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Before the
Federal Communications Commission
Washington, D.C. 20554

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In the Matter of	)	
	)	WT Docket No. 00-32
The 4.9 GHz Band Transferred from Federal Government Use	)	
	)	
	)	

SECOND REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULE MAKING

Adopted: February 14, 2002 **Released:** February 27, 2002

Comment Date: 90 days after Federal Register Publication
Reply Comment Date: 120 days after Federal Register Publication

By the Commission: Commissioners Abernathy and Martin issuing separate statements.

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I. INTRODUCTION AND EXECUTIVE SUMMARY

1. By this *Second Report and Order and Further Notice of Proposed Rulemaking (Second R&O & FNPRM)*, we are allocating 50 megahertz of spectrum in the 4940-4990 MHz band (4.9 GHz band) for fixed and mobile services (except aeronautical mobile service) and designating this band for use in support of public safety.[1] This allocation and designation will provide public safety users with additional spectrum to support new broadband applications such as high-speed digital technologies and wireless local area networks (WLANs) for incident scene management. The spectrum will also support dispatch operations and vehicular/personal communications. We believe this decision aligns with new national priorities focusing on homeland security, and will ensure that agencies involved in the protection of life and property possess the communications resources needed to successfully carry out their mission. Furthermore, we seek to transition to an environment in which the public safety community enjoys maximum access to emerging broadband technologies. This action effectuates the transfer of this spectrum from Federal Government (Government) to non-Federal Government (non-Government)[2] use pursuant to statutory requirements of the Omnibus Budget Reconciliation Act of 1993.[3] We also continue our ongoing effort to streamline our Rules and eliminate redundancy by deleting Part 26 of our Rules.

2. In our *FNPRM*, we seek comment on the establishment of licensing and service rules for the 4.9 GHz band. Further, we solicit comment on defining eligibility to use the band. We seek to develop a record on specific segmentation or channeling plans for use of the band. We also request comment on

[1] *See, e.g.*, 47 C.F.R. Part 90 (Private Land Mobile Radio Services) and Part 101 (Fixed Microwave Services).

[2] The use of spectrum by Federal Government agencies is regulated by the National Telecommunications and Information Administration (NTIA) under the Department of Commerce. Non-Federal Government spectrum use, which is regulated by the Commission, refers to all other spectrum use, including use by state and local governments, businesses, and individuals.

[3] Omnibus Budget Reconciliation Act of 1993, Pub. L. No. 103-66, 107 Stat. 312 (1993) (OBRA-93).

the impact of adjacent band U.S. Navy operations on operations in the 4.9 GHz band. Finally, we solicit suggestions on how to utilize the band in a manner that will not interfere with adjacent band radio astronomy operations.

II. BACKGROUND

3. In the United States, the 4.9 GHz band is allocated to Government fixed and mobile services on a co-primary basis.[4] The band has been used for fixed services such as conventional point-to-point microwave, tactical radio relay, and high power tropospheric scatter systems, and for mobile services such as control of remote piloted vehicles, video and data telemetry links, target drone control links, fleet defense systems, and tethered aerostat systems.[5] Radio astronomy observations are permitted in the sub-band 4950-4990 MHz at certain Government/non-Government observatories that are listed in footnote US257.[6] Footnote US257 states that, when assignments are made to stations of other services to which the sub-band 4950-4990 MHz is allocated, "every practicable effort will be made to avoid the assignment of frequencies in this band to stations in the aeronautical mobile service. . . which may cause harmful interference to the listed observatories." In addition, international footnote S5.149 states that "administrations are urged to take all practicable steps to protect the radio astronomy service from harmful interference," because "emissions from spaceborne or airborne stations can be particularly serious sources of interference to the radio astronomy service."[7] We note that the upper adjacent band 4990-5000 MHz is allocated to the Government/non-Government radio astronomy service on a primary basis.[8] In addition, the sub-band 4950-4990 MHz is allocated to the Government/non-Government space research (passive) and earth exploration-satellite (passive) services (EESS) on a secondary basis by international footnote S5.339.[9] Thus, the only non-Government services currently permitted in the 4.9 GHz band are passive and operate on a secondary (unprotected) basis. Finally, we note that the 4.9 GHz band is currently being studied internationally as a candidate band for global harmonization of spectrum

[4] *See* Table of Frequency Allocations, 47 C.F.R. § 2.106.

[5] *See* Letter to the Honorable William E. Kennard, Chairman, Federal Communications Commission, from Larry Irving, the Assistant Secretary for Communications, United States Department of Commerce (rel. Mar. 30, 1999) (*Reallocation Letter*) at Annex D. *See also The 4.9 GHz Band Transferred from Federal Government Use, Notice of Proposed Rulemaking,* WT Docket No. 00-32, 15 FCC Rcd 4778, 4788 ¶ 20 (2000) (*First NPRM*).

[6] *See* Table of Frequency Allocations, 47 C.F.R § 2.106, footnote US257.

[7] *See* Table of Frequency Allocations, 47 C.F.R § 2.106, international footnote S5.149. This international footnote has previously been added domestically to both the Government and non-Government Tables, thus effecting its protection to radio astronomy observatories domestically.

[8] *See* Table of Frequency Allocations, 47 C.F.R § 2.106. The sub-band 4950-4990 MHz, together with the upper adjacent band 4990-5000 MHz, is used in studying the brightness distributions of both galactic and extra-galactic objects such as ionized hydrogen clouds and supernova remnants. Further, radio astronomy is particularly vulnerable to potential interference from other services because it is a passive service that involves the reception of exceptionally weak cosmic radio waves emanating from a great distance from the Earth.

[9] *See* Table of Frequency Allocations, 47 C.F.R § 2.106, international footnote S5.339. This international footnote has previously been added domestically to both the Government and non-Government Tables, thus effecting the allocation domestically.

for public protection and disaster relief, with band identification and regulatory provisions to be considered under Agenda Item 1.3 at the 2003 World Radio Conference (WRC-03).[10]

4. OBRA-93 required that the Secretary of Commerce identify at least 200 megahertz of spectrum then allocated for Government use to be transferred to non-Government use. Pursuant to these requirements, in its February 1995 *Final Report* on spectrum allocation, the Department of Commerce reallocated the 4660-4685 MHz band, and identified the lower adjacent 4635-4660 MHz band, among others, for additional transfer effective January 1, 1997.[11] In March 1999, pursuant to Section 6001(a)(3) of OBRA-93,[12] the Department of Commerce notified the Commission[13] that the Government was reclaiming the 4635-4685 MHz band and identified the 4.9 GHz band as substitute spectrum for transfer to non-Government use.[14] The Department of Commerce also stated that, upon completion of this rulemaking, all current Government assignments, except those for radio astronomy observatories, would be withdrawn or limited in the 4.9 GHz band.[15] In December 1999, the Commission issued a *Memorandum Opinion and Order*, in pertinent part revising the Table of Frequency Allocations to note that the band had become non-Government exclusive spectrum in March 1999.[16]

5. On February 29, 2000, the Commission released a *Notice of Proposed Rulemaking (First NPRM)* proposing to allocate the 4.9 GHz band to non-Government fixed and mobile services, excluding

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[10] *See* ITU Document, Provisional Final Acts and Working Papers of the WRC-2000, Resolution 645, *Global Harmonization of Spectrum for Public Protection and Disaster Relief. See also* ITU Document C2000/88-E, Resolution 1156, *Agenda for the World Radio Conference (WRC-03)*, dated July 26, 2000.

[11] *See Spectrum Reallocation Final Report, Response to Title VI – Omnibus Budget Reconciliation Act of 1993*, U.S. Department of Commerce, NTIA Special Publication 95-32 (Feb. 1995) (*Final Report*).

[12] *See* OBRA-93, § 6001(a)(3), as codified at 47 U.S.C. §§ 924(b), 926.

[13] *See Reallocation Letter.*

[14] From February 1995 to April 1998, the Commission had accomplished rulemaking and auction scheduling to allocate and license the 4660-4685 MHz band to fixed and mobile services in the General Wireless Communications Service (GWCS) under Part 26. In April 1998, however, the Commission postponed the auction due to a lack of demand. *See First NPRM*, 15 FCC Rcd at 4780-83 ¶¶ 3-10 for a detailed review of the 4635-4685 MHz band allocation, rulemaking, and reclamation.

[15] *See Reallocation Letter* at Statement of Reasons, pp. 4-5. *See also First NPRM*, 15 FCC Rcd at 4788 ¶ 20. In its March 1999 letter, the Department of Commerce noted that the Departments of Justice, Treasury, and Energy had 35, five (5), and four (4) frequency assignments, respectively, in the band 4940-4990 MHz. The Department of Commerce anticipated that these agencies would explore retuning as the most cost-effective option. As we noted in the *First NPRM*, because the 4.9 GHz band was transferred from Government to non-Government use as a replacement for the band 4635-4685 MHz, which was transferred pursuant to the provisions of OBRA-93, the NTIA has concluded that new non-Government licensees will not be required to pay Government agencies vacating the band for the marginal cost of their relocation, as is required in spectrum transferred pursuant to the Balanced Budget Act of 1997 (BBA-97), according to the provisions of the Defense Authorization Act of 1998. *See* Balanced Budget Act of 1997, Pub. L. No. 105-33, 111 Stat. 251 (1997) (BBA-97); Defense Authorization Act of 1998, Pub. L. No. 105-261 (1998) (amending 47 U.S.C. § 923(g)). *See also First NPRM*, 15 FCC Rcd at 4815 ¶ 96.

[16] *See* Amendment of Part 2 of the Commission's Rules to Make Non-Substantive Revisions to the Table of Frequency Allocations, *Memorandum Opinion and Order*, 15 FCC Rcd 3459, 3475 ¶ 39 (2000).

aeronautical mobile service, on a co-primary basis and to allow for flexible use of the spectrum.[17] In the *First NPRM*, the Commission proposed to license the band for commercial services under Part 27 of the Commission's rules and to assign initial licenses for the band under the Commission's Part 1 competitive bidding rules.[18] The Commission tentatively concluded not to designate the band, or any portion thereof, to exclusive public safety use, but requested comment on this proposal.[19] The Commission noted that it had recently acted pursuant to the Balanced Budget Act of 1997[20] to allocate the 764-776 MHz band and the 794-806 MHz band (collectively, "the 700 MHz band") to exclusive public safety use.[21] Hence, the Commission tentatively concluded that its designation of spectrum in the 700 MHz band for exclusive public safety use constituted a significant commitment of spectrum to serve public safety needs into the next century, making it unnecessary to set aside additional spectrum in the 4.9 GHz band for exclusive public safety use.[22] The Commission noted, however, that the 4.9 GHz band could be used for public safety purposes provided that such use was consistent with the Commission's licensing scheme for the band.[23] The Commission sought comment on its tentative conclusion.

6. On October 24, 2000, the Commission released a *First Report and Order and Second Notice of Proposed Rule Making (First R&O/Second NPRM)*[24] that sought comment on the feasibility of pairing the 4.9 GHz band with the 3650 MHz band. In the *First R&O/Second NPRM,* the Commission allocated the 3650-3700 MHz band (3650 MHz band) for fixed and mobile services, except aeronautical mobile service, on a co-primary basis, but limiting the mobile allocation to base station use only. As with the 4.9 GHz band, the *First R&O/Second NPRM* proposed to license the 3650 MHz band pursuant to Part 27 under a flexible allocation with wide area licensing by competitive bidding. The Commission sought comment on whether pairing the 4.9 GHz and 3650 MHz bands would encourage synergies in the use of both bands.[25]

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[17] *See First NPRM,* 15 FCC Rcd at 4786 ¶ 16.

[18] *Id.* at 4779-80 ¶ 2.

[19] *Id.* at 4790 ¶ 26.

[20] *See* BBA-97, § 3004, as codified at 47 U.S.C. § 337(a).

[21] *See* The Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, Establishment of Rules and Requirements For Priority Access Service, WT Docket No. 96-86, *First Report and Order and Third Notice of Proposed Rulemaking*, 14 FCC Rcd 152 (1998) (*700 MHz First R&O* and *700 MHz Third NPRM* as appropriate).

[22] *First NPRM,* 15 FCC Rcd at 4790 ¶ 26.

[23] *Id.* at 4790 n.61.

[24] Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band (ET Docket No. 98-237) and The 4.9 GHz Band Transferred from Federal Government Use (WT Docket No. 00-32), *First Report and Order and Second Notice of Proposed Rule Making*, 15 FCC Rcd 20488 (2000) (*First R&O/Second NPRM*).

[25] *See First R&O/Second NPRM*, 15 FCC Rcd at 20507-8 ¶¶ 43-44.

7. The Commission has received varied comments in this proceeding. Many of the comments focused on issues relating to the 3650 MHz band.[26] Five commenters expressed open interest in use of the 4.9 GHz band for commercial purposes.[27] Two parties filed comments opposing the designation of this spectrum to public safety use.[28] In contrast, six commenters opposed the Commission's tentative conclusion not to designate the 4.9 GHz band, or some portion thereof, to exclusive public safety use.[29] These commenters request that the Commission designate the entire 4.9 GHz band for exclusive public safety use. Two commenters suggest, in the alternative, designation of at least a portion of the band for exclusive public safety use, but they do not quantify this amount.[30] Furthermore, local police, fire, and rescue organizations from around the country have sent over one hundred letters to the Commission, urging allocation of the 4.9 GHz band to exclusive public safety use to support new broadband public safety applications.[31] In addition, both the National Public Safety Telecommunications Council (NPSTC) and Motorola have met with Commission staff to discuss this issue.[32] Motorola also has submitted a white paper to the Commission urging designation of the 4.9 GHz band to public safety use.[33] Generally, these parties assert that the public safety community is in great need of additional

[26] *See e.g.* Reply Comments of Adaptive Broadband Corporation (Adaptive) (May 17, 2000) (Adaptive Reply Comments); Comments of INMARSAT Ltd. (December 18, 2000); Comments of Lockheed Martin Corporation (December 18, 2000).

[27] *See* Comments of Global Frontiers, Inc. (Global) (Apr. 26, 2000) (Global Comments); Comments of Rural Telecommunications Group (Apr. 26, 2000) (Rural Comments); Comments of Advanced TelCom, Inc. (Apr. 26, 2000) (Advanced Comments); Comments of Coloma Partners, LLC (Apr. 26, 2000) (Coloma Comments); Reply Comments of Rock Hill Telephone Company, et al. (May 16, 2000) at 2 (Rock Hill Reply Comments).

[28] *See* Reply Comments of SBC Communications, Inc. (SBC) (Jan. 16, 2001) at 1-2 (SBC Reply Comments); Reply Comments of Global Frontiers, Inc. (May 17, 2000) at 3 (Global Reply Comments).

[29] Comments of Association of Public-Safety Communications Officials-International, Inc. ("APCO") (Dec. 18, 2000) at 5 (APCO *First NPRM* Comments); Comments of Federal Law Enforcement Wireless Users Group ("FLEWUG") (Apr. 26, 2000) at 3 (FLEWUG Comments); Comments of Major Cities Chiefs Association ("MCC") (Dec. 18, 2000) at 2 (MCC Comments); Reply Comments of International Association of Chiefs of Police ("IACP") (May 17, 2000) at 1 (IACP Reply Comments); Reply Comments of Motorola, Inc. (May 17, 2000) at 1 (Motorola Reply Comments); Reply Comments of Public Safety Wireless Network ("PSWN") (May 17, 2000) at 2 (PSWN Reply Comments). Two of these five commenters also filed comments in the related 3650 MHz band proceeding opposing the Commission's proposal to pair the 4.9 GHz band with the 3650 MHz band. APCO Comments at 2; Comments of Motorola, Inc. (Dec. 18, 2000) at 1 (Motorola Comments). *See also* MCC Comments at 2.

