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FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

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ET Docket No. 92-9

To: The Commission

COMMENTS OF THE
UTILITIES TELECOMMUNICATIONS COUNCIL

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Summary

The spectrum reserve concept is a misguided effort to clear the 2 GHz band for unknown, future technologies. This process does not permit the requisite balancing of competing public interest factors, and does not satisfy the APA's requirements for reasoned rulemaking.

The NPRM, and the OET Study, are result-driven, and do not represent objective cost/benefit analyses of reallocating spectrum for new services. Under an objective analysis, the FCC would have targeted other bands where the impact on existing users would be far less, and where the impact on the American economy and core American business would be less substantial.

Despite the Commission's denials, the spectrum reserve concept is a band-clearing concept. There is nothing to distinguish this proposal from its clearing of the 12 GHz band for DBS, a service which, in 10 years, has yet to develop. Unlike the clearing of the 12 GHz band, however, the Commission has made no proposals for adequately accommodating displaced users in other frequency bands. Aside from offering a "blanket waiver" of legal eligibility, the Commission has not even undertaken a review of the usefulness of other bands as presently configured, nor proposed any changes in the proposed replacement bands.

Since the "new technologies" that might be allocated spectrum from the spectrum reserve have not yet been identified, it is impossible for existing users to accept the notion of "co-primary" status. The Commission has not defined how co-primary status would be interpreted as between disparate services sharing a band, nor what interference or sharing criteria would be established for these new, unknown services. UTC therefore recommends that if new services are permitted to share a band, the new service licensees should be authorized only on a secondary, non-interference basis during at least the initial 5-year license term. Further, all existing service users should be permitted to remain in the band on a primary basis indefinitely, and should be permitted to continue licensing new systems on a primary basis.

Marketplace negotiations should be permitted if new technology licensees find it necessary to relocate existing users. However, because marketplace negotiations would not be feasible in the context of unlicensed facilities, such "Part 15"-type services should not be allocated for use in a spectrum reserve.

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Pursuant to Section 1.415 of the Federal Communications Commission's (FCC) Rules, the Utilities Telecommunications Council (UTC) hereby submits its comments with respect to the Notice of Proposed Rule Making (NPRM), 7 FCC Rcd 1542, FCC 92-20, released February 7, 1992, in the above-captioned proceeding. In its NPRM, the FCC proposes to reallocate 220 MHz of spectrum in the 1850-2200 MHz band as a "spectrum reserve" for emerging technologies.

UTC is the national representative on communications matters for the nation's electric, gas, water and steam utilities. Approximately 2,000 utilities are members of UTC, ranging in size from large combination electric-gas-water utilities which serve millions of customers to the smaller, rural electric cooperatives and water districts which serve only a few thousand customers each. Regardless of their size, all utilities depend upon reliable and secure communications facilities to help carry out their public service obligations.

Many utilities operate extensive private microwave systems to meet these communications requirements. Utilities rely heavily on private microwave facilities operating in the 1850-1990, 2130-1250 and 2180-2200 MHz bands and would be adversely affected by the reallocation of these bands.

I. Need For Emerging Technology Bands

The FCC states that the purpose of creating a spectrum reserve for emerging technology is to create a regulatory format to permit existing fixed microwave users in the 1850-2200 MHz (2 GHz) band to relocate to other bands or to alternative media "with minimum disruption."^{1/} "Emerging technologies bands" are to be established to "ensure the availability of spectrum for the continued growth and development of new and innovative services made possible by emerging and anticipated future technologies."^{2/}

The NPRM provides a very meager and sometimes confused explanation as to how it determined there is a "need" for emerging technologies bands. According to the NPRM, existing advances in technology have resulted in a need for more spectrum

^{1/} NPRM, at para. 1

^{2/} Id.

to foster the growth and development of new services.^{3/} A few paragraphs later, however, the NPRM indicates that an emerging technologies band is needed to facilitate the development of equipment; a seeming contradiction to its earlier position that technology had advanced to the point of making a spectrum allocation necessary for service implementation.

