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

In the Matter of	)	
	)	
Amendment of Section 2.106 of the	)	
Commission's Rules to Allocate	)	ET Docket No. 95-18
Spectrum at 2 GHz for Use	)	
by the Mobile-Satellite Service	)	
	)	
	)	
	)	

SECOND REPORT AND ORDER AND SECOND MEMORANDUM OPINION AND ORDER

Adopted: June 27, 2000 **Released:** July 3, 2000

By the Commission: Commissioner Furchtgott-Roth approving in part, dissenting in part, and issuing a statement.

INTRODUCTION

1. In this *Order*, we take a number of actions to allow new Mobile-Satellite Service (MSS) licensees to clear spectrum for their operations. The new MSS operations that will occur in these bands will provide mobile communications for American consumers, thus increasing competition in the mobile communications market, and serving areas that are not currently served or are underserved, such as rural areas. Specifically, we finalize the reallocation of 2 GHz spectrum for the Broadcast Auxiliary Service (BAS) at 2025-2110 MHz, and make Government satellite operations co-primary in the 2025-2110 MHz band. We also establish the rules under which we will provide for relocation of incumbent BAS and Fixed Service (FS) microwave licensees from 2 GHz spectrum. The advent of new MSS service in the 2 GHz band will be a significant step toward providing global mobile communications. Finally, we deny three petitions for reconsideration of previous actions in this proceeding.

BACKGROUND

2. The 1992 World Administrative Radio Conference (WARC-92) made international allocations of the 1930-1980 MHz (Earth-to-space or uplink) and 2120-2170 MHz (space-to-Earth or downlink) bands in Region 2 and the 1980-2010 MHz (uplink) and 2170-2200 MHz (downlink) bands worldwide to MSS.[1] Thus, as it affects the bands addressed in this proceeding, WARC-92 allocated the 1990-2010 MHz and 2170-2200 MHz bands to MSS worldwide, and the 2165-2170 MHz band to MSS in Region 2. WARC-92 also adopted primary allocations for the space operation, space research and Earth exploration-satellite services for Earth-to-space and space-to-space transmissions in the 2025-2110 MHz band on a worldwide basis.

[1] *See* Final Acts of the 1992 World Administrative Radio Conference, Malaga-Torremolinos (1992).

3. In the *Emerging Technologies* proceeding, concluded in 1994,[2] the Commission reserved 220 megahertz of spectrum in the 2 GHz band, at 1850-1990 MHz, 2110-2150 MHz, and 2160-2200 MHz, for reallocation to services using new and innovative technologies.[3] The Commission also provided that new technology licensees in these bands would be allowed to clear their spectrum by relocating incumbent FS microwave licensees to bands above 4 GHz.[4]

4. The Commission then allocated the 1850-1990 MHz band to terrestrial broadband Personal Communications Services (PCS) in June of 1994.[5] The Commission anticipated that PCS would use spectrum intensively, thereby bringing into question the feasibility of MSS in this band. The Commission concluded that it could not make a domestic allocation of 2 GHz spectrum for MSS that would be consistent with the international allocations without jeopardizing the availability of spectrum for PCS. The Commission acknowledged the potential value of MSS in areas that may not be readily or economically served by PCS, such as sparsely-populated rural areas,[6] stating that it would investigate possibilities for allocating additional frequencies for MSS at 2 GHz.[7] Further, the Commission stated that it would attempt to accommodate MSS within the internationally allocated bands remaining outside the PCS allocation and would pursue additional international allocations for MSS at the 1995 World Radiocommunication Conference (WRC-95).[8] This proceeding was initiated in 1995 in response to that commitment.

5. WRC-95 adopted additional international allocations for MSS. As a result of the actions taken at WRC-95, effective January 1, 2000, the 1990-2010 MHz (uplink) and 2170-2200 MHz (downlink) bands remain allocated to MSS worldwide, and the 2165-2170 MHz (downlink) band remains allocated to MSS in Region 2. Also effective January 1, 2000, the 2010-2025 MHz (uplink) band is allocated to MSS in the United States and Canada. Effective January 1, 2005, the 2010-2025 MHz (uplink) band will be allocated to MSS in all of Region 2.[9]

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[2] *See Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies (Emerging Technologies)*, ET Docket No. 92-9, *First Report and Order and Third Notice of Proposed Rule Making*, 7 FCC Rcd 6886 (1992); *Second Report and Order*, 8 FCC Rcd 6495 (1993); *Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589 (1993); *Memorandum Opinion and Order*, 9 FCC Rcd 1943 (1994); *Second Memorandum Opinion and Order*, 9 FCC Rcd 7797 (1994), *aff'd, Association of Public Safety Communications Officials-International, Inc. v. FCC*, (*APCO v. FCC)*, 76 F.3d 395 (D.C. Cir. 1996).

[3] *See Emerging Technologies First Report and Order and Third Notice*, 7 FCC Rcd 6886, at ¶ 21.

[4] *See id.* at ¶¶ 23-24.

[5] *See Amendment of the Commission's Rules to Establish New Personal Communications Services* (PCS Proceeding), GEN Docket No. 90-314, *Memorandum Opinion and Order*, 9 FCC Rcd 5947 (1994).

[6] *Id.* at ¶ 94.

[7] At that time, MSS had been domestically allocated 16.5 megahertz in the 2.4 GHz band, paired with 16.5 megahertz in the 1.6 GHz band. *See Amendment of the Commission's Rules to Establish Rules and Policies Pertaining to a Mobile Satellite Service in the 1610-1626.5/2483.5-2500 MHz Frequency Bands* (*Big LEOs*), CC Docket No. 92-166, *Report and Order*, 9 FCC Rcd 5936 (1994).

[8] *See PCS Memorandum Opinion and Order*, 9 FCC Rcd 5947, at ¶ 97.

[9] Generally, WARC-92 allocated the 1930-1980 MHz band to MSS in Region 2, and the 1980-2010 MHz band to MSS worldwide. The 2010-2025 MHz band was not then allocated to MSS. In the upper band, WARC-92 allocated the 2120-2170 MHz band to MSS in Region 2, and the 2170-2200 MHz band to MSS worldwide. (continued….)

6. In the *First Report and Order and Further Notice of Proposed Rule Making (First R&O/Further Notice)* in this proceeding, the Commission reallocated the 1990-2025 MHz and 2165-2200 MHz bands to MSS, effective January 1, 2000.[10] Because this reallocation removed 35 megahertz from the total of 120 megahertz allocated to BAS, the Commission reallocated to BAS the 2110-2130 MHz band, currently allocated to FS microwave uses. This left BAS with 105 megahertz of spectrum at 2025-2130 MHz. In making this reallocation, the Commission determined that it is technically feasible for BAS to use channels of 15 megahertz width, as opposed to the current 17 or 18 megahertz width.[11] The Commission also stated that new MSS licensees in the band are required to bear the costs of relocation of BAS and FS licensees in the affected spectrum, in accordance with the policies established in the *Emerging Technologies* proceeding.[12] Finally, the Commission requested comment on relocation procedures to account for the unique characteristics of BAS, and proposed to apply the negotiation periods and good faith standards of our *Microwave Cost-Sharing* proceeding to the relocation of FS microwave licensees by MSS. The Commission also proposed to require subsequently entering MSS licensees to reimburse earlier MSS licensees for a portion of the expenses incurred in relocation of incumbent licensees.[13]

7. The Balanced Budget Act of 1997 (BBA-97) directed the Commission to reallocate 55 megahertz of spectrum in the 2 GHz range for reassignment by auction.[14] The Commission is specifically directed to reallocate the 40 megahertz at 2110-2150 MHz for reassignment by auction by September 30, 2002.[15] Only if we determine that auction of other spectrum would better serve the public interest and could reasonably be expected to produce greater receipts, may we reallocate an alternate 40 megahertz. We were also directed to allocate an additional 15 megahertz from spectrum at 1990-2110 MHz for reassignment by auction by September 30, 2002, unless the President determined that such spectrum cannot be reallocated due to the need to protect Federal Government systems and that reallocation of an alternate 15 megahertz better serves the public interest and can be reasonably expected to produce comparable receipts.[16] On November 17, 1998, the National Telecommunications and Information Administration (NTIA), on behalf of the President, submitted a letter to the Commission, exercising the Presidential option to identify an alternate 15 megahertz of spectrum to satisfy the requirements of BBA-97.[17] The BBA-97

(Continued from previous page)

WRC-95 retained the allocation of the 1930-1970 MHz band to MSS in Region 2, deleted the allocation of the 1970-1980 MHz band to MSS in Region 2, retained the allocation of the 1980-2010 MHz band to MSS worldwide, and retained the allocation of the 2120-2170 MHz band to MSS in Region 2 and the allocation of the 2170-2200 MHz band worldwide, all changes effective January 1, 2000. Additionally, WRC-95 allocated the 2010-2025 MHz band to MSS in Region 2 effective January 1, 2005. The United States and Canada entered a footnote to this allocation providing that the 2010-2025 MHz band will be usable by MSS in the United States and Canada effective January 1, 2000. *See* the band plan chart at Appendix A.

[10] *See In re Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, ET Docket 95-18, *First R&O/Further Notice*, 12 FCC Rcd 7388 at ¶ 14 (1997).

[11] *See id.* at ¶ 32.

[12] *See id.* at ¶¶ 33, 42.

[13] *See id.* at ¶¶ 64-80.

[14] *See* Balanced Budget Act of 1997, Pub. L.No 105-33, 111 Stat. 251, § 3002(c)(1) (1997).

[15] *See id.*, § 3002(c)(3).

[16] *See id.*, § 3002(c)(4).

[17] Letter from L. Irving, NTIA, to William Kennard, Chairman, Federal Communications Commission, Nov. 17, 1998.

requirement that we allocate the 2110-2150 MHz band for assignment by auction necessitated a change in our decision to reallocate the 1990-2130 MHz band to BAS.

8. On March 19, 1998, the Commission released a public notice identifying applications and letters of intent for satellite service in the 2 GHz band.[18] Upon initial review, the Commission found nine applications and letters of intent from potential 2 GHz MSS licensees acceptable for filing.[19]

9. On November 24, 1998, the Commission released the *Third Notice of Proposed Rule Making and Memorandum Opinion and Order and Order (Third Notice)* in this proceeding. In the *Memorandum Opinion and Order* and *Order* portions of that document, the Commission affirmed its allocation of the 1990-2025 MHz and 2165-2200 MHz bands to the Mobile-Satellite Service (MSS).[20] The Commission also reaffirmed its decision that new MSS licensees in the 1990-2025 MHz and 2165-2200 MHz bands would be required to relocate any incumbent, co-primary licensees with which they were incapable of sharing spectrum.[21] Finally, the Commission dismissed as premature a request from the ICO Service Group to require the submission by BAS licensees of detailed equipment and operational information.[22]

10. In the *Third Notice*, in order to comply with the mandate of BBA-97, the Commission proposed to reallocate 40 megahertz of spectrum, at 2110-2150 MHz, to the Fixed and Mobile Services, for eventual assignment of licenses by auction.[23] In order to meet these requirements, we proposed to

[18] Public Notice, Report No. SPB-119 (rel. March 19, 1998). In this document, the term "application" refers to submissions by parties seeking to operate U.S.-licensed systems; the term "letter of intent" refers to submissions by those non-U.S. licensed systems seeking to serve the U.S. market using 2 GHz MSS spectrum; and the term "MSS licensee" includes MSS systems licensed by the Commission to serve the United States, as well as non-U.S.-licensed satellite systems for which the Commission reserved spectrum to serve the United States. *See The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band*, IB Docket No. 99-81, *Notice of Proposed Rulemaking*, 14 FCC Rcd 4843, at ¶ 72 (1999).

[19] The nine applications and letters of intent found acceptable for filing were submitted by The Boeing Company (File Nos.179-SAT-P/LA-97(16) and 90-SAT-AMEND-98(20); IBFS File Nos. SAT-LOA-19970926-00149 and SAT-AMD-19980318-00021); Celsat America, Inc. (File Nos. 26/27/28-DSS-P-94, 36-SAT-AMEND-95, 65/66/67-SAT-AMEND-96, 192-SAT-AMEND-97, and 88-SAT-AMEND-98; IBFS Nos. SAT-A/O-19940408-00016/17/18, SAT-AMD-19941125-00089, SAT-AMD-19960124-00007/8/9, SAT-AMD-19970925-00124 and SAT-AMD-19980113-00009); Constellation Communications, Inc. (File No. 181-SAT-P/LA-97(46); IBFS File Nos. SAT-LAO-19970926-00148 and SAT-AMD-19991230-00134); Globalstar, L.P. (File Nos. 183 through 186-SAT-P/LA-97 and 182-SAT-P/LA-97(64); IBFS File Nos. SAT-LOA-19970926-00151 through SAT-LOA-19970926-00156); Iridium LLC (File No. 187-SAT-P/LA-97(96); IBFS File No. SAT-LOA-19970926-00147); Mobile Communications Holdings, Inc. (File No. 180-SAT-P/LA-97(26); IBFS File No. SAT-LOA-19970926-00150); ICO Services Limited (File No. 188-SAT-LOI-97; IBFS File No. SAT-LOI-19970926-00163); Inmarsat Horizons (File No. 190-SAT-LOI-97; IBFS File No. SAT-LOI-19970924-00098); and TMI Communications and Company, Limited Partnership (File No. 189-SAT-LOI-97; IBFS File No. SAT-LOI-19970926-00161).

[20] *See In re Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, ET Docket No. 95-18, *Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order*, 13 FCC Rcd 23,949, at ¶ 11 (1998).

[21] *See id.* at ¶ 13.

[22] *See id.* at ¶¶ 55-56.

[23] *See* BBA-97, § 3002(c).

change the BAS allocations made earlier from the 2025-2130 MHz band to the 2025-2110 MHz band.[24] We also proposed to add a co-primary allocation for Government space operations (Earth-to-space and space-to-space), Earth-exploration satellite (Earth-to-space and space-to-space) and space Research (Earth-to-space and space-to-space) to the 2025-2110 MHz band. We further proposed policies to govern the relocation of BAS and FS microwave licensees that are affected by these reallocations.

