

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FCC 93-119

In the Matter of)
)
Allocation of the) ET Docket No. 93-40 ✓
219-220 MHz Band for Use by) RM-7747
the Amateur Radio Service)

NOTICE OF PROPOSED RULE MAKING

Adopted: February 26, 1993; Released: March 22, 1993
Comment Date: June 15, 1993
Reply Comment Date: July 15, 1993

By the Commission:

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I. INTRODUCTION

1. By this action, the Commission proposes to allocate the 219-220 MHz band to the amateur service on a secondary basis for amateur auxiliary station (point-to-point) packet backbone networks and other amateur point-to-point fixed communications.¹ The proposed allocation would alleviate frequency congestion that amateurs are experiencing in certain areas of the country in the 222-225 MHz band and would facilitate establishment of regional and nationwide backbone networks for amateur packet communications. We also propose requirements to ensure that secondary use of the 219-220 MHz band by amateurs does not interfere with primary and existing secondary licensees in this and adjacent bands. These proposals are in response to a petition for rule making (RM-7747) filed by the American Radio Relay League (ARRL).

II. BACKGROUND

2. The 216-218 and 219-220 MHz bands currently are allocated on a primary basis to the maritime mobile service for Automated Maritime Telecommunications Systems (AMTS).² The 218-219 MHz band is allocated on a primary basis to Interactive Video and Data Services (IVDS).³ In addition, frequencies within

¹ This proposed allocation is intended for point-to-point intercity links to connect local packet hubs in regional and nationwide networks. It is not intended to be used for local packet networks (which operate on a point-to-multipoint basis) or for mobile uses.

² See 47 C.F.R. §§ 2.106, 80.475.

³ See 47 C.F.R. §§ 2.106, 95.801 et seq.

the 216-220 MHz band are allocated on a secondary basis to wildlife telemetry,⁴ radiolocation,⁵ fixed and land mobile services, and aeronautical mobile service.⁶ Television broadcast channel 13 operations occupy the adjacent 210-216 MHz band.

3. Packet radio systems transmit digital data in groups or "packets" using a specified format. Radio channels used by these systems are occupied only during the time individual "packets" of data are actually being transmitted. Upon completion of a transmission the channel becomes available for other traffic. Amateurs use packet radio for transmitting a variety of material, including messages, computer programs, graphic images and data bases. These systems can be used in times of emergency to efficiently carry a large volume of messages when other communications facilities are out-of-service or overloaded. Amateur radio operators use special wideband packet radio networks to provide intercity links for their packet radio systems. Amateurs are permitted to send data, radio teletype (RTTY), and analog signals, including all types of packet communications in the 222-225 MHz band. The packet auxiliary networks are point-to-point fixed systems and are permitted in the 222-225 MHz band and on higher frequency bands.

4. In its petition, ARRL requests that the Commission authorize access to 216-220 MHz by amateur wideband packet networks and other point-to-point fixed communications services on a secondary basis.⁷ ARRL states that this spectrum is needed because the 222-225 MHz band is very congested in many areas and because amateurs were planning to use the 220-222 MHz band for a new regional and/or nationwide backbone packet network system before the band was reallocated. ARRL points out that the

⁴ This secondary allocation authorizes tracking of, and telemetering of scientific data from, ocean buoys and wildlife.

⁵ Radiolocation was reduced to secondary status as of January 1, 1990, see note 627 to the Table of Frequency Allocations, 47 C.F.R. § 2.106. Additionally, note US229 states that stations in the fixed and mobile services are prohibited from causing interference to the U.S. Navy's SPASUR system.

⁶ Land mobiles and aeronautical mobiles are limited to telemetering and associated telecommand operations in this band.

⁷ ARRL filed this petition after the Commission denied its petition for reconsideration of the reallocation of the 220-222 MHz band from the amateur service to government and non-government land mobile services. In its denial, the Commission dismissed ARRL's suggestion made for the first time in its comments on its petition for reconsideration that an allocation for amateurs be considered in the 216-220 MHz range, but stated that ARRL could submit a petition making a specific proposal. See Report and Order, GEN Docket 87-14, 3 FCC Rcd 5287 (1988), recon., 4 FCC Rcd 6407 at note 23 (1989).

planned network also could be used for emergency preparedness and national defense communications.

