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Rules, Policies Refined, Clarified in Making Spectrum Available for New Emerging Technologies

Compiled from the Commission's Document by Assistant Editor Rick Arndt

The Federal Communications Commission issued a Memorandum Opinion and Order March 31 on the Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies (ET Docket No. 92-9).

The Commission in the Opinion and Order refined and clarified the rules and policies adopted to make spectrum available for emerging telecommunications technologies. It also responded to 12 petitions for reconsideration or clarification that address a variety of issues.

"These modifications and clarifications conclude our actions to allocate spectrum that can be used for emerging technologies," the Commission wrote in the Opinion and Order.

At previous stages of this proceeding, the Commission took the following actions:

1) allocated spectrum for emerging technologies at 2 GHz

that could be used by new services, such as the personal communications services (PCS);

2) reallocated five fixed microwave bands and adopted associated rules to accommodate existing 2 GHz fixed microwave users; and

3) adopted provisions intended to provide reasonable access to 2 GHz spectrum by new services.

The Commission said that emerging technologies are expected "to contribute to the development of the national information infrastructure and to serve the need for ubiquitous wireless access to voice and data communications. These developments will provide new services to the public, create new jobs and foster effective competition in the global market."

The more than 30-page Opinion and Order mentioned the

following that may be of interest to public safety communications officials:

Background

In this proceeding the Commission allocated 220 MHz in the 1850-1990, 2110-2150, and 2160-2200 MHz bands (2 GHz bands) for emerging technologies and adopted a regulatory framework that will allow this spectrum to be shared by new services and the existing fixed microwave services that currently use these frequencies. In those instances where both of these services cannot share this spectrum, existing 2 GHz facilities can be relocated to other spectrum. The regulatory framework is intended to provide licensees of services using emerging technologies with access to 2 GHz frequencies in a reasonable time frame and, at the same time, prevent disruption to existing 2 GHz operations and minimize the economic impact on the existing licensees.

In the First Report and Order and Third Notice of Proposed Rule Making (First R&O), the Commission adopted the emerging technology allocation. It also set forth a regulatory framework that encourages incumbent 2 GHz licensees to negotiate voluntary relocation agreements with an emerging technology service licensee or unlicensed device manufacturer when frequencies used by an existing 2 GHz facility are needed to implement the emerging technology.

Should voluntary relocation negotiations fail, the emerging technology service provider or unlicensed device manufacturer or representative could request involuntary relocation of the existing facility. In such a case, the emerging technology service provider must:

- 1) guarantee payment of all costs of relocating to a comparable facility, including all engineering, equipment, land site costs and FCC fees, as well as any reasonable additional costs;
- 2) complete all activities necessary for placing the new facilities into operation, including engineering and frequency coordination;
- 3) build and test the new microwave (or alternative) system.

In the Second Report and Order (Second R&O), the Commission reallocated five bands: 3.7-4.2 GHz (4 GHz); 5.925-6.425 GHz (lower 6 GHz); 6.525-6.875 GHz (upper 6 GHz); 10.565-10.615/10.630-10.680 (10 GHz); and 10.7-11.7 (11 GHz) to the private operational and common carrier fixed microwave services on a co-primary basis and prescribed channelization plans and technical rules to govern their use. The existing 20 MHz channel plan was maintained at 4 GHz and a 1.25 MHz-based plan was adopted at 6, 10 and 11 GHz.

The Commission found that these channeling plans would be equitable to all manufacturers, would efficiently satisfy the spectrum requirements of low capacity 2 GHz licensees by permitting lower-cost equipment to be used, and would reduce the potential for interference to satellite operations at 4 GHz.

The Second R&O also adopted Part 21 coordination procedures and Part 94 interference standards in all bands.

In the Third Report and Order (Third R&O), the Commission completed the details of a transition plan to enable new

service providers to share with or relocate incumbent facilities to other spectrum. It provided separate relocation policies for frequencies to be used by licensed emerging technology services and for those to be used for unlicensed devices. For licensed services, a fixed two-year period commencing with the Commission's acceptance of applications for emerging technologies was adopted.