SECOND REPORT AND ORDER

A. Spectrum Allocation for the Broadcast Auxiliary Service.

11. In the *Third Notice*, we proposed to allocate the 2025-2110 MHz band to BAS. This would effectively remove the 20 megahertz we added to the BAS allocation in the *First Report and Order*, leaving BAS with a total of 85 megahertz. We noted that an allocation of 85 megahertz for BAS could provide six channels of 12 megahertz, and one of 13 megahertz, for BAS operations.

12. This allocation would appear to satisfy most of BAS licensees' needs for channel capacity. We agree with the National Association of Broadcasters (NAB) and the Association for Maximum Service Television (MSTV) that BAS licensees share and may fully occupy all seven channels in a TV market.[25] In many markets, all seven BAS channels in the 1990-2110 MHz band are not fully used, but in larger television markets seven BAS channels are insufficient to meet the needs of BAS licensees, and engineering techniques are used to maximize the capacity of BAS.[26] We find that seven is, on average, an appropriate number of channels for BAS service in the 2 GHz band. As explained by Cosmos Broadcasting Corporation, Cox Broadcasting, Inc., Media General Inc., and the Radio-Television News Directors Association (Cosmos Coalition), the use of seven BAS channels is coordinated so four to seven television stations can each use two channels for back-to-back live shots and simultaneous live shots from two locations.[27] We find that seven BAS channels will generally allow television broadcasters to cover breaking news events, sports, weather, and other on-location broadcasting events.

13. Given the requirements of BBA-97 to allocate the 2110-2150 MHz band for assignment by auction, along with our reallocation of the 1990-2025 MHz band to MSS, we are left with 85 megahertz of contiguous spectrum for BAS at 2025-2110 MHz. The record supports our finding that a BAS band of 85 megahertz will allow a robust BAS system to continue operating for the benefit of the American public. It is worth noting that the Association for Maximum Service Television (MSTV), the National Association of Broadcasters (NAB), and the Society of Broadcast Engineers (SBE), three of the premier groups representing broadcasting interests, agree that it is possible to continue providing seven channels of 2 GHz BAS in an 85-megahertz band by using channels of approximately 12 megahertz bandwidth.[28]

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[24] BAS spectrum in the 2 GHz band is also authorized for use by the Cable Television Relay Service (CARS) and the Local Television Transmission Service (LTTS). *See* 47 C.F.R. §§ 74.602, 78.18(a)(7), 21.901(b). As in previous actions in this proceeding, we will refer to these services collectively as BAS, and all proposals and decisions apply to CARS and LTTS in the band, as well as to BAS.

[25] *See* MSTV/NAB Joint Comments at 8.

[26] *See* SBE Comments at 2.

[27] *See* Cosmos Coalition Comments at 3.

[28] *See* MSTV/NAB Joint Comments at 3; SBE Comments at 1.

Commenters representing the satellite industry agree that the 2025-2110 MHz band is an appropriate allocation for BAS.[29] Experimental results confirm that it is possible to carry a contribution-quality television signal in a channel of 12 megahertz bandwidth with the use of digital equipment,[30] and that it may be possible to carry such a signal in a channel of 12 megahertz with analog equipment.[31] Only one commenter believes that the proposed allocation is not sufficient for a seven-channel 2 GHz BAS system. BST, Inc. (BST), a video production company specializing in providing coverage of sporting events such as automobile and sailboat races, states that because it uses all seven BAS channels at many sporting events, without being able to use directional antennas, it receives cross-channel interference even with BAS channels of 17 megahertz. BST flatly states that it cannot use 12- or 13-megahertz channels,[32] even though it also reveals that it is currently experimenting with techniques that will allow some compression of the signal.[33] BST also states that it uses frequencies outside the BAS band, coordinating with other users. We conclude that while reducing the BAS band to channels of 12 or 13 megahertz may work hardship on BST and other specialized users, improved equipment and techniques for transmitting video signals will allow a BAS band of seven channels in 85 megahertz, which is sufficient for the large majority of BAS users. We therefore reallocate BAS at 2025-2110 MHz.

B. Government Operations in the 2025-2110 MHz Band.

14. On February 11, 1998, the National Telecommunications and Information Administration (NTIA) requested that we amend the U.S. Table of Frequency Allocations to reflect a primary allocation for Government space operations, earth exploration satellites, and space research in the 2025-2110 MHz band.[34] NTIA pointed out that this band is internationally allocated for these services, and that the 1997 World Radiocommunication Conference modified international footnote S5.391 to protect these space services in the 2025-2110 MHz band.[35] NTIA stated that this is an opportune time to modify the U.S. Table of Frequency Allocations in the 2025-2110 MHz band, and to require terrestrial systems in the band to conform with relevant ITU Radio Regulations and ITU-R Recommendations that protect Government space systems. Accordingly, in the *Third Notice*, we proposed to grant co-primary status to the

[29] *See* Iridium LLC Comments at 2; Inmarsat Comments at 4; ICO Services Limited (ICO) Comments at 17; ICO USA Service Group (IUSG) Comments at 11.

[30] *See, e.g.*, Letter from Dr. J. Payne, Nucomm, Inc. to M. Salas, Federal Communications Commission, Feb. 11, 1998; Letter from B. Henoch, COMSAT Corp. to M. Salas, Federal Communications Commission, Mar. 18, 1998.

[31] *See* ICO Reply, Appx. A at 12-13; Letter from D. Davidson, Walt Disney Co. to M. Salas, Federal Communications Commission, Apr. 9, 1999.

[32] *See* BST Comments at 8.

[33] *See id.* at 9.

[34] *See* Letter from William T. Hatch, Acting Deputy Associate Administrator, Office of Spectrum Management, NTIA to Richard Smith, Chief, Office of Engineering and Technology, Federal Communications Commission, Feb. 11, 1998.

[35] The modified international footnote S5.391 reads

In making assignments to the mobile service in the bands 2025-2110 MHz and 2200-2290 MHz, administrations shall not introduce high-density mobile systems, as described in Recommendation ITU-R SA.1154, and shall take this Recommendation into account for the introduction of any other type of mobile system.

Government space operation (Earth-to-space and space-to-space), Earth-exploration satellite (Earth-to-space and space-to-space), and space research (Earth-to-space and space-to-space) services in the 2025-2110 MHz band, noting that such operations are currently permitted by footnotes to the Table of Frequency Allocations.[36] Because of the previous exclusive non-Government allocation of this band, we proposed to limit Government use of the band by requiring that Government satellite operations do not constrain future deployment of BAS licensees operating in conformance with our rules in the 2025-2110 MHz band. We also proposed to adopt domestically international footnote S5.391, in order to minimize the likelihood of interference to Government satellite communications from non-Government terrestrial operations, and to follow the guidelines of Recommendation ITU-R SA.1154, which recommends technical limitations on terrestrial mobile systems to protect satellite systems in the 2025-2110 MHz band from interference, and ITU-R F.1247, which recommends technical limitations on fixed systems in the band to protect satellite systems, in dealing with future BAS systems in the band.[37]

15. The National Aeronautics and Space Administration (NASA) states that it uses this spectrum for satellites which support such major programs as the Space Shuttle, the Hubble Space Telescope, the Tracking and Data Relay Satellite System and will use this spectrum to support the International Space Station. NASA has used this band for almost thirty years.[38] Permitted to use the 2025-2110 MHz band by footnotes to the Table of Frequency Allocations, these Government systems have successfully shared spectrum with BAS during this period. There is no indication that the elevation of Government systems to co-primary status will change this sharing in the future, so long as appropriate protections are provided to BAS operations. MSTV/NAB and SBE support co-primary status for Government systems, so long as BAS operations are protected.[39] IUSG agrees, citing the sharing as an example of the benefits of terrestrial/satellite coordination.[40] Space experts also support co-primary status.[41]

16. Because of the successful sharing between BAS and Government satellite operations in the past, we conclude that the formalization of these operations by the elevation of Government satellite operations to co-primary status will provide increased certainty and clarity to the U.S. Table of Frequency Allocations. At the same time, we remain concerned about the impact of this co-primary allocation on BAS, especially on future deployment of BAS. In order to assure that Government satellite operations do not interfere with or hamper the growth of BAS, we will adopt proposed footnote US346,[42] amending it to read:

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[36] *See Third Notice*, 13 FCC Rcd 13,949, at ¶¶ 33-34. Under footnote US90 to the U.S. Table of Frequency Allocations, 47 U.S.C. § 2.016, operations of these Government systems may not cause interference to non-Government operations.

[37] *See Third Notice*, 13 FCC Rcd 13,949, at ¶ 34. *See also* Rec. ITU-R SA.1154; Rec. ITU-R F.1247.

[38] *See* Letter from D. Harris, NASA to R. Parlow, NTIA, Aug. 11, 1997.

[39] *See* MSTV/NAB Joint Comments at 21-22; SBE Comments at 7.

[40] *See* IUSG Comments at 13.

[41] Both NASA and the Deputy Director of the Australian Government's Canberra Deep Space Communication Complex (CDSCC), Dr. Richard Jacobsen, filed comments in support. *See* NASA Comments at 3; Dr. Richard Jacobsen, CDSCC Comments.

[42] *See Third Notice*, Appx. B.

> Except as provided by footnote US222, the use of the band 2025-2110 MHz by the Government space operation service (Earth-to-space), Earth-exploration-satellite service (Earth-to-space), and space research service (Earth-to-space) shall not constrain the deployment of the Television Broadcast Auxiliary Service, the Cable Television Relay Service, or the Local Television Transmission Service. To facilitate compatible operations between non-Government terrestrial receiving stations at fixed sites and Government earth station transmitters, coordination is required. To facilitate compatible operations between non-Government terrestrial transmitting stations and Government spacecraft receivers, the terrestrial transmitters shall not be high-density systems (see Recommendations ITU-R SA.1154 and ITU-R F.1247).

We conclude that these measures will allow the continuation of Government satellite operations, while at the same time protecting the current operation and future growth of BAS systems as currently defined in our rules. Accordingly, we are granting co-primary status in the 2025-2110 MHz band to Government space research (Earth-to-space), space operations (Earth-to-space), and Earth-exploration-satellite services, as proposed. Future rule changes affecting the technical characteristics of BAS systems will be coordinated with the NTIA prior to implementation to assure continued compatible operations between Government satellite operations and non-Government uses of the 2025-2110 MHz band.

C. Allocation of the 2110-2150 MHz Band.

17. In the *Third Notice*, we proposed reallocation of the 2110-2150 MHz band to the Fixed and Mobile Services for assignment of licenses by auction. We took this action to conform to the requirements of BBA-97. We initially chose to address this issue in this proceeding because of our prior reallocation of a part of that band, the 2110-2130 MHz segment, to BAS. We recently stated that we will initiate a separate proceeding to address the reallocation of the 2110-2150 MHz band.[43] Therefore, we will not consider this band further in this proceeding.

D. Relocation of BAS in the 1990-2110 MHz Band.

18. *The Original BAS Band.* At the beginning of this proceeding, the BAS band at 2 GHz comprised 120 megahertz of spectrum, divided into one channel of 18 megahertz bandwidth and six channels of 17 megahertz bandwidth.[44] The band is used for mobile and temporary-fixed electronic newsgathering (ENG) applications and fixed studio-to-transmitter links (STLs) and television relay links.

19. BAS licensees are television stations and networks,[45] Cable Television Relay Service licensees,[46] and licensees in the Local Television Transmission Service.[47] Except for certain fixed

[43] *See Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium (Policy Statement),* 14 FCC Rcd 19,868, at ¶ 23 (1999).

[44] *See* 47 C.F.R. § 74.602.

[45] *See* 47 C.F.R. § 74.600.

[46] *See* 47 C.F.R. § 74.602(f).

[47] *See* 47 C.F.R. § 74.602(e).

applications, BAS license areas are the Nielsen Designated Market Areas (DMAs) of television stations.[48] According to the Society of Broadcast Engineers, use of BAS channels can be divided into four categories:

> Category I. "Los Angeles" or "LA." Extremely heavy use, mostly split channel. There is lots of itinerant use and channel borrowing and sharing; even so, seven channels aren't enough.
>
> Category II. "Metro." Spectrum is heavily used, especially during the news hours. There is some split channel use, not a lot, and some itinerant use. There is regular channel borrowing and sharing.
>
> Category III. "Light." There is some electronic news gathering ("ENG"), some fixed link, maybe even some channels mostly vacant most of the time. Typically, a small-market, low-competition situation.
>
> Category IV. "Rural." ENG is unheard of, the use is for fixed, long-haul relays to small-market TV stations, to TV translator stations, and to cable television headends. In some areas not all channels are even used.[49]

BAS licensees are typically licensed to use all seven BAS channels, and channel usage is coordinated on a dynamic basis by frequency coordinators in a TV market. The BAS system is highly integrated, and ENG applications often operate both within markets and across market boundaries.[50]

20. *The Future BAS Band.* Because of the allocations made in this proceeding, the BAS band will be reduced from 120 megahertz to a total of 85 megahertz at 2025-2110 MHz. In order to divide this band into nearly identical channels, we will adopt a final channelization of one channel of 12.4 megahertz and six channels of 12.1 megahertz each. As we stated above, we conclude that seven channels is appropriate for the 2 GHz BAS band to accommodate most needs of BAS licensees in the various markets.

21. We believe that BAS licensees in the future will primarily use digital equipment, though we will permit the continued use of FM analog equipment. We see no reason to believe that the patterns of use in the various categories of markets will change drastically, though we expect use in all markets to increase gradually as advances in technology produce better, more reliable, less expensive BAS equipment.

22. *The Transition from the Current BAS band to the Future BAS band.* As noted above, the 1990-2025 MHz band is the MSS uplink band. Satellites would be subject to receiving interference from BAS transmitters operating in that band on Earth. BAS receivers would also be subject to interference from nearby MSS handsets. In the *Third Notice*, we tentatively concluded that we should require simultaneous retuning or replacement of all BAS equipment nationwide on a date certain, though we questioned whether a sufficient supply of equipment would be available to satisfy the simultaneous conversion of all BAS operations.[51] We generally proposed to require replacement or retuning of BAS

[48] These markets can be found in the Television and Cable Fact Book, Stations Vol. #67, 1999 Ed. at A-5 (Warren Publishing, Inc.).