5. In making this request, ARRL submits that spectrum in the 220 MHz range is uniquely suited for the relatively long packet links needed to efficiently construct a regional or nationwide backbone system, and that no reasonable spectrum alternatives exist for this type of network. It states that interference by amateurs to the primary services using this and the adjacent bands can be prevented through power limitations and careful attention to geographic and frequency separation. ARRL also suggests that some form of coordination be required. In support of its petition, ARRL submits a study performed by its laboratory⁸ and another study by Atlantic Research Corporation⁹ commissioned by the ARRL. These studies indicate that amateur operations can share the 216-220 MHz band with existing users without causing interference to broadcast television channel 13 (210-216 MHz), particularly at frequencies above 218 MHz.

6. On July 23, 1991, the Commission placed ARRL's petition on public notice and invited comment. Of twelve commenting parties, only the Association for Maximum Service Television, Inc. (MSTV) opposes ARRL's petition.¹⁰

III. DISCUSSION

7. Historically, the amateur service has contributed to the development of radio technology and at the same time fulfilled communications requirements during times of emergency. To assist

⁸ See "Interference to Television Channels 11 and 13 From Transmitters Operating From 216 MHz to 220 MHz, App. A of ARRL Petition for Rulemaking, RM-7747." This study was conducted in June of 1990 for the purpose of determining compatibility between typical amateur operations and television broadcast channels 11 and 13. The test was designed using data from a 1975 FCC study of interference to channels 11 and 13 from transmitters in the 216-220 MHz band.

⁹ See "Compatibility Assessment of the Amateur Service in the 216-220 MHz Band, App. B of ARRL Petition for Rulemaking, RM-7747." This study indicates that amateur services should be able to operate in the 216-220 MHz band without interfering with other services in that band. It further states that amateurs could operate within the Grade A and B contours of television channel 13 stations without causing interference.

¹⁰ Memphis State University's Center For Earthquake Research and Information (CERI) also expresses concern about possible interference from amateur operations in the 216-220 MHz band. CERI is licensed in the business radio service, which is a secondary service, and uses several frequencies in the 216-220 MHz band.

and encourage amateur radio operators in these continuing efforts, we are proposing to allocate on a secondary basis, the 219-220 MHz band for amateur intercity wideband packet radio networks and other point-to-point fixed operations, subject to conditions intended to protect other services. We believe that allocating this additional spectrum for amateur wideband intercity packet networks will serve the public interest by 1) relieving congestion that exists in the 222-225 MHz band in certain geographic areas; 2) encouraging the development and implementation of a regional and/or nationwide packet network that can be used for emergency and national defense communications purposes; 3) facilitating connection of local packet nodes to form such regional and nationwide networks; and 4) providing spectrum for exploration of new technology related to these purposes.

Spectrum Allocation

8. In requesting access to the 216-220 MHz band, ARRL states that the 222-225 MHz band cannot accommodate the existing and planned amateur operations that were displaced from the 220-222 MHz band following reallocation of that band from the amateur service to the land mobile services. It submits that these networks now cannot be completed in some areas of the country due to congestion of network operations in the 222-225 MHz band. ARRL further states that in some locations, packet radio is unable to operate in the 222-225 MHz band because of non-compatibility with relatively high power omni-directional amateur repeater systems that also operate in this band.

9. The parties responding to ARRL's petition generally support the proposal to make the 216-220 MHz band available for amateur use. The Valley Emergency Radio Association (VERA) submits that amateurs need access to this band. VERA claims that, in addition to inhibiting the growth of packet backbone networks, loss of the 220-222 MHz band has forced it to discontinue some of its packet links and that its north-south trunks, which carry packet transmissions throughout California, have been adversely affected by loss of these operations. VERA states that it cannot replace some of its lost packet links because of the many amateur repeaters operating in the 222-225 MHz band in southern California.