[30] *See* APCO *First NPRM* Comments at 8; FLEWUG Comments at 2.

[31] These letters have been placed in the record for WT Docket No. 00-32.

[32] *See* Letter to Magalie Roman Salas, Secretary, Federal Communications Commission, from Robert M. Gurss, Shook, Hardy & Bacon, L.L.P. (Apr. 16, 2001); Letter to Magalie Roman Salas, Secretary, Federal Communications Commission, from John Lyons, Motorola, Inc. (May 31, 2001); Letter to Magalie Roman Salas, Secretary, Federal Communications Commission, from Robert L. Pettit, Counsel for Motorola, Inc., Wiley, Rein & Fielding (Apr. 19, 2001).

[33] *See* 4.9 GHz Allocation to Public Safety: Motorola White Paper for Submission to FCC (July 31, 2001) at 2 (Motorola White Paper).

spectrum to utilize emerging, state of the art technologies, to meet their critical operations needs, and assert that the 4.9 GHz band is ideal for these emerging broadband technologies.[34]

III. SECOND REPORT AND ORDER

A. Allocation of the 4.9 GHz Band

8. As noted above, the *First NPRM* proposed to allocate the 4.9 GHz band to non-Government fixed and mobile services, excluding aeronautical mobile service, on a co-primary basis.[35] To permit flexibility and a wide range of fixed and mobile services, the Commission proposed to permit licensees to utilize this spectrum for any service permitted within any of the allocation categories of fixed and mobile, to include any fixed, land mobile, or maritime mobile service, but excluding aeronautical mobile service.[36] The Commission proposed to exclude aeronautical mobile service from the entire 4.9 GHz band to protect radio astronomy operations in the 4950-4990 MHz sub-band and the 4990-5000 MHz band, consistent with footnote US257 and with the Department of Commerce's request that the Commission protect such operations.[37] Further, the Commission proposed to delete the Government fixed and mobile service allocations from the 4.9 GHz band, thus completing its transfer to exclusive non-Government use.[38] The Commission also proposed to license the 4.9 GHz band under Part 27 of the Commission's rules, with wide area licensing and service rules fostering commercial use, and with initial licenses to be assigned under the Commission's Part 1, Subpart Q, competitive bidding rules. Finally, the Commission also sought comment on its tentative conclusion that a flexible allocation would be in the public interest; would not deter investment in communications and services, or technology development; and would not cause harmful interference among users, as required by Section 303(y)(2) of the Communications Act (Act),[39] as amended by the BBA-97, for flexible allocations.[40]

9. The record clearly supports allocating the band 4940-4990 MHz for fixed and mobile services, except aeronautical mobile service, on a co-primary basis. This allocation will allow a variety of fixed and mobile applications, including voice and high-speed data. In order to protect radio astronomy observations in this band, however, we are not allocating the band for aeronautical mobile service. The transfer of this spectrum from Government to non-Government use was conditioned on excluding air-to-ground or space-to-Earth links from the entire 4.9 GHz band, in order to protect radio astronomy operations in the 4950-4990 MHz sub-band and the upper adjacent 4990-5000 MHz band.[41] The National Academy of Sciences, through the National Research Council's Committee on Radio

[34] *See* Final Report of the Public Safety Wireless Advisory Committee to the Federal Communications Commission, September 11, 1999, at 3 (PSWAC Final Report).

[35] *See First NPRM*, 15 FCC Rcd at 4786 ¶ 16.

[36] *Id.*

[37] *Id.* at ¶ 16, ¶ 19; *Reallocation Letter*, Statement of Reasons at n. 5 and Annex D.

[38] *See First NPRM*, 15 FCC Rcd at 4786 ¶ 16.

[39] 47 U.S.C. § 303(y)(2).

[40] *See First NPRM*, 15 FCC Rcd at 4788-89 ¶¶ 21-24.

[41] *See Reallocation Letter*, Statement of Reasons, at 4-5, n. 5.

Frequencies, supports the exclusion of aeronautical mobile service, stating that such use would be destructive to scientific observations.[42] While no commercial commenters oppose the exclusion of aeronautical mobile service, several *ex parte* comments from the public safety community support an aeronautical mobile allocation to allow real time video and imagery from surveillance helicopters and other communications from aircraft to ground command centers.[43] However, these commenters did not demonstrate that aeronautical mobile operations could operate while protecting radio astronomy. A fixed and mobile, except aeronautical mobile, allocation is consistent with the international table of allocations, which excludes aeronautical mobile service from the 4950-4990 MHz sub-band and the 4990-5000 MHz band.[44]

10. Consistent with the transfer of the 4.9 GHz band from Government to non-Government use, we are deleting the Government fixed and mobile allocations from the band. We are amending the Table of Frequency Allocations to revise Government footnote G122 to permit Government operations to continue on a non-interference basis in the 4.9 GHz band as of the effective date of the rules adopted in this *Second R&O*.[45] Finally, as noted below, we are designating the 4.9 GHz band for use in support of public safety. Under similar designations, such as in the 700 MHz band, the rules allow Government users to operate on non-Government public safety frequencies if the Commission finds that such use is necessary for coordination of Government and non-Government activities.[46] Therefore, to facilitate interoperability in support of joint Government/non-Government public safety and disaster relief operations, we will explore this issue in the attached *FNPRM* to establish service rules.

11. In view of our decision to designate use of the 4.9 GHz band for public safety, *infra*, we decline to pair the 4.9 GHz and 3650 MHz bands, and thus the 3650 MHz band will be free for other uses.[47] We note that there was almost unanimous opposition to pairing the bands due to technological problems and associated implementation costs. Comments indicated that pairing could inhibit more feasible unpaired implementations, such as Time Division Duplexing (TDD) applications. The only reason advanced in support of coupling these two 50 megahertz bands is the prospect of their 100 megahertz aggregate bandwidth, with most commenters preferring that actual paired operation not be required.

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[42] *See* Comments of the National Research Council's Committee on Radio Frequencies (CORF) (Apr. 26, 2000) at 4 (CORF *First NPRM* Comments).

[43] *See, e.g.,* City of Chesapeake *Ex Parte* Comments (Apr. 11, 2001); Hispanic American Police Command Officers Association *Ex Parte* Comments (May 3, 2001); City and County of San Francisco *Ex Parte* Comments (May 14, 2001); City of Detroit *Ex Parte* Comments (Aug. 7, 2001); and Motorola White Paper at 7.

[44] *See* Table of Frequency Allocations, 47 C.F.R. § 2.106, international footnote S5.442. We note that the aeronautical mobile service exclusion in S5.442 does not apply to the lower sub-band 4940-4950 MHz.

[45] *See* Letter to Bruce Franca, Office of Engineering Technology, Federal Communications Commission, from William T. Hatch, NTIA, United States Department of Commerce (Dec. 19, 2001). This letter clarifies that footnote G122, which allows Government operations to be authorized on a non-interference basis in certain non-Government bands, applies to the 4.9 GHz band, which was substituted for the 4660-4685 MHz band.

[46] *See* 47 C.F.R. § 2.103(b) (setting forth conditions for Government use of non-Government frequencies in the 700 MHz band).

[47] The use of the 3650 MHz band will be addressed in a separate future proceeding.

B. Sharing with Passive Operations

12. In the *First NPRM*, regarding radio astronomy use of the 4.9 GHz band, the Commission proposed to delete footnote US257 from the Table of Frequency Allocations, subsuming it into a revised footnote US311.[48] Footnote US257 requires that every practical effort be made to protect radio astronomy observations in the 4950-4990 MHz band which operate on an unprotected basis at certain Radio Astronomy Observatories listed therein.[49] Likewise, footnote US311 requires that every practical effort be made to protect radio astronomy observations in the 1350-1400 MHz band, which operate on an unprotected basis at certain Radio Astronomy Observatories listed therein.[50] The Commission's proposal was in response to a National Science Foundation (NSF) request that the list of radio astronomy observatories identified in footnote US257 be updated to accurately reflect radio astronomy use of the sub-band 4950-4990 MHz. Recognizing that the observatories currently observing in the sub-band 4950-4990 MHz were also listed in footnote US311, the NSF requested that the Commission add the sub-band 4950-4990 MHz to footnote US311 and delete footnote US257. In the *First NPRM*, the Commission also sought comment on whether frequency coordination or restrictions in power, area, or operations should be imposed in order to protect radio astronomy observations.[51]

13. In response to the *First NPRM*, the National Academy of Sciences, through CORF, supports the proposed deletion of footnote US257 and the resultant inclusion of the band 4950-4990 MHz in footnote US311. CORF also indicates that footnote US311 should include the Owens Valley Radio Observatory at Big Pine, California, listed in current footnote US257 with a coordinate-rectangular geographic area.[52] Similarly, in response to the *First R&O/Second NPRM*, CORF proposes the addition of two more observatories: the Allen Telescope Array, a joint project of the University of California and the Search for Extra-Terrestrial Intelligence (SETI) Institute, at Hat Creek, California, specified by a coordinate-rectangular geographic area, and the National Aeronautic and Space Administration's (NASA) Goldstone Deep Space Communications Complex at Goldstone, California, specified by a circular, coordinate-point-and-radius geographic area. CORF points out that operations in other frequency bands used by the Allen Telescope Array and NASA Goldstone facilities are afforded protection by footnotes US203 and US257, and by footnotes US251, US262, and US338, respectively. CORF states that the Allen Telescope Array at the Hat Creek facility is designed for both SETI and astronomical research, and will be the most powerful radio telescope available for studies of early star formation, making possible many high-spatial-resolution measurements in the band 4950-5000 MHz.[53] To protect radio astronomy observations in the 4950-5000 MHz band from terrestrial fixed and mobile

[48] *See First NPRM*, 15 FCC Rcd at 4786-87 ¶ 18.

[49] *See* Table of Frequency Allocations, 47 C.F.R. § 2.106, footnote US257.

[50] *See* Table of Frequency Allocations, 47 C.F.R. § 2.106, footnote US311. All radio astronomy facilities listed in Footnotes US257 and US311 are represented by circular or rectangular geographic zones, specified by coordinate point with distance radius or by coordinate rectangle(s), respectively. We will refer to these zones as "radio astronomy zones".

[51] *See First NPRM*, 15 FCC Rcd at 4797, 4812 ¶¶ 44, 83.

[52] *See* CORF *First NPRM* Comments at 3.

[53] *See* CORF Comments (Dec. 19, 2000) at 7-9 (CORF *First R&O/Second NPRM* Comments). Although these comments were late-filed, we find it in the public interest to accept these comments in order to have a complete record.

operations, CORF also proposes that fixed stations within the radio astronomy zones listed in revised footnote US311 be required to coordinate with radio astronomy observatories, in a manner similar to that specified in Section 1.924 of our Rules, Quiet Zones.[54] CORF proposes that mobile operations in the 4.9 GHz band be excluded from the radio astronomy zones.[55]

14. In its comments responding to the *First NPRM* and *First R&O/Second NPRM*, CORF describes current and potential uses of the sub-band 4950-4990 MHz by the EESS. CORF explains that the band is used for remote sensing of ocean surface temperature and soil moisture, and has been shown to be useful for sensing ocean surface salinity, and, in addition, that the use of a non-U.S. EESS spaceborne sensor is expected to begin shortly. CORF notes that electromagnetic hot spots could result from a high density of terrestrial mobile stations with low-gain antennas emitting substantial radiation in the upward direction in the 4.9 GHz band. To protect EESS remote sensing measurements of the natural emissions of the surface and atmosphere from masking interference from terrestrial radiocommunications "hot spots," CORF urges that radiation levels produced by terrestrial stations into satellite receivers be maintained consistent with International Telecommunications Union Recommendation ITU-R SA.1029-1 (SA.1029), Interference Criteria for Satellite Passive Remote Sensing.[56]

15. No commenters opposed the update and subsumption of footnote US257 into footnote US311, as proposed in the *First NPRM,* or the inclusion of the three additional radio astronomy zones into footnote US311, as proposed in comments to the *First* NPRM and *First R&O/Second NPRM.* Motorola, in its White Paper, proposes that terrestrial mobile operations not be excluded from radio astronomy zones, as proposed by CORF, but rather that both fixed and mobile operations within 50 miles of radio astronomy sites be coordinated.[57] No commenters replied to CORF's comments to the *First NPRM* and *First R&O/Second NPRM* urging that SA.1029 protection be provided to EESS operations.

16. We find that merging footnote US257 into a revised footnote US311 will make our Rules clearer and have no negative impacts. Further, adding the additional radio astronomy observatories that use the 4.9 GHz band will ensure that spectrum users are aware of interference situations that should be avoided. Therefore, US257 will be deleted and US311 will be amended to include the additional sites.[58]

17. We believe that, given the small number and remote locations of radio astronomy observatories, public safety deployment in the 4.9 GHz band in their vicinity would be unlikely and any public safety operations that may occur would likely be short-term. Public safety use of the band within the vicinity of radio astronomy observatories could be easily accommodated on a case by case basis within the existing framework set forth in footnote US311, which requires parties to make every practicable effort to protect radio astronomy facilities that operate on an unprotected basis in the band. We therefore decline to exclude non-aeronautical mobile operations or to impose frequency coordination procedures on fixed or non-aeronautical mobile operations within the radio astronomy zones, as

[54] *See* 47 C.F.R. § 1.924.

[55] *See* CORF *First R&O/Second NPRM* Comments at 5-7.

[56] *See* CORF *First NPRM* Comments at 2-3; CORF *First R&O/Second NPRM* Comments at 4-5.

[57] *See* Motorola White Paper at 24.

[58] *See* Appendix A: Final Rules.

proposed by CORF.

18. We note that the upper adjacent 4990-5000 MHz band is allocated to radio astronomy service on a primary basis, both internationally and in the United States. Thus, such observations in the 4990-5000 MHz band are entitled to protection, as specified in the Table of Frequency Allocations and our service rules, from any prospective fixed and mobile service operations in the 4.9 GHz band.[59]

19. Finally, we decline to require protection of EESS under SA.1029. While we remain sensitive to the need to protect the passive services in the 4.9 GHz band, the imposition of SA.1029 protection requirements for the secondary EESS could pose an onerous constraint on the utilization of this spectrum by primary terrestrial fixed and non-aeronautical mobile services.[60] Moreover, such protection would be tantamount to giving EESS primary status. Thus, while we encourage prospective licensees to maintain such protection wherever feasible, we decline to mandate SA.1029 protection of EESS.[61]

C. Deletion of Part 26 of the Commission's Rules

20. On February 7, 1995, the Commission, in accordance with the provisions of OBRA-93, adopted the *GWCS First Report and Order and Second Notice of Proposed Rulemaking*,[62] in which, *inter alia*, the Commission proposed to create a new service, the GWCS. On August 2, 1995, the Commission released the *GWCS Second Report and Order* that established the GWCS and adopted Part 26 of its Rules setting out licensing and operating rules for the service in the 4660-4685 MHz band.[63] On December 17, 1997, the Wireless Telecommunications Bureau (Bureau) announced that the auction for

[59] *See* Table of Frequency Allocations, 47 C.F.R. § 2.106, footnote US74. Footnote US74 requires protection to radio astronomy observations in the band 4990-5000 MHz from stations operating outside the band only to the extent that the offending station operating outside the band complies with service band technical standards or criteria applicable to the service in which it operates.