[49] SBE Comments at 2.

[50] *See* MSTV/NAB Comments at 7-8.

[51] *See Third Notice* at ¶ 39.

equipment to be conducted in accordance with our *Emerging Technologies* policies, as modified by the decisions in our *Microwave Cost-Sharing* proceeding, as delineated in 47 C.F.R. Part 101.[52] We asked parties to also comment on geographic issues, including, for example, whether equipment replacement could be done on a market-by-market basis or with a staged deployment within local markets. We invited comment on a broad range of alternative approaches.[53]

23. Commenters representing BAS generally favored a simultaneous national cut-over from the current BAS band to the future BAS band. MSTV/NAB points out that a gradual transition would be expensive and lead to operation of different equipment in varying channel widths, which would be operationally cumbersome and could impair the quality of ENG services.[54] SBE adds that a gradual transition would lead to great difficulties in an integrated, closely coordinated service, especially given the mobility of ENG trucks and the unpredictability of where and when newsworthy events will occur.[55] Iridium, LLC, a MSS applicant, supports the simultaneous cut-over, pointing out that such a transition would provide MSS operators with assurance that their spectrum will be clear for entry when needed, and that the simultaneous cut-over would provide an incentive to MSS licensees to bring their systems on-line as rapidly as possible.[56]

24. The majority of MSS commenters favored conducting the transition of BAS in phases. IUSG submitted a plan under which the first entrant to the MSS market at 2 GHz would narrow BAS channel 1 from its current 18 megahertz to 12 megahertz, freeing six megahertz for MSS operation. Later, a second MSS entrant would change BAS channel 2 to a digital channel of 10 megahertz, freeing another seven megahertz for MSS. Finally, other entrants would narrow BAS channels 3-5, and move channels 1-2 into the spectrum cleared by this narrowing, fully clearing the 1990-2025 MHz band for MSS, and leaving a BAS band with five digital channels of 10 megahertz each and two 17-megahertz channels for digital or analog BAS operations.[57] ICO presents its own suggested phased plan, whereby we would require BAS to discontinue use of current BAS Channel 1 (1990-2008 MHz) prior to the start of MSS operations, and would require BAS to discontinue use of current BAS Channel 2 (2008-2025 MHz) when MSS operations reached the point of needing the Channel 2 spectrum.[58] Several other MSS licensees support the idea of a phased transition, as does one BAS commenter, the Cosmos Coalition.[59] These commenters point out the difficulties of a simultaneous nationwide transition: the sheer size of the problem, the significant likelihood that new equipment tuned to the new channel plan may not be manufactured in time for a national cut-

[52] *See In re Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation (Microwave Cost-Sharing),* WT Docket No. 95-157, *First Report and Order and Further Notice of Proposed Rule Making* , 11 FCC Rcd 8825 (1996); *Second Report and Order*, 12 FCC Rcd 2705 (1997).

[53] *See Third Notice*, 13 FCC Rcd 13,949, at ¶ 40.

[54] *See* MSTV/NAB Reply at 9.

[55] *See* SBE Comments at 3-4.

[56] *See* Iridium Comments at 3-4.

[57] *See* IUSG Comments at 23-36, Exhibit 1.

[58] *See* ICO Comments at 6-8.

[59] *See* The Boeing Company (Boeing) Comments at 5-6; Constellation Communications, Inc. (Constellation) Comments at 6; Cosmos Coalition Comments at 7-9.

over,[60] and the insufficiency of skilled labor, already busy on the transition to digital television.[61]

25. On the issue of whether the transition should be nationwide, those who favored a single-step transition also favored a simultaneous nationwide cut-over to the new BAS band. These parties generally believe that even a short period when different BAS markets were on different channel plans would render coordination in the highly integrated BAS environment so complex and difficult as to be untenable.[62] MSTV/NAB also points out that a market-by-market transition "would be extremely expensive and operationally cumbersome for broadcasters and would impair the quality of ENG services."[63]

26. Other parties state that a nationwide cut-over is likely to be impossible. The Cosmos Coalition asserts that a period of several years is necessary to ensure the availability of new equipment, especially digital ENG equipment, necessary to BAS operation in the new band.[64] IUSG notes that BAS licensees rarely use all seven BAS channels outside the largest markets, and believes that smaller-market BAS licensees will be able to forgo the use of one or more channels for a time.[65]

27. The transition plan we adopt for BAS must provide for early entry to the 1990-2025 MHz band for new MSS licensees. The relocation policy we adopted in our *Emerging Technologies* proceeding was designed for this very purpose: to allow early entry for new technology providers by allowing providers of new services to negotiate financial arrangements for reaccommodation of incumbent licensees. We concluded in the *First R&O/Further Notice* that we would apply our relocation policy to the reallocations in this proceeding.[66] In order to be realistic, however, the transition plan we adopt must minimize the costs of new MSS providers. Our relocation policy was designed to allow gradual relocation of incumbents on a link-by-link basis during a geographical build-out period. A gradual build-out is not possible in the case of MSS, because the MSS signal will reach a large geographical area simultaneously. The integrated nature of BAS also makes isolated, link-by-link relocation infeasible. Because of the need for nationwide relocation by relatively few licensees, we believe it is necessary to minimize costs to the extent possible for MSS licensees, and to defer costs where possible so that they can be paid on an ongoing basis, rather than in a lump sum.

28. At the same time, it is essential that we ensure the continuity of BAS during the transition. BAS is a critical part of the broadcasting system by which information and entertainment is provided to the American public. We must minimize the disruption and down time BAS licensees will undergo in the transition, in order to continue day-to-day high quality BAS service.

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[60] *See* IUSG Comments at 19.

[61] *See* Cosmos Coalition Joint Comments at 8.

[62] *See, e.g.*, MSTV/NAB Comments at 7-8; SBE Reply at 8, Iridium Reply at 4-6; Motorola Reply at 10.

[63] *See* MSTV/NAB Reply at 9.

[64] *See* Cosmos Coalition Reply at 4-5.

[65] *See* IUSG Comments at 22-23.

[66] *See First R&O/Further Notice*, 12 FCC Rcd 7388, at ¶¶ 33, 42.

29. In order to serve the goals of our relocation policy and account for the special circumstances involved in the transition of the highly integrated BAS, we adopt a two-phase plan for the transition of BAS from its current 120 megahertz of spectrum at 1990-2110 MHz to a band of 85 megahertz at 2025-2110, comprising seven BAS channels. We have decided that a two-phase transition will minimize costs and burdens on all parties. In Phase I of the transition, the first MSS entrant (or entrants if more than one MSS licensee is ready to begin service within a short period) will be responsible for clearing 18 megahertz of spectrum at 1990-2008 MHz. This corresponds with current BAS Channel 1. The Phase I BAS band will consist of one channel of 15 megahertz, and six channels of 14.5 megahertz each, centered at the following frequencies:

Channel 1 -- 2015.5 MHz
Channel 2 -- 2030 MHz
Channel 3 -- 2044.5 MHz
Channel 4 -- 2059 MHz
Channel 5 -- 2073.5 MHz
Channel 6 -- 2088 MHz
Channel 7 -- 2102.5 MHz

Phase I will persist as long as 18 megahertz of spectrum is sufficient for MSS operations.

30. In Phase II of the transition, the BAS band will again be narrowed, to its final configuration of seven channels in the 2025-2110 MHz band, centered at the following frequencies:

Channel 1 -- 2031.20 MHz
Channel 2 -- 2043.45 MHz
Channel 3 -- 2055.55 MHz
Channel 4 -- 2067.65 MHz
Channel 5 -- 2079.75 MHz
Channel 6 -- 2091.85 MHz
Channel 7 -- 2103.95 MHz

Phase II will be triggered when the 18 megahertz of Phase I spectrum is no longer sufficient to meet MSS requirements.

31. We will require the first MSS licensee(s) to complete Phase I of our relocation plan only in the 30 largest (LA and Metro) television markets before they begin operations. After the new MSS licensee(s) begin operations, we will forbid the use of the current BAS channel 1 (1990-2008 MHz), in the Light and Rural markets, where BAS has not yet been relocated. The new MSS licensee(s) will be required to complete subsequent Phase I relocation in the next 70 largest (Light) television markets within three years of the date upon which they begin operations.

32. As in Phase I, BAS licensees in the LA and Metro television markets must be relocated to the Phase II channel plan before the new MSS entrant(s) may begin operations in Phase II spectrum. We will forbid use of Phase I BAS channel 1 (2008-2023 MHz) in the remaining television markets as of the date Phase II MSS operations begin in Phase II spectrum. From that date, MSS providers will have three years to complete relocation of BAS licensees in the Light markets, and an additional two years, for a total of five years, to complete relocation in the remaining (Rural) television markets.

33. Although all Phase II relocation may be completed before all MSS licensees are ready to begin service, it is possible that the final MSS licensee will be ready to begin service before the completion of Phase II relocation. We conclude that an MSS licensee needing the 2023-2025 MHz portion of the MSS

band may not begin service until all BAS licensees have been relocated to the final BAS band. This is because the Phase I BAS channel 2 (2023-2037.5 MHz) overlaps the MSS band by two megahertz (2023-2025 MHz). We conclude that it would be excessively onerous to forbid the use of this channel, as well as Phase I channel 1, during the Phase II transition. If this situation should arise, the MSS licensee needing the 2023-2025 MHz segment to begin operations may accelerate the relocation process at its own expense, and have this expense deducted from the *pro rata* share of costs it owes previous licensees. We think that this eventuality is unlikely to arise for two reasons. First, this portion of the MSS band may be occupied by a licensee capable of sharing with BAS (see ¶¶ 62-63 *infra*), which would obviate the need for accelerated relocation of the remaining markets in Phase II. Second, if this portion of the spectrum is the last to be assigned to an MSS licensee, it is possible that the relocation will be finished before that MSS licensee is ready to begin service.

34. We find that this two-phase plan is an appropriate compromise between a simultaneous national cut-over and a multi-phase, licensee-by-licensee transition. This phased approach to BAS relocation will allow an orderly transition with minimum disruption to BAS service, while at the same time assuring efficient use of the spectrum. A transition of more phases, as recommended by IUSG, would burden BAS incumbents with frequent equipment changes and the attendant confusion and equipment down time. A simultaneous cut-over is impracticable for the reasons presented by commenters in opposition. We also note that some MSS licensees will begin service later than others. This argues strongly against a simultaneous national cut-over which could leave substantial amounts of valuable 2 GHz spectrum unused for a long period of time.

35. Requiring relocation of BAS licensees in the LA and Metro markets before MSS begins operations ensures the continuity of a seven-channel BAS system where seven channels are most needed, while allowing several years for the relocation of BAS in the Light and Rural markets, where the need for seven channels is less pressing. This approach will allow new MSS licensees to spread out the cost of BAS relocation over several years, and pay much of the cost out of operating revenues, rather than start-up capital. Further, the burden on manufacturers of BAS equipment and the trained personnel needed to retune or replace BAS equipment will be lessened by the phased nature of the transition, and by the varying time limits for relocating the different categories of markets. We also believe that digital BAS equipment will benefit from more time for design development, becoming higher capacity, smaller, less expensive, and less power-intensive. Finally, our transition plan minimizes the amount of valuable 2 GHz spectrum that could lie fallow, unused by relocated BAS licensees and not yet occupied by MSS licensees, during the early phase of MSS growth.

36. Finally, NAB has suggested a plan whereby, in addition to relocation of the LA and Metro markets, MSS will be required to relocate one ENG mobile vehicle in each market to allow it to operate on the Phase I channel plan. NAB points out that if ENG vehicles in a Metro market and ENG vehicles in an adjacent Light market were assigned to cover the same event, near the border of the markets or within the borders of one of the markets, coordination would prove difficult, because the two ENG systems would be operating on different channel widths.[67] Because NAB filed its suggestion in an *ex parte* letter, no other party has commented.

37. While we are aware of the coordination difficulties presented by NAB's scenario, we decline to adopt its suggestion. First, we note that operation in the BAS outside of the licensee's city of license of the associated broadcast station is on a secondary, non-interference basis to home-city licensees.[68] Our relocation policy has never provided for secondary licensees or secondary uses, and we

[67] *See* Letter from J. Goodman, NAB to M. Salas, Federal Communications Commission, Feb. 23, 2000.

[68] *See* 47 C.F.R. § 74.632(d).

hesitate to do so here. Second, we note that in the scenario described by NAB, coordinators would be able to assign the secondary, out-of-area licensees to BAS Channels 8 and 9 (2450-2483.5 MHz), which are unaffected by this relocation. In the alternative, the out-of-area licensees could use satellite newsgathering equipment, which would also avoid any problem with incompatible channel widths. Finally, the relocation suggested by NAB would be very difficult and expensive, because it would be necessary to relocate BAS receive sites as well as ENG vehicles. We find that, in view of the alternatives available to BAS licensees, NAB's suggestion would be unnecessarily burdensome upon MSS licensees.

38. *Negotiations*. In the *Third Notice*, we invited comment as to whether it is feasible to allow MSS and BAS operators to negotiate an appropriate transition plan, or whether the nature and needs of BAS and MSS would require us to mandate a transition plan.[69] We proposed to require that negotiations be conducted in accordance with our *Emerging Technologies* policies, as modified by the decisions in our *Microwave Cost-Sharing* proceeding, as applied in Section E *infra* and as delineated in 47 C.F.R. Part 101.[70] These proceedings defined relocation negotiations as voluntary and mandatory. Voluntary negotiations "are strictly voluntary and are not defined by any parameters."[71] During mandatory negotiations, on the other hand, "an [incumbent] licensee may not refuse to negotiate and all parties are required to negotiate in good faith. Good faith requires each party to provide information to the other that is reasonably necessary to facilitate the relocation process."[72] If no agreement is reached during negotiations, the new technology licensee may proceed to involuntary relocation of the incumbent. In such a case, the new technology licensee must guarantee payment of all relocation expenses, and must construct, test, and deliver to the incumbent comparable replacement facilities.[73] In the *Microwave Relocation Cost-Sharing* proceeding, the Commission reduced the voluntary negotiation period from two years to one year for non-public safety FS incumbents. Thus, the negotiation period for relocation of non-public safety FS incumbents is now one year for voluntary negotiations and one year for mandatory negotiations, for a total of two years. We proposed to adjust the negotiation periods for the 1990-2025 MHz band in the same manner. We also proposed to apply the good faith requirements of 47 C.F.R. § 101.73 to negotiations for the relocation of BAS.