A fundamental problem with the NPRM is that it does not address whether new mobile services or other proposed "emerging technologies" are necessary. The FCC does not conduct an analysis of the proposed services to determine which, if any, should be selected for implementation. The NPRM merely declares that technical advancements in signal processing have opened the possibilities for development of a broad range of new radio communication services. At no time are the merits of particular services discussed, nor is a determination made regarding whether the new services would be duplicative of existing services or of each other. For example, no consideration is given to the recent 1992 World Administrative Radio Conference (WARC) allocations of spectrum outside the 2 GHz band to Low Earth Orbiting Satellites and Mobile Satellite Services, two of the services with spectrum requests pending before the FCC, which might obviate the need for additional spectrum for those services.

^{3/} Id., at. para. 4.

The NPRM also fails to consider whether the new services suggested for the "emerging technologies" band would provide any benefits which outweigh the benefits provided by existing 2 GHz users or which outweigh the significant burdens imposed on existing users of the band. Without this analysis, there is an implicit assumption by the NPRM that virtually any new service -- just because it is "new" -- would provide greater public interest benefits than the existing uses being made of the target bands.

A. The Spectrum Reserve Concept Does Not Permit A Proper Public Interest Analysis

The spectrum reserve concept, as proposed in the NPRM, suffers from several fatal flaws and will not survive judicial review. The Administrative Procedure Act directs a reviewing court to determine whether an agency's notice and comment rulemaking proceeding is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. ITT World Communications, Inc. v. FCC, 725 F.2d 732 (D.C. Cir. 1984).^{4/} However, a court is not limited to finding whether an agency's action has a rational basis; it must also determine whether the agency's decision was based on the consideration of all relevant factors. Motor Vehicle Manufacturers Association v. State Farm Mutual Automobile Insurance Co., 463 U.S. 29 (1983); Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402 (1971). An agency

^{4/} 5 U.S.C. §706(2)(A).

decision will be upheld only if the court can discern a reasoned path from the facts and considerations before the Commission to the decision it reached. Action for Children's Television v. FCC, 564 F.2d 458 (D.C. Cir. 1977).

Section 303 of the Communications Act directs the FCC to "encourage the larger and more effective use of radio in the public interest," and to "[a]ssign bands of frequencies to the various classes of stations." It is well-settled that in making spectrum allocations the FCC has discretion to determine whether one factor should outweigh another in the comparative analysis, or whether one service is to be preferred over another. National Association of Broadcasters v. FCC, 740 F.2d 1190, 1209-10 (D.C. Cir. 1984), WLVA, Inc. v. FCC, 459 F.2d 1286, 1303-04 (D.C. Cir. 1972), and Coastal Bend Television Co. v. FCC, 234 F.2d 686, 690 (D.C. Cir. 1956). If the Commission's action has a factual and legal basis, the court will not overturn it.

In proposing the spectrum reserve concept, the Commission has omitted a fundamental step in the allocation calculus: namely, the comparative evaluation between the public interest benefits provided by the competing uses of the 2 GHz band; i.e., the existing and proposed 2 GHz users. Without making a public interest analysis, the Commission cannot fulfill its statutory mandate to determine whether its actions will encourage the "larger" and "more effective" use of radio in the public

interest.^{5/} That is, the Commission must balance the public interest factors if it is to determine whether a new, proposed service will be a "larger" or "more effective" use of radio than an existing radio service. The structure of the Commission's proposal permits no weighing of the public interest benefits of existing services versus proposed services because, very simply, there are no identifiable services being proposed for this band. By its definition and nature, the "spectrum reserve" is not earmarked for any particular services. For the Commission to engage in any rational assessment of the net public interest in reallocating the 2 GHz band or any other spectrum, it must first be able to at least identify the proposed service. Without the identification of a proposed service, the only way the Commission could determine that existing users should be relocated from the band is if it were to determine that: (1) any other radio service would provide greater public interest benefits than the existing users of the band; or (2) the existing users produce "negative" public interest benefits, such that their use of the band is per

^{5/} This balancing of competing spectrum proposals is also required by Section 332 of the Communications Act, which requires the FCC to consider whether its allocation decisions affecting private radio services will, among other things, "promote the safety of life and property," or "improve the efficiency of spectrum use." 47 U.S.C. §332(a). In the Senate report accompanying these provisions, the FCC was instructed to balance the needs of private radio users against commercial spectrum uses, and to include in the equation the fact that "[r]adio services which are necessary for the safety of life and property deserve more consideration than the services which are more in the nature of convenience or luxury." S. Rep. No. 191, 97th Cong. 1st Sess. 14 (1981).

se not in the public interest.^{5/} The record in this docket will not permit the FCC to conclude that existing users are producing "negative" public interest benefits, nor that any radio service would be preferable to the existing uses being made of the band.