[60] For example, SA.1029 requires that the level of interference received at the satellite not exceed -161 dBW. To protect an EESS passive receiver with an antenna gain of 36 dBi operating at an altitude of 1000 km in the 4.9 GHz band, SA.1029 would therefore limit the equivalent isotropic radiated power (EIRP) from a terrestrial station within its beam to –30.6 dBW in the direction of the satellite. This skyward EIRP reduction would limit a typical point-to-point transmitting antenna with a gain of 36 dBi and a 90-degree off-axis attenuation of 42 dB, consistent with a higher quality antenna conforming to Category A antenna standards specified in Part 101 for point-to-point systems in the nearby band 3700-4200 MHz, to an on-beam EIRP of 11.4 dBW. The SA.1029 calculation is more limiting for EESS receivers with higher gain antennas and for terrestrial transmitters with omnidirectional and other wide-beamwidth antennas, with typical gains ranging from 0 to 12 dBi, typically used in fixed point-to-multipoint and mobile systems.

[61] In the *FNPRM*, we seek comment on the best means of implementing the required protection of radio astronomy sites into our service rules. *See FNPRM* ¶ 61, *infra*.

[62] Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, ET Docket No. 94-32, *First Report and Order and Second Notice of Proposed Rulemaking*, 10 FCC Rcd 4769 (1995) (*GWCS First Report and Order* and *GWCS Second Notice of Proposed Rulemaking* as appropriate).

[63] Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, ET Docket No. 94-32, *Second Report and Order*, 11 FCC Rcd 624 (1995) (*GWCS Second Report and Order*).

licenses in the 4660-4685 MHz band would commence on May 27, 1998.[64] In April 1998, however, the Bureau postponed the commencement of the auction due to a demonstrated absence of demand for licenses in the 4660-4685 MHz band.[65]

21. On March 30, 1999, pursuant to Section 6001(a)(3) of OBRA,[66] the Department of Commerce notified the Commission that the Federal Government was reclaiming the 4635-4685 MHz band and identifying, as substitute spectrum, the 4.9 GHz band.[67] Partially in response to the Department of Commerce's decision to reclaim the 4635-4685 MHz band, on December 20, 1999, the Commission released a Memorandum Opinion and Order revising Part 2 of the Commission's Rules making non-substantive revisions to the Table of Frequency Allocations.[68] In the *Part 2 MO&O*, the Commission, *inter alia*, returned the 4660-4685 MHz band to the *status quo ante*, *i.e.*, deleting the allocation to non-Federal Government fixed and mobile services, while retaining the prior allocation on a primary basis to fixed-satellite service.[69]

22. With the return of the 4660-4685 MHz band to exclusive Federal Government use, Part 26 of the Commission's Rules serves no specific purpose. Accordingly, in the *First NPRM*, the Commission proposed to delete Part 26.[70] Since we received no objections to this proposal, and as noted in the *First NPRM*, there are no Part 26 licensees, we hereby delete this part from our Rules.[71]

D. Designation of the 4.9 GHz Band for Use in Support of Public Safety

23. After reviewing the record in this proceeding, we reject our tentative conclusion not to designate the 4.9 GHz band for public safety use, and conclude that the public interest would be best served by designating the 4.9 GHz band for use in support of public safety. In evaluating the commenters' positions, we are mindful of the Commission's statutory obligation to oversee wire and radio communications ". . . for the purpose of promoting safety of life and property through the use of

[64] Wireless Telecommunications Bureau Announces Auction Schedule for the General Wireless Communications Service, *Public Notice*, DA 97-2634 (rel. Dec. 17, 1997); *see also* Auction Schedule for the General Wireless Communications Service Correction, *Public Notice*, DA 97-2662 (rel. Dec. 19, 1997).

[65] Wireless Telecommunications Bureau Announces Postponement of General Wireless Communications Service (GWCS) Auction, *Public Notice*, Report No. AUC-98-19-B (Auction No. 19), DA 98-792 (rel. Apr. 24, 1998).

[66] OBRA, § 6001(a)(3), as codified at 47 U.S.C. §§924(b), 926.

[67] *See Reallocation Letter.*

[68] Amendment of Part 2 of the Commission's Rules to Make Non-Substantive Revisions to the Table of Frequency Allocations, *Memorandum Opinion and Order*, DA 99-2743, 15 FCC Rcd 3459 (rel. Dec. 20, 1999); 65 FR 4636 (Jan. 31, 2000) (*Part 2 MO&O*).

[69] *Id. at* 3475 ¶39.

[70] *First NPRM*, 15 FCC Rcd at 4791 ¶28.

[71] *Id.*

wire and radio communication . . . "[72] Numerous state, county, and local government and national public safety associations representing a diverse group of critical public safety activities (*e.g.*, law enforcement, fire fighting, SWAT/tactical team and bomb squad, hazardous materials handling, railroad passenger rescue, and emergency medical operations) argue persuasively that a public safety designation will enable responders to carry out critical and urgent missions in a way that ensures more effective and efficient service to their communities and provide a safer environment for emergency responders.[73] The acts of terrorism committed against the United States on September 11th, 2001 reinforce the critical nature of the public safety community's responsibilities to our Nation's safety and well being. Access to modern wireless communications is essential to ensuring that the public safety community can effectively fulfill these responsibilities. After considering these factors, we conclude that the 4.9 GHz band should be designated for use in support of public safety.

24. The emerging broadband technologies envisioned by the public safety community in the record of this proceeding for the 4.9 GHz band are generally categorized into three groups of broadband systems. The first group of systems are Personal Area Network/Vehicular Area Network systems ("PAN" or "VAN" systems respectively).[74] PAN and VAN systems are wireless links between a portable or mobile transceiver and devices such as headsets, portable computing devices, video cameras, thermal imagers, and 3D locators. Manufacturers can integrate these devices into specialized helmets and suits to enable localized teaming and coverage around an officer or vehicle.[75] The second group of systems is Wireless Local Area Network systems (WLAN), which enable simultaneous voice duplex, high-speed data and full motion video transfers between emergency workers at an incident scene and command center personnel using mobile computers. The third group is wireless fixed "hot spot" location devices, which provide automatic high-speed public safety intranet file downloading and uploading of very large data, image and video files at predetermined locations, as well as critical information transfer to and from public safety vehicular computers in the immediate vicinity of a "hot spot" transceiver.[76]

25. As noted above, numerous public safety entities have filed in this proceeding supporting public safety use of the 4.9 GHz band to implement and utilize the technologies described above. In contrast, only a few commenters such as Adaptive expressed interest in commercial use of the 4.9 GHz band.[77] Adaptive and Motorola believe that the interest of equipment manufacturers for commercial use in the 4.9 GHz band is "probably limited."[78] Motorola also notes that many of the commercial

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[72] 47 U.S.C. § 151. *See also* 47 U.S.C. § 332(a) ("In taking actions to manage the spectrum . . . the Commission shall consider, consistent with section 1 of this Act, whether such actions will - - promote the safety of life and property . . .").

[73] Commenters note, for example, the use of video for remote controlled robotics in highly dangerous terrorist situations or the live monitoring of officer or suspects in high risk situations.

[74] *See* Motorola White Paper at 2.

[75] *Id.*

[76] For additional information concerning these broadband technologies, see *id.* at 9-11.

[77] *See* Adaptive Reply Comments at 4. Other commenters also expressed interest in providing commercial services in the 4.9 GHz band. *See* Advanced Comments, Coloma Comments; Global Comments; Rock Hill Comments; and Reply Comments of US West Wireless, LLC (May 17, 2000) (US West Reply Comments).

[78] Adaptive Reply Comments at 4.

technologies proposed for use in the 4.9 GHz band are currently being used in the 5 GHz Unlicensed National Information Infrastructure (U-NII) band.[79]

26. The record does not support the Commission's previous tentative conclusion, set forth in the *First NPRM*, that the designation of spectrum in the 700 MHz band for public safety use obviates a need to allocate spectrum in the 4.9 GHz band for use in support of public safety. Commenters state that the 700 MHz band provides insufficient channel bandwidth and is not presently available for accommodating broadband, short-range communications supporting high-speed data and video traffic.[80] They further explain that the 4.9 GHz band could be used for short-range broadband WLANs, involving distances not exceeding 1000 meters, so that this spectrum could be reused for different operations at different locations in the same city, thus multiplying its utilization. Further, these parties argue that flexible, standards-based broadband technology will be used for unlicensed operation in the nearby U-NII bands at 5150-5350 MHz and 5725-5825 MHz and that such devices can be adapted for use in the 4.9 GHz band on a licensed basis in order to maintain the priority, reliability, and security of mission critical public safety communications. The International Association of Chiefs of Police (IACP) and Public Safety Wireless Network (PSWN) support these positions, as do numerous *ex parte* filings.[81] Public safety commenters have shown a need for spectrum dedicated to high-speed data transmission. Inasmuch as these applications involve the transfer of large amounts of data, a large bandwidth, such as that provided by the 4.9 GHz band, would be ideal to ensure proper transmission. In contrast, while the 700 MHz band provides narrowband and wideband communications channels, only a limited amount of broadband use was contemplated for this spectrum through the aggregation of three wideband channels. Furthermore, because the currently contemplated usage of this band contemplates utilization in small service areas, such as incident scenes, the 4.9 GHz band is superior to the 700 MHz band in that it has propagation characteristics that are ideal for short-range communications. Conversely, the narrowband and wideband communications provided by the 700 MHz band are better suited for longer-range communications over larger service areas. As commenters have noted, broadband applications will become essential law enforcement and first responder tools in the 21st century.[82] We believe our decision today will provide the public safety community with the requisite spectrum to employ these emerging broadband technologies.

[79] Motorola Reply Comments at 5-7.

[80] They state that the 150 kHz maximum bandwidth permitted in the 700 MHz band is insufficient to accommodate high speed data for imaging and full-motion real-time video traffic and that the 700 MHz band will remain unavailable for public safety use in several locales until incumbent television broadcast stations vacate by the end of 2006, or later if such stations' incumbency is extended. They also assert that the 700 MHz band is used for wide-area mobile coverage, so that use of this band for localized WLANs would be spectrally inefficient, as it would consume spectrum intended and better suited for wide-area use.

[81] *See* APCO *First NPRM* Comments at 2-7; FLEWUG Comments at 2-6; Motorola Comments at 3-9; IACP Reply Comments at 1-2; PSWN Reply Comments at 2-4; MCC *First NPRM* Comments at 1-2; and *Ex Parte* Comments of National Public Safety Telecommunications Council (NPSTC) (Aug. 7, 2000) at 2-4 (NPSTC *Ex Parte* Comments). *See also* Comments of APCO (Dec. 18, 2000) at 2-3 (APCO *First R&O/Second NPRM* Comments); MCC Comments at 2-3; and IACP Comments (Dec. 18, 2000) at 1-4 (IACP *First R&O/Second NPRM* Comments).

[82] *See, e.g.*, Motorola White Paper at 2.

27. Global[83] opposes the designation of the 4.9 GHz band to the public safety community. Global argues that the band is more appropriate for commercial use because it is suited for high-speed data transmission between fixed points while the public safety community tends to rely on voice transmission.[84] While we agree with Global that the 4.9 GHz band is appropriate for high-speed data transmission, the record in this proceeding clearly demonstrates that the use of high-speed data transmissions is becoming progressively more common and will play an increasingly critical role in public safety operations. Furthermore, we reject Global's argument that designating the band to public safety would hinder interoperability by further fragmenting the public safety spectrum because this argument is based upon the assumption that the spectrum will be used primarily for voice communications. Moreover, we believe our actions in this proceeding will in fact further the goal of interoperability by providing different public safety agencies access to cutting edge technologies that will enhance their ability to share critical and time-sensitive information during emergencies and other critical situations.

28. We also reject the argument that we need not designate the spectrum for public safety use because the needs of public safety agencies can be met solely by acquiring service from commercial providers.[85] We encourage public safety agencies to work with commercial telecommunications providers wherever possible. Indeed, in the *FNPRM, infra,* we seek comment on licensing schemes that will encourage innovative partnerships between public safety entities and commercial providers. The public safety commenters consistently state, however, that the spectrum will be used primarily in emergency situations, and they need dedicated spectrum that will be reliably available without delay.[86] Moreover, public safety and commercial entities contemplate different uses for the band. For example, Global and Adaptive contemplate using the spectrum for high-speed Internet access.[87] Accordingly, we believe that the needs of the public safety community are best served by designating the 4.9 GHz band for use in support of public safety.

29. Finally, we agree with Motorola that the Commission is not statutorily required to use competitive bidding to license the 4.9 GHz band and therefore licensing this band for public safety is fully consistent with the Communications Act.[88] As Motorola points out, OBRA-93 required the Commission to auction licenses for at least 10 megahertz of reassigned government spectrum by August

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[83] Global Reply Comments at 1. SBC opposes even a partial designation for public safety in the 4.9 GHz band, asserting that it would reduce the value of the band and that commenters urging such designation have not demonstrated why spectrum in addition to that designated in the 700 MHz band is needed. SBC Reply Comments at 2.

[84] Global Reply Comments at 7.

[85] *See* Global Reply Comments at 7; US West Reply Comments at 5.

[86] *See* Letter to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Ralph Mendoza, Chief of Police, Fort Worth Police Department, dated May 9, 2001; Letter to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Gerald R. Whitman, Chief of Police, Denver Police Department, dated June 14, 2001; Letter to the Honorable Michael K. Powell, Chairman, Federal Communications Commission, from Al A. Philippus, Chief of Police, City of San Antonio Police Department, dated June 14, 2001.

[87] Adaptive Reply Comments at 2; Global Reply Comments at 1.

[88] Motorola Comments at 7, Motorola White Paper at 17-18, Motorola *ex parte* letter, dated April 11, 2001, at 2.

10, 1998,[89] but this requirement did not apply to any particular band and thus imposes no requirement to auction licenses for the 4.9 GHz band. As a matter of history, we note that in April 1997, in partial fulfillment of OBRA-93's requirement to auction licenses for at least 10 megahertz of reassigned government spectrum, the Commission auctioned 5 megahertz of spectrum, the 2305-2310 MHz band.[90] Thereafter, the Commission concluded that the 4660-4685 band would fulfill the requirement to auction an additional 5 megahertz of spectrum, and announced that this auction would commence on May 27, 1998. However, the auction was postponed due to a demonstrated lack of interest in that band, and NTIA subsequently identified the 4.9 GHz band as spectrum to be reallocated from government to non-government use in place of the 4635-4685 band. However, this substitution created no obligation to auction the 4.9 GHz band. There was no specific statutory requirement that the 4635-4685 MHz band be auctioned, nor does the Commission's earlier decision to auction the 4660-4685 MHz band, or its previous intention to use this spectrum to satisfy the requirement under OBRA-93 § 6002, now obligate the Commission to auction the 4.9 GHz band.[91] Moreover, NTIA's substitution of the 4.9 GHz band for the 4635-4685 band is unrelated to any of the Commission's statutory obligations to auction spectrum licenses, none of which is implicated here.

30. Therefore, based upon the record in this proceeding, we conclude that the 4.9 GHz band should be designated for use in support of public safety. We believe this action will complement our prior 700 MHz allocation, and takes into account the varying benefits associated with different spectrum. Furthermore, this action will provide public safety users with access to state of the art technologies that will enhance their critical operations capabilities.

IV. FURTHER NOTICE OF PROPOSED RULEMAKING

A. Eligibility to Use the 4.9 GHz Band

31. We seek comment on the criteria we can use to determine eligibility to operate equipment within the 4.9 GHz band. Acting pursuant to a Congressional directive in BBA-97, the Commission, in the 700 MHz band public safety allocation, restricted eligibility to use the 700 MHz band to the entities described in Section 337(f) of the Act.[92] Section 337(f) of the Act defines "public safety services" as services:

(A) the sole or principal purpose of which is to protect the safety of life, health, or property;
(B) that are provided
(i) by State or local government entities; or

[89] OBRA-93 § 6002, codified at 47 U.S.C. § 309(j)(9).

