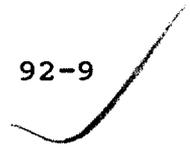


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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554
JAN 13 1993
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

ET Docket No. 92-9



To: The Commission

**COMMENTS
OF ASSOCIATION OF AMERICAN RAILROADS**

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SUMMARY

The Commission's transition plan proposed in the First Report and Order and Third Notice of Proposed Rule Making in this proceeding is a significant improvement over its original proposal to displace fixed microwave licensees from the 2 GHz band and make it available for emerging technologies. The modified proposal more fairly balances the need for spectrum for emerging technologies with the legitimate safety and reliability requirements of fixed microwave licensees. Accordingly, AAR generally supports the Commission's proposed transition plan as long as the outstanding issues are resolved in a manner that guarantees microwave licensees absolutely reliable communications systems and full compensation for any relocation.

First, the Commission should not authorize spectrum sharing of 2 GHz frequencies by fixed microwave users and emerging technologies such as PCS until it issues final PCS technical standards in GEN Docket 90-314. PCS-to-microwave interference standards adopted in that proceeding must provide microwave licensees the same level of protection provided by the current standard 10-E.

Second, the Commission should permit voluntary relocation agreements between emerging technologies and microwave licensees at any time.

Third, the Commission should establish a transition period of at least 10 years before any involuntary relocation is permitted. At least 10 years is needed for development of the now uncertain PCS market and of spectrum sharing technologies,

which may eliminate the need for any displacement of existing microwave licensees. The transition period should commence in each market when sufficient incentives are in place for voluntary negotiations to occur - i.e., upon grant of a PCS license.

Fourth, "comparable alternative facilities" should be defined to ensure that displaced microwave licensees experience no degradation in reliability or system performance. Reliability comparable to that provided by the current Standard 10-E must be guaranteed.

Fifth, the Commission should issue a Further Notice proposing a specific plan for ensuring that incumbent licensees of the 1910-1930 MHz band proposed for unlicensed PCS are guaranteed a reliable alternative communications system and full compensation for displacement. No spectrum should be reallocated for unlicensed PCS until a mechanism for facilitating relocation is established.

Sixth, the Commission should grant applications of existing fixed microwave users for all modifications, expansions and new facilities on a primary basis. Railroads and other private microwave users cannot tolerate harmful interference and would be unable to extend their microwave systems to new or expanded service areas if additional facilities were relegated to secondary status.

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**COMMENTS
OF ASSOCIATION OF AMERICAN RAILROADS**

The ASSOCIATION OF AMERICAN RAILROADS ("AAR"), by its attorneys and pursuant to Section 1.45 of the Commission's Rules, hereby submits its Comments in the above-referenced proceeding. The Comments address a First Report and Order and Third Notice of Proposed Rule Making ("Order and Notice") in which the Federal Communications Commission ("FCC" or "the Commission") allocated 2 GHz spectrum for emerging technologies and proposed a transition plan for relocating incumbent fixed microwave licensees.¹

I. BACKGROUND AND PRELIMINARY STATEMENT

On February 7, 1992, the Commission released a Notice of Proposed Rule Making ("First Notice") proposing to reallocate 220 MHz of spectrum in the 2 GHz band currently used by common carrier and private fixed microwave licensees in order to create

¹ First Report and Order and Third Notice of Proposed Rule Making, 7 FCC Rcd 6886 (1992).

a spectrum reserve for emerging telecommunications technologies.² The licensees targeted for displacement from the 2 GHz band include the railroads, electric utilities, petroleum and pipeline companies and other core industries that use fixed microwave systems for safety and reliability applications in their day-to-day operations. These industries have operated 2 GHz private microwave systems for more than a quarter of a century after the Commission authorized private communications systems to meet their high reliability requirements.³

The railroads use private microwave facilities to monitor and control more than 1.2 million freight cars on more than 215,000 miles of track. For example, microwave systems automatically transmit signals and remotely control switching of tracks necessary for safe routing of trains through busy depots and freight yards. These systems also relay critical telemetry data from trackside defect detectors located throughout the rail network. Information about damaged rails and overheated or loose train axles is automatically transmitted from these detectors to engineers, who then can act to prevent disastrous derailments.