Although the FCC has noted several recent proposals for new services that might be candidates for the spectrum reserve, this identification of possible services is not sufficient to save the spectrum reserve concept from being an arbitrary exercise of the Commission's authority to allocate spectrum. The services suggested in the NPRM are not being proposed for allocation to this, or any other spectrum. Other than the names of these services, the Commission has provided no information on the characteristics of these services, the probable public interest benefits of these services, or whether the Commission even considers these services suitable recipients of spectrum allocations. Thus, the mere identification of possible new services does not permit commenters to address, nor the Commission to rationally determine, the relative merits of existing services versus any of these new services.

^{5/} In proposing the spectrum reserve concept, the FCC is engaged in a high stakes game of "Let's Make a Deal," in which the FCC has determined which radio services it is willing to sacrifice in order to take a chance that the radio services "behind Door Number 1" will better serve the public interest. This is not rational rulemaking.

B. Fundamental Issues In Creating A Spectrum Reserve Cannot Be Deferred To Later Proceedings

The FCC may not defer consideration of the individual merits of potential emerging technologies in comparison to existing technologies in the 2 GHz band because these issues are "inextricably related" to the issues being decided in this proceeding; that is, whether spectrum is needed for emerging technologies and which spectrum should be allocated for a spectrum reserve. ITT World Communications v. FCC, 725 F.2d 732, 754 (D.C. Cir. 1984). Should the FCC determine, in a future analysis, that some or all of the emerging technologies cited in its NPRM do not warrant an allocation of spectrum, it follows that some or all of the emerging technologies band would not be necessary. Such a conclusion could be reached if the FCC were to later determine that the proposed services would be duplicative of existing services or of each other.

A similar result might be produced if the public service benefits provided by the existing users in the 2 GHz band were weighed against the prospective benefits offered by the new services. If the benefits of the existing users in the band prevail, and if the FCC should decide that existing users should remain in the 2 GHz band, the existing 2 GHz users would not need to endure the time, expense and coordination difficulties of relocating to other bands. An unnecessary relocation would be

unacceptable, since it is well-established that an incremental approach to agency decision making -- such as the FCC's deferral of considering whether or which new technologies should be implemented -- is least justified when small errors in predictive judgments can have catastrophic effects on the public welfare or when future proceedings are likely to be defective in considering all relevant interests. National Association of Broadcasters v. FCC, 740 F.2d at 1211.

It is important to note that once the relocation of existing 2 GHz users is complete, the process is not readily reversible.^{1/} Existing, critical utility operations in the 2 GHz band should not be disrupted prior to an extensive and reasoned analysis of the proposed services for the 2 GHz band, as well as a comprehensive review of the impact of relocating the 2 GHz users. It is premature and one-sided to target at this time a single band without first reviewing alternative bands and without determining the precise impact of implementing the new services and resettling all users in each of the bands under review. Such extensive analysis is the very purpose of notice and comment rulemaking proceedings, which are intended to add to the knowledge which guides agency policymaking. Telocator Network of America v. FCC, 691 F.2d 525, 540 (D.C. Cir. 1982).

^{1/} See, e.g., National Association of Broadcasters v. FCC, 740 F.2d 1190, 1211 (D.C. Cir. 1984).

The FCC's spectrum reserve NPRM did not invite "a real give and take" on the key issues in this proceeding, as is required by the APA. Natural Resources Defense Council v. U.S. Nuclear Regulatory Commission, 547 F.2d 633, 645 (D.C. Cir. 1976). It completely failed to request comment on the nature of the proposed and existing services or on the need for additional spectrum. Instead, it assumes that, merely because there are several spectrum requests pending for unexamined new technologies, there is an unequivocal need for additional spectrum. For example, the NPRM assumes that: (1) each of the listed technologies is entitled to a spectrum allocation; (2) that they are each entitled to the amount of spectrum requested; and (3) that each of the proposals is mutually-exclusive and could not share the same frequency band.