39. Comments on the freedom of negotiations varied widely. IUSG, for example, suggests that we establish negotiation periods and a sunset date, and otherwise leave negotiations to the parties.[74] MSTV/NAB request that we mandate that each industry in the negotiations be represented by a national negotiator, and that we mandate full compensation for BAS incumbents, leaving only information-gathering and technical issues for negotiation.[75] Other commenters, like the Cosmos Coalition, recommend that we establish almost all of the details of relocation, including the formula for calculating costs.[76]

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[69] *See Third Notice*, 13 FCC Rcd 13,949, at ¶ 40.

[70] *See Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making* , 11 FCC Rcd 8825.

[71] 47 C.F.R. § 101.71.

[72] 47 C.F.R. § 101.73.

[73] *See* 47 C.F.R. § 101.75 for details on costs and the definition of comparable facilities.

[74] *See* IUSG Comments at 34-40.

[75] *See* MSTV/NAB Comments at 17-20.

[76] *See* Comsos Coalition Comments at 11; Reply at 6-7.

40. On the question of negotiation structure and periods, most parties recommended a simplified structure. A majority of commenters also stated that the negotiation period should be shortened from the period established in our *Emerging Technologies* and *Microwave Cost-Sharing* proceedings. MSTV/NAB, noting that several factors have significantly delayed this proceeding, requests that we abandon voluntary negotiations and adopt a two-year mandatory negotiation period, starting 60 days after the effective date of this *Second Report and Order*.[77] Several parties advocate a one-year negotiation period, to allow expeditious entry for MSS licensees.[78]

41. Finally, as regards the application of the good-faith requirement of 47 C.F.R. § 101.73, all parties who addressed this proposal in comments supported our proposal to require good faith in negotiation.[79] IUSG recommends strengthening our good-faith guidelines by clarifying what procedure we would use to evaluate an alleged violation of our good faith requirements, how much time would be required to resolve allegations of good faith violations, and what punishments would be imposed on violators. IUSG claims that, without these specifics, our good-faith guidelines inspire little faith in the negotiating parties.[80]

42. We remain convinced that the best way to achieve an equitable solution is to define the parameters of the relocation, and within those parameters to allow maximum flexibility to negotiators. The parties involved are better informed than the Commission as to their needs and the nature of the markets for their services and the equipment and facilities they need for their systems. At the same time, the nature of BAS as an integrated, coordinated system, and the nationwide nature of MSS necessitate a much more structured relocation framework than that contemplated in our *Emerging Technologies* proceeding. There are substantial differences between BAS and FS microwave. BAS is an integrated service whose licensees undergo a dynamic coordination process on a daily basis in covering news events. FS microwave is far less integrated, consisting essentially of a large number of individual links, with coordination required only upon first activation of any link, to ensure that the new link is sufficiently removed from existing links in frequency, geography, and orientation to avoid harmful interference. Further, FS microwave relocation has thus far consisted of removing links from the 2 GHz spectrum and relocating them to spectrum above 5 GHz. By contrast, BAS "relocation" will consist of reducing the seven BAS channels into a smaller portion of the same band they currently occupy. Finally, the integrated nature of BAS, along with the nationwide, and indeed global, scope of MSS, makes a licensee-by-licensee relocation of BAS impossible. For these reasons, we must consider additional factors in crafting a relocation scheme for BAS. It remains a primary goal to ensure that the BAS transition causes the minimum possible disruption to BAS operations.

43. At the same time, MSS is entitled to reasonable terms for initiating service. Several factors complicate the transition of BAS. First, the 2 GHz MSS system proponents are at widely differing points in the process of preparing to begin service. ICO plans to begin service in the year 2002.[81] Other

[77] *See* MSTV/NAB Joint Comments at 16.

[78] *See* IUSG Reply at 43; Cosmos Coalition Joint Comments at 11; Inmarsat Reply at 6.

[79] *See* NAB/MSTV Comments at 17; Iridium Comments at 7; IUSG Comments at 38.

[80] *See* IUSG Comments at 38-39.

[81] *See* Debtor's Amended Disclosure Statement Pursuant to 11 U.S.C. § 1125, *In re* ICO Global Communications Services, Inc., Case Nos. 99-2933 through 99-2936 (MFW) (Bankr. D. Del.) (dated March 20, 2000), at p. 87.

applicants may take as much as several more years to offer service.[82] Along with the impossibility of relocation of BAS in accordance with a geographic "buildout" schedule, this means that the early licensees of MSS could face a relocation burden that would be a barrier to entry. We find that it is necessary to ensure a BAS relocation plan that is not unreasonably burdensome upon MSS, while also fair to the incumbents.

44. We are persuaded that a shorter negotiation period than that which we have used before is justified in this case. In the first place, the BAS and MSS industries have been aware of this proceeding, and closely following its progress, since 1995. Also, as commenters have noted, intervening Congressional action and other factors have caused unusual delays in this proceeding.[83] Further, we note that the spectrum became available for MSS on January 1, 2000, and ICO expects to be ready to provide MSS service in 2002.[84] While negotiations must be given enough time to be effective, they should not unreasonably delay MSS access to the 1990-2025 MHz and 2165-2200 MHz bands. We believe that the considerable proscriptions we have been obligated to place upon the relocation of BAS, compared to previous relocations of FS microwave licensees, narrows the scope of negotiations considerably.

45. We established our two-phase transition plan to respond to the needs of BAS and MSS for an orderly and expeditious transition. We endeavor to minimize restrictions on relocation negotiations, merely providing an incentive to negotiate to both parties, and the minimum set of rules to ensure continuity of BAS service. Outside of these requirements, we will leave all arrangements to the negotiations of the parties involved. We emphasize that negotiations may produce any solution that is acceptable to both parties, as long as the solutions do not contradict our transition plan. For example, in many of the Metro markets, the BAS licensees in a particular market may opt for simply accepting a prohibition on the use of BAS channel 1, rather than retuning to 14.5 megahertz channels. This is because licensees in some of the larger markets satisfy demands for BAS channels by splitting channels, sending two overlapping BAS signals in a single channel. While this practice degrades the quality of the BAS signal, it doubles the channel capacity of BAS. Channel splitting is much more feasible with BAS channels of 17 megahertz than with BAS channels of 14.5 megahertz. Such a solution would be acceptable to us, as it meets our goals of freeing 18 megahertz of spectrum for MSS operations in Phase I. BAS licensees and MSS licensees may also choose whether to negotiate individually or collectively for relocation. To facilitate an orderly frequency coordination process and prevent interference, however, we will require that all BAS licensees in the same market use the same channel plan. For this reason, we will require all BAS licensees within a Nielsen DMA to coordinate and choose whether they prefer to surrender BAS channel 1 during Phase I, or whether they wish to be relocated to seven channels of 14.5 or 15 megahertz. After this decision is reached, licensees may negotiate individually or collectively with MSS providers, but must negotiate for relocation in accordance with the coordinated decision of all BAS licensees in the market.

46. We will forego the voluntary negotiation period in the case of MSS/BAS negotiations, and impose a two-year mandatory negotiation period, after which BAS licensees may be involuntarily relocated in accordance with our relocation scheme. This period for the 30 largest television markets will begin to

[82] *See, e.g.*, IUSG Comments at 56; Constellation Comments at 4; Boeing Reply at 6.

[83] *See, e.g.*, MSTV/NAB Joint Comments at 16.

[84] *See* Debtor's Amended Disclosure Statement Pursuant to 11 U.S.C. § 1125, *In re* ICO Global Communications Services, Inc., Case Nos. 99-2933 through 99-2936 (MFW) (Bankr. D. Del.) (dated March 20, 2000), at p. 87.

run 30 days after the publication of this *Second Report and Order* in the Federal Register. After the first MSS entrant in Phase I spectrum begins operations, another two-year mandatory negotiation period begins in the next 70 largest markets whenever the MSS licensee informs a BAS licensee, in writing, of its desire to negotiate. Similar negotiation periods will begin for Phase II, on the date that any MSS licensee informs BAS licensees, in writing, of its desire to negotiate for relocation of BAS incumbents in the 2008-2025 MHz band for Phase II. To ensure that all parties are aware of the start of Phase II, we will require the first MSS licensee in Phase II spectrum to provide the Commission and all other MSS licensees in the 1990-2025 MHz band with copies of its letter to BAS licensees informing them of its desire to negotiate for relocation of BAS.

47. Because all commenters support the application of our good faith requirements on any negotiations stemming from this proceeding, we will apply the provisions of 47 C.F.R. § 101.73 to such negotiations. Our goal is to ensure good faith negotiations by imposing sanctions which will outweigh any benefit a party may try to achieve through bad faith. We decline to delineate specific remedies for violation of the good faith requirement, as requested by IUSG. Rather, we believe that it is necessary for us to retain sufficient flexibility to be able to craft an appropriate remedy for a given violation in light of the particular circumstances at hand. For example, in cases where we determine that the BAS incumbent has violated good faith, we would seriously consider permitting the MSS licensee to move immediately to involuntary relocation of the BAS incumbent, thus allowing the MSS licensee to determine comparable facilities. In cases where we determine that the MSS licensee has violated good faith, we may apply one or more of several remedies that take into account the most recent offer of the BAS incumbent, and relocation-related premiums, such as system-wide relocations or analog-to-digital conversions. We believe it is effective to retain a wide range of potential responses to violations, and simply assure all parties that any party who violates our good faith requirements, either by acting in bad faith or by filing frivolous or harassing claims of violations, will suffer sufficient penalties to outweigh any advantage it hoped to gain by its violation.

48. In the event that agreement is not reached in any negotiation period, the MSS licensee(s) will have the option of involuntary relocation. In such a case, the MSS licensee may, at its own expense, make necessary modifications to or replacement of the incumbent licensee's BAS equipment in a fashion consistent with the modifications or replacement performed in negotiated agreements. It would not be in the public interest to allow a right of return to relocated incumbents, as was provided in our *Emerging Technologies Proceeding*. The disruption to region-wide or world-wide satellite systems for the benefit of relatively few BAS incumbents is infeasible. We will therefore allow involuntarily relocated BAS incumbents to petition the Commission for additional modification to or replacement of their equipment in any case where the incumbent believes it has not received comparable performance from its retuned or replaced equipment. Upon proof shown, we will order the MSS licensee in question to further modify or replace the incumbent BAS licensee's equipment.

49. This negotiation structure serves our twin goals of providing early access to the spectrum for MSS providers, while maintaining the integrity of the BAS system. We believe that the two year period for negotiations is sufficient to encourage all parties to engage in rapid, effective negotiations, without excessively delaying the initiation of MSS service.

50. *Sunset Date for BAS Relocation.* In the *Third Notice*, we inquired whether we should impose a "sunset" date, after which MSS licensees would no longer be required to relocate incumbents. 47 C.F.R. § 101.79 states that new licensees are no longer required to pay relocation expenses after ten years following the start of the voluntary negotiation period for relocation. We asked whether the sunset date should commence after the beginning of the voluntary negotiation period, as in 47 C.F.R. § 101.79, or some other date.

51. Commenting parties have been in wide disagreement on this issue. MSS parties typically

favor short sunset dates, on the order of two to five years from the date of this *Second Report and Order*.[85] In support of short sunset dates, MSS parties cite the ample notice of the impending BAS relocation,[86] incentive to incumbents to relocate quickly,[87] and other proceedings in which we have established relatively short sunset periods.[88] These commenters supporting a shorter sunset period point out that BAS incumbents have been aware of the impending relocation for some time, being on notice since 1992,[89] 1995,[90] or 1998.[91] Broadcasting interests generally have supported a fixed transition plan that moots the idea of a sunset date. The Association of America's Public Television Stations (APTS), however, recommends no sunset date at all, arguing that a sunset date would merely encourage MSS providers to refrain from entering rural and smaller markets until after the sunset date had passed.[92]

52. In our *Microwave Cost-Sharing Proceeding*, we explained our reasons for adopting a sunset date for relocation.

> ... an emerging technology licensee's obligation to relocate 2 GHz microwave incumbents should not continue indefinitely; however, we are also persuaded by incumbents that immediate conversion to secondary status in the year 2005 may not be necessary, especially with respect to ... links that would not interfere with any [new technology] systems. To strike a fair balance between these competing interests, we conclude that 2 GHz microwave incumbents will retain primary status unless and until an emerging technology licensee requires use of the spectrum, but that the emerging technology licensee will not be obligated to pay relocation costs after the relocation rules sunset, i.e., ten years after the voluntary period begins for the first emerging technology licensees in the service.[93]

We believe that the same considerations apply here. A sunset date provides a measure of certainty for new technology licensees, while at the same time giving incumbents ample time to prepare for the eventuality of moving to another frequency band. We believe that an appropriate sunset date is ten years after the beginning of the negotiation period. This is the period we currently use for relocation of FS microwave licensees.[94] We have been presented with no persuasive reason to adopt a different sunset date in the case

[85] *See* IUSG Comments at 39; Iridium Comments at 2-3; Constellation Comments at 5; Inmarsat Comments at 7; Boeing Comments at 13.

[86] *See* Inmarsat Comments at 7.

[87] *See* Boeing Comments at 13.

[88] *See* IUSG Comments at 39-40 (citing *Establishment of a Spectrum Utilization Policy for the Fixed and Mobile Services' Use of Certain Bands Between 947 MHz and 40 GHz*, GEN Docket No. 82-334, 54 RR 2d 1001 (1983)).

[89] *See* Inmarst Reply at 7.

[90] *See* Constellation Comments at 5.

[91] *See* Boeing Reply at 13.

[92] *See* APTS Comments at 7-8.

[93] *Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825, at ¶ 65.