10. The Chief Regulatory Counsel of the Defense Information Systems Agency (DISA), on behalf of the National Communications System (NCS),¹¹ states that allocation of additional spectrum in the 216-220 MHz range would facilitate participation by amateurs in the NCS Emergency Preparedness and National Defense

¹¹ Executive Order No. 12472, "Assignment of National Security and Emergency Preparedness Telecommunications Functions," April 3, 1984 (49 Fed. Reg. 13471), established the NCS. The Executive Office of the President appoints the members of the NCS.

Communications system. The DISA Chief Regulatory Counsel states that ARRL, on behalf of the amateurs, is party to a Memorandum of Understanding with the NCS that establishes a broad framework of cooperation involving national emergency communications functions.

11. The New Hampshire Office of Emergency Management (NHOEM) submits that amateur packet communications should be permitted in the 216-220 MHz band and that access to these frequencies is particularly important for emergency communications in rural areas of New Hampshire. NHOEM states that the 216-220 MHz band has propagation characteristics that would enable long distance communications between isolated communities that cannot be accomplished using higher frequency amateur bands. Similarly, VERA claims that it has tried to establish amateur packet radio networks in other amateur bands, but that the propagation limitations of these bands prevent effective operations.

12. In opposing ARRL's petition, MSTV states that no spectrum should be allocated for amateur use in the 216-220 MHz band because of the potential for interference to broadcast television service, primarily to channel 13 operations in the adjacent 210-216 MHz band. MSTV argues that amateur services operate at "high power" and are not geographically limited, and therefore that operation of such services in the 216-220 MHz band could result in significant interference to reception of channel 13 broadcasts. MSTV distinguishes the proposed amateur operations from the services that already operate in the 216-220 MHz band without interfering with television reception. It states that AMTS can operate in this band without interfering because AMTS operations are geographically limited to river and coastal areas. MSTV also indicates that IVDS can operate adjacent to television operations because of its low power and the brief duration of its transmissions. Finally, MSTV asserts that ARRL's technical study of interference potential is technically flawed. Based on these concerns, MSTV argues, first, that additional experimentation should be completed before ARRL's petition is considered; second, that even with the interference safeguards proposed by ARRL, a secondary allocation is infeasible; and third, that in any event ARRL's proposal should not be considered until an advanced television (ATV) standard is adopted.

13. Discussion. We tentatively conclude that the record demonstrates a specific need for a limited amount of additional spectrum for wideband packet backbone networks. It appears that the 222-225 MHz band is significantly congested in certain areas of the nation and that this congestion is limiting the interconnection of amateur packet networks. We do not, however, find it feasible to allow amateurs use of the entire 216-220 MHz band for these networks and other point-to-point services. As discussed below, we are concerned that amateur use of the 216-219 MHz portion of this band could result in harmful interference to the primary services on those frequencies and to

reception of television channel 13 broadcasts. We believe that amateurs could, however, use the 219-220 MHz segment on a secondary basis without causing interference to other services if their operations are properly engineered and appropriate regulatory safeguards are applied. We believe this additional one megahertz, which can provide ten 100 kHz channels, would adequately meet the current and immediate future packet backbone network needs of the amateur service that cannot be accommodated on other amateur spectrum. We also believe that amateurs generally have the expertise to design their packet network systems to operate in the 219-220 MHz band so as to avoid interference to other services and to resolve any interference that may inadvertently occur. Accordingly, we are proposing to allocate the 219-220 MHz segment to the amateur service on a secondary basis. Amateur use of these frequencies would be limited to wideband auxiliary packet networks and other point-to-point fixed services.¹² We seek comment on whether this proposed allocation should be limited to digital data communications, digital communications of whatever nature including digitized voice, or whether any modulation or access method should be permitted so long as it is employed for point-to-point fixed communication.

