHz, both the common carrier and the private bands, for reaccommodation of fixed microwave operations currently licensed in the 1.85-2.20 GHz spectrum.[16] To provide for this reaccommodation, we propose a "blanket" waiver of the eligibility requirements in these bands for existing 2 GHz fixed microwave users. Specifically, we propose that all existing 2 GHz common carrier and private microwave operations be eligible for relocation to any of the higher frequency fixed microwave bands. The technical rules and coordination procedures currently applicable to each of the higher frequency bands, however, will apply. Existing 2 GHz fixed operations that relocate to the common carrier bands will be subject to the coordination procedures of Section 21.100 and 21.706, and those that relocate

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[14] The Commission currently has more than 24,000 applications on file with the Common Carrier Bureau for new MDS facilities.

[15] Frequencies between 2.16 and 2.162 GHz are shared by common carrier fixed microwave and multipoint distribution services.

[16] The frequencies available for this reallocation include the 3.7-4.2, 5.925-6.425, 6.525-6.875, 10.7-11.7, 11.7-12.2, 12.7-13.25, and 17.7-19.7 GHz bands.

to private operational fixed bands will be subject to the coordination procedures of Section 94.63. We will encourage licensees moving from the 1.85-2.20 GHz band with path lengths of under 10 miles to reaccommodate their operations in frequency bands above 10 GHz to preserve the general availability of spectrum in the lower bands for longer path links not feasible at the higher frequencies.[17]

21. The study did not examine the availability or suitability of government spectrum for relocation of the existing 2 GHz operations. We note that some parties have suggested the possibility of making available a portion of the 1.71-1.85 GHz government fixed, mobile, and space band for relocation of some 2

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[17] We also will encourage fixed microwave operators to consider other non-radio alternative media to meet their telecommunication needs, particularly fiber optic circuits. In allocating spectrum, one of the primary considerations is whether there is a technological dependence of the service on radio rather than wire lines. Mobile communications necessarily will always require use of radio spectrum, and in the past the Commission provided large amounts of spectrum for fixed microwave because wireline alternatives often were economically prohibitive. However, in the last five years technological advancements in optical communications have resulted in fiber being very competitive with fixed microwave. Further, the capacities of fiber optic circuits greatly exceed those of fixed microwave. For these reasons, many common carrier and private communication requirements, which in the past were met by fixed microwave, are now met with fiber optic circuits. Fiber deployment in the United States at the end of 1990 is estimated to be approximately 5.5 million miles. See "Fiber Deployment Update - End of Year 1990," by Jonathan M. Kraushaar, Industry Analysis Division, Common Carrier Bureau, Federal Communications Commission, March 1991. In connection with encouraging migration to other, non-radio alternative media, we ask for comment on whether we should award tax certificates to fixed microwave licensees who receive financial compensation from an entity seeking to use the spectrum for new technology as part of an agreement to surrender their license and use other, non-radio alternative media. Grant of tax certificates in such circumstances would appear to be similar to our recent decision to award tax certificates to AM broadcast licensees receiving financial compensation for surrendering their licenses for cancellation. See Review of Technical Assignment Criteria for the AM Broadcast Service, 6 FCC Rcd 6273, 6472 (1991). We also seek comment on whether the Commission is authorized to grant tax certificates to non-broadcast licensees. See 26 U.S.C. Sec. 1071. In this regard, we request comment on the applicable precedent that could support the use of tax certificates in this proceeding. (See, e.g. Telocator Network of America, 58 RR 2d 1443 (1985), recon.dismissed, 1 FCC Rcd 509 (1986)).

GHz operations.[18] We invite comment on the feasibility of such action.

22. Transition Plan. Our intent is to reaccommodate the 2 GHz licensees in a manner that is the most advantageous for these existing users, least disruptive to the public and the most conducive to the introduction of new services. We recognize that this proposed relocation will entail significant costs and we intend to minimize those costs wherever possible. To the extent possible, it is our intention to permit some or all of these costs to be paid by replacement users. The approach needed for this relocation contrasts sharply with the "band clearing" approach used in the 1970s, when only two full service UHF television stations and a handful of TV translators had to be moved to new frequencies. Moreover, it may be that some new technology services will be able immediately to operate in segments of the emerging technology bands not presently used by existing 2 GHz licensees in some areas. Our proposed transition plan would consist of three basic elements, discussed below.