² Notice of Proposed Rule Making, 7 FCC Rcd 1542 (1992). The 220 MHz targeted for reallocation consist of 140 MHz at 1850-1990 MHz, 40 MHz at 2110-2150 MHz, and 40 MHz at 2160-2200 MHz.

³ See General Mobile Radio Service, 13 FCC 1190, 1199-1200 (1949); Frequency Allocation, Nongovernment, 39 FCC 68, 140 (1945); and Amendment of Part 93, 5 FCC 2d 842, 843 (1966).

Microwave systems also are vital to coordination of operations among railroads.⁴

Under the plan the Commission proposed in the First Notice, the 2 GHz band would be made available on a primary basis for emerging technologies, such as personal communications services ("PCS"), after a 10- to 15-year transition period. During that period, new technology entrants could negotiate with fixed microwave users for access to 2 GHz spectrum. After that period, however, 2 GHz microwave licensees would be downgraded automatically to secondary status even if no new technology entity sought access to the frequencies they occupied. Secondary status would subject microwave communications networks to unacceptable interference, effectively forcing them to vacate the 2 GHz band with no guarantee of a reliable alternative or compensation for displacement.⁵

As long-time users of sophisticated telecommunications systems, AAR and its member railroads support the deployment of PCS and other emerging technologies. Nonetheless, AAR's paramount concern in this proceeding is to ensure that deployment of new technologies does not threaten the safety and reliability of the railroads' private fixed microwave operations. To that

⁴ See Attachment A, which depicts railroad use of private fixed microwave systems for safety and reliability operations.

⁵ Under section 2.105(c) of the Commission's rules, a licensee with secondary status has no right to be protected from interference from any entity with primary status that already is licensed or may be licensed at a later date. 47 C.F.R. 2.105(c).

end, AAR has been actively involved in every stage of this proceeding. On March 23, 1992, AAR petitioned the Commission to clarify that all 2 GHz fixed microwave applications filed after the First Notice was adopted would not be granted on a secondary basis.⁶ On April 10, 1992, AAR and other microwave user groups petitioned the Commission to suspend its reallocation proceeding until it fully investigated the feasibility of using federal government spectrum for emerging technologies and/or for relocating displaced users of the 2 GHz band, a less drastic alternative that could minimize disruption to industries operating 2 GHz microwave systems.⁷ Reports released by the National Telecommunications and Information Administration ("NTIA") indicate that some federal spectrum is available, particularly for relocation of existing users.⁸

AAR also filed Comments and Reply Comments in response to the First Notice, raising both substantive and procedural challenges to the reallocation proposal and insisting that the Commission not displace any private microwave licensee from the 2

⁶ AAR Petition for Clarification, filed March 23, 1992.

⁷ AAR, Large Public Power Council and American Petroleum Institute "Petition to Suspend Proceeding," filed April 10, 1992.

⁸ "Federal Spectrum Usage of the 1710-1850 and 2200-2290 MHz Bands," E. Cerezo, ed., NTIA TR 92-285 (March 1992) and "Feasibility of Relocating Non-Government Fixed Systems into the 1710-1850 MHz Band," NTIA Report 92-286 (August 11, 1992).

GHz band unless an equally reliable alternative and full compensation is guaranteed.⁹

On June 3, 1992, AAR's Vice President-Law and General Counsel, Robert W. Blanchette, testified before the Senate Committee on Commerce, Science and Transportation about the effect of the Commission's proposal on the railroads' microwave communications systems.¹⁰ About a month later, the Commission announced its decision to reallocate 2 GHz fixed microwave spectrum for PCS and released proposed rules for licensing PCS operators on frequencies occupied by railroads and other microwave user groups.¹¹ Because of continuing concerns that the Commission's reallocation proposal and the PCS decision would threaten the safety and reliability of the nation's railroads, AAR supported legislation introduced by Senator Ernest Hollings (D-SC) and passed by the full Senate on July 27, 1992.¹² The Senate bill provided for immediate deployment of emerging technologies and guaranteed fixed microwave licensees protection from harmful interference. On September 17, 1992, while the

⁹ Comments of AAR, filed June 8, 1992, and Reply Comments of AAR, filed July 8, 1992.