14. We are aware of MSTV's concern for possible interference to television channel 13 operations by amateur operations in the 216-220 MHz band. We believe our proposal to allow those operations only in the 219-220 MHz segment minimizes the possibility of interference to channel 13 reception. We also note that MSTV does not submit any empirical study or other technical analysis to refute the conclusions of the ARRL and Atlantic Research Corporation studies that amateur packet networks could operate in the 216-220 MHz band without causing interference to channel 13 reception. Moreover, the secondary nature of this proposed allocation will protect channel 13 and all other primary service licensees on frequencies in and adjacent to the 219-220 MHz band. Amateurs will be responsible for resolving any interference their operations may cause to

¹² We are not proposing to allow weak signal operations and propagation experiments in this band, as proposed by Timothy J. Stoffel and Dwight B. Hill in comments filed in response to RM-7747. Weak signal operations and propagation experiments generally are not point-to-point activities and therefore it would be much more difficult to ensure that such operations would not interfere with primary services in this band. Also, we note that weak signal communications might be accommodated in a subband at 222.00-222.15 MHz that we have proposed be free of repeater operations, see Notice of Proposed Rule Making, PR Docket No. 92-289, 7 FCC Rcd 8000 (1992).

those primary services, including future services such as ATV and new AMTS stations.¹³

15. We note that although the 216-217 MHz segment is allocated to group C and D AMTS coast stations, currently this band is unused.¹⁴ We therefore considered allocating the 216-217 MHz band to the amateur service on a secondary basis. However, as these frequencies are immediately adjacent to television channel 13 and the ARRL study indicates that amateur operations below 218 MHz have significantly greater potential to interfere with channel 13 operations, we believe that these frequencies should not be allocated to the amateurs even for secondary use.

16. The 217-218 MHz segment currently is allocated to AMTS group A and B coast stations. These stations operate at relatively high power (maximum 1000 watts ERP), and therefore it would be difficult for amateur operations to share this band in the vicinity of these stations. Although currently these stations are located only along or near the Mississippi River, Ohio River and the Gulf Coast, recently we amended our rules to permit AMTS stations to be operated anywhere in the United States.¹⁵ We therefore believe that this band should not be allocated to the amateur service.

17. The 218-219 MHz segment was allocated to IVDS effective in March 1992,¹⁶ and we anticipate substantial use of this band throughout the nation. We tentatively conclude that this band should not be allocated to the amateur service at this time because of concerns with interference to a service still to be licensed and implemented.

18. Finally, the 219-220 MHz band currently is allocated to AMTS group A and B ship stations. These stations typically operate at a maximum power of 25 watts, which is 1/40th the power of the group A and B coast stations that operate at 217-218 MHz. We find that this band is the most compatible for sharing with

¹³ The Commission has proposed that all ATV channels be allotted in the UHF broadcasting bands (channels 14-69). This proposal, if adopted, would render moot concerns for interference to ATV broadcasting on VHF channels. See Second Further Notice of Proposed Rule Making, MM Docket No. 87-268, 7 FCC Rcd 5376 (1992).

¹⁴ Recently we reallocated the corresponding ship frequencies for the C and D groups, at 218-219 MHz, to IVDS, supra note 3, which leaves the group C and D AMTS coast station channels unpaired.

¹⁵ See First Report and Order, GEN Docket 88-372, 6 FCC Rcd 437 (1991); Memorandum Opinion and Order, 7 FCC Rcd 3607 (1992).

¹⁶ Supra note 3.

amateur operations. First, amateur operations in this band would pose little risk to television services, as this segment is the furthest from the 210-216 MHz spectrum used by television channel 13. We also believe it is possible for the amateur service to operate in this band without interference to, or from, AMTS ship stations. With careful attention to frequency and distance separation, amateur stations should be able to share the 219-220 MHz band with AMTS ship station operations. We further believe that with careful engineering and planning, secondary amateur operations in the 219-220 MHz band will be possible without causing interference to the land mobile operations that are expected to begin soon in the adjacent 220-222 MHz segment. In this regard, we note that land mobile radio receivers typically operate with significantly narrower bandwidths and are less susceptible to adjacent channel interference than television receivers. We request specific comment on our conclusion that amateur operations can share these ship station frequencies.