[90] NTIA identified and made available the 2300-2310 MHz band for exclusive non-government use by August 10, 1995. However, NTIA indicated that the 2300-2305 MHz band carried constraints necessary to protection of NASA's Deep Space Network and Planetary Radar operations at Goldstone, California. In addition, this band is used by radio amateurs for weak signal reception.

[91] As Motorola points out, pursuant to OBRA-93 § 6002, auctioning any 5 megahertz of OBRA-93 spectrum would fulfill this obligation. *See* Motorola *ex-parte* letter, dated April 11, 2001; Motorola Comments at 7.

[92] BBA-97 directed the Commission, by January 1, 1998, to reallocate 24 megahertz of spectrum between 746 MHz and 806 MHz (inclusive) for public safety services as defined in Section 337(f) of the Act. *See* 47 U.S. C. § 337(a)(1).

(ii) by nongovernmental organizations that are authorized by a government entity whose primary mission is the provision of such services; and

(C) that are not made commercially available to the public by the provider.[93]

We seek comment on whether we should adopt the same eligibility standards for the 4.9 GHz band. Such a standard would generally limit uses of the spectrum to state and local emergency workers and non-governmental public safety providers authorized to provide public safety services by a governmental entity whose primary mission is to protect the safety of life, health, or property.[94]

32. Unlike the 700 MHz band, however, the 4.9 GHz band is not subject to any statutory restrictions on eligibility to operate on the band. We note that Section 309(j)(2) of the Act exempts certain groups from the Commission's auction authority as "public safety radio services", which are defined as services, including private internal radio services, used by State and local governments and non-government entities, and including emergency road services provided by not-for profit organizations that are: (i) used to protect the safety of life, health, or property; and (ii) are not made commercially available to the public.[95] This exemption extends to private internal radio services used by utilities, railroads, metropolitan transit systems, pipelines, private ambulances, volunteer fire departments, and not-for-profit organizations that offer emergency road services, such as the American Automobile Association (AAA).[96]

33. We recognize that some of the public safety entities covered by Section 309(j)(2) of the Act, whose facilities may be directly involved in an emergency, and who provide essential services to the public at large, may also be interested in utilizing the 4.9 GHz band. The very nature of the services provided by these entities involve potential hazards whereby reliable radio communications is an essential tool in either avoiding the occurrence of such hazards, or responding to emergency circumstances. Furthermore, such entities need reliable communications in order to prevent or respond to disasters or crises affecting their service to the public. We also recognize that in the course of their duties, these entities will need to interact with the traditional public safety service providers, and the inability to do so may affect the ability of both groups of public safety entities to fulfill their missions.

34. Since we seek to define eligibility so as to ensure that all necessary parties can communicate with one another, we seek comment on whether we should use the broader description of "public safety radio services" contained in Section 309(j)(2) of the Act to define eligibility to use the band. Commenters should address whether the utilization of Section 309(j)(2) would broaden partnership opportunities between the more traditional public safety entities (i.e., police, fire and ambulatory entities), and critical infrastructure entities, such as utility companies, railroads, and others. This approach creates a larger group of eligible users, thereby resulting in greater use of the spectrum, with its attendant efficiencies of scale in the equipment market. Nonetheless, we recognize that expanding the universe of users on this spectrum may result in congestion on the band, hindering the communications of emergency workers, and causing the traditional public safety users to compete for valuable spectrum.

[93] *See* 47 U.S.C. § 337(f)(1).

[94] The Commission has previously concluded that state or local government entities whose primary mission is not the provision of public safety services fall within the definition of Section 337(f). *700 MHz First R&O*, 14 FCC Rcd at 180-81 ¶ 54; *see also* 47 C.F.R. § 90.523(a).

[95] 47 U.S.C. § 309(j)(2).

[96] See H.R. Conf. Rep. No. 105-217, 105th Cong., 1st Sess., at 572 (1997) (Conference Report).

We ask that commenters discuss other advantages and disadvantages of the approaches we have identified. We also seek comment on whether we should restrict either group of potentially eligible users to fixed or mobile use.

35. Additionally, we seek comment on the possibility of licensing part of the 4.9 GHz band pursuant to the Section 337 definition of eligibility, and part of the band pursuant to the Section 309(j)(2) definition of eligibility, or utilizing the Section 337(f) definition and allowing sharing agreements with Section 309(j) entities. Commenters should address the appropriate division of spectrum in their comments, and address whether the extent thereof would permit a larger group of users to utilize the band without impeding emergency operations.

36. Because of the novelty of this new service, we are also interested in exploring innovative and non-traditional means of employing public safety use of the band. A possible approach would be to allow commercial use in support of public safety in this band. For example, we could allow commercial licensees to utilize the band in order to serve public safety entities. We ask commenters to provide specific information on how such an approach could be implemented, including identifying potential classes of commercial providers and discussing the arrangements that would ensue between such providers and public safety entities. We could also allow commercial use to be licensed on a secondary basis. We seek comment on whether such an action would be in the public interest and result in the most efficient use of the 4.9 GHz band. We invite commenters to suggest other novel approaches and seek comment on the feasibility and desirability of adopting non-traditional means of employing public safety use of the band.

37. Consistent with our statutory obligations and Commission precedent, if our service rules permit commercial providers to be eligible for licenses in support of public safety entities, or if we allow secondary commercial use, then we will make a public interest determination of whether to adopt a licensing process whereby mutually exclusive applications could be accepted for filing and would be resolved by competitive bidding.[97] We note that in the *First NPRM*, we tentatively concluded to adopt a geographic area licensing scheme for this band under which mutual exclusivity would be possible,[98] and we sought comment on the use of our Part 1 general competitive bidding rules, the use of small business bidding credits and the adoption of small business size definitions.[99] Commenters may supplement the record regarding these issues.

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[97] *See* 47 U.S.C.§ 309(j)(1); In the Matter of Implementation of Sections 309(j) and 337 of the Communications Act of 1934, as amended; Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies; Establishment of Public Service Radio Pool in the Private Mobile Frequencies Below 800 MHz; Petition for Rule Making of The American Mobile Telecommunications Association, *Report and Order and Further Notice of Proposed Rule Making,* 15 FCC Rcd 22709, 22750 ¶ 83 (rel. Nov. 29, 2000) *(BBA Report and Order)* (stating that commercial service providers intending to serve public safety entities are ineligible to apply for auction-exempt spectrum).

[98] In the *First NPRM*, we sought comment on the appropriate size geographic licensing area and appropriate size spectrum block to be licensed. *See First NPRM,* 15 FCC Rcd at 4796-4798 ¶¶ 41-48.

[99] *See First NPRM,* 15 FCC Rcd at 4813-4818 ¶¶ 90-103. In the *First NPRM,* we proposed to define a "small business" as an entity with average annual gross revenues not exceeding $40 million for the three preceding years and a " very small business" as an entity with average annual gross revenues not exceeding $15 million for the three preceding years. We further proposed to provide small businesses with a bidding credit of 15 percent and very small businesses with a bidding credit of 25 percent. The SBA approved these definitions. *See* Letter from Aida Alvarez, Administrator, Small Business Administration, to Mark Bollinger, Acting Chief, Auctions and (continued....)

38. Another issue that arises with regard to eligible users is whether we should permit Federal Government entities to use this spectrum. As noted above, the Commission does not license Federal entities to use non-Federal spectrum.[100] Federal agencies, however, play a vital role in providing public safety related services to the American people.[101] Considering the type of mobile use currently envisioned for this band, we tentatively conclude that both Federal and non-Federal public safety entities are potential participants in incident-scene emergency operations, and could benefit from the same broadband communications technologies discussed within this *FNPRM*. We note that the Commission reached a similar conclusion with regard to Federal use of frequencies in the 700 MHz public safety band, and required that Federal entities enter into agreements with the appropriate state or local government agency license holder in order to use that spectrum.[102] We seek comment on our tentative conclusion to allow Federal use of the spectrum, as well as whether we should require sharing agreements between public safety entities and Federal users as a prerequisite to Federal use. We ask commenters to discuss our authority to permit such operations and to address the types of uses Federal Government entities might seek to employ in the band.

B. Fixed and Mobile Use of the 4.9 GHz Band

39. Along with managing spectrum to promote the safety of life and property, the Commission is also charged with ensuring that spectrum is used efficiently.[103] In the *Second Report and Order*, we allocated the 4.9 GHz band for both fixed and non-aeronautical mobile operations.[104] The comments, letters and *ex parte* presentations we have received to date in this proceeding on behalf of the public safety community consistently advocate the use of spectrally-efficient low-power wireless portable or mobile technologies on the 4.9 GHz band. While the public safety community has not, heretofore, expressed any interest in utilizing the 4.9 GHz band for fixed operations, we are concerned that prohibiting such uses would restrict licensee flexibility and could prohibit future technologies that could benefit public safety. Furthermore, the mobile technologies currently envisioned for the band are intended for short-range communications at an incident scene, and allow for multiple reuse of the spectrum at other nearby locations. Since we do not expect that there will be many locations at which mobile, incident-scene specific, use of the spectrum will be needed at any given time, we are concerned that the limiting of operations on the spectrum to mobile uses could result in an inefficient use of this

(Continued from previous page)
Industry Analysis Division, Wireless Telecommunications Bureau, Federal Communications Commission, dated April 7, 2000.

[100] *See* n.2, *supra*.

[101] Comments of NTIA to *700 MHz First NPRM* at 5; *700 MHz First R&O*, 14 FCC Rcd at 183 ¶ 61.

[102] *See* In the Matter of the Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, Establishment of Rules and Requirements For Priority Access Service, WT Docket No. 96-86, *Fourth Notice of Proposed Rulemaking*, 15 FCC Rcd 16899, 16922 ¶ 60 (2000) (*700 MHz Fourth NPRM)*, citing In the Matter of the Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, Establishment of Rules and Requirements For Priority Access Service, WT Docket No. 96-86, *Second Memorandum Opinion and Order*, 15 FCC Rcd 16844, 16865-68 ¶¶ 46-53 (2000) (*700 MHz Second MO&O)*.

[103] *See* 47 U.S.C. § 332(a)(2).

[104] *See Second R&O, supra* at ¶ 9.

spectrum. Additionally, we are concerned that restricting the band to mobile operations would result in limited use of the band during non-emergency periods.

40. In order to prevent a spectrally-inefficient allocation, we seek comment on the circumstances under which we should permit fixed operations on the 4.9 GHz band. We further ask commenters to address whether permitting fixed operations would provide public safety entities with an additional tool for responding to emergency situations. We seek information on whether fixed applications on the band would consist of the traditional point-to-point microwave operations, more advanced point-to-multipoint services, or temporary fixed links that would allow communication between, for example, an incident scene and police headquarters, or both. We ask commenters to address whether fixed and mobile operations can co-exist on this band, and whether fixed use should be made secondary to mobile use, and to discuss the types of fixed public safety applications that could be employed thereon. We specifically seek comment on whether any proposed fixed operations would interfere with the use of the emerging mobile technologies discussed herein.

41. We must also address the question of how to regulate the band. Because the uses we anticipate for this band are unique, we could create a new mobile radio service covering the mobile uses envisioned for this band, and regulate the service via a new subpart within Part 90 of our Rules.[105] We seek comment on this proposal, as well as suggestions on a name for this new service. We also request that commenters in favor of allowing fixed uses on this band suggest how such uses should be regulated. Specifically we seek comment on whether we should regulate primary fixed uses in this band pursuant to Part 101 of our Rules,[106] as we have traditionally done for fixed, point-to-point, and point-to-multipoint microwave operations. In the alternative, if we allow fixed uses on a secondary basis, we could regulate such uses pursuant to Part 90 of our Rules. Another option is to regulate all uses of this band pursuant to Part 27 of our Rules, which governs Miscellaneous Wireless Communications Services. We seek comment on this approach. We ask commenters to discuss the advantages and disadvantages of the approaches discussed herein. We also solicit suggestions on other methods to regulate the band, along with the advantages and disadvantages thereof. In particular, we invite the public safety community and all parties familiar with the WLAN and PAN uses envisioned for this band to comment on which subpart of our Rules is most appropriate for these services.

C. Channel Plan

42. We recognize that there are a number of channelization plans we could employ to divide the 50 megahertz of spectrum at issue in this proceeding. We received several channel plan proposals in response to the *First NPRM*. Motorola recommends that we divide the spectrum into two 20-25 megahertz blocks, to accommodate the type of broadband application that the public safety community seeks to deploy in this band.[107] Motorola asserts that such a channel plan will allow public safety users to leverage commercial technologies from the unlicensed, adjacent 5 GHz band.[108] US West stated that the

[105] Part 90 of the Commission's Rules governs the Private Land Mobile Radio Services.

[106] Part 101 of the Commission's Rules governs the Fixed Microwave Services.

[107] Motorola White Paper at 11. Motorola also suggests that dividing the band in this manner may help to ameliorate the Navy interference problem, discussed *infra* at Section H. Motorola White Paper at 20. Motorola does not state what uses it envisions for any unused spectrum should the channel blocks use less than the full 50 MHz we contemplate allocating to public safety.

[108] *Id.* at 23.

band could be divided into two unpaired 20 megahertz blocks and one 10 megahertz block.[109] Rock Hill indicated that the 4.9 GHz band could be licensed using 10 megahertz blocks of spectrum with each block composed of two paired blocks of noncontiguous frequencies (*i.e.*, license A would be composed of the 4940-4945 MHz and 4965-4970 MHz frequencies).[110]

43. With the exception of Motorola, we realize that commenters based their proposals on our prior tentative conclusion to designate the 4.9 GHz band for commercial use. To the extent that these suggestions are likewise applicable to our new designation of the spectrum for use in support of public safety, we seek comment on whether the Commission should adopt one of these band plans for the 4.9 GHz spectrum. We also invite comment on whether the band would have to be segmented should we decide to permit fixed operations thereon. Commenters should be mindful of the specific mobile uses currently envisioned for the band, as outlined herein, and should also discuss the impact that fixed operations would have on the channel plan. Further, commenters in favor of the Motorola proposal should discuss how we should use the two proposed channel blocks. For example, should we designate the lower half of the block for fixed operations and the upper half for mobile operations, or vice-versa? If so, should we further divide the fixed band operations into five channel pairs of 2.5 megahertz bandwidth per path? Would blocks smaller than those proposed by Motorola accommodate the emerging broadband services discussed herein? Commenters supporting these or other band plans should provide specific rationales for why a particular band plan would meet public safety needs while, at the same time, maximizing user flexibility and spectral efficiency. Finally, we ask that commenters address the advantages and disadvantages associated with any of the proposed channel plans.

44. We recognize that if fixed uses are ultimately permitted on the 4.9 GHz band, there may be interference between the fixed and mobile operations. Accordingly, we seek comment on whether we should require coordination of fixed and mobile services. Commenters should specify the markets in which such coordination should be required, and discuss the factors considered in reaching such a determination.

D. Licensing

45. Designating the 4.9 GHz band for use in support of public safety coupled with limiting user eligibility to public safety entities as discussed above, would mean licenses for this spectrum could not be auctioned.[111] Accordingly, we seek comment on the appropriate means of licensing the 4.9 GHz spectrum. We seek suggestions for licensing schemes for both fixed and mobile uses. Below, we discuss various licensing approaches that we can utilize for the contemplated operations. We seek comment on these and other licensing approaches we could employ. Finally, we ask commenters advocating any particular licensing approach to address the best means of implementing the Commission's obligations with respect to radio astronomy stations under footnote US311 pursuant to such approach.