¹⁰ S. Rep. No. 849, Hearing Before the Comm. on Commerce, Science and Transportation, 102d Cong., 2d Sess (1992) (Statement of Robert W. Blanchette, AAR).

¹¹ Notice of Proposed Rule Making and Tentative Decision, 7 FCC Rcd 5676 (1992) ("PCS Notice").

¹² Amendment to S. 3026 (Appropriations Bill for Commerce, Justice, and State, The Judiciary and Related Agencies), 102d Cong., 2d Sess. 138 Cong. Rec. S10346-47 (July 27, 1992). The full text of the amendment is included as Attachment B.

legislation was pending before a House-Senate Conference Committee, the Commission adopted the Order and Notice to which these comments respond. The Commission stated that the transition plan proposed in the Order and Notice was based on the Senate bill, as well as proposals submitted by the Utilities Telecommunications Council ("UTC") and Telocator.¹³ In response, the Conference Committee withdrew the spectrum legislation but issued in its report that it would review the Commission's actions to ensure that its final decision was consistent with the Senate bill.¹⁴

AAR is pleased that the Commission modified its original reallocation proposal to address the critical safety and reliability concerns of the nation's railroads and other fixed microwave users. AAR continues to believe that liberating government spectrum in the 1710-1850 MHz band for commercial use should be a high priority for the Commission because government spectrum would help significantly in meeting the needs of emerging technologies and displaced microwave users. In the meantime, AAR generally supports the transition framework proposed in the Order and Notice, as long as the outstanding

¹³ Order and Notice at paras. 22-23.

¹⁴ H.R. Rep. No. 918, 102d Cong., 2d Sess. (1992) 100-101; 138 Cong. Rec. H9569-70 (September 28, 1992). The relevant text of the Conference Report is included as Attachment C.

issues are resolved to meet private microwave users' reliability requirements.¹⁵

II. THE COMMISSION'S MODIFIED PROPOSAL

The Commission's Order and Notice amended the Table of Frequency Allocations to permit operation of emerging technologies on a "co-primary" basis with fixed microwave services on the 1850-1990, 2110-2150 and 2160-2200 MHz bands. The Commission adopted its original proposal to exclude from reallocation the 2 GHz bands currently allocated to the broadcast auxiliary service and the multipoint distribution service. It also adopted its original proposal to exempt state and local government public safety licensees from any involuntary relocation.

The Order and Notice established a transition framework providing for voluntary relocation agreements and an involuntary

¹⁵ Although AAR generally supports the Commission's proposed transition plan, it continues to believe that the underlying spectrum allocation decision is substantively and procedurally flawed. AAR recognizes that new technologies need access to spectrum and that the Communications Act of 1934, as amended, directs the Commission to encourage development of new telecommunications services. 47 U.S.C. §§157, 303(g). Nonetheless, AAR still adheres to the objections it raised in comments responding to the First Notice, including that the Commission failed to make the required spectrum allocation public interest analysis, that the Office of Engineering and Technology study supporting the First Notice was fundamentally flawed, and that the Commission's exclusion from reallocation of the 2 GHz broadcast auxiliary service and multipoint distribution service bands is arbitrary and technically unjustified. See Comments of AAR, filed June 8, 1992.

relocation procedure to commence after a fixed period. At any time after the effective date of the new rules, incumbent microwave licensees would be permitted to negotiate voluntary relocation agreements, which the Commission would accommodate as long as they are consistent with the Commission's rules. The Commission noted that entering a relocation agreement in advance "will not create any preference in the subsequent licensing process." ¹⁶