IV. OPERATIONAL ISSUES

19. In proposing to authorize limited amateur services in the 219-220 MHz band, we seek to provide amateurs with operational flexibility that is consistent with our long established policy towards the amateur service. In this regard, we recognize the amateur service's long established purposes of contributing to the advancement of the radio art, and advancing skills in the phases of the art and continue to believe it important to further these purposes wherever possible.¹⁷ Operation of amateur services in the 219-220 MHz band on a secondary basis, however, will necessitate careful attention to the potential for interference to primary services and to other secondary services. The proposals presented below are intended to balance our desire to provide flexibility for amateur operations and the need to ensure that such operations do not cause interference to other services.

20. Operating Power and Control of Interference. In its petition, ARRL suggests that amateur packet networks and other point-to-point facilities can operate in the 216-220 MHz band if sufficient distance and frequency separation is maintained to other stations, and that these factors can be controlled by careful engineering. To limit the potential for interference, ARRL also recommends that novice class amateurs be limited to 25 watts peak envelope power (PEP) and that all other classes of amateur licensees be limited to 50 watts PEP output. ARRL claims that a co-channel separation distance of 70 km is needed to protect AMTS receivers in a typical case and 120 km in a worst case scenario. ARRL also recognizes that as a secondary service, amateur operations in this band would be responsible for resolving any and all interference to primary users or to cease operation. Dwight B. Hill, an amateur licensee commenting on

¹⁷ See 47 C.F.R. Section 97.1.

ARRL's petition, submits that packet network stations should be required to use beam antennas to limit radiation in undesired directions and should use no more than 250 watts effective isotropic radiated power (EIRP).

21. Waterway Communications Service, Inc. (Watercom) states that ARRL underestimates the potential for interference from amateur packet networks to AMTS operations. It submits that ARRL's estimate of necessary spacing relies on erroneous assumptions regarding AMTS's emissions; bandwidth; receiver sensitivity; antenna gain, type, and height; and categories of service. Watercom states that a greater separation distance is needed than that specified in the petition.

22. Watercom submits that amateur operations should be subject to coordination requirements to guard against interference to primary services and suggests that ARRL would be an appropriate party to serve as the frequency coordinator. In reply comments, ARRL agrees with Watercom that a mandatory frequency coordination plan is desirable and volunteers to serve as the frequency coordinator. Watercom also submits that amateurs within 300 miles of a coastal area or navigable waterway served by AMTS should be required to notify ARRL and the appropriate AMTS licensee(s) if the Commission decides not to adopt a mandatory coordination program. Watercom states that such notification is necessary to inform AMTS licensees of potential interference problems before they occur and to facilitate notification of amateur licensees in the event of actual interference.

23. We believe the power limits suggested by ARRL for the novice and all other classes of amateur operator are appropriate and reasonable. These power levels are sufficient to enable amateurs to accomplish required intercity communications requirements yet are low enough to limit the area in which such operations could cause interference to other services. Accordingly, we are proposing to permit amateur wideband packet network and other point-to-point transmitters to operate with up to 25 watts PEP output for the novice class and 50 watts for all other classes. We also note that Section 97.313(a) of our rules already limits amateurs to the minimum transmitter power necessary to accomplish the desired communications.¹⁸ We believe our proposed power limits and this existing rule together will allow amateurs to operate effective packet networks while protecting other operations in and near the frequencies being used.

24. In considering specific proposals for guarding against interference by amateur services to other users of the 219-220 MHz band, first, we believe that a requirement for mandatory coordination of amateur service licensees by a non-government entity as suggested by Watercom and ARRL generally is

¹⁸ See 47 C.F.R. § 97.313(a).

not permissible under the Communications Act of 1934, as amended.¹⁹ Therefore, we will not include a mandatory coordination requirement in our plan for regulating interference from amateur operations in the 219-220 MHz band.