23. First, we wish to ensure the availability of the existing vacant 2 GHz spectrum for the initial development of new services and to discourage possible speculative fixed service applications for this spectrum. We therefore will continue to grant applications for fixed operations in the proposed new technologies bands; however, applications for new facilities submitted after the adoption date of this Notice will be granted on a secondary basis only, conditioned upon the outcome of this proceeding.[19] This will provide some accommodation for the needs of fixed microwave users, particularly in less congested areas.

24. Second, except for state and local licensees, we propose to allow currently licensed 2 GHz fixed licensees to continue to occupy 2 GHz frequencies on a co-primary basis with new services for a fixed period of time, for example ten or fifteen years. Ten years could generally be expected to provide for a complete amortization of existing 2 GHz equipment. A fifteen year period would extend the relocation period through the useful life of that equipment. At the end of this transition period, these facilities could continue to operate in the band on a secondary basis. This means that if, after the transition period, new services were not able to use the spectrum because of interference from fixed microwave systems, those fixed microwave systems would be required to eliminate the interference,

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[18] This matter has been raised in a preliminary fashion with NTIA. It should also be noted that there are government space, fixed, mobile, and aeronautical operations in this band that support national security and other governmental services to the public.

[19] We request comment on the appropriateness of this "cut-off" date.

negotiate an arrangement for continued operation with the new service operator, or cease operation. This would allow some fixed microwave systems to continue operations indefinitely, particularly in rural areas where less spectrum may be required for new services. Comment is requested on this approach. In particular, parties are requested to comment on the technical feasibility of our proposal to permit sharing between new services and the existing 2 GHz fixed microwave operations on a co-primary basis.

25. We recognize that state and local government agencies would face special economic and operational considerations in relocating their 2 GHz fixed microwave operations to higher frequencies or alternative media. We are particularly sensitive to the need to avoid any disruption of police, fire and other public safety communications. To address these concerns, we propose to exempt state and local government 2 GHz fixed microwave facilities from any mandatory transition periods. Rather, these facilities would be allowed to continue to operate at 2 GHz on a co-primary basis indefinitely, at the discretion of the state and local government licensees. These agencies would be permitted to negotiate the use of their frequencies with other parties. In this manner, transfer of state and local government operations could be arranged so as to accommodate fully any special economic or operational considerations with regard to the institutions affected. We would, of course, encourage those institutions to relocate to higher frequency bands or alternative media. Consistent with our overall objective in this matter, applications submitted after the adoption date of this Notice for new 2 GHz facilities by state and local government agencies will be authorized on a secondary basis only, conditioned upon the outcome of this proceeding.

26. To provide maximum flexibility in the relocation process, we believe it is desirable to permit parties seeking to operate new services to negotiate with the existing users for access to the 2 GHz frequencies and, conversely, to permit incumbents to negotiate with the new service providers for continued use of the spectrum. Therefore, we propose to allow providers of new services assigned spectrum allocated to the new emerging technologies bands to negotiate financial arrangements with existing licensees. This would encourage reaccommodation and underwriting of the costs of transition for the 2 GHz users. In return, the new licensees would receive earlier access to the frequencies used by the existing fixed microwave operators. Such arrangements 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. It would also provide incumbents with a way to assure that the new licensees would not interfere with their expanded facilities or current facilities at the end of a mandatory transition period. We request comment on this manner of proceeding. Specifically, we solicit information on how this process should be carried out and what restrictions,

if any, the Commission should place on negotiated arrangements.[20]

27. We request comment on these proposals and alternatives. Interested parties are also invited to submit plans for other approaches that might lessen the impact on existing fixed microwave systems while ensuring the timely availability of 2 GHz frequencies for new services. One alternative approach would be to adopt a phased spectrum implementation approach. In addition to unused spectrum that would be available at any time, specific blocks of frequencies would be made available for new services at specified intervals. For example, 50 to 70 MHz of the 220 MHz could be made available in five year increments. This would provide some spectrum for new services relatively quickly, but would minimize the impact to most existing 2 GHz users, with the exception of those users in the first bands to be reallocated. Under this option, we also would still intend that new fixed facilities, for which applications were received after the adoption of this Notice, be secondary and that current facilities, except those used by state and local government licensees, be reduced to secondary status at the end of the transition period. Parties favoring the phased approach are requested to suggest mechanisms for the selection of the blocks of spectrum. Another alternative would be to allow all currently licensed 2 GHz fixed users, not just state and local government licensees, to continue to operate on a co-primary basis while permitting negotiations for the use of the spectrum. Parties are requested to comment on the desirability and feasibility of this option. Finally, we request comment on whether and to what extent the possible availability of adjacent government spectrum might affect the market-based access approach suggested above. For example, would the availability of a portion of the 1.71-1.85 GHz band for relocation provide sufficient incentive in the transition process to eliminate the need to alter the incumbent 2 GHz operations to secondary status. We request comment on all of the above considerations.