During this period, negotiation over the terms of relocation is encouraged but not required. After this fixed period expires, an emerging technology licensee may initiate a one-year period for mandatory negotiations with the fixed microwave licensee.

For unlicensed devices, a single one-year mandatory negotiation period was adopted that will commence with the initiation of negotiations by manufacturers of unlicensed devices or their representatives. For both licensed services and unlicensed devices, after expiration of the mandatory negotiation period, involuntary relocation of the fixed microwave facilities may be sought if agreement is not reached by the parties. In all instances of involuntary relocation, the emerging technology provider will be required to pay all costs associated with the relocation.

In the Third R&O the Commission also clarified the types of 2 GHz public safety facilities that are exempt from mandatory relocation. Finally, it authorized the grant of tax certificates to incumbent fixed microwave licensees for any sale or exchange of property in connection with voluntary agreements for relocation concluded during the fixed two-year voluntary negotiation period.

In this Memorandum Opinion and Order, the Commission addressed three petitions for reconsideration and clarification of the Commission's Second R&O and nine petitions for reconsideration and clarification of the Commission's Third R&O. With regard to the Second R&O, the petitioners address the following issues:

- the deadline of July 15, 1994, by which manufacturers must cease manufacture or importation of microwave equipment that does not meet the new digital efficiency standards in bands above 3 GHz;
- use of alternate channels or frequency pairings;
- 4 GHz band channeling plan;
- use of the 6425-6525 MHz (6.4 GHz) Local Television Transmission Service (LTTS) band for general common carrier operations;
- technical issues that include maximum power limits, antennas standards, and automatic transmit power control (ATPC);
- use of the 1710-1850 MHz government band for relocation of non-government fixed microwave facilities.

The petitioners request that the Commission clarify or reconsider the following issues of the Third R&O:

- redefining the public safety fixed microwave facilities eligible for exemption from mandatory relocation;
- authorizing tax certificates only during the two-year voluntary negotiation period for licensed emerging technology services;

- permitting reaccommodation of incumbents within the GHz bands;
- specifying that acceptance of applications for emerging technology services "triggers" the two-year voluntary negotiation period;
- using the government band adjacent to the 2 GHz band for relocating fixed microwave licensees;
- applying the relocation rules to the 1970-1990 and 2160-2180 MHz bands.

Finally, on our own motion, we reconsider whether public safety fixed microwave facilities should continue to be exempt from mandatory relocation if their spectrum is needed by an emerging technology provider.

Discussion

Second Report and Order Issues

Equipment Manufacturing Deadline. In the Second R&O, to ensure efficient use, the Commission adopted minimum digital data rates for each channel bandwidth of the higher fixed microwave bands made available for relocation of incumbents. The Commission adopted a 3.5-year transition period ending June 1, 1997, after which all new equipment for these bands must meet the specified data rates. Further, to minimize the use of equipment that does not meet the new efficiency standards, the Commission prohibited the manufacture or importation of such equipment after July 15, 1994. (This deadline will not apply to equipment manufactured for export.)

Third Report and Order Issues

Public Safety Exemption. In the First R&O, the Commission exempted licensees of incumbent public safety facilities from involuntary relocation. In the Third R&O, we clarified the definition of public safety. The Commission's purpose in each decision was to ensure that essential safety of life and property communications services are not disrupted or otherwise disadvantaged.

In response to the First R&O, Apple Computer (Apple) and Rolm stated that allowing public safety facilities to remain in the band allocated to the provision of unlicensed devices would severely handicap, if not prohibit, implementation of unlicensed devices in these bands. They argued that all incumbent facilities, including public safety, should be subject to relocation.

In response to the petitions for reconsideration of the Third R&O, American Personal Communications (APC) notes that public safety microwave paths comprise a large percentage of incumbents in major markets. Similarly, Cox notes that in the Los Angeles MTA 25 percent of the incumbent microwave facilities appear to be licensed to governmental entities including public safety entities. Cox argues that a 20 to 30 MHz allocation to each PCS licensee may prove inadequate for the introduction of PCS because of

the public safety exemption. Cox claims that licensees may be unable to deploy PCS if they do not succeed in relocating a significant number of microwave incumbents. Both APC and Cox emphasize that relocation is not punitive or unfair. They note that incumbent licensees will not have to relocate unless requested to do so by an emerging technology licensee that will pay all costs of relocation. These parties note that no relocation will be required unless communications equal to or better are provided the current licensee at no cost and with no disruption to communications.