During the transition period, all existing 2 GHz fixed microwave licensees would retain "co-primary" status and no involuntary relocation would be permitted. If interference occurs between emerging technology and fixed microwave licensees, the facility first licensed would be entitled to interference protection from the offending facility. The Commission tentatively concluded that the transition period should be not less than three years or more than 10 years, noting that the Senate spectrum provision required an eight-year period. The Commission asked whether it should adopt transition periods of varying lengths, depending on the market and service to be provided. The Commission proposed that the transition period, whatever its duration, would commence upon the effective date of a Report and Order on rechannelization of bands above 3 GHz for relocation of displaced 2 GHz licensees.¹⁷

¹⁶ Order and Notice at para. 24, n.33.

¹⁷ Further Notice of Proposed Rule Making, 7 FCC Rcd 6100 (1992).

After expiration of the transition period, an emerging technology service provider would be permitted to request involuntary relocation of an incumbent fixed microwave licensee. The emerging technology provider would be required to "guarantee payment of all relocation expenses" including all engineering, equipment, site and FCC fees, and "any reasonable, additional costs" incurred as a result of the relocation; obtain all equipment and facilities necessary for the relocation; conduct frequency coordination and handle other technical matters; and build and test the new system.¹⁸

The microwave incumbent would not be required to relocate until the "comparable alternative facilities" are available to it for a reasonable time to make adjustments and ensure a seamless handoff. If, within one year after the new facilities are in operation, they are demonstrated to be not comparable to the former facilities, the emerging technology service provider must remedy any deficiencies or pay to relocate the microwave licensee back to the former 2 GHz frequencies.

The Commission sought comment on how to define "comparable alternative facilities" and on procedures such as mediation and arbitration for resolving disputes on involuntary relocation and comparability of old and new microwave facilities.

The Commission also stated that it is working with NTIA to develop a process for making available federal spectrum when it is determined, on a case-by-case basis, to be necessary to

¹⁸ Order and Notice at para. 24.

accommodate displaced 2 GHz microwave licensees that cannot operate reliably on higher bands.

III. THE COMMISSION SHOULD MAKE IT A HIGH PRIORITY TO SECURE ACCESS TO UNDERUTILIZED FEDERAL GOVERNMENT SPECTRUM.

AAR urges the Commission to make it a high priority to work with NTIA to secure access to federal government spectrum, particularly the 1710-1850 MHz band. As the demand for spectrum continues to exceed supply, it is essential that federal government users become more spectrum efficient and relinquish underutilized frequencies.¹⁹

IV. FIXED MICROWAVE LICENSEES MUST MAINTAIN PRIMARY STATUS.

AAR supports the Commission's decision to abandon its original proposal to redesignate 2 GHz fixed microwave licensees to secondary status after a transition period.²⁰ As fully discussed in AAR's Reply Comments filed in this proceeding in July 1992, private fixed microwave systems operating at secondary status would not meet the railroads' high reliability requirements.²¹ Secondary status is unacceptable to private fixed microwave users at any time, regardless of the length of the transition period the Commission adopts. Because of the critical operations they support, private microwave systems need

¹⁹ See "Petition to Suspend Proceeding," supra, note 7.

²⁰ Order and Notice at para. 24.

²¹ AAR Reply Comments at 13-16.

the interference protection that accompanies primary status in the band.

A. "Co-Primary" Status Is Acceptable Only If PCS Standards Provide Microwave Licensees Sufficient Interference Protection.

It is AAR's understanding, based on the text of the Order and Notice and the proposed rules, that 2 GHz fixed microwave licensees would have indefinite "co-primary" status with emerging technologies under the Commission's transition framework.²² Accordingly, new technology services, such as PCS, would share 2 GHz spectrum with the fixed microwave service. It is AAR's further understanding that "co-primary" status means that each licensee has a first-in-time right of protection from interference from other licensees.²³ Thus, all fixed microwave facilities licensed at the time a PCS license is granted would be protected against interference from the new PCS licensee. Once a PCS entity is licensed, a subsequently licensed microwave facility would not be able to interfere with the pre-existing PCS facility.