[94] *See* 47 C.F.R. § 101.79.

of BAS incumbents. While we agree with commenters who state that BAS incumbents have been aware that a change in their allocated band was forthcoming for quite some time,[95] we note that the final form of the post-transition BAS band and the rules for the transition have not been promulgated until this *Second Report and Order*. We note that in the *Notice of Proposed Rule Making* in this proceeding, we proposed a final BAS band of 2025-2145 MHz, divided into seven channels of 17 or 18 megahertz each.[96] Had the BAS community begun ordering, and BAS manufacturers begun designing, equipment on the basis of the *Notice of Proposed Rule Making*, that equipment would now be useless, as the center frequencies and channel widths would be incompatible with the final BAS band we have adopted in this proceeding. Because it would have been impossible to plan for the BAS transition until the final form of the BAS band was known, we do not believe that BAS licensees had adequate notice of the change in their spectrum sufficient to allow planning for the transition. We think it reasonable to begin the sunset period only when the parties involved are informed of the rules under which the transition will be carried out. At the same time, arguments that there needs to be some certainty of an end date for the transition, as well as an incentive to BAS incumbents to negotiate, are well taken.

53. As noted above, we will begin the negotiation period 30 days after this *Second Report and Order* is published in the Federal Register. The obligation to relocate BAS incumbents will sunset ten years after that date. At that point, incumbent BAS licensees will shift to secondary status in the 1990-2025 MHz band, and all relocation obligations to BAS licensees will cease, including any which may be under negotiation when the sunset date arrives.[97] Consistent with our FS microwave sunset rules,[98] after that date any BAS licensee continuing to operate in the band will be required to vacate the band within six months of receipt of a written demand from a new licensee in the band.

54. This definition of the start date for relocations answers the need for basic fairness in relocation. Until this *Second Report and Order*, BAS licensees did not know what the final BAS band would be. We find that the combination of a negotiation period as established above and a specific sunset will both encourage BAS incumbents to move forward with relocation, and also provide BAS with assurances that the relocation will not be cut short by a premature sunset date. Our sunset date also provides a definite end to the transition, a time at which BAS licensees, if not finally relocated to the future BAS band of 2025-2110 MHz, will shift to secondary status.

55. *Participation in BAS Relocation.* In the *First R&O/Further Notice*, we sought comment on whether we should freeze new BAS license applications during the negotiation period. If we did not freeze new applications, we asked if we should subject new BAS licenses issued after the release of that document to a condition requiring relocation to be at their licensees' own expense, given that new BAS license applicants would be on notice of the pending relocation of BAS.[99]

56. Several MSS parties strongly advocate freezing BAS licensing. IUSG requested that we condition new BAS licenses issued after March 14, 1997 (the date of the *First R&O/Further Notice of*

[95] *See supra* nn. 89-91.

[96] *See In re Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service*, ET Docket No. 95-18, *Notice of Proposed Rule Making*, 10 FCC Rec 3230, ¶ 9 (1995).

[97] Cost-sharing obligations among relocating parties, explained below, continue beyond the sunset date.

[98] *See* 47 C.F.R. § 101.79.

[99] *See First R&O/Further Notice* at ¶ 71.

Proposed Rule Making) on a requirement that the licensee must pay for its own relocation,[100] and that we similarly condition BAS license renewals after November 25, 1998 (the date of the *Third Notice*).[101] ICO and Inmarsat agree with conditioning new and renewal licenses issued after March 14, 1997.[102] These parties state that freezing or conditioning new and renewed BAS licenses will provide stability and certainty to the relocation process by establishing the upper limit of the number of BAS licensees to be relocated. Further, MSS commenters claim that BAS has been on notice that such a freeze or conditioning of licenses could occur at any time after July 22, 1997, the date we began accepting applications for MSS licenses.[103] Broadcasting interests oppose any such licensing freeze or conditioning licenses. NAB/MSTV claim that a freeze on new BAS licenses would paralyze the expansion of BAS,[104] and that conditioning new licenses as of any point earlier than the release of this *Second Report and Order* would be unfair, because BAS licensees have not known before this point what the final shape of their spectrum would be.[105] SBE agrees, and suggests that the release date of this *Second Report and Order* is the appropriate date for cutting off relocation for new BAS licensees.[106]

57. We have not previously considered whether to freeze or condition BAS license grants or renewals at any particular point, despite requests from some parties that we do so. The *Second Memorandum Opinion and Order* portion of this document deals with one such request. This is because, before our consideration of the comments filed in response to the *Third Notice*, we had made no decision on what form the allocation of the BAS band or the rules regarding BAS relocation would take, *i.e.*, the size of the future BAS band or whether the transition would be simultaneous or phased, nationwide or market-by-market. Until adoption of this *Second Report and Order*, the eventual allocation for BAS was not finalized, and BAS licensees therefore could not have known whether the future BAS band would be of 105 megahertz divided into seven 15-megahertz channels, 85 megahertz divided into seven 12- and 13-megahertz channels, or 70 megahertz divided into seven 10-megahertz channels. The exact nature of the future BAS band was critical to knowing what sort of equipment licensees should purchase. We therefore found that it would be unfair to require BAS licensees to acquire equipment that would meet undefined new standards, which would have been the effect of conditioning new licenses or renewals on secondary status before this document established the future BAS band and the rules for relocation of BAS licensees. Conditioning licenses prior to this *Second Report and Order* would have raised so much uncertainty in equipment purchases for new licensees that we believe it would have effectively prevented stations from seeking to provide BAS service during the freeze period.

58. Now that the relocation rules for BAS have been established, however, we believe that it would be unfair to MSS licensees to require them to relocate licensees who knew of the relocation before they received their licenses. BAS licensees who receive their licenses after this point will be aware of the

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[100] *See* IUSG Comments at 27.

[101] *See id.* at 29.

[102] *See* ICO Comments at 7; Inmarsat Reply at 3.

[103] *See, e.g.*, IUSG Comments at 28-29.

[104] *See* NAB/MSTV Reply at 19.

[105] *See id.* at 19-20.

[106] *See* SBE Reply at 6.

size and channel bandwidth of the future BAS band, and of the interim Phase I BAS band. A television station wishing to begin BAS service can use this information in ordering its equipment. There is therefore no reason to continue to allow new BAS licensees to acquire equipment designed to operate only in the current BAS band, with the expectation of being relocated by MSS.

59. Accordingly, we will require that upon publication in the Federal Register of this *Second Report and Order* all initial grants of BAS licenses will be conditioned so that the licensees may operate only in the 2008-2110 MHz portion of the spectrum. This will align new BAS licenses with our Phase I BAS band, which we expect to be effective for several years. Furthermore, if new BAS operators whose licenses were issued later than 30 days after publication of this *Second Report and Order* in the Federal Register choose to operate in the full 2008-2110 MHz band, they must be aware that during Phase II or at the end of the sunset period, they will be required to adhere to the new BAS channel plan of seven channels in the 2025-2110 MHz band. These new licensees will not be relocated by MSS, but must prepare for relocation as needed at their own expense.

60. We believe that conditioning new BAS licenses to require new licensees to relocate themselves serves the need of MSS applicants for a defined list of the BAS licensees with whom they would have to negotiate. At the same time, we conclude that making the license condition retroactive would be unfair to BAS licensees, who made their equipment purchases without knowing or being able to know the eventual shape of the BAS band, but who decided to begin using BAS in their operations.

61. *MSS/BAS Spectrum Sharing.* In the *Third Notice*, we noted that some systems may employ technologies that would allow them to share spectrum with BAS in the 1990-2025 MHz band. We sought comment on whether such systems should be exempted from participation in the relocation of BAS.[107] One MSS license applicant, Celsat, Inc. (Celsat), presented a plan by which it, and possibly other geostationary MSS systems, could share spectrum with BAS.[108] Celsat claims that its advanced technology allows sharing with both BAS and FS microwave systems, and states that allowing such sharing, and exempting MSS licensees who can share spectrum with BAS incumbents from participating in relocation, is a more spectrally efficient and fair alternative than a wholesale imposition of relocation on all MSS licensees.[109] SBE reviewed Celsat's sharing proposal, and agrees that if a MSS provider can demonstrate that it will not cause harmful interference to, nor receive harmful interference from, BAS operations, that provider should not have to share in the costs of relocating BAS.[110] IUSG also states that it would be punitive and spectrum-inefficient to require a MSS licensee that is capable of sharing spectrum to pay the costs of relocation.[111] On the other hand, MSTV/NAB disagree with Celsat, stating that relocation should be triggered whenever incumbents will receive interference from, or cause interference to, new MSS licensees. According to MSTV/NAB, "there is no evidence that a significant number of MSS systems will be able to avoid BAS interference…."[112] Boeing asserts that exempting some MSS licensees from sharing in the costs of relocation would merely shift the burden unfairly to other MSS operators.[113]

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[107] *See Third Notice*, 13 FCC Rcd 13,949, at ¶ 42.

[108] *See* Celsat *ex parte* letter, Dec. 17, 1998; Celsat Comments at 3-4.

[109] *See* Celsat Reply at 4-5.

[110] *See* SBE Reply at 4.

[111] *See* IUSG Comments at 62.

[112] *See* MSTV/NAB Reply at 6-7.

[113] *See* Boeing Reply at 3.

62. This proceeding was initiated for the purpose of allocating spectrum for MSS, a task that entails establishment of a definite plan for the relocation of incumbent operators. The relocation of BAS is particularly difficult compared to prior relocations of FS microwave licensees. As we have noted, BAS is a highly integrated, nationwide service in which simple, link-by-link relocation is not possible. This is why we have designed the BAS transition plan above. We also conclude that it is necessary for there to be a defined form of the future BAS band. It is not feasible to allow the size and channelization of that future BAS band to depend on possible sharing with one or more MSS systems. Moreover, we are requiring the first MSS licensee(s) to clear much more spectrum than they will actually be assigned. As such, we could not apply a simple requirement that each MSS licensee clear the spectrum it will use; rather, we were obligated to design a complex transition, and will require MSS licensees to abide by the transition plan described above.

63. On the other hand, we recognize that the relocation plan we adopt in this *Second Report and Order* may enable certain MSS systems to share spectrum with BAS operations in the 2 GHz band. In this regard, we intend to adhere to the relocation policy in our *Emerging Technologies* proceeding, which states that "we will encourage spectrum sharing between emerging technologies services and incumbent 2 GHz fixed microwave users whenever technically feasible. . . . We are hopeful, however, that spectrum sharing techniques for some services . . . may prove workable. The success of those techniques could allow co-primary operation of some emerging technologies with existing fixed microwave services on a non-interference basis without the need for any relocation agreements."[114] We have consistently allowed new licensees that were able to share spectrum with incumbents to do so, and have exempted those licensees from relocation obligations. Therefore, in accordance with our policy, we will require each MSS operator to either conclusively demonstrate that its proposed system is capable of sharing spectrum with all types of BAS operations in the 2 GHz band or participate in the relocation of BAS. We will consider the specific plans that Celsat, and possibly other MSS applicants, present for MSS/BAS sharing in our ongoing proceeding for 2 GHz MSS licensing and service rules.[115]

64. *Cost Sharing.* In the *Third Notice*, we proposed to require subsequently entering MSS licensees in the 1990-2025 MHz band to compensate earlier MSS operators for the reasonable costs incurred in clearing the spectrum. We sought comment on whether we should require each MSS licensee to bear this financial responsibility in proportion to the amount of spectrum in the 1990-2025 MHz band for which it is licensed. We also asked whether costs should be shared among all the new MSS licensees on the basis of a cost sharing formula similar to that adopted in the *Microwave Relocation Cost-Sharing* proceeding, whereby the first entrant pays relocation expenses and obtains reimbursement rights from subsequent entrants, adjusted for the number of licensees who benefit and the relative time of entry.[116]

65. Most parties favor cost-sharing on an equal basis. IUSG states that, where a licensee has cleared BAS licensees from a band, subsequently entering licensees should reimburse the earlier licensee only to the extent that the later licensees use frequencies cleared by the first licensee. Where the earlier entrant created no benefit for the later entrant, however, there should be no reimbursement.[117] ICO

[114] *Emerging Technologies First Report and Order and Third Notice of Proposed Rule Making* at ¶ 29.

[115] *See the Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band*, IB Docket No. 99-81, *Notice of Proposed Rulemaking*, 14 FCC Rcd 4843 (1999).

[116] *See Third Notice*, 13 FCC Rcd 13,949, at ¶42 (citing *Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825, Appx. A, ¶ 3).

[117] *See* IUSG Comments at 48-49.

approves of cost-sharing generally, but opposes application of any formula that reduces the amount of the obligation of later-entering licensees, because of the varying states of readiness to begin service of MSS applicants.[118] Globalstar, L.P. (Globalstar) states that MSS licensees should contribute equally to the cost of BAS relocation.[119] Iridium, Inmarsat, and Boeing agree, but believe that the amount of each MSS licensee's contribution should be proportional to the amount of spectrum it receives.[120] TMI Communications and Company, Limited Partnership (TMI) adds that U.S. earth stations of non-U.S. systems should be required to contribute to the costs of BAS relocation.[121]

66. Under our BAS transition plan, in Phase I the first MSS licensee(s) to begin operations will be required to clear the entire 18 megahertz of current BAS Channel 1 (1990-2008 MHz). As we explained above, we require this channel clearing because the burden on BAS licensees of having each MSS entrant relocate BAS successively would be excessive. Because the first MSS licensee will clear such a large amount of spectrum, several subsequently entering licensees likely will find their spectrum has been cleared. The same circumstances will apply to Phase II of the BAS transition, where the entire 17 megahertz of the current BAS Channel 2 (2008-2025 MHz) will be cleared. This presents a unique situation where earlier entrants will bear significant costs in clearing BAS spectrum, yet will not ultimately use most of the spectrum that they clear.