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[109] US West Reply Comments at 2.

[110] Rock Hill Reply Comments at 4-5.

[111] Section 309(j)(2) of the Communications Act provides that the Commission does not have authority to award licenses or construction permits for public safety radio services by competitive bidding. 47 U.S.C. § 309(j)(2)(A). However, as discussed above, if we allow some commercial use of this band not all licenses would be exempt from auction. *See supra* ¶¶ 36-37, *infra* ¶ 56.

1. Mobile Licensing

46. We believe that the licensing scheme we adopt for mobile operations on the band must be flexible enough to accommodate use at geographically dispersed areas. We note that one contemplated use of this band would involve use at emergency and incident scenes. Inasmuch as the locations of such scenes are not determinable in advance, we tentatively conclude that our licensing scheme should allow for maximum flexibility. Within the confines of these requirements, there is nevertheless a variety of licensing schemes we could employ. Below, we set forth the advantages and disadvantages of several licensing schemes and seek comment on whether we should adopt one of these approaches. We also seek alternative proposals for licensing mobile use. Commenters should also address traditional licensing issues such as license terms, restrictions and qualifications.

a. State Licensing

47. Large-scale public safety incidents often require multi-agency coordination of spectrum usage. This coordination is ancillary to coordination issues between fixed and mobile use in a particular band, and with adjacent band users. A mobile licensing scheme in which mobile units are licensed to specific entities could expedite this coordination. One possible licensing scheme that could adequately address these issues is the licensing of mobiles to states through a geographic area license. This mechanism is akin to awarding each state a 50 megahertz block grant that could be utilized for state-wide communications. Pursuant to this scheme, the state would be the licensee for all mobile units operating on the band. A state-level agency or organization responsible for administering state emergency communications would be responsible for authorizing local and other public safety entities to operate on the spectrum and coordinating spectrum use.

48. With respect to the 700 MHz public safety band, the Commission found that there were several advantages to a state-licensing scheme, all of which would be applicable to the instant case. For example, the Commission concluded that state-level organizations are usually in charge in emergency situations involving multiple agencies, which is the sort of use currently envisioned for this spectrum, and therefore constituted the ideal body to administer the spectrum.[112] The Commission also concluded that states were in a better position to coordinate with Federal Government emergency agencies,[113] which we have already tentatively concluded should be permitted to operate on the 4.9 GHz band. The Commission also found state licensing attractive because of the inherent ability to simplify system expansion.[114] Another advantage of a state licensing scheme is that it reduces the administrative burden on both the Commission and the public safety community.[115] Because the state licensing approach was used in the 700 MHz proceeding, we expect that states will have spectrum management capabilities already in place. Furthermore, in the event that we permit both fixed and mobile uses on the band, we believe that the states are in a better position to coordinate fixed and mobile interference issues.

49. State licensing, however, has certain potential drawbacks. State licensing would impose additional spectrum management duties upon state agencies. We therefore seek comment on whether

[112] *See 700 MHz Fourth NPRM*, 15 FCC Rcd at 16909 ¶ 21.

[113] *Id.*

[114] *See 700 MHz Third R&O*, 15 FCC Rcd at 19867-68 ¶ 54.

[115] *Id.*

this approach places cumbersome responsibilities upon the states, as well as on what alternative licensing mechanism we should employ if a state is unwilling or unable to administer such a license. Furthermore, such a licensing scheme may exacerbate tensions between state-level and local-level public safety agencies over spectrum use. Hence, we seek comment on whether we should establish guidelines to ensure that states do not unduly restrict the access of other eligible entities to this spectrum. We also seek comment on whether we should license this spectrum as was done in the 700 MHz band, in which states were given a window to apply for a state license and at the end of that period, unclaimed spectrum would revert to a Regional Planning Committee. Commenters should specifically address whether such an approach is feasible and appropriate, and if so, what entity should be designated the default licensee in those cases in which a state does not file for its license. Commenters should also discuss the other advantages and disadvantages of this scheme, as identified herein or otherwise.

b. Blanket Licensing or Unlicensed Operation

50. Another option for the licensing of mobile operations is blanket licensing mobile units by rule. Such licensing would be analogous to our licensing of interoperability mobiles used in the 700 MHz band.[116] Under this approach, mobile operations would be permitted on the band without an individual license by entities if (1) such entities are eligible to operate on the band as discussed, *supra*, or (2) such entities are eligible for frequencies in the Public Safety Radio Pool set forth in Section 90.15 of our Rules.[117] Considering that the contemplated mobile use of this band would be incident-specific, this approach is advantageous in that it accounts for the fact that the service area for on-scene incident service is not determinable in advance. Furthermore, the small service contour contemplated minimizes interference concerns, thereby obviating the need for a more complicated licensing scheme. Moreover, blanket licensing alleviates the administrative burdens associated with traditional licensing, such as the filing and processing of applications.

51. There are certain drawbacks, however, to blanket licensing. We question whether, in the absence of named licensees, there will be adequate mechanisms for ensuring that there will be proper coordination concerning communications among the various agencies that may respond to an incident or emergency. Moreover, if both fixed and mobile operations are permitted on the band, the absence of individual mobile licensees may complicate coordination with fixed users or users in adjacent bands.

52. We seek comment on this licensing approach. Commenters should address whether, despite the small service contour for the envisioned mobile uses, such operations would affect fixed operations, thereby detracting from the desirability of this approach. We invite suggestions on what requirements we should set in order to qualify for operation on the band. We also invite discussion on management of the spectrum by an individual in charge at an incident scene, and whether we can rely on such an individual to adequately manage the spectrum under such circumstances. Alternatively, we also seek comment on allowing unlicensed operation pursuant to Part 15 of the Commission's Rules with sales and

[116] *See* Development of Operational, Technical and Spectrum Requirements For Meeting Federal, State and Local Public Safety Agency Communication Requirements Through the Year 2010, Establishment of Rules and Requirements For Priority Access Service, WT Docket No. 96-86, *Fourth Report and Order and Fifth Notice of Proposed Rulemaking*, 16 FCC Rcd 2020 ¶¶ 30-33 (2001) (*700 MHz Fourth R&O* and *700 MHz Fifth NPRM* as appropriate). We have also used this approach for mobile operation on the 800 MHz band. *See* In the Matter of Development and Implementation of a Public Safety National Plan and Amendment of Part 90 to Establish Service Rules and Technical Standards for Use of the 821-824/866-869 MHz Bands by the Public Safety Services, *Report and Order*, 3 FCC Rcd 905, 909 ¶¶ 30, 33-34 (rel. Dec. 18, 1987) (800 MHz R&O).

[117] 47 C.F.R. § 90.15.

marketing restrictions to ensure that the equipment is used in support of public safety. Finally, we seek comment on whether such approaches would result in any abuses that might interrupt emergency communications operations on the band.

c. Regional Planning Committees

53. Another licensing scheme that would allow the designation of a licensee for coordination purposes with minimal administrative burden on end users would be to license mobile use through the use of regional planning committees. Under a regional planning licensing scheme, which the Commission used in both the 700 MHz and 800 MHz public safety bands, the nation is divided into regions that have the autonomy to develop plans that meet their different communications needs.[118] Based on the experience gained from the implementation of this plan in the 700 MHz and 800 MHz bands, we seek comment on whether we should employ regional planning committee licensing in the 4.9 GHz band.

d. Band Managers

54. Another licensing scheme that would allow the designation of a licensee for coordination purposes with minimal administrative burden on end users would be to license mobile use through the use of band managers. The Commission has defined band managers as "a class of licensees that are specifically authorized to lease their licensed spectrum usage rights for use by third parties through private, contractual agreements, without having to secure prior approval by the Commission."[119]

55. We seek comment as to whether we should employ a band manager licensing scheme for the administration of this spectrum. Commenters should address whether a band manger approach would permit more flexible use of this spectrum and would facilitate efficient spectrum management, especially considering this spectrum could conceivably be utilized for both fixed and mobile operations. In particular, we seek comment on whether our spectrum management policies would be enhanced by permitting band managers the expanded flexibility to use their spectrum internally or provide telecommunications services, in addition to leasing it.[120] If we were to permit such flexibility, should we also implement safeguards to ensure that a band manager's core function remains focused on leasing; and if so, how? For example, the Commission has previously prohibited band managers from using spectrum directly, and limited the amount of spectrum that they could lease to affiliated entities.[121] We seek comment on the appropriate geographic area for a band manager license (*i.e.*, state, local, or nationwide licenses), as well as the respective advantages and disadvantages of using a band manager licensing scheme *vis-à-vis* the other licensing schemes mentioned herein. We ask commenters to address possible consideration for spectrum leases. We also seek comment on whether it is necessary to provide additional safeguards to prevent a band manager from discriminating among spectrum users.

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[118] *See 700 MHz First R&O*, 14 FCC Rcd at 190 ¶ 77 *citing 800 MHz R&O*, 3 FCC Rcd at 906.

[119] Promoting Efficient Use of Spectrum Through Eliminating Barriers to the Development of Secondary Markets, *Notice of Proposed Rulemaking*, WT Docket No. 00-230, 15 FCC Rcd 24203, 24209 ¶ 17 (2000).

[120] In the *BBA Report and Order*, we consider this issue in the context of whether to permit a band manager in a particular service to act as a spectrum broker that leases spectrum and as a user of its licensed spectrum, with respect to future allocations, such as the instant proceeding. *BBA Report and Order*, 15 FCC Rcd at 22734 ¶ 49.

[121] Service Rules for the 746-764 and 776-794 MHz Bands and Revisions to Part 27 of the Commission's Rules, *Second Report and Order*, WT Docket No. 99-168, 15 FCC Rcd 5299 (2000).

56. Commenters should initially address whether we should restrict the role of band manager to public safety entities that are eligible to hold licenses pursuant to the standard of eligibility we ultimately define for this spectrum band. We ask commenters to address how we should resolve competing band manager applications. Alternatively, as proposed above, commenters should address whether we should allow all or some band managers to be commercial entities that lease spectrum to public safety entities.[122]

2. Fixed Licensing

57. We also seek comment on the appropriate means of licensing fixed use of the 4.9 GHz band by the public safety community. Because we anticipate that public safety entities will utilize this spectrum in a manner analogous to that used by private (including public safety) radio users in other fixed microwave bands, we believe that the licensing scheme should likewise be similar. Accordingly, we seek comment on whether we should license fixed use in this band pursuant to Part 27, Part 90 or Part 101 of the Commission's Rules.

58. We note that should we allow site-based fixed use of this spectrum, site-based licensing deprives licensees of the flexibility to relocate transmitter sites within a defined service area without obtaining the Commission's prior approval.[123] We seek comment on whether public safety entities employing fixed operations on the 4.9 GHz band would require flexibility in licensing. We solicit proposals on other innovative licensing approaches that will minimize burdens upon both the Commission and public safety users. Furthermore, we seek proposals for the setting of license terms, and comment on whether and under what circumstances should we impose construction requirements for fixed services. Commenters who believe that construction requirements are necessary in this proceeding should suggest proposed time periods for construction of stations. We also seek comment on the extent to which the choice of an appropriate licensing scheme for fixed services is dependent on how we define eligible public safety radio services in this band. Commenters are also invited to recommend other licensing restrictions and qualifications.

E. Interference

59. The U.S. Navy conducts Cooperative Engagement Capability (CEC) operations in nine training areas in the band immediately below the 4.9 GHz band. Operations of the U.S. Navy's CEC system, particularly its aeronautical mobile operations below the 4.9 GHz band, may inhibit use of the lower portion of the 4.9 GHz band in large areas along the East, West, and Gulf Coasts.[124] We note that this system operates in accordance with the specifications detailed in a recent Department of Commerce letter,[125] which differs from the description contained in the *First NPRM*. The CEC system may operate in full power mode, including airborne operations, in each of the nine training areas. These full power emissions abut the lower portion of the 4.9 GHz band. In addition, airborne use may impact systems

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[122] *See supra* ¶ ¶ 36-37.

[123] *See 700 MHz Third R&O*, 15 FCC Rcd at 19868 ¶ 55.

[124] Appendix D details the nine CEC training areas as well as the emission characteristics of this system.

[125] *See* Letter to Bruce Franca, Acting Chief, Office of Engineering and Technology, Federal Communications Commission, from William T. Hatch, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, United States Department of Commerce (rel. Jun. 27, 2001) (*CEC Letter*).

operating in the 4.9 GHz band as far as 394 kilometers (245 miles) away.[126] NTIA, in a letter dated March 31, 2001, stated that operational use of the CEC systems will occur outside of the training areas and such use will continue to evolve as national defense requirements for the CEC system are further defined. In areas where non-Government operations have not yet been authorized, the Department of Defense reserves the right, after coordinating with NTIA and the Commission, to expand permanently the designated training areas and utilize the full power mode and full band capability.[127] In areas outside of the nine identified training areas where non-Government operations are authorized, the Department of Defense has agreed that any operational use of the CEC system will, except in the case of a National Defense Emergency,[128] be limited to the medium power mode with a 50 megahertz guard band protecting the 4.9 GHz band.[129] Emissions from these types of operations would be below the spurious emission limits normally imposed on mobile services and thus have limited potential to cause interference to non-Government systems.[130]

60. Given the high power at which the CEC system operates, we do not anticipate that the currently contemplated low power public safety operations in the 4.9 GHz band would cause any interference to the CEC system. We are concerned, however, that the Navy's use of the CEC system, as set forth in NTIA's letter, could cause interference to public safety systems. In its comments to the *First NPRM*, Motorola estimates that if the top CEC channel is used and all of the CEC channels are used airborne at full power, the preclusion zones around the training areas will be 125-250 miles; if the CEC use is land or ship based, the preclusion zones around the training areas will be 25-30 miles.[131] Furthermore, Motorola states that if the Navy uses the topmost channel of the CEC system, at least the lower 25 megahertz of the band will be unavailable.[132] Motorola cautions that public safety and Federal users must work together to minimize the impact of CEC systems operating within the training areas, or else the full allocation will be unavailable in those areas.[133] We seek comment on Motorola's analysis and conclusions, as well as on our conclusion that the low power operations contemplated for the band will not interfere with the CEC system. More generally, we seek comment on the Navy's plans for the CEC system in the band below the 4.9 GHz band and the impact that the CEC operations will have on provision of service in the 4.9 GHz band. We solicit comment on the effect CEC operations would have on any segmentation or channelization plans adopted for this band, and what steps public safety licensees in the 4.9 GHz band could take to minimize the impact of CEC operations on their services. We ask

[126] The ceiling altitude specified for aeronautical mobile operations in Appendix B is 30,000 feet. The radio horizon for that altitude, calculated assuming a standard worst case earth curvature of 4/3 earth radius, is 245 miles.

[127] *Id.*

[128] We note the neither NTIA nor the Navy expressly defines what would constitute a National Defense Emergency.

[129] *See* CEC Letter.

[130] *Id.*

[131] Letter to Magalie Roman Salas, Secretary, Federal Communications Commission, from John Lyons, Motorola, Inc., Attachment at 7 (May 31, 2001).

[132] *Id.* at 8.

[133] Motorola White Paper at 21.

commenters to address whether there are any technical rules we could apply to 4.9 GHz band licensees that would minimize the impact of CEC operations on public safety licensees.