AAR supports "co-primary" spectrum sharing with new technologies only if the Commission adopts PCS technical standards in GEN Docket 90-314 providing fixed microwave licensees interference protection equivalent to that currently

²² Order and Notice at para. 24, proposed rule Section 94.59(b).

²³ Order and Notice at para. 24 n. 34.

provided under Standard 10-E.²⁴ This standard has long guaranteed fixed microwave licensees the interference protection necessary to meet their high reliability requirements.

B. PCS Interference Standards Must Be Adopted Before Spectrum Sharing Is Permitted.

Given the still uncertain ability of PCS and microwave licensees to share spectrum,²⁵ it is essential that the Commission adopt final rules establishing PCS-to-microwave interference standards before any rule or decision authorizing spectrum sharing becomes effective. The prospect of spectrum sharing is contingent on fixed microwave users having interference protection equivalent to that provided by Standard 10-E. Accordingly, the Commission must complete its rulemaking in GEN Docket 90-314 before redesignating 2 GHz microwave users to "co-primary" status with PCS licensees.

V. VOLUNTARY RELOCATION AGREEMENTS BETWEEN EMERGING TECHNOLOGIES AND MICROWAVE LICENSEES SHOULD BE PERMITTED AT ANY TIME.

AAR supports the Commission's decision to allow new technology entities and existing microwave licensees to enter into voluntary relocation agreements during an established period before any requests for involuntary relocation would be

²⁴ PCS is the only emerging technology the Commission has proposed to license in the 2 GHz band at this time. Any additional new technology services authorized in the future also must operate under technical standards guaranteeing fixed microwave licensees interference protection equivalent to Standard 10-E.

²⁵ Order and Notice at para. 29.

permitted.²⁶ As long as such agreements are purely voluntary and consistent with FCC rules, the Commission's involvement should be limited to reassigning licenses or other ministerial tasks necessary to effectuate the relocation.²⁷ Limited government involvement will permit marketplace principles to determine the most efficient spectrum usage. In addition, voluntary relocation agreements should be permitted at any time - before, during and after any transition period the Commission may adopt.

While the text of the Order and Notice refers to microwave licensees entering voluntary agreements to locate to other bands or media, Section 94.59(a) of the proposed rules attached to the text also authorizes microwave licensees "to accept a sharing arrangement with the emerging technology licensee that may result in an otherwise impermissible level of interference to the existing licensee's operations." Even though such agreements would be only voluntary, they would not be appropriate for private microwave users with high reliability requirements. The railroads, for example, cannot tolerate harmful interference, and AAR can contemplate no situation where a railroad would agree to accept "impermissible" interference to its private microwave system.

²⁶ Order and Notice at para. 24.

²⁷ Order and Notice at para. 24.

VI. THE TRANSITION PERIOD SHOULD ENSURE ADEQUATE TIME FOR VOLUNTARY NEGOTIATIONS BEFORE INVOLUNTARY RELOCATION IS PERMITTED.

A. The Transition Period Should Be At Least 10 Years.

AAR believes that the Commission should establish a transition period of at least 10 years.²⁸ Any period less than 10 years would be less likely to serve the purpose of the transition period -- providing PCS entities and microwave licensees sufficient time to accommodate each others' spectrum needs through voluntary negotiations.

Given the many uncertainties about the PCS market, at least 10 years is needed to permit marketplace forces to work free from government interference. Sufficient time should be available for real-world business people, not federal regulators, to formulate the most efficient and cost-effective spectrum arrangements. During the 10-year transition period, the PCS marketplace will develop, and PCS operators will gain more certainty about their spectrum needs and their ability to pay for relocating incumbent microwave licensees. Permitting involuntary relocation too quickly may result in premature dislocation of microwave facilities from spectrum that a PCS entrepreneur may end up never using as PCS markets and user patterns evolve.