67. For these reasons, we will require subsequently entering MSS licensees in Phase I to pay the earlier licensees a proportional share of the earlier MSS licensee's costs in clearing BAS spectrum, on a *pro rata* basis according to the amount of spectrum each licensee is assigned. For example, assuming equal-sized spectrum blocks for each MSS licensee, if a single MSS licensee clears the Phase I spectrum, the second MSS licensee will reimburse the first for half of its costs. The third MSS licensee will reimburse each of the earlier two so that each of the three bears one-third of the cost of clearing Phase I spectrum, and so forth. When Phase II begins, the first MSS licensee in Phase II spectrum will clear the entire Phase II band, and will be reimbursed by the MSS licensees already operating in Phase I spectrum of a proportional share of its costs. Subsequently entering MSS licensees in Phase II spectrum will reimburse each prior MSS licensee in both phases for its proportional share of costs. We are requiring MSS licensees in Phase I spectrum to pay a proportional share of the costs of clearing Phase II spectrum because we believe the Phase I clearance can be accomplished in most cases by retuning and filtering BAS equipment to take advantage of 14.5- and 15-megahertz channels, a much easier and less expensive task than the transition to channels of approximately 12 megahertz each, the ultimate goal of the transition. It is likely that the first Phase II MSS licensee will be required to provide a large amount of new equipment to BAS licensees, and that much of this equipment may be digital equipment. Because one of our reasons for designing the phased BAS transition as we did was to minimize the initial costs incurred by the first MSS licensee, and because much of the total cost of the BAS relocation is deferred to Phase II, we believe it is equitable to require all MSS licensees to share in the Phase II relocation costs.

68. To ensure that the costs of relocation are divided among MSS licensees on a *pro rata* basis, MSS licensees will be required to conduct an accounting to "true up" relocation expenditures. At any point after the end of the BAS transition, any MSS licensee may demand from all other licensees complete records on funds disbursed for relocation, and reimbursement received from other MSS licensees.

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[118] *See* ICO Comments at 12-13.

[119] *See* Globalstar Comments at 6.

[120] *See* Iridium Comments at 5; Inmarsat Reply at 5; Boeing Reply at 4.

[121] *See* TMI Comments at 6-7.

MSS licensees who have paid less than a *pro rata* share of the total costs of BAS relocation, based on the amount of spectrum the each MSS licensee has assigned, will then be required to reimburse MSS licensees who have paid more than a *pro rata* share, either individually or collectively, so that the burden is evenly shared between MSS licensees, based on total spectrum assigned in the 1990-2025 MHz band. New MSS licensees entering after the sunset date will be free from participating in the process of relocation.

69. We believe that these cost-sharing provisions are equitable to all MSS parties. The first MSS licensee, who clears the Phase I band, and subsequent MSS licensees in Phase I spectrum, have their entry costs minimized to the extent consistent with ensuring the continuity of BAS. All MSS licensees who benefit from relocation of BAS are responsible for contributing, as a condition of their licenses. Phase I spectrum licensees, in return for the minimization of their early relocation costs, must participate in the clearing of Phase II spectrum, if that spectrum is needed for MSS before the sunset date. Finally, the accounting among MSS licensees after the sunset period guarantees that any inequities in relocation costs will be compensated.

70. *Summary of BAS Relocation.* To reiterate, we have established a plan for the relocation of BAS that serves our goals of ensuring the integrity of BAS throughout the transition, while minimizing costs and barriers to entry for MSS licensees. We have devised a two-phase plan for relocation of BAS incumbents by new MSS licensees. In Phase I, the first MSS entrant will retune, filter and, as necessary, replace BAS equipment, so that it tunes one channel of 15 megahertz and six channels of 14.5 megahertz each, in the range 2008-2110 MHz. This will free 18 megahertz of former BAS spectrum for MSS use. Phase II will begin when the 18 megahertz of Phase I spectrum is no longer sufficient to meet MSS requirements. At that point, BAS licensees will be relocated to operate on channels of 12.1 or 12.4 megahertz, in the band 2025-2110 MHz.

71. The first MSS entrant must relocate BAS licensees in the 30 largest television markets (the LA and Metro markets) before beginning operations. In all other markets, BAS licensees will be prohibited from operating in the 1990-2008 MHz range. After the first MSS entrant begins operations, it must relocate BAS licensees in the next 70 largest television markets (the Light markets) within three years of beginning operations. BAS licensees in the Rural markets will continue to operate on the remaining six channels of 17 megahertz each. Subsequently entering MSS licensees in Phase I spectrum will, as a condition of their licenses, compensate the first entrant on a *pro rata* basis, according to the amount of spectrum the subsequently entering licensees are authorized to use. Similarly, in Phase II, the first MSS entrant must relocate BAS licensees in the 30 largest television markets (the LA and Metro markets) before beginning operations in Phase II spectrum. In all other markets, BAS licensees will be prohibited from operating in the 2008-2023 MHz range. Thus, BAS licensees in the Light markets will operate on six channels of 14.5 or 15 megahertz each, and BAS licensees in the Rural markets will operate on five channels of 17 megahertz each during Phase II. After the first Phase II MSS entrant begins operations, it must relocate BAS licensees in the next 70 largest television markets (the Light markets) within three years of beginning operations. Finally, the first MSS entrant in Phase II must relocate licensees in the remaining (Rural) television markets within five years of beginning operations. At the end of Phase II, all BAS licensees will operate on seven channels of 12.4 or 12.1 megahertz each, in the 2025-2110 MHz band. As in Phase I, subsequently entering MSS licensees in Phase II spectrum will be required to compensate the first Phase II entrant on a *pro rata* basis according to the amount of spectrum the subsequently entering licensees are authorized to use, before beginning operations. The first entrant in Phase II spectrum will also be entitled to compensation from Phase I licensees, again on a *pro rata* basis according to spectrum authorized for their use, of its expenses in relocating BAS licensees.

72. Phase I will begin 30 days after the publication of this *Second Report and Order* in the Federal Register. This will trigger a mandatory negotiation period of two years for the MSS licensee and BAS licensees in the LA and Metro markets. During this period, MSS and BAS licensees may negotiate

individually or collectively for any relocation arrangement that satisfies the parties and is consistent with the BAS transition band plan and the plan coordinated by all BAS licensees in the television market. Consistent with our negotiation rules, no BAS or MSS licensee may refuse to negotiate, and all parties must negotiate in good faith. After the first MSS entrant in Phase I spectrum begins operations, another two-year mandatory negotiation period begins between the MSS licensee and BAS licensees in the Light markets whenever the MSS licensee informs a BAS licensee, in writing, of its desire to negotiate. All relocations in Phase I must be completed within three years of the date the first Phase I MSS entrant begins service.

73. Phase II will begin when any MSS licensee is assigned spectrum in the 2008-2025 MHz band, and will supersede any remaining negotiation or relocation periods in Phase I. As in Phase I, this will begin a mandatory negotiation period of two years for the MSS licensee and BAS licensees in the LA and Metro markets. After the first MSS entrant in Phase II spectrum begins operations, another two-year mandatory negotiation period begins between the MSS licensee and BAS licensees in the Light and Rural markets whenever the MSS licensee informs a BAS licensee, in writing, of its desire to negotiate. Relocations in the Light markets (markets 31-100) in Phase II must be completed within three years of the date the first Phase II MSS entrant begins service, and relocations in the Rural markets must be completed within five years of that date.

74. Ten years after the date on which the first Phase I negotiations begin, relocation obligations will sunset. At this time, BAS licensees will revert to secondary status in the 2008-2025 MHz band, and upon written demand by a MSS licensee, will be required to vacate the band within six months. After the sunset date, MSS licensees will hold an accounting among themselves to equalize the costs of relocation of BAS. Throughout the BAS transition, any MSS licensee may demonstrate to the Commission that it is capable of sharing spectrum with BAS, and will be exempt from participation in the BAS relocation.

E. Relocation of FS Microwave Licensees in the 2165-2200 MHz Band.

75. The 2165-2200 MHz band is the MSS downlink band. Therefore, the interference with which we are concerned is interference caused to FS microwave receivers by MSS satellites, and interference caused to MSS handsets on the ground by FS microwave transmitters. In the *First R&O/Further Notice* in this proceeding, the Commission provided for MSS sharing with, and any necessary relocation of, FS incumbents in accordance with the policies we set forth in our *Emerging Technologies* proceeding. We stated there that it is the Commission's policy to require spectrum sharing between services wherever it is possible without harmful interference to either service.[122] Relocation of incumbent FS microwave links need occur only if there is harmful interference.

76. *MSS/FS Sharing.* We stated in the *First R&O/Further Notice* that MSS licensees would be required to relocate only those FS licensees with which they were unable to share spectrum. We noted that the Telecommunications Industry Association (TIA) was in the process of preparing a technical service bulletin which would define criteria and methodologies to assess interference between MSS and FS microwave licensees. We proposed that harmful interference be determined by TIA Bulletin 10-F or a standard successor document.[123]

77. Medina Electric Cooperative, Inc. (Medina), a FS microwave licensee, states that any FS

[122] *See First R&O/Further Notice*, 12 FCC Rcd 7388 at ¶ 42.

[123] *See id.* at ¶ 75. *See also Third Notice*, 13 FCC Rcd 13,949, at ¶ 47 n.81.

microwave incumbent in the 2165-2200 MHz band should be able to demand relocation if it can demonstrate that its system can reasonably be expected to receive harmful interference from MSS operations. Medina believes that the interference standards under development by TIA should be useful in calculating the likelihood of harmful interference.[124] UTC, the Telecommunications Association (UTC), filed a petition requesting that we clarify our relocation decision in the *Memorandum Opinion and Order* portion of the *Third Notice* to state that new MSS licensees must relocate incumbent licensees "if, based on established interference and coordination guidelines, interference would be caused to the incumbent operations."[125] UTC points out that the co-primary status of FS microwave and MSS in the 2165-2200 MHz band confers on the currently licensed FS microwave systems protection from interference by later-licensed systems, and states that permitting new licensees to begin to cause interference before relocating incumbents would defeat the purposes of our relocation policies.[126] In support, the Association of American Railroads (AAR) states that we should clarify that relocation obligations are triggered by *predicted* interference based on established standards.[127] ICO and IUSG note that our rules identify various coordination procedures which must be undertaken by satellite system operators in shared terrestrial/satellite frequency bands.[128] Inmarsat states that the procedures recommended by TIA should be required for coordination between MSS and FS licensees.[129]

78. In October 1999, TIA published TSB86.[130] This technical service bulletin is the result of extensive cooperative study between FS microwave and MSS engineering experts.[131] We adopt TSB86 as the standard for assessing potential interference from MSS licensees to FS licensees. Using the criteria and methodologies of TSB86, MSS licensees will be required to relocate any FS microwave licensees with whom modeling indicates they cannot share spectrum. The rules we adopt here mandate that these procedures be undertaken, and the analyses should reveal which FS microwave systems new MSS licensees will be able to co-exist with, and which FS microwave systems must be relocated by the new licensees. New MSS licensees must relocate incumbent FS microwave licensees upon determination, based on the standards of TSB86, that interference would be caused to the incumbent operations. At the same time, we emphasize that incumbent licensees have a duty to participate in the coordination process. Therefore, relocation will not be necessary until after the TSB-86 analysis and the coordination process is completed.

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[124] *See* Medina Comments at 8.

[125] *See* UTC, Petition for Clarification at 4. Because this petition addresses the MSS/FS sharing issue, we will treat the petition and the comments thereon of the Association of America's Railroads as comment in response to the *Third Notice*, and address them here.

[126] *See id.*

[127] *See* AAR Comments at 2 (emphasis in original).

[128] *See* ICO, Opposition to Petition at 3 (citing 47 C.F.R. §§ 25.130, 25.203, 2.105).

[129] *See* Inmarsat Comments at 6.

[130] *See* Letter from G. Rosenblatt, TIA, to M. Salas, Federal Communications Commission, Nov. 11, 1999 (cover letter submitting TIA, *Criteria and Methodology to Assess Interference Between Systems in the Fixed Service and the Mobile-Satellite Service in the Band 2165-2200 MHz*, TSB86 (Telecommunications Industry Association 1999)).

[131] TSB86 was developed by a Joint Working Group comprised of the TIA Engineering Subcommittees on Spectrum and Orbit Utilization, the TIA Engineering Subcommittee on Interference Criteria for Microwave Systems, and the National Spectrum Managers Association. *See id.*

79. *Sunset Date.* In the *Third Notice*, we proposed to provide for FS relocation in the 2110-2150 MHz and 2165-2200 MHz bands using the same sunset period as that established in the *Microwave Relocation Cost-Sharing* proceeding. As regards the proposed sunset period, most MSS commenters desire a shorter period than the proposed ten years from the beginning of negotiations. Recommendations vary from three years after the date of this *Second Report and Order* to January 1, 2005.[132] Several FS microwave commenters request no sunset period at all, and a continuation of relocation obligations indefinitely.[133] We note, however, that some MSS commenters and some FS microwave entities agree with our proposal of a sunset period of ten years from the start of negotiations.[134]

80. We find that our consideration of sunset dates in our *Microwave Cost-Sharing Proceeding* produced a fair balance of equities. As stated above, we found in that proceeding that a ten-year sunset period serves the public interest by providing certainty to the relocation process, prevents emerging technology providers from being obliged to pay relocation expenses indefinitely, and provides incumbents with ample time to negotiate relocation or plan for relocating themselves.[135] Those considerations apply in this situation, and we find that the balance struck by a ten-year sunset period remains fair to all parties. We also note that the *Microwave Cost-Sharing Proceeding* was completed during the pendancy of this proceeding. We therefore find that our decision that "the emerging technology licensee will not be obligated to pay relocation costs after the relocation rules sunset, i.e., ten years after the voluntary period begins for the first emerging technology licensee in the service"[136] assured incumbents in the Emerging Technologies spectrum, including 2165-2200 MHz, that their relocation would be subject to a sunset period of ten years. For these reasons, we will follow our current rules in adopting a sunset date of ten years after negotiations begin. After that date, FS microwave licensees will be required to relocate at their own expense within six months of presentation of a written demand by a MSS licensee entitled to use the spectrum that will receive harmful interference according to TIA TSB86, or that has received actual harmful interference from the FS microwave licensee.[137]

81. SBC requests that we provide for automatic extensions of this six month period in situations where the incumbent can demonstrate that it cannot relocate within the six month period and the public interest would be harmed if the incumbent is forced to terminate operations. SBC claims that such extensions are necessary when government approvals are needed to build new intermediate facilities on Federal Government managed land, or when international coordination is involved.[138] IUSG disagrees, stating that the requirements for securing Government approval or performing international coordination do not rise to the level of the "special circumstances" for which we stated that we would provide extensions in

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[132] *See* IUSG Comments at 39; Iridium Comments at 4; Constellation Comments at 5; ICO Comments at 6; Globalstar Comments at 4.