25. With regard to protection for AMTS service, the primary user of the 219-220 MHz band, we expect that amateur point-to-point operations will be accomplished with highly directional antennas. The interference potential of an amateur operation to AMTS operations therefore will vary significantly depending on the amateur station's geographic orientation. Such operations could be located relatively near AMTS coast stations without causing interference if the amateur operation does not direct its signal towards the AMTS station. We are proposing an approach that will provide a relatively simple method for identifying and addressing cases where amateur operations could cause interference to AMTS and that also will provide flexibility for both amateurs and AMTS operators to consider the directional nature of the amateur facilities. The approach we are proposing is based on the notification plan suggested by Watercom. Under this approach amateurs would be required to notify the appropriate AMTS licensee of any amateur station that would be within 240 km (150 Miles) of an AMTS station. In addition, we propose to require amateurs to obtain written approval from the appropriate AMTS licensee before operating within 80 km (50 miles) of an AMTS station.²⁰ In either case, amateurs would be required to resolve immediately any complaint of interference to an AMTS station that might arise or, alternatively, to cease operation of the transmitter causing that interference.

26. We believe that most amateur operations located at distances between 80 and 240 km from AMTS operating areas generally would not cause interference to AMTS service. The notification requirement would alert AMTS licensees of the potential source of any interference they might experience. We believe 240 km is an appropriate maximum distance for the notification requirement in view of our proposals for limiting the power levels used by these stations. The 480 km distance

¹⁹ See Communications Act of 1934, as amended, 47 U.S.C. Section 332. Section 332 explicitly authorizes coordination of private land mobile and fixed services by parties who are not employees of the Federal Government. There is no provision for similar coordination arrangements with regard to the amateur service.

²⁰ Amateurs could identify AMTS stations either through contacting the AMTS licensee(s) in the areas in which they plan to operate or through the Commission's data base of AMTS stations. Also, the ARRL could voluntarily assist the amateurs to identify AMTS licensees.

recommended by Watercom is unnecessary.²¹ At distances closer than 80 km to individual AMTS stations, we believe that, although acceptable amateur operations remain possible, the risk of interference to AMTS increases substantially. We therefore believe it appropriate to provide AMTS licensees the maximum, but still flexible, protection afforded by the option of rejecting an amateur operation closer than this distance. We request comment on this approach for avoiding interference to AMTS operations by amateur operations. Interested parties are specifically asked to comment on the distances that should be specified for invoking the notification and approval requirements.

27. Section 97.201(c) of our rules provides that if an auxiliary station causes harmful interference to another auxiliary station, the licensees are equally and fully responsible for resolving the interference unless one station's operation is recommended by a volunteer frequency coordinator and the other station's operation is not.²² If one is not coordinated through the voluntary process, the licensee of the non-coordinated auxiliary station has the primary responsibility to resolve the interference.²³ We recommend that the local amateur volunteer coordinator that already addresses operations in the 222-225 MHz band consider also coordinating amateur secondary operations in the 219-220 MHz band. We recognize coordinating these operations would require considering non-amateur primary and secondary users in and adjacent to the 219-220 MHz band, but believe the same coordination principles, based upon radiated power, distance, and type of signal modulation, are applicable. Thus, the resident amateur coordination expertise may be helpful to individual amateurs desiring to commence operations in the 219-220 MHz band. We believe that volunteer coordination would be particularly useful within 240 km (150 miles) of AMTS stations.

28. We note that business radio services, radiolocation operations, and wildlife telemetry operations use the 216-220 MHz band. Amateurs contemplating operations in the 219-220 MHz range would need to consider all such operations when performing interference studies and implementing their systems.

²¹ Atlantic Research Corporation's study states that in worst case conditions a 120 km separation distance should prevent co-channel interference and in a typical case the necessary separation is only 70 km. We believe that under some circumstances interference could be caused at a greater distance, and therefore are proposing a notification requirement for amateur operations within 240 km of areas served by AMTS.

²² See 47 C.F.R. § 97.201(c).

²³ If the coordinator recommends the new station over a station that already is in operation, it is still the non-recommended station's responsibility to resolve the interference problem.