61. The issue of interference with public safety communications is of particular concern given the vital nature of public safety communications and the emphasis the public safety community has placed on ensuring that the services they utilize guarantee them immediate access, ubiquitous coverage, flawless reliability, and security.[134] Given the CEC operations in the band below the 4.9 GHz band, we seek comment on how to ensure that the 4.9 GHz spectrum can provide the public safety community with these types of benefits. Our aim is to develop a record on how the public safety community operations in the 4.9 GHz band can co-exist with the Navy's operations in the adjacent band.

62. Finally, protection of primary radio astronomy operations in the adjacent 4990-5000 MHz band may inhibit operation in the upper portion of the band in certain areas.[135] We seek comment on what, if any, restrictions may be needed on new users in the 4.9 GHz band to protect these adjacent band uses.

F. Technical Standards for Mobile Equipment

63. When contemplating the introduction of new technologies into an established regulatory framework, the anticipated use of these new technologies must be considered. In light of these considerations, we seek comment on whether to establish technical standards for mobile equipment operating in the 4.9 GHz band, and if so, what standards should be included in our Rules. As a general rule, the Commission has traditionally disfavored the specification of performance or quality standards for equipment,[136] leaving the selection of technology entirely within the realm of the licensees. We seek comment on whether our Rules should specify particular standards. We also ask commenters to discuss regulatory goals that could warrant the use of particular standards, including incident scene interoperability and the accommodation of the peak demand that occurs during multiple emergencies. Commenters should address whether the specification of particular standards would promote these regulatory goals. We also seek comment on other means by which we can craft our Rules to permit operational flexibility while ensuring interoperability between different agencies. We ask commenters to discuss alternative regulatory approaches, including the operational factors (such as *ad hoc* and access point operations) that should be considered in the regulatory approach we adopt. We ask commenters to discuss these system requirements, particularly as they relate to emerging broadband technologies, as well as any other requirements necessary for effective and efficient operations by public safety agencies. Further, we seek comment on whether the setting of performance standards will delay the production of equipment that will be operated on this band, and if so, what we can do to prevent any production delays.

64. Prior to beginning our analysis of technical standards, we note that the current record in this proceeding reflects the public safety community's vision of a low-power mobile service. We stress that we generally seek comment on whether such a system would represent the best use of this spectrum. However, since we wish to develop as full a record as possible, we also seek comment on our analysis of the technologies envisioned by the current record.

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[134] *See, e.g.*, APCO *First NPRM* Comments at 6; Motorola Comments at 6.

[135] *See* Motorola White Paper at 17-25.

[136] *See, e.g.*, *700 MHz First R&O*, 14 FCC Rcd at 207-211 ¶¶ 118, 121, 123, 124, 130, 132.

1. Broadband Technologies

65. We note that there are two widely contemplated, spectrally efficient broadband standards available for WLAN: (1) Institute of Electrical and Electronics Engineering standard 802.11a (IEEE 802.11a); and (2) European Telecommunications Standardization Institute (ETSI) Broadband Radio Access Network (BRAN) High Performance Local Area Network number two (HiperLAN2).[137] IEEE 802.11a technology takes advantage of more spectra to provide higher data rates and improves system capacity performance. IEEE 802.11a has been cleared in the United States for unlicensed use through the category of U-NII, described above. HiperLAN2 is a new, high performance, 5 GHz radio networking technology, specifically suited for operating in LAN environments. HiperLAN2 provides high-speed access to a variety of networks including 3G core networks, Asynchronous Transfer Mode (ATM) and Internet Protocol (IP) based networks, and also for private use as a wireless LAN. HiperLAN2 is very similar, at the physical level, to IEEE 802.11a. We seek comment on these standards. Additionally, the public safety community states that it can defray equipment costs by relying on equipment and technology being utilized in the nearby 5 GHz U-NII band.[138] We seek comment on the viability of these technologies for public safety operations. We also seek comment on whether any cost savings public safety licensees might gain from relying on U-NII equipment and technology might be off-set by the expense involved in modifying this equipment and technology to include encryption and other security features characteristic of, or desirable for, public safety equipment.

2. Power limits

66. As discussed above, the mobile broadband technologies that the public safety community seeks to deploy on the 4.9 GHz band involve the use of incident scene equipment. Inasmuch as these uses are expected to cover only a small radius, Motorola recommends that we adopt a 1-watt maximum transmitter power limit, and a 20-dB maximum antenna gain.[139] Motorola asserts that on-scene broadband LAN operations will require a one-watt power level, but that PAN/VAN uses may actually operate at lower levels, depending upon the choice of public safety users. Motorola contends that adopting its recommended power levels as ceilings will allow public safety users the flexibility to accommodate all possible situations.[140] We seek comment on whether we should adopt a power limit and what that level should be. Commenters should explain the basis for any suggested power limits.

G. Technical Rules for Fixed Operations in the 4.9 GHz Band

67. As noted above, we are considering whether to permit fixed operations on the 4.9 GHz band. While we reach no conclusion on this issue at this time, we nevertheless believe it is appropriate to solicit comment on possible technical requirements for fixed operations on the band. We believe that such comments will be valuable in that they will assist in the development of a record on which to base our ultimate decision. Accordingly, we discuss below various technical issues that should be considered for fixed uses. We invite comment on these and other technical issues related to such uses.

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[137] We note that American National Standards Institute (ANSI) has not yet approved HiperLAN2.

[138] *See* Motorola Comments at 1.

[139] *Id.* at 23.

[140] *Id.*

68. One of the technical issues that arise is the appropriate Effective Isotropic Radiated Power (EIRP) values for fixed operations. We ask whether fixed operations for the 4.9 GHz band should have an EIRP limit of 55 dBW, which is identical to the limit set for the 3700-4200 MHz and 5925-6425 MHz bands.[141] In particular, we ask commenters to address whether the proposed EIRP values are appropriate for the intended services, and whether it provides adequate power for stations to transmit over typical distances for various types of applications. We also ask whether we should apply the minimum path length contained in Section 101.143 of our Rules[142] to operations in 4.9 GHz band. We tentatively conclude that applying the minimum path length would promote spectral efficiency by preventing the use of overpowered systems over short paths. Third, we seek comment on whether to make the emission mask requirements for fixed microwave services in the 4.9 GHz band consistent with the emission mask requirements for fixed microwave services in Part 101 of our Rules.[143] We also seek comment on whether to allow fixed licensees in the 4.9 GHz band to use Automatic Transmitter Power Control (ATPC). ATPC is a function that typically provides for more efficient spectrum use.[144] Finally, we ask whether we should adopt a frequency tolerance level of 0.005% for fixed equipment operating on the band. This approach is consistent with the frequency tolerance allowed in Part 101 of our Rules for the 3700-4200 MHz and 5925-6875 MHz bands.[145] Since operations in these bands are technically similar to the fixed microwave services we anticipate will operate in the 4.9 GHz band, we believe the same frequency tolerance is appropriate for the 4.9 GHz band.[146] We seek comment on this approach.

V. CONCLUSION

69. As stated in PSWAC's Final Report, "[n]o responsibility is more fundamental and reflective of the nation's values than that of its public safety agencies."[147] Indeed, our public safety providers are critical to our nation's well being. Their missions should not be compromised by inadequate communications, or lack of access to state of the art technologies that can enhance their abilities to conduct critical operations. Our actions today are in keeping with one of our primary mandates; that is, to promote the use of spectrum to further safety of life and property.[148]

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[141] *See* 47 C.F.R § 101.113. The 3700-4200 MHz and 5925-6425 MHz bands are the next lower and upper bands below and above 4940-4965 MHz band respectively.

[142] *See* 47 C.F.R. § 101.143.

[143] *See* 47 C.F.R. § 101.111.

[144] ATPC technology employs the minimum amount of power needed to transmit a signal, thereby minimizing interference within adjacent channels.

[145] *See* 47 C.F.R § 101.107.

[146] *See* 47 C.F.R. § 2.106

[147] PSWAC Final Report at 5.

[148] *See* 47 U.S.C. § 151.

VI. PROCEDURAL MATTERS

A. Ex Parte Rules - Permit-But-Disclose Proceeding

70. This is a permit-but-disclose notice and comment rule making proceeding. *Ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed as provided in our Rules.[149]

B. Regulatory Flexibility Act

71. The Regulatory Flexibility Act (RFA)[150] requires that an agency prepare a regulatory flexibility analysis for notice and comment rulemakings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.[151] Accordingly, we have prepared a Final Regulatory Flexibility Certification concerning the impact of the rule changes contained in the *Second R&O* on small entities. The Final Regulatory Flexibility Certification is set forth in Appendix B. Additionally, we have prepared an Initial Regulatory Flexibility Analysis concerning the impact on small entities of the policies and rules proposed by this *FNPRM*. The Initial Regulatory Flexibility Analysis is set forth in Appendix C.

C. Paperwork Reduction Act

72. This *Further Notice* does not contain either a proposed or modified information collection.[152]

D. Comment Dates

73. Pursuant to Sections 1.415 and 1.419 of our Rules, interested parties may file comments on or before [90 days after Federal Register publication] and reply comments on or before [120 days after Federal Register publication].[153] Comments may be filed using the Commission's Electronic Filing System (ECFS) or by filing paper copies.[154]

74. Comments filed through the ECFS can be sent as an electronic file via the Internet to <http://www.fcc.gov/e-file/ecfs.html>. Generally, only one copy of an electronic submission must be filed. If multiple docket or rulemaking numbers appear in the caption of this proceeding, however, then commenters must transmit one electronic copy of the comments to each docket or rulemaking number referenced in the caption. In completing the transmittal screen, commenters should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To obtain filing instructions for e-mail comments,

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[149] *See generally* 47 C.F.R. §§ 1.1202, 1.1203, 1.1206(a).

[150] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[151] 5 U.S.C. § 605(b).

[152] At this time we do not have a sufficient record to address application filing procedures.

[153] 47 C.F.R. §§ 1.415, 1.419.

[154] *See* Electronic Filing of Documents in Rulemaking Proceedings, GC Docket No. 97-113, *Report and Order*, 13 FCC Rcd 11322 (1998).

commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message, "get form <your e-mail address>." A sample form and directions will be sent in reply.

75. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be sent to the Commission's Acting Secretary, William F. Caton, Office of the Secretary, Federal Communications Commission, 445 12th St., S.W., Room TW-A325, Washington, D.C. 20554.

76. Parties who choose to file by paper should also submit their comments on diskette. These diskettes should be submitted to: Genevieve Augustin, Esq., Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, 445 12th St., S.W., Room 3-A431, Washington, D.C. 20554. Such a submission should be on a 3.5-inch diskette formatted in an IBM compatible format using Microsoft Word 97 or compatible software. The diskette should be accompanied by a cover letter and should be submitted in "read only" mode. The diskette should be clearly labeled with the commenter's name, proceeding (including the lead docket number in this case, WT Docket No. 00-32), type of pleading (comment or reply comment), date of submission, and the name of the electronic file on the diskette. The label should also include the following phrase "Disk Copy - Not an Original." Each diskette should contain only one party's pleadings, preferably in a single electronic file. In addition, commenters should send diskette copies to the Commission's copy contractor, Qualex International, Inc., 445 12th St., S.W., Room CY-B402, Washington, D.C. 20554.

E. Ordering Clauses

77. Accordingly, IT IS ORDERED that, pursuant to Sections 4(i), 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 303(r), 403, this *Report and Order and Further Notice of Proposed Rule Making* IS HEREBY ADOPTED.

78. IT IS FURTHER ORDERED that Part 2 of the Commission's rules IS AMENDED as specified in Appendix A and such rule amendments shall be effective 30 days after publication in the Federal Register.

79. IT IS FURTHER ORDERED that pursuant to section 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. § 154(i), that Part 26 of the Commission's rules, 47 C.F.R. Part 26, is no longer in the public interest, and therefore is REMOVED, effective 30 days after publication of the text thereof in the Federal Register.

80. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Further Notice of Proposed Rule Making*, including the Final Regulatory Flexibility Certification and Initial Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

F. Further Information

81. For further information, contact Genevieve Augustin, Esq., gaugusti@fcc.gov, or Roberto Mussenden, Esq., rmussend@fcc.gov, Policy and Rules Branch, Public Safety and Private Wireless Division, Wireless Telecommunications Bureau, (202) 418-0680, or TTY (202) 418-7233.

82. Alternative formats (computer diskette, large print, audiocassette and Braille) are available to persons with disabilities by contacting Brian Millin at (202) 418-0260, TTY (202) 418-2555, or at bmillin@fcc.gov. This *Further Notice of Proposed Rule Making* can also be downloaded at: http://www.fcc.gov/dtf/.

FEDERAL COMMUNICATIONS COMMISSION

William F. Caton
Acting Secretary

APPENDIX A: FINAL RULES

Part 2 of Title 47 of the Code of Federal Regulations is amended as follows:

PART 2 -- FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS; GENERAL RULES AND REGULATIONS

1. The authority citation for Part 2 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 302(a), 303, and 336, unless otherwise noted.

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

a. Revise page 55.

b. In the list of United States (US) Footnotes, remove footnote US257 and revise footnote US311.

c. In the list of Government (G) Footnotes, revise footnote G122.

The revisions and additions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
ee previous page for 600-4200 MHz	3700-4200 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE except aeronautical mobile		3700-4200	3700-4200 FIXED NG41 FIXED-SATELLITE (space-to-Earth)	International Fixed (23) Satellite Communications (25) Fixed Microwave (101)
4200-4400 AERONAUTICAL RADIONAVIGATION S5.438 S5.437 S5.439 S5.440			4200-4400 AERONAUTICAL RADIONAVIGATION S5.440 US261		Aviation (87)
4400-4500 FIXED MOBILE			4400-4500 FIXED MOBILE	4400-4500	
4500-4800 FIXED FIXED-SATELLITE (space-to-Earth) S5.441 MOBILE			4500-4800 FIXED MOBILE US245	4500-4800 FIXED-SATELLITE (space-to-Earth) 792A US245	
4800-4990 FIXED MOBILE S5.442 Radio astronomy			4800-4940 FIXED MOBILE S5.149 US203	4800-4940 S5.149 US203	
S5.149 S5.339 S5.443			4940-4990 S5.149 S5.339 US311 G122	4940-4990 FIXED MOBILE except aeronautical mobile S5.149 S5.339 US311	Private Land Mobile (90) Fixed Microwave (101)
4990-5000 FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY Space research (passive) S5.149			4990-5000 RADIO ASTRONOMY US74 Space research (passive) US246		

5000-5150 AERONAUTICAL RADIONAVIGATION S5.367 S5.444 S5.444A	5000-5250 AERONAUTICAL RADIO-NAVIGATION US260	5000-5150 AERONAUTICAL RADIO-NAVIGATION US260 S5.367 S5.444 S5.444A US211 US344	Satellite Communications (25) Aviation (87)

* * * * *

UNITED STATES (US) FOOTNOTES

* * * * *

US311 Radio astronomy observations may be made in the bands 1350-1400 MHz and 4950-4990 MHz on an unprotected basis at the following radio astronomy observatories:

Allen Telescope Array, Hat Creek, California	Rectangle between latitudes 40° 00' N and 42° 00' N and between longitudes 120° 15' W and 122° 15' W.	
NASA Goldstone Deep Space Communications Complex, Goldstone, California	80 kilometers (50 mile) radius centered on latitude 35° 18' N, longitude 116° 54' W.	
National Astronomy and Ionosphere Center, Arecibo, Puerto Rico	Rectangle between latitudes 17° 30' N and 19° 00' N and between longitudes 65° 10' W and 68° 00' W.	
National Radio Astronomy Observatory, Socorro, New Mexico	Rectangle between latitudes 32° 30' N and 35° 30' N and between longitudes 106° 00' W and 109° 00' W.	
National Radio Astronomy Observatory, Green Bank, West Virginia	Rectangle between latitudes 37° 30' N and 39° 15' N and between longitudes 78° 30' W and 80° 30' W.	
National Radio Astronomy Observatory, Very Long Baseline Array Stations	80 kilometers (50 mile) radius centered on:	
	Latitude (North)	Longitude (West)
Brewster, WA	48° 08'	119° 41'
Fort Davis, TX	30° 38'	103° 57'
Hancock, NH	42° 56'	71° 59'
Kitt Peak, AZ	31° 57'	111° 37'
Los Alamos, NM	35° 47'	106° 15'
Mauna Kea, HI	19° 48'	155° 27'
North Liberty, IA	41° 46'	91° 34'
Owens Valley, CA	37° 14'	118° 17'
Pie Town, NM	34° 18'	108° 07'
Saint Croix, VI	17° 46'	64° 35'
Owens Valley Radio Observatory, Big Pine, California	Two contiguous rectangles, one between latitudes 36° 00' N and 37° 00' N and between longitudes 117° 40' W and 118° 30' W and the second between latitudes 37° 00' N and 38° 00' N and between longitudes 118° 00' W and 118° 50' W.	