²⁸ Although the Senate spectrum bill provides for an eight-year transition period, the bill passed unanimously by the full Appropriations Committee guaranteed a 15-year transition period. The UTC proposal, upon which the Commission's plan also is based, provides for a 10-year period before voluntary relocation is permitted. The Commission's First Notice proposed a 10- to 15-year period. First Notice at para. 24.

Most significantly, a transition period of at least 10 years could minimize or eliminate the need for relocating any fixed microwave licensees. Many PCS proponents aggressively assert that spectrum sharing technologies will permit deployment of PCS on already available unused spectrum.²⁹ If such claims prove to be true, it will not be necessary to relocate 2 GHz microwave licensees to other frequencies, which also already are crowded.³⁰ Indeed, American Personal Communications, a PCS entity almost certain to be granted a PCS license because of its pioneer's preference award, claims that its spectrum sharing technology virtually eliminates the need to displace any fixed microwave licensees.³¹ The Commission should provide sufficient time to determine if spectrum sharing works before opening the floodgates to the disruption and disagreements that involuntary relocation surely will bring about.

B. The Transition Period Should Commence In Each Market When A PCS License Is Granted.

The Commission sought comment on when the transition period should commence and whether the length of the transition period should differ based on geographic area and technical

²⁹ See AAR Reply Comments at 3-7.

³⁰ See, e.g., Comments of Alcatel Network Systems, Associated PCN, and Telecommunications Industry Association, ET Docket 92-9 (rechannelization of bands above 3 GHz), filed December 11, 1992.

³¹ Comments of American Personal Communications, GEN Docket 90-314, filed November 9, 1992, at 54-58.

considerations.³² It proposed linking the commencement of the transition period to the effective date of rules to be adopted in this proceeding relating to rechannelization of bands above 3 GHz. The rechannelization proposal is aimed at making the higher bands technically capable of accommodating displaced 2 GHz microwave licensees.

AAR strongly urges the Commission not to make arbitrary distinctions about the transition period based on how it thinks the PCS market will develop. For example, it makes no sense to establish one transition period for all "urban" areas and another for all "rural" areas when it is uncertain where PCS entities will seek access to additional spectrum. Rather than tying commencement of the transition period to some artificial triggering event, the Commission should tie it to actual market demand for spectrum.

The transition period should begin when sufficient incentives are in place for voluntary negotiations to occur. The critical event triggering this period is the grant of a PCS license. No PCS entity has an incentive to pay to relocate fixed microwave licensees until it is ensured that it will be authorized to operate and provide service. The adoption of rechannelization rules may ensure a new home for 2 GHz microwave licensees, but it alone does not provide an incentive for PCS entities to enter voluntary agreements. The Commission has stated that pre-negotiated relocation agreements will not result

³² Order and Notice at para. 27, n.36.

in any preference in the PCS licensing process.³³ Thus, a PCS entity has no incentive to enter a relocation agreement before receiving a license.³⁴ Given these considerations, the Commission should adopt a rolling transition period, commencing on the date in each market when a PCS license is granted.

Even if a PCS entity wanted to try to negotiate without guarantee of a license, it would be very unlikely to enter relocation agreements until the Commission determines the size of PCS service areas and PCS license eligibility requirements. Telephone companies and cellular licensees, for example, ultimately may not be eligible to hold a PCS license.³⁵ At the earliest then, it is the effective date of the PCS service area and licensing rules being considered in GEN Docket 90-314 that would result in even minimal certainty and incentives to enter voluntary relocation agreements.

VII. THE COMMISSION SHOULD ISSUE A FURTHER NOTICE ON A TRANSITION PLAN FOR SPECTRUM PROPOSED FOR UNLICENSED PCS.

AAR recognizes that a different transition framework is necessary for accommodating microwave licensees displaced from the 1910-1930 MHz band, which the Commission has proposed

³³ Order and Notice at para. 24, n. 33.