[133] *See* American Petroleum Institute (API) Comments at 10; AAR Comments at 9; Ass'n of Public-Safety Communications Officers (APCO) Comments at 2.

[134] *See* Boeing Comments at 9; UTC, The Telecommunications Ass'n. (UTC) Comments at 5; Medina Comments at 9-10; SBC Communications, Inc. (SBC) Comments at 4.

[135] *See Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825, at ¶ 66.

[136] *Id.* at ¶ 65.

[137] *See Petition for Clarification* at ¶ 4.

[138] *See* SBC Comments at 4-5.

the *Microwave Cost-Sharing Proceeding*.[139]

82. We see little value in allowing an automatic extension such as SBC requests. We believe that granting such automatic extension would undermine our policy of requiring rapid vacation of the spectrum needed by new licensees after the sunset period. Further, because SBC states that such extensions should be granted only upon demonstration by the incumbent of inability to relocate within six months, we question whether such extensions would be automatic. We also see no reason to specify a six-month extension for governmental approval and a twelve-month extension for international coordination. We prefer the flexibility of our standing policy, which allows us to evaluate the specific difficulty faced by the FS microwave incumbent in question, and to tailor the extension to the circumstances. We further are convinced that our current policy is sufficient to deal with any situations such as those that SBC cites as examples of relocation difficulties. For these reasons, we decline to adopt SBC's recommendation.

83. *Negotiations*. In the *Third Notice*, we proposed to adjust the negotiation periods for the 2110-2150 MHz and 2165-2200 MHz bands by reducing the voluntary period to one year, or two years in the case of public safety FS incumbents. Thus, the negotiation period for relocation of FS incumbents would be one year for voluntary negotiations and one year for mandatory negotiations, for a total of two years. For public safety FS incumbents, the voluntary period would be three years, and the mandatory period is two years, for a total of five years. We requested comment on whether this is appropriate, or whether we should establish other negotiation periods. We also requested comment on the date upon which we should begin the voluntary negotiation period for relocation of incumbent FS licensees.

84. MSS interests support shortening the negotiation period.[140] Specifically, IUSG calls for a single, one-year mandatory negotiation period, followed by involuntary relocation.[141] FS microwave commenters generally disagree, advocating a longer negotiation period. API recommends a two-year voluntary negotiation period, followed by a one-year mandatory period.[142] UTC advocates maintaining a one-year voluntary period, but calls for a two-year mandatory period.[143] APCO, specifically addressing public safety microwave systems, states that a three-year voluntary period and a two-year mandatory period is necessary to protect the integrity of public safety systems.[144] These commenters generally address the complexity of attempting to coordinate a nationwide relocation, and the time that will be needed to accomplish the task.

85. As we noted above, the duration of this proceeding has given licensees and potential licensees ample opportunity to prepare for relocation negotiations. Given the amount of time for preparation that this proceeding has provided, parties should be ready for relocation negotiations in short order. Further, the spectrum in the 2165-2200 MHz band became available to MSS on January 1, 2000, and at least one MSS provider, ICO, is prepared to begin service in 2002. We believe that the short time remaining before MSS service may begin justifies shortening the negotiation period.

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[139] *See* IUSG Reply at 56 (citing *Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making*, 11 FCC Rcd 8860 at ¶ 68).

[140] *See* IUSG Comments at 43; Inmarsat Comments at 8.

[141] *See* IUSG Comments at 43.

[142] *See* API Comments at 6.

[143] *See* UTC Comments at 4.

[144] *See* APCO Comments at 3.

86. For these reasons, we will adopt the same period for non-public safety FS microwave negotiations as that adopted for BAS, *i.e.*, a single, two-year mandatory negotiation period. Because FS microwave is not an integrated, dynamically coordinated service like BAS, we will not establish a particular start time for negotiations. Rather, we will adhere to our *Emerging Technologies* policy, which states that the negotiation period begins when the first licensee in the new service (here, MSS) informs the first licensee in the incumbent service (FS microwave), in writing, of its desire to negotiate.

87. We will make an exception to this general rule in the case of public safety FS microwave systems. Because of the importance of these systems to the safety of life and property, and the long lives of many public safety systems, our current policy provides a three-year voluntary negotiation period and a two-year mandatory negotiation period for public safety FS microwave incumbents. We decided in the *Microwave Cost-Sharing* proceeding to maintain these negotiation periods, because of the need for public safety licensees to plan for integrated emergency response systems.[145] We continue to believe that public safety FS microwave systems need more time to prepare for relocation than non-public safety systems. At the same time, it would cripple the nascent MSS industry to give public safety incumbents the same five-year negotiating period they now enjoy, as advocated by APCO.[146] For these reasons, we will maintain the single mandatory negotiation period that we have adopted for commercial microwave, but in the case of public safety incumbents, the period will be three years, instead of two years. This will provide new MSS entrants with strong incentives to deal favorably with public safety incumbents, and will provide additional time for public safety incumbents to prepare for relocation.

88. In the *Third Notice*, we proposed to provide for FS relocation in the 2110-2150 MHz and 2165-2200 MHz bands using the same good faith guidelines as those established in the *Microwave Relocation Cost-Sharing* proceeding and included in our rules.[147] Commenters who addressed this proposal agreed that our good faith guidelines should be incorporated into this proceeding for MSS/FS relocation negotiations.[148] Further, IUSG stated that we should clarify what punishments we would impose on parties who violated our good faith guidelines.[149] No commenter opposed the application of our good faith guidelines to this proceeding.

89. Accordingly, we adopt the good faith guidelines of Section 101.73(b) to negotiations for relocation of FS incumbents. Refusal to negotiate or failure to negotiate in good faith will lay the party open to sanctions. While we do not adopt a specific list of good-faith requirements, we reiterate that among the factors we will use in determining that a party has not negotiated in good faith are: whether the ET (MSS) licensee has made a *bona fide* offer of comparable facilities; whether the FS licensee has demanded a premium and whether that premium is proportionate and directly related to relocation; the steps the parties have taken to determine the actual costs of relocation; and whether either party has withheld information requested by the other and relevant to the relocation process. We further emphasize that a party which frivolously or without substantiation charges another party with failure to negotiate in good faith will itself be deemed to have violated good faith, and will be sanctioned.

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[145] *See Microwave Cost-Sharing Second Report and Order*, 12 FCC Rcd 2705, at ¶¶ 15-16.

[146] *See* APCO Comments at 3.

[147] *See Third Notice*, 13 FCC Rcd 13,949, at ¶ 49; 47 C.F.R. § 101.73(b),(c).

[148] *See* MSTV/NAB Comments at 16-17; IUSG Comments at 38-39.

[149] *See* IUSG Comments at 38-39; IUSG Reply at 47-48.

90. With respect to sanctions that may be applied in cases where we determine that a party has violated good faith, the need for good faith in FS relocation negotiations is the same as in negotiations for BAS relocation.[150] Our goal is to ensure good faith negotiations by imposing sanctions which will outweigh any benefit a party may try to achieve through bad faith. We decline to delineate specific remedies for violation of the good faith requirement, as requested by IUSG. Rather, we believe that it is necessary for us to retain sufficient flexibility to be able to craft an appropriate remedy for a given violation in light of the particular circumstances at hand. For example, in cases where we determine that the FS incumbent has violated good faith, we would seriously consider permitting the MSS licensee to move immediately to involuntary relocation of the FS incumbent, thus allowing the MSS licensee to determine comparable facilities. In cases where we determine that the MSS licensee has violated good faith, we may apply one or more of several remedies that take into account the most recent offer of the FS incumbent, and relocation-related premiums, such as system-wide relocations or analog-to-digital conversions.

91. *Comparable Facilities*. In the *Third Notice*, we did not specifically address the definition of comparable facilities, but noted that comparable facilities are defined in our rules in terms of throughput, reliability, and operating costs.[151] At the same time, we requested comment on "all aspects of this reallocation plan."[152] Specifically, we requested "comment on the relocation policies for BAS and FS microwave incumbents in these bands."[153] In its comments, API requested that we revisit a prior decision that replacement facilities need only match the throughput actually used at the time of relocation, rather than the total capacity of the system. API contends that FS incumbents often purchase systems with excess capacity, in anticipation of future needs. Without such reserve capacity, replacement facilities could be obsolete immediately upon installation.[154] In response, IUSG states that the acquisition of excess capacity is a business-risk decision by FS incumbents, and that MSS providers should not be required to shoulder the burden of FS decisions. Therefore, according to IUSG, incumbent system use at the time of relocation is the proper measure of comparable facilities.[155]

92. We decline to change the definition of comparable facilities in terms of throughput, as requested by API. While we understand the desire of FS incumbents to provide for possible future needs by purchasing systems with excess capacity, we do not believe that it is the responsibility of MSS or other new technology licensees to provide more than the relocated incumbent needs at the time of relocation. Future needs are speculative and completely beyond the control of MSS providers. It is appropriate for FS incumbents to make business plans and decisions in anticipation of future needs, but we do not agree that MSS providers should be required to subsidize the future business growth of FS incumbents. Therefore, we will not change the definition of throughput for comparable facilities.

93. ICO has requested that we require FS incumbents to accept relocation upon the provision of comparable facilities by MSS, and provides definitions of comparable facilities similar to that found in

[150] *See supra* ¶ 47.

[151] *See* 47 C.F.R. § 101.75(b).

[152] *Third Notice*, 13 FCC Rcd 13,949, at ¶ 53.

[153] *Id.*

[154] *See* API Comments at 13.

[155] *See* IUSG Reply at 57.

our rules. ICO requests that we put these definitions in the section of the rules that governs mandatory negotiations, and use the definition to require FS incumbents to accept relocation. ICO claims that such a "substantive relocation standard" that requires MSS providers to assume only the actual and direct costs of relocation will avoid undue delay in relocation negotiations and minimize negotiations and costs to MSS providers.[156]

94. We agree with ICO that a definition of comparable facilities in the rules that govern negotiations will be useful to define the target of negotiations. For this reason, we will include the definition of comparable facilities in the rules which govern negotiations. We decline, however, to adopt ICO's suggestion that FS incumbents must accept offers of comparable facilities as determined by MSS licensees. This would have the effect of cutting off negotiations, rather than allowing negotiations to continue to a mutually agreeable conclusion. It would also inevitably lead to arguments over what constitutes comparable facilities in each case, which would lead to the Commission acting as an arbiter. Our relocation policy was designed to leave these decisions to the parties, and avoid Commission arbitration where possible. Our relocation rules are based on the idea that interested, expert parties will negotiate to solutions more satisfactory than those which could be imposed by the Commission. We will leave this process intact, and will intervene only in cases of bad faith or failure of negotiation. Finally, as in the case of BAS relocation, we find that maintaining the right of return to relocated incumbents, as was provided in our *Emerging Technologies Proceeding*, would not be in the public interest. As we stated in ¶ 48 above, the disruption to region-wide or world-wide satellite systems for the benefit of relatively few incumbents is infeasible. We will therefore allow involuntarily relocated FS incumbents to petition the Commission for additional modification to or replacement of their equipment in any case where the incumbent believes it has not received comparable performance from its new equipment. Upon proof shown, we will order the MSS licensee in question to further modify or replace the incumbent FS licensee's equipment.

95. *Cost Sharing*. In the *Third Notice* we noted that incumbent FS microwave links in the MSS downlink band at 2165-2200 MHz are paired with 35 MHz of spectrum in the 2115-2150 MHz band. Because it is usually necessary to relocate both links of a two-way FS microwave system, when a new MSS or other licensee relocates a pair of FS links in these bands, another new licensee will benefit by having its spectrum in the paired band cleared. We proposed to require that, where an MSS licensee in the 2165-2200 MHz band or a new licensee in the 2115-2150 MHz band has relocated an incumbent FS link pair (the "Initial Licensee"), and an MSS or new licensee (the "Subsequent Licensee") subsequently begins service in the paired band that previously was cleared by the Initial Licensee, the Subsequent Licensee would be obligated to reimburse the Initial Licensee half of the Initial Licensee's costs incurred in relocating the incumbent FS link pair, prior to the beginning of operations by the Subsequent Licensee.[157]

96. Commenters generally agreed with our proposal.[158] Certain MSS commenters added that we should apply this cost-sharing principle only where FS microwave licensees would need relocation because of MSS interference, and that we should not require MSS licensees to pay a share of relocation expenses in cases where the FS microwave licensee is able to share spectrum with the MSS licensee, but not with the new technology licensee in the 2115-2150 MHz band.[159] No parties oppose our proposal, nor

[156] *See* Letter from C. Tritt, Morrison & Foerster to M. Salas, Federal Communications Commission, Mar. 31, 2000.

[157] *See Third Notice*, 13 FCC Rcd 13,949, at ¶ 51.

[158] *See* UTC Comments at 7; Globalstar Comments at 8; ICO Comments at 17; Iridium Comments at 8.

[159] *See* ICO Comments at 16; IUSG Comments at 62-63.

the position that MSS licensees who can share with FS microwave licensees should not be required to pay half the cost of relocations necessitated by the new service in the 2115-2150 MHz band.

97. Our relocation policy generally requires any party who benefits from a prior relocation to reimburse the relocating licensee for a fair portion of its expenses. In this case, MSS licensees and future new service licensees will benefit equally from the clearance of any FS licensee with whom they could not share spectrum. For this reason, we will require that where an Initial Licensee in the 2115-2150 MHz or 2165-2200 MHz band relocates both links of a paired FS microwave link, any Subsequent Licensee(s) will be obligated to reimburse the Initial Licensee for 50% of its total costs in relocating the microwave link pair. We find that this position is consistent with our relocation policy. We also find that the suggestion of MSS parties, that new licensees who will neither cause nor suffer harmful interference are able to share spectrum with incumbents, and therefore need not participate in the relocation of those incumbents, is consistent with our relocation policy. Therefore, where interference modeling in accordance with the relevant technical standards[160] indicates that a Subsequent Licensee could have successfully shared spectrum with a FS microwave incumbent, that Subsequent Licensee will not be required to reimburse the initial licensee for relocation expenses.