Every practicable effort will be made to avoid the assignment of frequencies in the bands 1350-1400 MHz and 4950-4990 MHz to stations in the fixed and mobile services that could interfere with radio astronomy observations within the geographic areas given above. In addition, every practicable effort will be made to avoid assignment of frequencies in these bands to stations in the aeronautical mobile service which operate outside of those geographic areas, but which may cause harmful interference to the listed observatories. Should such assignments result in harmful interference to these observatories, the situation will be remedied to the extent practicable.

* * * * *

GOVERNMENT (G) FOOTNOTES

* * * * *

G122 In the bands 2390-2400 MHz, 2402-2417 MHz, and 4940-4990 MHz, Government operations may be authorized on a non-interference basis to authorized non-Government operations, but shall not hinder the implementation of any non-Government operations.

* * * * *

Under the authority 47 U.S.C. § 154, amend 47 C.F.R. chapter I by removing Part 26.

APPENDIX B: FINAL REGULATORY FLEXIBILITY CERTIFICATION (SECOND REPORT AND ORDER)

The Regulatory Flexibility Act (RFA)[155] requires that a regulatory flexibility analysis be prepared for notice and comment rulemaking proceedings, unless the agency certifies that "the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities." The RFA generally defines "small entity" as having the same meaning as the term "small business," "small organization," and "small governmental jurisdiction." In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act. A small business concern is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).

This *Second R&O* allocates the band 4940-4990 MHz to the fixed and mobile, except aeronautical mobile, services on a co-primary basis, to be used exclusively by public safety. This allocation will thus provide public safety users with additional spectrum to support new broadband applications such as high-speed digital technologies and wireless local area networks for incident scene management, dispatch operations, and vehicular/personal communications, and thus enable public safety providers to more effectively, efficiently and safely serve their communities. In addition, our action may affect indirectly equipment manufacturers by ultimately potentially increasing the demand for their goods and services. Both of these effects are positive benefits, with no associated additional compliance burdens. Also, an indirect affect of this allocation on some small entities is the potential enhancement of their protection from crime and hazards, and of their receipt of emergency services.

Therefore, we certify that the requirements of this *Second R&O* will not have a significant economic impact on a substantial number of small entities. The Commission will send a copy of the *Second R&O,* including a copy of this final certification, in a report to Congress pursuant to the Congressional Review Act, *see* U.S.C. § 801(a)(1)(A). In addition, the *Second R&O* and this certification will be sent to the Chief Counsel for Advocacy of the Small Business Administration, and will be published in the Federal Register. *See* U.S.C. § 605(b).

[155] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

APPENDIX C: INITIAL REGULATORY FLEXIBILITY ANALYSIS (FURTHER NOTICE OF PROPOSED RULEMAKING)

As required by the Regulatory Flexibility Act of 1980, as amended (RFA),[156] the Commission has prepared this present Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on a substantial number of small entities by the policies and rules proposed in this *FNPRM*. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *FNPRM* provided in paragraph 72 of the item. The Commission will send a copy of the *FNPRM*, including this IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[157] In addition, the *FNPRM* and IRFA (or summaries thereof) will be published in the Federal Register.[158]

A. Need for, and Objectives of, the Proposed Rules

In this *FNPRM*, we solicit comment on: the establishment of licensing and service rules for the 4.9 GHz band;[159] defining eligibility to use the band;[160] segmentation or channeling plans for use of the band;[161] ways to mitigate interference on the 4.9 GHz band from adjacent band U.S. Navy operations;[162] and ways to utilize the band in a manner that will not interfere with adjacent band radio astronomy operations.[163]

Our objectives for the Notice are to: (1) set the framework for the establishment of a new public safety radio service in the 4.9 GHz band; (2) encourage flexible and efficient use of the 4.9 GHz spectrum; (3) encourage innovative applications in support of public safety; and (4) improve access to communications and state of the art first responder tools for entities engaged in public safety operations. The Commission also seeks to ensure a regulatory plan for the 4.9 GHz band that will allow for the efficient licensing and use of the band, and eliminate unnecessary regulatory burdens.

B. Legal Basis

The proposed action is authorized under Sections 1, 4(i), 7, 10, 201, 202, 208, 214, 301, 303,

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[156] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 – 612, has been amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA), Pub. L. No. 104-121, Title II, 110 Stat. 857 (1996).

[157] *See* 5 U.S.C. § 603(a).

[158] *Id.*

[159] *See* Sections IV-A through D, *supra*.

[160] *See* Section IV-A, *supra*.

[161] *See* Section IV-C, *supra*.

[162] *See* Section IV-E, *supra*.

[163] *See* ¶ 62, *supra*.

308, 309(j), and 310 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151, 154(i), 157, 160, 201, 202, 208, 214, 301, 303, 308, 309(j), 310.

C. Description and Estimate of the Number of Small Entities to Which the Proposed Rules Will Apply

The RFA directs agencies to provide a description of, and where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[164] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[165] In addition, the term "small business" has the same meaning as the term "small business concern" under the Small Business Act.[166] A "small business concern" is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).[167]

Nationwide, as of 1992, there were approximately 275,801 small organizations.[168] "Small governmental jurisdiction" generally means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[169] As of 1992, there were approximately 85,006 such jurisdictions in the United States.[170] This number includes 38,978 counties, cities, and towns; of these, 37,566, or ninety-six percent, have populations of fewer than 50,000.[171] The Census Bureau estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (ninety-one percent) are small entities.

The proposed radio service may affect users of public safety radio services, the extent of which is not defined in this proceeding. This service may also affect manufacturers of radio communications equipment. An analysis of the number of small businesses that may be affected follows. We also note that according to SBA data, there are approximately 4.44 million small businesses nationwide.

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[164] 5 U.S.C. § 603(b)(3).

[165] 5 U.S.C. § 601(6).

[166] 5 U.S.C. § 601(3) (incorporating by reference the definition of "small-business concern" in the Small Business Act, 15 U.S.C. § 632). Pursuant to 5 U.S.C. § 601(3), the statutory definition of a small business applies "unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register."

[167] 15 U.S.C. § 632.

[168] 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration.

[169] 5 U.S.C. § 601(5).

[170] U.S. Department of Commerce, Bureau of the Census, 1992 Census of Governments.

[171] *Id.*

Public Safety Radio Services and Governmental entities. As a general matter, Public Safety Radio Services include police, fire, local government, forestry conservation, highway maintenance, and emergency medical services.[172] Non-Federal governmental entities, as well as private businesses, are potential licensees for these services in this proceeding. Neither the Commission nor the SBA has developed a definition of small businesses directed specifically toward public service licensees. Therefore, the applicable definition of small business is the definition under the SBA rules applicable to Cellular and other Wireless Telecommunications. This provides that a small business is a radiotelephone company employing no more than 1,500 persons.[173] According to the Bureau of the Census, only twelve radiotelephone firms from a total of 1,178 such firms which operated during 1992 had 1,000 or more employees.[174] Therefore, even if all twelve of these firms were public safety licensees, nearly all would be small businesses under the SBA's definition, if independently owned and operated.

Equipment Manufacturers. We anticipate that at least six radio equipment manufacturers will be affected by our decisions in this proceeding. According to the Small Business Administration's regulations, a Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing businesses must have 750 or fewer employees in order to qualify as a small business concern.[175] Census Bureau data indicate that there are 858 U.S. firms that manufacture radio and television broadcasting and communications equipment, and that 778 of these firms have fewer than 750 employees and would therefore be classified as small entities.[176] We do not have information that indicates how many of the six radio equipment manufacturers associated with this proceeding are among these 778 firms. Motorola and Ericsson, however, are major, nationwide radio equipment manufacturers, and thus, we conclude that they would not qualify as small businesses.

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[172] *See* subparts A and B of Part 90 of the Commission's Rules, 47 C.F.R. §§ 90.1-90.22. Police licensees include 26,608 licensees that serve state, county, and municipal enforcement through telephony (voice), telegraphy (code), and teletype and facsimile (printed material). Fire licensees include 22,677 licensees comprised of private volunteer or professional fire companies, as well as units under governmental control. Public Safety Radio Pool licensees also include 40,512 licensees that are state, county, or municipal entities that use radio for official purposes. There are also 7,325 forestry service licensees comprised of licensees from state departments of conservation and private forest organizations that set up communications networks among fire lookout towers and ground crews. The 9,480 state and local governments are highway maintenance licensees that provide emergency and routine communications to aid other public safety services to keep main roads safe for vehicular traffic. Emergency medical licensees (1,460) use these channels for emergency medical service communications related to the delivery of emergency medical treatment. Another 19,478 licensees include medical services, rescue organizations, veterinarians, handicapped persons, disaster relief organizations, school buses, beach patrols, establishments in isolated areas, communications standby facilities, and emergency repair of public communications facilities.

[173] 13 C.F.R. 121.201, NAICS code 513322.

[174] Economics and Statistics Administration, Bureau of Census, U.S. Department of Commerce, *1992 Census of Transportation, Communications and Utilities, Establishment and Firm Size, Series UC92-S-1*, at Table 5, SIC code 4812.

[175] 13 C.F.R. § 121.201, NAICS code 334220.

[176] U.S. Dep't of Commerce, *1992 Census of Transportation, Communications and Utilities* (issued May 1995), SIC category 3663.

We invite comment on this analysis.

D. Description of Projected Reporting, Recordkeeping, and Other Compliance Requirements for Small Entities

We note that in this FNPRM, we propose a variety of licensing approaches we could employ on this band, but formulate no tentative conclusions on this matter. Possible requirements under consideration in this Further Notice include: recordkeeping and reporting requirements, and/or third-party consultation, if state licensing is ultimately utilized; compliance with part 101 of our Rules, in the event that fixed operations are licensed on the 4.9 GHz band; compliance with part 90 of our Rules, if mobile operations are licensed individually; compliance with part 27 of our Rules, if 4.9 GHz band operations are licensed pursuant thereto; and compliance with part 15 of our Rules, in the event that mobile operations on the 4.9 GHz band are unlicensed.[177] Applicants and licensees would possibly be required to follow current service rules for such approaches, if ultimately chosen.

E. Steps Taken to Minimize the Significant Economic Impact on Small Entities, and Significant Alternatives Considered

The RFA requires an agency to describe any significant, specifically small business, alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): "(1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance and reporting requirements under the rule for such small entities; (3) the use of performance rather than design standards; and (4) an exemption from coverage of the rule, or any part thereof, for such small entities."[178]

The possible regulatory burdens we have described above, such as recordkeeping, recording, and filing requirements, if implemented, are necessary in order to ensure that the public safety operations benefit from the innovative new services described herein, in a prompt and efficient manner. We will continue to examine alternatives in the future with the objectives of eliminating unnecessary regulations and minimizing any significant economic impact on small entities. We seek comment on significant alternatives commenters believe should be adopted in this proceeding.

F. Federal Rules that May Duplicate, Overlap, or Conflict with the Proposed Rules

None.

[177] *See* Section IV-D, *supra*.

[178] 5 U.S.C. § 603(c)(1) – (c)(4).

APPENDIX D: GEOGRAPHIC AREAS WHERE DEPARTMENT OF DEFENSE COOPERATIVE ENGAGEMENT CAPABILITY (CEC) WILL BE USED FOR TRAINING IN ITS HIGH POWER, FULL BANDWIDTH MODE

CEC TRAINING AREA 1

Training Area 1 supports Atlantic Coast Exercises, and extends inland from, seaward from, and along the low water mark of a portion of the Mid-Atlantic and South-Atlantic coastline, and includes separate areas in Maryland (MD) and Virginia (VA).

INLAND PORTION: The inland portion of Training Area 1 extends westward from the low water mark of the Atlantic Ocean, and includes all of the area contained within the boundaries of the following counties and within the other identified areas in the indicated state:

Delaware: Sussex County
Maryland: Wicomico, Somerset, and Worcester Counties
Virginia: Accomack and Northampton Counties; all of the area east of the eastern most boundaries of Isle of Wight and Southampton Counties (includes the cities of Suffolk, Portsmouth, Chesapeake, Virginia Beach, Norfolk, and others)
North Carolina (NC): Currituck, Camden, Pasquotank, Perquimans, Tyrell, Dare, Hyde, Craven, Pamlico, Jones, Carteret, Onslow, Pender, New Hanover, and Brunswick Counties

Exercises within the above boundaries of the inland portion of Training Area 1 will include aircraft operating at altitudes to 30 thousand feet (kft), mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere in the defined area. Permanent ground based terminals are now located at Wallops Island, VA; Eastville, VA; and Dam Neck Fleet Combat Training Center-Atlantic, VA. Other permanent ground based terminals will be added within the above defined area as required. Other specific sites within the above defined area include, but are not limited to: Norfolk Naval Base, VA; Norfolk Naval Air Station (NAS), VA; Little Creek Naval Amphibious Base, VA; Oceana NAS, VA; Marine Corps Bogue Field, NC; and Cherry Point Marine Corps Air Station (MCAS), NC.

Permanent ground based terminals not within the above defined area operate within the legal boundaries of the Naval Surface Warfare Center at Dahlgren, VA; and the Patuxent River Naval Air Warfare Center, MD. A permanent ground based terminal also operates within a 5 nm radius of Reedville, VA.

SEAWARD PORTION: The seaward portion of Training Area 1 is bounded on the north by the line that extends eastward from the low water mark of the Atlantic Ocean along 38.914055 north decimal degrees of latitude. The western boundary of the seaward portion of Training Area 1 begins at the intersection of the low water mark of the Atlantic Ocean with 38.914055 north decimal degrees of latitude, extends generally southward and southwestward along the low water mark of the Atlantic Ocean to the intersection of the low water mark with 78.660000 west decimal degrees of longitude, and then continues southward along 78.660000 west decimal degrees of longitude. There is no eastern or southern boundary of the seaward portion of Training Area 1. Exercises in the seaward portion of Training Area 1 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 2

Training Area 2 supports Gulf Coast exercises. Training Area 2 extends inland from, seaward from, and along the low water mark of a portion of the Florida (FL), Alabama (AL), and Mississippi (MS) Gulf coastlines, and includes a separate area near Huntsville, AL and a separate area encompassing Pinellas County, FL.