Unlicensed PCS Ad Hoc Committee for 2 GHz Microwave Transition and Management (UTAM) also expresses concern that voluntary relocations by exempt licensees likely will require payment above actual relocation costs. UTAM states that unlicensed PCS equipment manufacturers are particularly vulnerable to excessive demands because complete clearing of the band is required before nomadic devices can be deployed. UTAM concludes that delays in reaching voluntary relocation agreements with exempt microwave licensees will result in delays in unlicensed PCS deployment.

On our own motion, upon reconsideration, we conclude that it would be in the public interest to subject all incumbent facilities, including public safety, to mandatory relocation if an emerging technology provider requires the spectrum. Of particular concern is providing adequate spectrum for operation of licensed services in major urban areas where there are a large number of incumbent public safety fixed microwave facilities and for operation of unlicensed PCS devices.

It has been recognized by incumbent fixed microwave and PCS interests alike that it will not be possible for PCS and fixed microwave to operate in the same geographic area on the same frequency without interfering with each other. Upon review, and after considering these additional comments, we are now convinced that PCS service may be precluded or severely limited in some areas unless public safety licensees relocate. In this regard, in previous decisions, we believe that we underestimated the difficulty that PCS will have in sharing spectrum with the incumbent public safety licensees. Allowing all public safety facilities to remain in the band indefinitely would defeat our primary goal in this proceeding of providing usable spectrum for the implementation of emerging technologies.

We believe that certain public safety entities warrant special consideration because previously they have been excluded from involuntary relocation and because of the sensitive nature of their communications. Therefore, we are adopting for the public safety entities previously exempt, a relocation plan consisting of a four-year voluntary negotiation period followed by a one-year mandatory negotiation period. (The Commission said the five-year relocation plan applies to all public safety facilities as defined both in spectrum allocated for licensed services and allocated for unlicensed devices. The voluntary period will start with the Commission's acceptance of applications from emerging technology providers and the mandatory period will start at the request of the emerging technology provider). This policy,

summarized below, will not disadvantage incumbent public safety operations required to relocate:

- All relocation costs will be paid entirely by the emerging technology licensee. These costs include all engineering, equipment, and site costs and FCC fees, as well as any reasonable additional costs.
- Relocation facilities must be fully comparable to those being replaced.
- All activities necessary for placing the new facilities into operation must be completed before relocation, including engineering and frequency coordination.
- The new communications system must be fully built and tested before the relocation itself commences.
- Should the new facilities in practice prove not to be equivalent in every respect, within one year the public safety operation may relocate back to its original facilities and stay there until complete equivalency (or better) is attained.

Public Safety Definition. In the Third R&O, we clarified the definition of public safety licensees operating 2 GHz facilities that would receive special treatment in the relocation process. The facilities within this exception were defined as those Part 94 facilities licensed on a primary basis under Section 90.19 Police Radio Service; Section 90.21 Fire Radio Service; Section 90.27 Emergency Medical Radio Service; and Subpart C of Part 90, Special Emergency Radio Services; and on which a majority of communications are used for police, fire, or emergency medical services operations involving safety of life and property.

Additionally, licensees of other Part 94 facilities licensed on a primary basis under the eligibility requirements of Part 90, Subparts B and C, may request similar special treatment upon demonstrating that the majority of the communications carried on those facilities are used for operations involving safety of life and property. Our purpose in providing special treatment in the relocation process to some licensees was to ensure that essential safety of life and property communications services are not disrupted.

In their respective petitions, American Association of State Highway and Transportation Officials Special Committee on Communications (AASHTO), Public Safety Communications Council (PSCC), Public Safety Microwave Committee (PSMC), and Forestry Conservation Communications Association (FCCA) contend that the Commission adopted an overly narrow definition of "public safety." The petitioners argue that the Commission should reconsider its decision to exclude facilities licensed to local governments if the majority of their communications are not used for police, fire, or emergency medical operations involving safety of life and property.