USE OF THE EMERGING TECHNOLOGIES BANDS

28. As indicated above, frequencies in the emerging technologies bands would be intended primarily for use by new services made possible through technological advances, but would also be available for expansion of existing services. The location of the proposed bands tends to favor new land mobile and satellite services. Generally, we are of the view that, at a minimum, requests for operation of new services in these bands

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[20] Our principal desire is to compensate existing 2 GHz users for the costs of relocation. We recognize, however, that such market-based negotiations could possibly result in windfalls for the incumbent 2 GHz licensees. We request comment on the likelihood that such windfalls would occur and the impact they might have on the initiation of new services.

should demonstrate that the service makes innovative use of a new technology and that the technology is most appropriately suited to operate on in the 2 GHz region. Similarly, requests for expansion of existing services should demonstrate that the expansion would offer some substantial improvement in either quality of service or spectrum efficiency. Such improvements would generally be provided through use of new technology. We seek additional proposals and comment regarding the criteria to be applied in determining whether a new service or expansion of an existing service merits frequencies from the emerging technologies bands.

29. We anticipate that the first use of these emerging technologies bands will be for the creation of a new personal communications service (PCS). We intend to proceed with a Notice of Proposed Rule Making on PCS in the near future. This Notice will address the amount of spectrum to be allocated to PCS, further define the nature of PCS services, and define the interference and technical criteria for operation of those services, in general and in relation to 2 GHz fixed users. The further definition of such criteria will make it possible to determine the amount and location of 2 GHz frequencies that could be used immediately, without interference to, or from, the existing fixed users. This information in turn will be used to develop specific proposals for the negotiation to be used in this instance.

CONCLUSION

30. The potential benefits to American consumers and manufacturers of creating spectrum for innovative technologies and new services are many. Accordingly, we conclude that emerging technologies bands should be created to foster the development and implementation of new technologies and services. We recognize that creating emerging technologies bands will have a major impact on existing users; however, based on the staff study, we believe that the current users of these bands may be reaccommodated in other portions of the spectrum. We solicit comment on the proposals made herein.

PROCEDURAL MATTERS

31. Regulatory Flexibility Analysis. Pursuant to the Regulatory Flexibility Act of 1980, the Commission finds as follows:

A. Reason for Action

This rule making proceeding is initiated to obtain comment regarding the development of emerging technologies bands around 2 GHz to provide spectrum for new innovative technologies and services.

B. Objective

The objective of this proposal is to provide adequate spectrum in a reasonable time frame for the development and implementation of new innovative technologies and services to the American public.

C. Legal Basis

The proposed action is authorized by Sections 4(i), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 303(c), 303(f), 303(g), and 303(r). These provisions authorize the Commission to make such rules and regulations as may be necessary to encourage the more effective use of radio in the public interest.

D. Description, Potential Impact, and Number of Small Entities Affected

This proposal would require many existing private and common carrier fixed microwave operators in the 1850-2200 MHz band, some of which are small entities, to reaccommodate their operations into higher bands or change to alternative technologies. This proposal may provide new opportunities for radio manufacturers and supplier of radio equipment, some of which may be small businesses, to develop and sell new equipment. Further, it may provide many new telecommunication services that may greatly impact the abilities of small entities to conduct business. Because this proposal concerns only the allocation of spectrum, and not the licensing of systems or stations, we are unable to quantify other potential effects on small entities. We invite specific comments on this point by interested parties.

E. Reporting, Record Keeping and other Compliance Requirements

None.

F. Federal Rules which Overlap, Duplicate or Conflict with this Rule

None.

G. Significant Alternatives

If promulgated, this proposal will provide spectrum for the development of new innovative technologies in the immediate future. We are unaware of other alternatives that would provide such spectrum flexibility in the immediate future. We solicit comments on this point.

32. Other Matters. This is a non-restricted notice and comment rule making proceeding. Ex parte presentations are permitted, provided they are disclosed as provided in Commission rules. See generally 47 C.F.R. Sections 1.1202, 1.1203, and 1.1206(a).

33. This action is taken pursuant to Sections 4(i), 303(c), 303(f), 303(g), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), 303(c), 303(f), 303(g), and 303(r).