It is not sufficient for the FCC to state that all relevant issues will be examined when the new services are actually allocated the spectrum, because at that point the spectrum reserve will have been created and existing users would have been removed from the band. Instead, all pertinent issues must be considered in a single, cohesive proceeding. The FCC would not be acting rationally if it were to implement the spectrum reserve now and defer consideration of a potentially

inconsistent policy (such as the need for specific new technologies) at a later date.^{8/}

Also, the FCC's proposal to reallocate the 2 GHz band for emerging technologies is, despite the FCC's denials, a band-clearing strategy. While the proposal does not contemplate an immediate clearing of the band, or one that involves outright, simultaneous displacement of existing users in the band, it remains a prolonged and intricate elimination of existing operations.^{9/} The FCC cannot disguise the nature of its band-clearing proposal merely by stating that it does not intend to clear the band, or by clearing the band in a more cautious and deliberate manner than occurred with other band-clearing endeavors. Since a disruptive action such as band-clearing is planned, it should not be permitted without first conducting a comprehensive evaluation of both the proposed services and the

^{8/} ITT World v. FCC, 726 F.2d at 574

^{9/} In fact, there is little to distinguish the current proposal from the procedures used to clear the 12.2-12.7 GHz band of fixed microwave users to implement Direct Broadcast Satellite (DBS). Direct Broadcast Satellites, 90 FCC 2d 676 (1982), recon. granted in part, FCC 83-241, aff'd in part National Association of Broadcasters v. FCC, 740 F.2d 1190 (1984). Fixed service users were granted primary status for a period of five years, and any systems remaining in the band were relegated to secondary status. Further, the Commission indicated that DBS licensees would be financially responsible for resolving interference to fixed microwave users licensed on a co-primary basis, and could enter agreements with fixed station licensees to replace their equipment and/or compensate fixed users for the costs of moving to other frequency bands during the co-primary period. 90 FCC 2d at 702, n.60.

existing users on numerous candidate bands, as further illustrated in later sections of these Comments.

II. Spectrum Issues

A. Evaluative Factors

The FCC stated that it sought to identify a target wide band of frequencies which could be made available with a minimum of impact on its existing users, and which would offer suitable operating characteristics.^{10/} The FCC offered five criteria to be considered in its band selection: (1) cost of equipment; (2) amount of spectrum; (3) feasibility of relocation; (4) non-government spectrum; and (5) international developments.

1. Cost of Equipment

UTC disputes the FCC's reasoning that it should not choose spectrum in a frequency range for which state-of-the-art equipment is not currently available because it fears high equipment costs would delay introduction of new services. UTC urges the FCC to consider setting the spectrum reserve in higher bands, to encourage the development of even more advanced technologies. It is almost certain that if the FCC designates a

^{10/} NPRM, at para. 9.

higher band of spectrum, equipment manufacturers will strive to produce equipment capable of operating on the higher frequencies. Higher bands will not severely delay the implementation of new technologies. In any event, the spectrum reserve to be established is for upcoming technologies, not for immediate use. Technology advances rapidly. It is important to consider that even if the spectrum reserve were to remain at 2 GHz, it would still be ten to fifteen years, under the present proposal, before new operators would have exclusive, primary access to the band. The FCC would better serve the public by encouraging new technology proponents to develop the capability of operating in higher, less congested bands. In this manner, the public would benefit, since existing users in the 2 GHz band would not be disrupted, and the public would have use of even more technologically advanced services -- all within the timeframe currently contemplated.

2. Amount of Spectrum

UTC also questions the FCC's statement that there must be enough spectrum available to allow substantial development and economies of scale. Until the specific technologies to be implemented in the spectrum are identified and the amounts of spectrum each requires are added together, the FCC cannot know what amount of spectrum will be sufficient. As noted above, reasoned rulemaking involves a comparison of existing services as

against new, identifiable services. In the present docket, the Commission cannot describe the new services yet alone quantify the amount of spectrum these services would need.