The petitioners claim that all operations currently listed under Part 90, Subpart B, including highway maintenance operations, forestry-conservation and other local government operations, support operations that deal with safety of life and property. The petitioners claim that the Commission has created an artificial distinction among public safety systems by

assigning different levels of importance to such systems and that all applicants eligible under Part 90, Subpart B, should be treated the same because the vast majority of licensees in both groups are state or local governments responsible for providing safety of life and property services.

Comments by APCO, Others

In comments to the petitions, the Association of Public Safety Communications Officials-International (APCO) and Utilities Telecommunications Council (UTC) support broadening the definition. On the other hand, a number of proponents of PCS oppose changing the definition of public safety. They state that changing the definition to include more facilities will increase relocation costs and delay implementation of PCS. These parties argue that the rules already ensure that existing systems are fully protected by our requirement that incumbent licensees will have all relocation costs paid by the PCS licensees. Apple and UTAM also express concerns with implementation of unlicensed PCS operations. They argue that because the sale of many unlicensed devices must be delayed until the unlicensed band is cleared of existing operations, expanding the definition of public safety entities will delay the introduction of unlicensed devices.

In reply comments, PSMC states that those opposing its petition have overstated the impact of broadening the definition to include all state and local government licensees. It claims that most local government communications systems are used for protection of life and property, and that the Commission's narrow definition of public safety will generate unnecessary disputes and have a negative impact on 2 GHz government microwave facilities, which represent only a small minority of all such facilities.

As discussed in the Third R&O, facilities licensed to entities eligible under Part 90, Subpart B, provide communications for a variety of different services. We concluded that the facilities to be afforded special treatment should be narrowly defined and limited to only those facilities on which a majority of communications are used for police, fire, or emergency medical services operations involving safety of life and property. We found that public safety and special emergency radio service operations that do not meet this criterion do not warrant special treatment.

We continue to believe that special treatment in the relocation process should be reserved for only those facilities as we have defined them. Special treatment in the relocation process for facilities that provide only limited communications for safety of life and property would negatively impact implementation of services employing new technologies. Again we note that all incumbent licensees required to relocate have adequate safeguards to protect their operations. The requirements for relocation ensure that relocated entities will be provided with comparable facilities permitting equivalent communications services at no cost to the existing licensees and that such facilities will be provided without any disruption of service. We are according special treatment, in the form of an extended volun-

relocation period, only to those licensees within the definition adopted in the Third R&O, which we hereby affirm. Accordingly, we will maintain our definition of public safety facilities subject to the extended relocation period addressed above.

We are aware that some fixed microwave operators unreasonably may refuse to enter into relocation agreements and instead delay provision of emerging technology services by requiring Commission consideration of their specific circumstances.

We note that the Commission has a number of means at its disposal to discourage such actions when a request for mandatory relocation is before it.

For example, in an egregious case of non-cooperation, we could consider requiring the emerging technology provider to pay less than the full cost of relocation, or even none of the cost. Inasmuch as when a case is referred to us for decision, the total agreement would be subject to our review.

Relocation to the 1710-1850 MHz Government

Band. In the Third R&O, we stated that our staff is working with the National Telecommunications and Information Administration (NTIA) to establish procedures to accommodate in the adjacent government fixed band at 1710-1850 MHz those non-government 2 GHz fixed microwave facilities that technically cannot be accommodated in higher bands.

We noted that NTIA has agreed to provide limited, conditional access to government spectrum on a case-by-case basis.

AAR (American Association of Railroads) states that relocating incumbent facilities to the 1710-1850 MHz government band is in the best interest of both incumbents and PCS providers.

(In response to the Second R&O, WTCI argued in its petition for reconsideration that use of the 1710-1850 MHz band to reaccommodate incumbents should be encouraged because the cost to modify existing 2 GHz facilities to this band would be minimal and could be accomplished expeditiously).