34. Pursuant to applicable procedures set forth in Sections 1.415 and 1.419 of the Commission's Rules, interested parties may file comments on or before April 21, 1992, and reply comments on or before May 21, 1992. All relevant and timely comments will be considered by the Commission before final action is taken in this proceeding. To file formally in this proceeding, participants must file an original and four copies of all comments, reply comments, and supporting comments. If participants want each Commissioner to receive a personal copy of their comments, an original plus nine copies must be filed. Comments and reply comments should be sent 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 Dockets Reference Room (Room 239) of the Federal Communications Commission, 1919 M Street, N.W., Washington, DC 20554.

35. For further information concerning this rule making proceeding contact Mr. Fred Lee Thomas at (202) 653-8117, Office of Engineering and Technology, Federal Communications Commission, Washington, DC 20554.

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Secretary

January 16, 1992

SEPARATE STATEMENT
OF
COMMISSIONER ANDREW C. BARRETT

In re: Amendment of Section 2.106 of the Commission's Rules to Allocate Emerging Technology Bands for Future Requirements.

This Notice of Proposed Rulemaking [Notice] begins a difficult, but necessary, proceeding to identify available spectrum for emerging communications technologies. Since my arrival at the Commission, I have kept abreast of the ongoing technological developments occurring in the digital audio, personal communications and mobile communications areas. Many of these technological advances have been integrated into new services that are now being offered in markets overseas. If the U.S. proponents of emerging technologies and services are going to remain competitive in a global context, I believe the Commission must address the spectrum issues that will allow such services to be launched. Thus, I support this Notice.

I write separately to highlight several issues in this docket. First, the Notice proposes to reallocate to emerging technologies 220 MHz of the 1.85-2.20 GHz band that is now used for existing fixed microwave services. I note that the Commission already has received requests totalling more than 370 MHz for new services and technologies [i.e. personal communications, data, Low-Earth orbit, digital audio or mobile satellite services]. Such requests clearly exceed the 220 MHz being examined in this Notice. Thus, I think it is important that, while the Commission proceeds with this docket, we also remain abreast of ongoing legislative efforts taking place between Congress and the National Telecommunications and Information Administration to identify additional spectrum for commercial uses. I hope that commenters will address the adequacy of the spectrum band proposed in this Notice with respect to the spectrum needs of emerging technologies.

Second, I hope to see comments in this docket which will address the technical feasibility of operating public safety microwave systems on a co-primary basis with other new services. Proponents of emerging technologies and services should not only justify their particular spectrum requirements, but also should provide alternative plans for addressing the needs of incumbent operators impacted by any reallocation decisions. This is particularly true where public safety operations are involved.

Finally, I would like to see commenters address the feasibility of utilizing additional market incentives to shift incumbent operators from their current frequency bands.

Specifically, I am interested in reviewing the feasibility of using the tax certificate as an additional market incentive for commercial, microwave operators to sell their operations, turn in their licenses and shift their facilities to non-radio alternative media such as fiber optics. Such a use of the tax certificate could be analogous to action the Commission took in the AM [Radio] Improvement broadcast docket. I look forward to reviewing comments on the feasibility and legality of using the tax certificate in the context of this docket.

Separate Statement
of
Commissioner Ervin S. Duggan

In Re: Amendment of Section 2.106 of the Commission's Rules to Allocate Emerging Technology Bands for Future Requirements.

I support this item, whose laudable purpose is to further the development of new and promising technologies. By clearing more space for new technologies, the Commission seeks to foster technological progress without directing specific results --- an impartial but significant act to encourage new communications services.

At the same time, however, I wish to express my strong concern that when there is any danger of displacing proven communications services in favor of unproven or speculative services, a heavy burden of proof rests upon us. I believe that the Commission must always demonstrate maximum sensitivity to the needs of incumbent users--- especially those in the public safety community--- who have for long periods acted in good faith and have abided by our rules.

Specifically, we need to ensure, when change appears warranted and necessary, that we have built in ample transition periods, measures for ensuring adequate compensation, and generous substitute spectrum positions for those who must move.

And we need to consider the interests of consumers, who have come to rely on many of these existing communications services.

My general inclination, moreover, will be to support a limited or tentative grant of spectrum to a promising but speculative new service. This will enable the Commission to reclaim any unused or seriously underused spectrum if a market does not develop as hoped for the new service.

Because this proposal seems to me to express careful regard for the interests of incumbents, I support it. I think it important also to remind existing licensees that they need to become efficient users of spectrum as the electromagnetic spectrum becomes more crowded.

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