The FCC's current method of assessing the spectrum requirements for emerging technologies appears to be nothing more than a guess at upcoming spectrum needs. Since the possible technologies have not been assessed, it is unknown whether there will be many, few or no emerging technologies in the band. The FCC should not attempt to "overestimate" spectrum requirements, just to be sure it has enough spectrum set aside. Its allocation decisions should be based on facts, particularly since the weighing of the facts will ultimately affect an enormous number of existing facilities in the 2 GHz band.

3. Feasibility of Relocation

The third element to be considered by the FCC is the feasibility of relocating existing users. The FCC states that existing licensees must be able to relocate with a minimum of cost and disruption of service to consumers. However, as noted above, the NPRM does not consider and does not request comment upon the relative impact of relocating users from a number of candidate bands, instead limiting its focus to the 2 GHz band. Without this analysis, the FCC cannot draw any conclusions regarding the feasibility of relocating existing users in one

band versus another band. Thus, the FCC has effectively eliminated relocation feasibility from its criteria for a spectrum reserve target. As previously requested, the FCC should conduct a thorough evaluation of the impact on existing users for a number of candidate bands.

4. Non-Government Spectrum

UTC notes that the FCC insists that target spectrum reserve bands must come entirely from non-Government spectrum. UTC suggests, however, that since the band pool the FCC is examining is limited, the FCC should also consider shared Government/Non-Government bands, such as the 3.6-3.7 GHz band. There is also nothing precluding the FCC from jointly agreeing with NTIA on the use of Government-exclusive spectrum for emerging technologies.

5. International Developments

Lastly, the FCC identifies international considerations as an evaluative factor in choosing a domestic spectrum reserve. This factor should be eliminated from the evaluation. There has yet to be shown any need for a worldwide allocation for emerging technologies in the 2 GHz band.^{11/} In fact, the only parties who would benefit from worldwide allocations would be equipment

^{11/} Recent reports indicate that spectrum allocations and radio standards may differ even within the European community.

manufacturers. However, their trade benefits do not outweigh the burdens imposed on existing domestic users of the 2 GHz band. If the U.S. adopts different frequency allocations than have been adopted in Europe or Japan, nothing would prohibit U.S. manufacturers from selling equipment in those countries on frequencies useable there. It should be a fairly simple matter for manufacturers to alter manufacturing lines to produce equipment according to foreign allocations and standards. Also, it is important to note that overseas allocations in the 2 GHz band can be made with much less difficulty than a similar allocation in the U.S. because use of the band is not as prevalent in other countries.

The FCC should endeavor to analyze best use of the frequencies for the U.S. wholly apart from considerations that might be important overseas or from U.S. trade issues. While the U.S. must act in accordance with international treaties, there is no justification for the U.S. blindly following the allocation patterns of other countries, particularly when to do so would result in the large-scale displacement of existing users and would inure to the benefit of comparatively few.

B. OET Spectrum Study Is Deficient

A fundamental deficiency in the spectrum reserve proceeding is that virtually all of the Commission's proposals contained in

the NPRM are based on a wholesale adoption of an Office of Engineering and Technology (OET) Study's recommendation that the spectrum reserve be located in the 2 GHz band,^{12/} and yet the NPRM does not invite comment on the choice of this band or alternative bands.^{13/} The OET Study is merely an internal staff report prepared at the request of the Chairman of the Commission.^{14/} For the Commission to adopt its recommendations as to the most appropriate location for the spectrum reserve without inviting public comment on this decision would be a violation of the Commission's own rules and the Administrative Procedure Act.

As UTC pointed out in its May 1, "Petition for Issuance of Further Notice of Proposed Rulemaking," the Commission should solicit comments on the choice of the 2 GHz band as the spectrum reserve and invite recommendations for alternatives to the 2 GHz band as the "home" for the spectrum reserve. To not invite public comment on these issues is to deny the possibility that the Commission could be persuaded to select another band as the spectrum reserve, which would be tantamount to an admission by

^{12/} NPRM, at para. 19.

^{13/} While footnote 10 of the NPRM does request comment on the OET study, it does not specifically request comment on the choice of the band.