29. Other Issues. Amateur wideband intercity packet radio services are classified as auxiliary stations under our rules.²⁴ Section 97.201(a) of the Rules limits licenses for auxiliary stations to amateurs holding technician, general, advanced and extra class licenses. In view of the interference analysis that would be required of licensees intending to establish service in this band, we request comment on whether the operation of auxiliary stations in the 219-220 MHz band should be restricted to technician, general, advanced and extra class amateurs, or be available to all amateur operators, including novice class amateurs.

30. Finally, amateur service in the proposed 219-220 MHz band would be limited by Section 97.307(f) of the Commission's Rules to a maximum rate of 56 kilobauds and a maximum bandwidth of 100 kilohertz.²⁵ Initially, we believe that these limits are appropriate for the proposed operations of the amateur service in the 219-220 MHz band. Nevertheless, given the wideband packet use envisioned for the 219-220 MHz band, as technology progresses the rules may become unnecessarily restrictive, particularly with regard to the permissible baud rate. We request that comments specifically address whether each of these limitations should be applied to the 219-220 MHz band, or whether they should be amended for this band.

IV. CONCLUSION

31. We are proposing to authorize amateur wideband packet point-to-point networks and other amateur point-to-point fixed communications on a secondary basis in the 219-220 MHz band. We believe this will foster technological experimentation and innovation, particularly with higher data rates, and facilitate the construction of regional and/or nationwide packet data backbone networks. We expect this action will relieve the congestion that exists in the 222-225 MHz band in certain geographic areas caused by the reallocation of the 220-222 MHz band. The amateurs' ability to perform interference analysis, the generally directional nature of point-to-point communications, and the secondary nature of this proposed allocation should protect adequately all primary and existing secondary operations in and adjacent to the 219-220 MHz band. We invite comment on these assessments and proposals.

V. PROCEDURAL MATTERS

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

²⁴ 47 C.F.R. § 97.201.

²⁵ 47 C.F.R. § 97.307(f).

A. Reason for Action. This action is being taken to provide a secondary allocation to the amateur service for amateur auxiliary station (point-to-point) packet backbone networks and other amateur point-to-point fixed communications. We believe this service is in the public interest and that the additional spectrum is needed to accommodate intercity amateur packet radio links in certain areas of the country. The proposed rules will protect from interference all primary and existing secondary users in and adjacent to the band that is proposed for allocation.

B. Objective. The objective of this proposal is to provide additional spectrum in which amateurs can establish wideband backbones to connect individual packet systems or use for other point-to-point fixed communications. This allocation will benefit the amateur services generally, including the emergency preparedness component of those services, as evidenced by a Memorandum of Understanding between ARRL and the National Communications System. Provision of this additional spectrum also will foster amateur experimentation with high data rates and spectrum efficiency.

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 more effective use of radio as is in the public interest.

D. Descriptions, Potential Impact, and Number of Small Entities Affected. This proposal may provide new marketing opportunities for amateur radio equipment manufacturers, some of which may be small businesses. We invite specific comments on this matter 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. None.

33. 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).

34. 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).

35. 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 June 15, 1993, and reply comments on or before July 15, 1993. 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 must 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 at the FCC Reference Center (Room 239) of the Federal Communications Commission, 1919 M Street, N.W., Washington, DC 20554.

36. For further information contact Mr. Tom Derenge at (202) 653-7605, Office of Engineering and Technology; or Mr. John Johnston at (202) 632-4964, Private Radio Bureau, Federal Communications Commission, Washington, DC 20554.

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Donna R. Searcy *WFL*
Secretary

APPENDIX A

PROPOSED RULE CHANGES

I. Part 2 of Chapter I of Title 47 of the Code of Federal Regulation is proposed to be amended as follows:

1. The authority citation in Part 2 continues to read:

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

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

§ 2.106 Table of frequency allocations.