Therefore, AAR requests the Commission to urge NTIA to make 50 MHz of spectrum available for relocation of incumbent facilities as part of the 200 MHz of government spectrum which NTIA is required to make available for non-government use by the Omnibus Budget Reconciliation Act of 1993.

(Pursuant to the Omnibus Budget Reconciliation Act of 1993, the Secretary of Commerce must identify and transfer to the Commission not less than 200 megahertz of government spectrum for non-government use. All of the spectrum to be transferred must be below 5 GHz, and one-half must be below 3 GHz; not less than 50 megahertz of the 200 megahertz must be recommended for immediate reallocation within six months of enactment, 25 megahertz of which must be below 3 GHz. NTIA made its initial spectrum recommendation on February 10). AAR's proposal is supported by Apple, MCI, and PSMC.

The Commission's staff is continuing to work with NTIA to

make government spectrum available for relocation of existing 2 GHz operations. Further, we believe NTIA will make a good faith effort to accommodate as many as possible of the links recommended for relocation by the Commission.

We will request that special consideration be given to reaccommodating links that are technically difficult to accommodate elsewhere, including those that operate in bands allocated for unlicensed services, those of public safety services, and those that require long paths.

Title 47 of the Code of Federal Regulations, Part 94, is amended as follows:

Part 94 - Private Operational-Fixed Microwave Service

Subpart C is amended by revising Sections 94.59(a), 94.59(b), 94.59(f), 94.65(g), and 94.81(c) to read as follows:

§ 94.59 Transition of the 1.85-1.99, 2.13-2.15, and 2.18-2.20 GHz bands from Private Operational-Fixed Microwave Service to emerging technologies.

(a) Licensees proposing to implement services using emerging technologies (ET Licensees) may negotiate with Private Operational-Fixed Microwave Service licensees (Existing Licensees) in these bands for the purpose of agreeing to terms under which the Existing Licensees would relocate their operations to other fixed microwave bands or to other media, or alternatively, would accept a sharing arrangement with the ET Licensee that may result in an otherwise impermissible level of interference to the existing licensee's operations.

ET Licensees may also negotiate agreements for relocation of the Existing Licensees' facilities within the 2 GHz band in which all interested parties agree to the relocation of the Existing Licensee's facilities elsewhere within these bands. "All interested parties" includes the incumbent licensee, the emerging technology provider or representative requesting and paying for the relocation, and any emerging technology licensee of the spectrum to which the incumbent's facilities are to be relocated.

(b) Private Operational-Fixed Microwave Service licensees, with the exception of public safety facilities defined in paragraph (f) of this section, in bands allocated for licensed emerging technology services will maintain primary status in these bands until two years after the Commission commences acceptance of applications for an emerging technology service (two-year voluntary negotiation period), and until one year after an emerging technology service licensee initiates negotiations for relocation of the fixed microwave licensee's operations (one-year mandatory negotiation period).

When it is necessary for an emerging technology provider or representative of unlicensed device manufacturers to negotiate with a fixed microwave licensee with operations in spectrum adjacent to that of the emerging technology provider, the transition schedule of the entity requesting the move will apply.

Public safety facilities defined in paragraph (f)

of this section will maintain primary status in these bands until four years after the Commission commences acceptance of applications for an emerging technology service (four-year voluntary negotiation period), and until one year after an emerging technology service licensee or an emerging technology unlicensed equipment supplier or representative initiates negotiations for relocation of the fixed microwave licensee's operations (one-year mandatory negotiation period).

(f) Public safety facilities subject to the four-year voluntary and one-year mandatory negotiation periods, are those that the majority of communications carried are used for police, fire, or emergency medical services operations involving safety of life and property.

The facilities within this exception are those Part 94 facilities currently licensed on a primary basis pursuant to the eligibility requirements of Section 90.19, Police Radio Service; Section 90.21, Fire Radio Service; Section 90.27, Emergency Medical Radio Service; and Subpart C of Part 90, Special Emergency Radio Services.

Licensees of other Part 94 facilities licensed on a primary basis under the eligibility requirements of Part 90, Subparts B and C, are permitted to request similar treatment upon demonstrating that the majority of the communications carried on those facilities are used for operations involving safety of life and property.

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