^{14/} See "Creating New Technology Bands for Emerging Telecommunications Technology," OET/TS 91-1 (January, 1992).

the Commission that it has prejudged the issue and abused the rulemaking process.

In terms of evaluating spectrum in order to determine the optimum location for a spectrum reserve for emerging and as yet undeveloped technologies, the OET Study is seriously flawed, highly subjective, and result-oriented.

The OET Study did not consider the use of Federal government spectrum as a location for any portion of the spectrum reserve, and yet it would seem that indepth negotiations with NTIA to determine the availability of Federal spectrum for emerging technologies would be part of any thorough analysis. By way of example, UTC notes that the 3.6-3.7 GHz band is allocated for shared use between Federal and non-Federal government users.

The study eliminated the consideration of candidate frequency bands above 3 GHz because it found that while experimental mobile use is taking place at higher bands, the current state-of-the-art electronic components and manufacturing capabilities generally limit operations in new mobile services to frequencies below 3 GHz. In footnote 12, the NPRM states that the OET 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. This argument, however, begs the question because the spectrum reserve is supposedly

intended for emerging technologies that will be developed in the future rather than today.

If the Commission truly desires to foster the development and innovation of new technologies then the spectrum reserve should be placed just beyond the immediate grasp of today's technological capabilities. To limit the consideration of spectrum for new technologies to the present state-of-the-art capabilities places artificial constraints on the innovation process since it limits the need and incentive to dramatically improve on the "state-of-the-art" and develop systems and components to operate in higher bands.

Even assuming arguendo that the OET's elimination of bands above 3 GHz as candidates for the spectrum reserve was reasonable, the OET Study gave short shrift to consideration of bands below 3 GHz other than the 2 GHz point-to-point microwave bands.

1. 2.50 - 2.69 GHz Band

An alternative to the use of the 2 GHz band as the spectrum reserve that the NPRM and the OET Study did not adequately address is the 2.50-2.69 GHz (2.5 GHz) band. The 2.5 GHz band is used for Multichannel Multipoint Distribution Service (MMDS),

Instructional Television Fixed Service (ITFS) and Operational Fixed Microwave Service (OFS).

As discussed above, in carrying out its analysis, OET was given five limiting factors that the frequency band must meet in order to be considered as a candidate for the spectrum reserve. If the band met all of the initial selection criteria, OET was to conduct a cost/benefit feasibility study to determine what band(s) should be recommended as the spectrum reserve.^{15/}

The first factor considered was whether the spectrum chosen is in a range for which state-of-the-art technology for compact, light-weight, portable equipment is readily available. The study therefore limited its analysis to consideration of frequencies below 3 GHz. The 2.5 GHz band clearly satisfies this requirement.

The second factor considered was amount of spectrum: there must be enough spectrum available to allow substantial development and economies of scale. The 2.5 GHz band has 190 MHz of contiguous spectrum; only 30 MHz less than the total amount of spectrum proposed to be made available from the 2 GHz band, but 50 MHz more contiguous spectrum than would be available at 2 GHz (1850-1990 MHz).

^{15/} OET/TS 91-1, p. 5.

The third criterion was that the spectrum must come entirely from spectrum regulated by the FCC, to avoid the need for coordination with the Federal government. The 2.5 GHz band is entirely under the jurisdiction of the Commission.

The fourth criterion was that the spectrum be compatible with similar international developments and allocations for mobile technologies. The 2.5 GHz band is available for mobile operations in Region 2 pursuant to the International Table of Frequency Allocations.^{16/}

The fifth and final factor considered was the feasibility of relocation. The existing licensees in the target spectrum must be relocatable to alternative media or other spectrum with a minimum of cost and disruption of service. It was apparently this factor that caused OET to eliminate the 2.5 GHz band as a possible home for the spectrum reserve. OET rejected the 2.5 GHz band for further analysis because it found that there are no other frequency allocations currently available to which the existing MMDS and ITFS operations could be relocated.^{17/}

OET's analysis on this point is flawed. While it is true that replacement spectrum is not currently allocated to the

^{16/} 47 C.F.R. § 2.106.

^{17/} OET/TS 91-1, p. 6.