* * * *

a. Add a new footnote NG152 to column 5 of the 216-220 MHz band.

b. NG152 - The band 219-220 MHz also is allocated to the amateur service on a secondary basis for amateur auxiliary station (point-to-point) packet backbone networks and other amateur point-to-point fixed operations.

II. Part 80 of Chapter I of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

1. The authority citation for Part 80 continues to read as follows:

AUTHORITY: Sec. 4, 303, 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303, unless otherwise noted. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. §§ 151-155, 301-609; 3 U.S.T. 3450, 3 U.S.T. 4726, 12 U.S.T. 2377.

2. Section 80.385 is amended by adding a new paragraph (a)(3) to read as follows:

§ 80.385 Frequencies for automated systems.

* * * *

(a)(3) On a secondary, non-interference basis ship transmit frequencies in Group A & B may be used by amateur station licensees on a secondary basis for amateur auxiliary station packet backbone networks and other amateur point-to-point fixed operations. Amateur stations within 80 km (50 miles) of an AMTS coast station must obtain written approval from the AMTS licensee prior to operating on the Group A & B frequencies. Amateur stations between 80 and 240 km (50 and 150 miles) of an AMTS

coast station must notify the AMTS licensee in writing at least 14 days prior to operating on Group A & B frequencies.

III. Part 97 of Chapter I of Title 47 of the Code of Federal Regulations is proposed to be amended as follows:

1. The authority citation for Part 97 continues to read as follows:

AUTHORITY citation: 48 Stat. 1066, 1082, as amended; 47 U.S.C. §§ 154, 303. Interpret or apply 48 Stat. 1064-1068, 1081-1105, as amended; 47 U.S.C. §§ 151-155, 301-609, unless otherwise noted.

2. Section 97.301(a) is revised by changing the third entry in the VHF Wavelength band to read as follows:

§ 97.301 Authorized frequency bands.

* * * * *

(a) * * *

Wavelength band	ITU-Region 1	ITU-Region 2	ITU-Region 3	Sharing requirements see § 97.303 (Paragraph)
VHF	MHz	MHz	MHz	
* * *				
1.25 m	---	219-220	---	(a), (r)
-do-	---	222-225	---	(a)
* * *				

3. Section 97.303(r) is added to read as follows:

§ 97.303 Frequency sharing requirements.

* * * * *

(r) In the 1.25 m band:

(1) No amateur station transmitting in the 219-220 MHz segment shall cause harmful interference to, nor is protected from interference due to operation of: (1) Automated Maritime Communications Systems, (2) broadcast television channels 11 and 13, (3) Interactive Video Distribution Service, (4) Land Mobile Services, or (5) any other service with a primary allocation in or adjacent to the band.

(2) No amateur station may transmit in the 219-220 MHz segment from a location that is within 80 km (50 miles) of an

Automated Maritime Telecommunications System Coast Station unless the amateur licensee obtains written approval from that Automated Maritime Telecommunications System licensee. No amateur station may transmit in the 219-220 MHz segment from a location that is between 80 and 240 km (50 and 150 miles) of an Automated Maritime Telecommunications System Coast Station unless the amateur licensee notifies the AMTS licensee, in writing, of the amateur's intended operation at least 14 days before commencing transmissions.

4. Section 97.305(c) is revised by changing the third entry in the VHF wavelength band to read as follows:

§ 97.305 Authorized emission types.

* * * * *

(a) * * *

(c) A station may transmit the following emission types on the frequencies indicated, as authorized to the control operator, subject to the standards specified in § 97.307(f) of this Part.

Wavelength band	Frequencies	Emission types authorized	Standards See § 97.307(f), Paragraph:
* * *	* * *	* * *	* * *
1.25 m -do-	219-220 MHz 222-225 MHz	Data RTTY, data, test, MCW, phone, image ..	(6) (2), (6), (8)
* * *	* * *	* * *	* * *

5. Section 97.313(h) is added to read as follows:

§ 97.313 Transmitter power standards.

* * * * *

(h) No station may transmit with a transmitter power exceeding 50 W PEP on the 219-220 MHz segment of the 1.25 m band.

* * * * *