³⁴ In addition, microwave licensees would not be able to rely on a promise to pay relocation costs made by an entity with no guarantee that it would receive a license and have income from providing PCS services.

³⁵ See PCS Notice at paras. 63-81 (seeking comment on whether local exchange carriers and cellular licensees should be eligible to apply for a PCS license).

reallocating for unlicensed PCS ("U-PCS"). Comments filed in this proceeding and in GEN Docket 90-314 reveal widespread agreement that U-PCS requires clear spectrum nationwide and that all existing microwave licensees must be cleared from this band. Because the services proposed for this band are unlicensed, no single provider would be responsible for relocating microwave licensees. Nonetheless, these microwave licensees, like all displaced from the 2 GHz band, must be guaranteed a reliable alternative and full compensation.

Many comments in GEN Docket 90-314 discuss the efforts of Telocator, WINForum and other PCS proponents to establish a mechanism, such as a nonprofit entity or consortium, to fund and facilitate relocation of microwave licensees from the 1910-1930 MHz band. However, no specific plan has been made available, and the Commission has proposed none in this proceeding or in GEN Docket 90-314. Accordingly, the Commission should issue a further notice proposing and seeking comment on a specific relocation plan for the 1910-1930 MHz band. This band should not be reallocated for U-PCS until a mechanism is established that will guarantee all existing microwave licensees a reliable alternative and full compensation for displacement.³⁶

³⁶ See Reply Comments of AAR, GEN Docket 90-314, filed January 8, 1993.

VIII. THE COMMISSION'S INVOLUNTARY RELOCATION PLAN MUST ENSURE MINIMAL DISRUPTION AND ECONOMIC IMPACT ON MICROWAVE LICENSEES.

AAR generally supports the Commission's plan to permit an emerging technology provider to request involuntary relocation of fixed microwave licensees after the expiration of a transition period.³⁷ This plan, with some modifications, will serve the Commission's objective of minimizing disruption and economic impact on 2 GHz fixed microwave licensees.

A. "Comparable Alternative Facilities" Must Result In No Degradation Of System Performance.

The Commission must define "comparable alternative facilities" to mean that the new facilities provided to a displaced 2 GHz licensee are equal to or superior than the existing facilities in all aspects of system performance. Performance features such as reliability, capacity, speed, bandwidth, throughput, and overall efficiency must be the same. The Commission's rules must specify that performance features must be equivalent regardless of whether the alternative facilities are microwave systems on higher bands, fiber optics or any other technology.

In addition, it is absolutely essential that "comparable alternative facilities" be defined to guarantee displaced microwave licensees interference protection equivalent to that currently provided in the Commission's rules -- Standard 10-E. The Senate spectrum bill specifically references Standard 10-E

³⁷ Order and Notice at paras. 24-25.

equivalency as the level of protection that meets fixed microwave licensees' reliability requirements, and the Commission should incorporate this standard in its rules as well.

B. Displaced Microwave Licensees Should Be Permitted To Build And Test New Facilities.

The Commission should clarify its proposed rules to authorize microwave licensees to actually "build" and "test" new facilities, even though the new technology providers ultimately must pay for the new facilities. As currently drafted, the proposed rules direct the new technology provider to perform these tasks, as well as necessary frequency coordination and engineering. In most cases, it would be more efficient and practical for the displaced licensee to design and build the new system. The rules should be flexible enough to permit microwave licensees to conduct these activities.³⁸

C. Displaced Microwave Licensees Will Own New Facilities.

The Commission should clarify its rules to specify that any new facilities provided through involuntary relocation will be owned by the microwave licensee, even though the PCS entrant must provide the facilities. Railroads own and maintain their own private communications systems because they cannot rely on common carriers or other third parties that have competing service demands and are unfamiliar with the railroads' unique operational requirements. The Commission has recognized the need for

³⁸ See UTC Petition for Clarification and/or Reconsideration, ET Docket 92-9, filed November 30, 1992, at 5-6.