INLAND PORTION: The inland portion of Training Area 2 extends northward from the low water mark of the Gulf of Mexico, and includes all of the areas contained within the boundaries of the following counties in the indicated state:

Florida: Bay, Washington, Holmes, Walton, Okaloosa, Santa Rosa, and Escambia
Alabama: Baldwin and Mobile
Mississippi: George, Pearl River, Stone, Jackson, Harrison, and Hancock

Exercises within the boundaries of the inland portion of Training Area 2 identified above will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area defined above. Permanent ground based terminals will be added within the above defined area as required. Specific sites within the area identified above include, but are not limited to, Pensacola NAS, FL; Eglin Air Force Base (AFB), FL; and Tyndall AFB, FL.

Redstone Arsenal, located in Madison County, AL is included in Training Area 2. Mobile and ground based equipment will be located anywhere within the legal boundaries of Redstone Arsenal. Aircraft operating in the vicinity of Redstone Arsenal will maintain emissions at the lower defined power level and reduced bandwidth.

Pinellas County, FL is included in Training Area 2. Mobile and ground based equipment will be located anywhere within the legal boundaries of Pinellas County. Permanent ground based terminals are now located in the St. Petersburg, FL metropolitan area. Aircraft operating above Pinellas County, FL will maintain emissions at the lower defined power level and reduced bandwidth.

SEAWARD PORTION: The seaward portion of Training Area 2 is bounded on the east by the line that extends southward from the low water mark of the Gulf of Mexico along 85.400000 west decimal degrees of longitude. The northern boundary of the seaward portion of Training Area 2 begins at the intersection of the low water mark of the Gulf of Mexico with 85.400000 west decimal degrees of longitude, extends generally westward along the low water mark of the Gulf of Mexico to the intersection of the low water mark with 89.350000 west decimal degrees of longitude. The seaward portion of Training Area 2 is bounded on the west by the line that extends due southeast from the intersection of low water mark of the Gulf of Mexico with 89.350000 west decimal degrees of longitude. There is no southern boundary of the seaward portion of Training Area 2. Exercises in the seaward portion of Training Area 2 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 3

Training Area 3 supports Pacific Coast Exercises, and extends inland from, seaward from, and along the low water mark of a portion of the California (CA) mid and southern Pacific coastline.

INLAND PORTION: The inland portion of Training Area 3 extends eastward from the low water mark of the Pacific Ocean, and includes all of the land areas contained within the boundaries of Ventura and Santa Barbara Counties in the state of California.

Exercises within the boundaries of the inland portion of Training Area 3 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area identified above. Permanent ground based terminals will be added within the area identified above as required. Specific sites within the identified area include, but are not limited to, Vandenberg AFB, CA; Point Magu NAS, CA; and Naval Surface Warfare Center at Port Hueneme, CA.

SEAWARD PORTION: The seaward portion of Training Area 3 is bounded on the north by the line that extends westward from the low water mark of the Pacific Ocean along 34.960000 north decimal degrees of latitude. The eastern boundary of the seaward portion of Training Area 3 begins at the intersection of the low water mark of the Pacific Ocean with 34.960000 north decimal degrees of latitude, extends generally southward and eastward along the low water mark of the Pacific Ocean to the intersection of the low water mark with 119.000000 west decimal degrees of longitude, then continues south along 119.000000 west decimal degrees of longitude. There is no southern or western boundary of the seaward portion of Training Area 3. Exercises in the seaward portion of Training Area 3 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 4

Training Area 4 supports Pacific Coast Exercises, and extends inland from, seaward from, and along the low water mark of a portion of the southern California Pacific coastline.

INLAND PORTION: The inland portion of Training Area 4 extends eastward from the low water mark of the Pacific Ocean, and includes all of the land areas contained within the boundaries of San Diego County in the state of California. Exercises within the boundaries of the inland portion of Training Area 4 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area identified above. Permanent ground based terminals will be added within the area defined above as required. Specific sites within the area defined above include, but are not limited to, Camp Pendleton Marine Corps Base, CA; Miramar NAS, CA; Coronado Naval Amphibious Base, CA; U.S. Naval Air Station North Island, CA; and at the Naval facilities located on the Point Loma, CA peninsula.

SEAWARD PORTION: The seaward portion of Training Area 4 is bounded on the north by the line that extends westward from the low water mark of the Pacific Ocean along 33.450000 north decimal degrees of latitude. The eastern boundary of the seaward portion of Training Area 4 begins at the intersection of the low water mark of the Pacific Ocean with 33.450000 north decimal degrees of latitude, extends

generally southward and eastward along the low water mark of the Pacific Ocean to the intersection of the low water mark with 32.600000 north decimal degrees of latitude. The seaward portion of Training Area 4 is bounded on the south by the line that extends westward from the low water mark of the Pacific Ocean along 32.600000 north decimal degrees of latitude. There is no western boundary of the seaward portion of Training Area 4. Exercises in the seaward portion of Training Area 4 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC TRAINING AREA 5

Training Area 5 includes all areas within the boundaries of the White Sands Missile Range, New Mexico and the Fort Bliss Military Reservation, Texas and New Mexico, to support the Joint Chiefs of Staff Roving Sands Exercise. The exercises will include aircraft flying at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. The assets can be positioned anywhere within the identified areas.

CEC TRAINING AREA 6

Training Area 6 includes the China Lake Naval Weapons Center, CA; Fort Irwin Military Reservation, CA; and Twentynine Palms Marine Corps Base, CA. The exercises will include aircraft flying at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. The assets can be positioned anywhere within the identified areas.

CEC TRAINING AREA 7

Training Area 7 supports Pacific training exercises. Training Area 7 includes all of the state of Hawaii and the Pacific Ocean waters surrounding the islands of Hawaii.

Exercises within the land boundaries of Training Area 7 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area. Permanent ground based terminals will be added as required. Specific sites within Training Area 7 include, but are not limited to, the Pacific Missile Range Facility on the Island of Kauai.

Exercises in the Pacific Ocean waters will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere. The waters of the Pacific Missile Range Facility are included.

CEC TRAINING AREA 8

Training Area 8 supports Atlantic Ocean and Caribbean Ocean training exercises. The area includes all of Puerto Rico; St. Thomas, Virgin Islands; and the ocean waters surrounding Puerto Rico and The Virgin Islands.

Exercises within the land boundaries of Training Area 8 include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area. A permanent ground based terminal is located on St. Thomas, Virgin Islands. Other permanent ground based terminals will be added as required. Specific sites within Area 8 include, but are not limited to, the Armed Forces Weapons Test Facility and the Navy Reservation, Vieques Island.

Exercises in the Atlantic Ocean and Caribbean Ocean waters will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere. The waters of the Armed Forces Weapons Test Facility are included.

CEC TRAINING AREA 9

Training Area 9 supports Atlantic Coast exercises. Training Area 9 extends inland from, seaward from, and along the low water mark of a portion of the South Carolina (SC) and Georgia (GA) Atlantic coastlines, and includes a separate area in the Jacksonville, FL metropolitan area.

INLAND PORTION: The inland portion of Training Area 9 extends westward from the low water mark of the Atlantic Ocean, and includes all of the areas contained within the boundaries of the following counties and facilities in the indicated state:

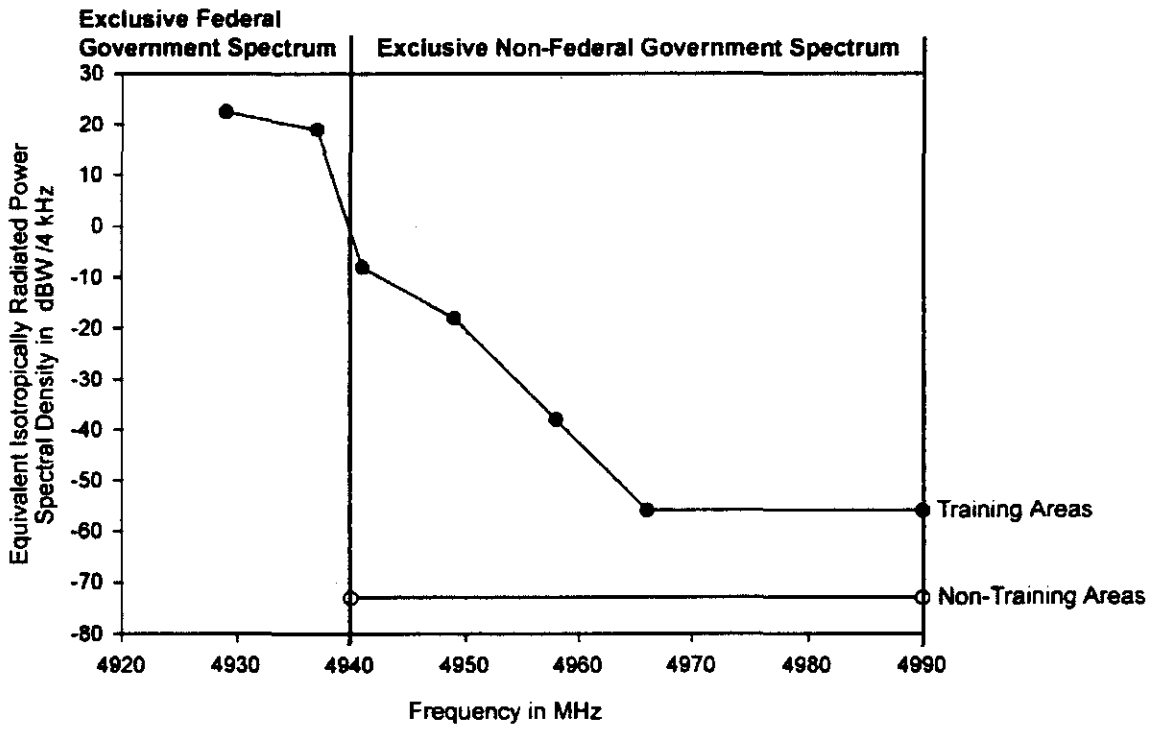
South Carolina: Beaufort and Jasper Counties
Georgia: Chatham, Bryan, Liberty, Long, and McIntosh Counties; Ft. Stewart U.S. Army Facility

Exercises within the boundaries of the inland portion of Training Area 9 will include aircraft operating at altitudes to 30 kft, mobile ground based equipment, and permanent ground based equipment. Aircraft and mobile ground based equipment can be positioned anywhere within the area defined above. Permanent ground based terminals will be added within the above defined area as required. Specific sites within the above defined area include, but are not limited to, Beaufort MCAS, SC; Wright Army Air Field, GA; and Hunter Army Air Field, GA. All of the area within the legal boundaries of Ft. Stewart U.S. Army Facility, GA is included.

Training Area 9 also includes the Jacksonville, FL metropolitan area. Mobile and ground based equipment will be located anywhere within the legal boundaries of the Jacksonville NAS, FL. Mobile, ground based, and ship based equipment will be located anywhere within the legal boundaries of the Mayport Naval Station, FL. Aircraft operating in the vicinity of Jacksonville, FL will maintain emissions at the lower defined level.

SEAWARD PORTION: The seaward portion of Training Area 9 is bounded on the north by the line that extends eastward from the low water mark of the Atlantic Ocean along 32.480000 north decimal degrees of latitude. The western boundary of the seaward portion of Training Area 9 begins at the intersection of the low water mark of the Atlantic Ocean with 32.480000 north decimal degrees of latitude, extends generally southward and southwestward along the low water mark of the Atlantic Ocean to the intersection of the low water mark with 31.370000 north decimal degrees of latitude. The seaward portion of Training Area 9 is bounded on the south by the line that extends eastward from the low water mark of the Atlantic Ocean along 31.370000 north decimal degrees of latitude. There is no eastern boundary of the seaward portion of Training Area 9. Exercises in the seaward portion of Training Area 9 will include aircraft operating at altitudes to 30 kft and surface ships. These assets can be positioned anywhere within the defined area.

CEC EMISSIONS ACROSS THE 4940-4990 MHz BAND



SEPARATE STATEMENT OF COMMISSIONER KATHLEEN ABERNATHY

In re: The 4.9 GHz Band Transferred from Federal Government Use, Second Report and Order and Further Notice of Proposed Rulemaking (WT Docket No. 00-32)(adopted February 14, 2002).

Today's Order begins to deliver on the Commission's new homeland security policy priorities. While public safety issues have always been important to the Commission, there is no doubt that this fall's events created a new sense of urgency. The allocation of the 4.9 GHz band, its designation for public safety, and the initiation of a service rules proceeding, signal this Commission's commitment to public safety and homeland security. Our long-anticipated decision has three important components: a national flexible allocation, broadband capability, and possible international harmonization. For these reasons, I have previously indicated my support for the policy approach taken today and I reaffirm that support today.

National Flexible Allocation: The public safety community has long suffered under a fragmented spectrum allocation and service rule regime that limits the ability of various public safety entities to provide a diverse range of services across national spectrum bands. Today's 50 MHz allocation that will lend itself to operations across traditional state and local boundaries and speed response times at emergency sites. I look forward to developing service rules that, like our approach at 700 MHz, emphasize the ability of emergency response service providers to communicate in a variety of ways and inter-operate across jurisdictions.

Broadband Capability: For too long, the public safety community has not had the spectrum capacity to deploy dedicated wireless broadband facilities. The spectrum characteristics and bandwidth at 4.9 GHz will allow the public safety community to utilize the latest technological tools – through real time video displays, Internet access, and other capabilities – in respond to emergency situations.

International Considerations: As we prepare for the 2003 World Radiocommunication Conference in Caracas, the U.S. is examining the value of a possible global allocation for public protection use. WRC Agenda Item 1.3 is actually the topic of an ITU Working Group meeting in Rome as we speak. Going forward, it is important that any international allocation decision grant respective administrations significant flexibility, while also identifying multiple possible bands for such use. In this regard, the United States must be vigilant that the international decisions reached include bands identified domestically – such as the 4.9 GHz and 700 MHz bands. Global harmonization creates significant advantages in the scale and scope of manufacturing for public safety uses – particularly vital because, by definition, this is a fairly discrete market for manufacturers. In addition to the commercial advantages, harmonization may also allow for possible interoperability in anticipation of security threats with an international scope.

Today is a good day for public safety – and the Commission staff should take considerable pride in our decision that helps public safety to complete their vital mission for the American people.

SEPARATE STATEMENT OF COMMISSIONER KEVIN J. MARTIN

In re: The 4.9 GHz Band Transferred from Federal Government Use, Second Report and Order and Further Notice of Proposed Rulemaking (WT Docket No. 00-32)(adopted February 14, 2002).

Recent events serve as an important reminder of just how critical public safety and national security operations are to the welfare of our society. The Commission must do its part to ensure that the communications requirements for such operations are satisfied. I have enjoyed working with the public safety community on these challenging issues. I am very pleased to approve this allocation and public safety designation, which reflects this Commission's dedication to promoting safety of life and property by supporting such operations.

It is important for the Commission to ensure sufficient spectrum for the public safety community, which requires spectrum that will be readily available in times of emergencies. It is also important for the Commission to facilitate interoperability, as well as multiple types of uses. This is particularly true during crisis situations and for incident scene management. The allocation here of an additional 50 MHz of spectrum for the public safety community will help to further both of these goals. Members of the public safety community have also emphasized the importance of this band for emerging broadband technologies like wireless local area networks to coordinate incident scene and command center personnel. I look forward to seeing these and other sophisticated applications, such as high speed on-site file transfers and specialized headsets equipped with video cameras and environmental sensors, being used to assist such operations.

This spectrum and these types of uses will help enable emergency response service providers, such as law enforcement personnel, fire fighters, SWAT teams, bomb squads, emergency medical providers, and others whose livelihoods revolve around protecting our owns lives and property, better carry out their missions. I look forward to reviewing comments regarding the service rules portion of this proceeding, and to a continuing dialogue regarding how the Commission can best advance and support national security and public safety missions.