98. Our rules currently cap cost-sharing reimbursements in PCS relocations. According to these rules, the reimbursing party is only responsible for a proportionate share of relocation costs up to $250,000 per FS link, and up to $150,000 per link in associated tower costs, if applicable.[161] ICO has suggested that we adopt a rule under which, if at the end of negotiations, the Commission finds that the MSS licensee has not offered a comparable system to the incumbent, the FS incumbent is entitled to a liquidated payment of up to $250,000 per link, plus applicable tower costs of up to $150,000 per link.[162] No other party has commented on this suggestion.

99. We will not adopt ICO's suggestion. Our relocation policy, adopted in the *First R&O/Further Notice* in this proceeding, clearly states that, in the event that the parties cannot reach agreement during negotiations, the new technology (MSS) licensee is responsible for all actions necessary to relocate the incumbent. Because the MSS licensee receives a benefit from relocation in the form of spectrum for operations, we see no reason to relieve MSS of the responsibility of relocating incumbents. We believe that many relocations may cost less than $250,000, and we are confident that some relocation will cost more than $250,000. In either event, it has long been our policy that the party benefiting from the relocation is responsible, and we will not change that policy.

100. At the same time, we note that we did cap the costs of cost-sharing reimbursement in the PCS context, and we are convinced that we should do the same here. We adopted the cost cap to ensure that, if the relocating party provides an incumbent with an extravagant and possibly unwise relocation premium, only reasonable relocation costs need be paid by subsequent entrants who benefit from the relocation. We find the same reasoning applicable here. Therefore, we will require that where an Initial Licensee in the 2115-2150 MHz or 2165-2200 MHz band relocates both links of a paired FS microwave link, any Subsequent Licensee(s) will be obligated to reimburse the Initial Licensee for 50% of its total

[160] In the case of MSS/FS interference, the relevant standard is found in TIA TSB-86. In the case of terrestrial new service/FS interference, the relevant standard is found in TIA Bulletin 10-F or any standard successor. *See* 47 C.F.R. § 101.70(a).

[161] *See* 47 C.F.R. § 24.243(b).

[162] *See* Letter from C. Tritt, Morrison & Foerster to M. Salas, Federal Communications Commission, Mar. 31, 2000.

costs in relocating the microwave link pair, but we will cap this reimbursement requirement at the actual cost of relocating the incumbent licensee, up to $250,000 per link, and associated tower costs up to $150,000 per link. In other words, the Subsequent Licensee will be required to reimburse no more than $125,000 per link, and $75,000 per link in tower costs.

101. The rules for cost-sharing reimbursement in the PCS context also apply an "amortization" formula, whereby the amount of reimbursement owed by later entrants diminishes over time.[163] This amortization is intended to account for the competitive advantage that the first provider to market enjoys over later entrants. We find that this factor is irrelevant to this proceeding, because the new licensees in the paired 2110-2150 MHz band will not be MSS providers, as the band is not allocated internationally for MSS.[164] The new licensees in the paired spectrum will not be competitors of MSS. Therefore, the competitive advantage of early entry does not exist in this case. We will not apply the amortization formula to cost sharing between MSS licensees in the 2165-2200 MHz band and new licensees in the 2110-2150 MHz band.

102. We stress that the cost sharing rules described in this section apply only to MSS licensees and new licensees in the 2165-2200 MHz band and the 2115-2150 MHz bands. As regards the 2110-2115 MHz portion of the 2110-2150 MHz band, which is paired with the 2160-2165 MHz band, any new licensee in the 2110-2115 MHz segment will accomplish any necessary relocation in accordance with our relocation rules in Part 101 of the Commission's rules, without participation by MSS licensees.

F. Measuring Relocation Expenses for BAS and FS Microwave.

103. In the *First R&O/Further Notice*, we decided to apply our *Emerging Technologies* policy as regards involuntary relocation.[165] We asked at that time whether we should take the age of equipment into account in deciding the proper measure of costs in the case of involuntary relocation.[166] A number of MSS applicants have advocated that the proper measure of relocation expenses should be the depreciated value, or value of the remaining life, of both BAS and FS microwave equipment.[167] BAS and FS microwave incumbents are strongly opposed to this concept, stating that our relocation policy, as established in the *Emerging Technologies Proceeding* and refined in the *Microwave Cost-Sharing Proceeding,* calls for the new service licensee to provide the incumbent with comparable facilities in the case of involuntary relocation.[168]

104. In support of its claim that depreciated value is the appropriate measure for involuntary relocation, ICO presents an economic analysis of relocations costs prepared by Charles River Associates, Inc. (CRA), a consulting firm.[169] The CRA analysis begins by stating that the Commission's goal in our

[163] *See* 47 C.F.R. § 24.243(b).

[164] *See* 47 C.F.R. § 2.106.

[165] *See First R&O/Further Notice* at ¶ 29.

[166] *See id.* at ¶ 71.

[167] *See, e.g.,* IUSG Comments at 33-35; Boeing Comments at 13; ICO Comments at 15-16.

[168] *See, e.g.,* API Reply at 5-6; NAB/MSTV Reply at 15; SBC Reply at 1-2.

[169] J.P. Acton & S.M. Besen, An Economic Analysis of Regulatory Takings and Just Compensation with an Application to Mobile Satellite Services, June 18, 1999 (filed by *ex parte* letter, June 18, 1999).

relocation policy is to ensure that incumbent licensees are no worse off in the case of a reallocation of their spectrum than they would be if relocation were not required.[170] The analysis cites Supreme Court cases where the Court stated that where property is condemned by the Government, the owner is entitled to the fair market value of the property, but no more. This position is endorsed by academic papers on the subject of Government takings and compensation.[171] The CRA analysis cites the Commission's Open Video Systems (OVS) proceeding, in which the Commission held that its preemption of local authority does not constitute a Government taking, but allowed local authorities to collect from OVS operators the fair market value of public rights-of-way used by the OVS operators. The Commission stated that the proper value of the property taken was the difference between the value before and after the partial taking.[172] CRA's analysis then goes on to apply this principle of just compensation to incumbents displaced by new MSS licensees. CRA's conclusion is that the measure of the value that should be paid by the displacing licensee is a percentage of the original cost of the equipment equal to the percentage of the useful life of the equipment remaining at the time of displacement.[173] CRA goes on to factor into its equation the costs due to inflation of equipment prices, costs or benefits of operating at a new frequency, differing equipment functionalities, and differences in operating costs.[174] Finally, the analysis arrives at a formula which, according to CRA, is the accurate measure of just compensation for relocated incumbents.[175] The analysis then applies its formula to the specific case of relocation of BAS incumbents, concluding that the cost of retuning newer, reprogrammable BAS equipment is the appropriate measure of just compensation. In the case of older BAS equipment, which cannot be easily reprogrammed, CRA concludes that this equipment is likely near the end of its useful life. Therefore, CRA concludes that the just compensation for licensees with this older equipment is likely to be minimal.[176] In the case of FS microwave incumbents, CRA concludes that its formula will be applied to equipment, and that the just compensation of incumbents will include any necessary construction of relay antennas caused by the use of much higher frequencies.[177] Finally, CRA states that administration of its compensation formula is simple and straightforward.[178]

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[170] *See id.* at 4.

[171] *See id.* at 5-7.

[172] *See id.* at 7-8.

[173] *See id.* at 8-12.

[174] *See id.* at 12-15.

[175] *See id.* at 15-16. CRA's formula is: Compensation = $C((n-m)/n)\ (1+p-r)^m (1+\lambda)$, where

C is the original equipment cost,

n is the original useful life of equipment,

m is the number of years the equipment has been in use,

p is the annual rate of increase in equipment prices,

r is the annual rate of equipment productivity improvement, and

λ is the cost penalty or benefit of relocating to a new band.

[176] *See id.* at 17-19.

[177] *See id.* at 19-20.

[178] *See id.* at 20-21.

105. IUSG supports ICO's filing with a legal analysis of "just compensation."[179] IUSG begins by stating that the Commission's announced goal in its relocation policy is to "ensure that incumbents are no worse off than they would be if relocation were not required."[180] IUSG reiterates the views of the Supreme Court on Government takings, and states that "the underlying policy of 'just compensation' is to make the condemnee no worse off, and no better off, than before the property was condemned. This is, in fact, the Commission's stated policy as well."[181] IUSG states that MSS entrants should compensate incumbents based on the depreciated value of their facilities, arguing that the Supreme Court has decided that a party is made whole when the party receives fair market value for its condemned property, defined as 'what a willing buyer would pay in cash to a willing seller' at the time of the taking. IUSG claims that incumbents will be made whole by being paid the fair market value for their facilities.[182] IUSG cites the CRA analysis to conclude that incumbents will be made whole by receiving compensation equal to the value of the remaining useful life of their existing equipment.[183] IUSG states that incumbents will be fully able to fund purchases of new equipment by combining the compensation they receive for the depreciated value of their equipment plus the tax benefits of earlier depreciation write-offs. "Moreover, considerations beyond 'fair market value,' which are excluded from the formulation of 'just compensation' in takings of property by the US Government, are just as invalid here where the FCC is mandating the relocation of incumbents to make room for a new service in the 2 GHz bands for the benefit of the public."[184] IUSG claims that expenses the incumbents may incur in replacing their facilities with new facilities in other parts of the spectrum should not be considered as part of the formulation of fair market value, and that we should use either the CRA analysis to calculate the fair market value of incumbents' equipment, or a surrogate method based on the depreciated value of that equipment.[185] IUSG asserts that "the balance of equities has shifted since the PCS model [sic] was adopted …. [H]ere, the health, and perhaps the viability, of 2 GHz MSS depends on a revised and just equipment replacement cost policy."[186] IUSG argues that where there were many PCS licensees, there will be only a few MSS licensees. Further, relocation obligations for MSS, unlike PCS, are not tied to anticipated revenue from a portion of the service area, because the service area is the entire United States, and indeed the entire world. Therefore, MSS will be unable to make the business decision not to serve an area where anticipated revenues are lower than relocation costs.[187] Finally, IUSG points out that the Commission consistently reassesses its policies in view of changed circumstances, giving our biennial reviews of rules as an example. IUSG asserts that the nature of 2 GHz

[179] *See* Letter from N. Leventhal, Leventhal, Senter & Lerman P.L.L.C. to M. Salas, Federal Communications Commission, June 21, 1999.

[180] *See id.* at 3 (quoting the *Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825, at ¶ 32).

[181] *See id.* at 3.

[182] *See id.* at 4 (quoting *United States v. 564.54 Acres of Land*, 99 S.Ct. 1854, 1857 (1979)).

[183] *See id.* at 5 (quoting *Harry S. Schoeffel et al., d/b/a Olympic Hot Springs Co. v. United States*, 193 Ct. Cl. 923, 937 (U.S. Ct. Cl., 1971)).

[184] *Id.*

[185] *See id.* at 5-6.

[186] *Id.* at 7.

[187] *See id.* at 7-8.

MSS service, and the differences between it and terrestrial services, especially PCS, warrant a change in our policy.[188]

106. BAS and FS microwave commenters disagree with the CRA analysis. API states that payment of the depreciated value of equipment does not render the incumbent whole because the incumbent must still purchase new equipment where current equipment could have remained in service for many more years, absent the relocation.[189] MSTV/NAB address the CRA analysis, asserting that the analogy to government takings is specious. According to MSTV/NAB, the analysis of government exercise of eminent domain has nothing to do with conditions the Commission may put on its licensees. In the cases cited by CRA and IUSG, the Supreme Court determined "just compensation" by considering "what compensation is just to an owner whose property is taken *and* to the public that must pay the bill." While the Supreme Court attempts to put the owner in as good a position as if his property had not been taken, "this principle of indemnity has not been given its full and literal force."[190] MSTV/NAB assert that CRA's analogy is inapplicable to relocations in the 2 GHz band because the relocations are not the taking of property rights for public use. Rather, states MSTV/NAB, the Commission has made a policy decision that the public interest is met by having new spectrum users provide incumbents with comparable facilities when the incumbents are displaced. "[C]ompensation for the depreciated value of the old equipment would not enable [an incumbent] to construct a comparable replacement system without imposing costs on the incumbent, which would be inconsistent with our relocation rules."[191] A better analogy for relocation of 2 GHz incumbents, asserts MSTV/NAB, is one where, under tort law, property has been damaged or destroyed. In such cases, fair market value is measured by the market into which the damaged party must go to replace damaged or destroyed property. Thus, relocating licensees must ensure that incumbents are no worse off in the pecuniary or operational senses than they would be if relocation were not required.[192]

107. We disagree with the ICO/IUSG argument for a number of reasons. ICO/IUSG's argument, as well as CRA's analysis, rests upon the notion that our relocation policies, as they affect incumbents, are the equivalent of a Government taking of private property. The Constitution states that "… nor shall private property be taken for public use, without just compensation."[193] The cases cited by CRA and IUSG interpret this provision of the Constitution. However, we are not taking private property. A reallocation of spectrum and the subsequent relocation of incumbents do not amount to a taking under the Constitutional standard.

108. Rather, we are adhering to the policy we established in our *Emerging Technologies* proceeding. That policy provided for any necessary relocation of incumbent licensees by new technology licensees unable to share spectrum with incumbents.

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[188] *See id.* at 9.

[189] *See* API Reply at 5.

[190] *See* Letter from E. Goodman, Covington & Burling, to M. Salas, Federal Communications Commission, Jul. 12, 1999 at 2-3 (quoting *United States v. 564.54 Acres of Land*, 441 U.S. 506, 512 (1979)).

[191] *See id.* at 3 (quoting *Microwave Cost-Sharing First Report and Order/Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825, at ¶ 34).

[192] *See id.* at 4 (quoting Restatement (Second) of Torts at 911).

[193] U.S. Const. amend. V.

> If an emerging technology provider needs an incumbent's frequency, the Commission encourages the parties to negotiate a voluntary relocation agreement. Should that fail, the emerging technology service provider could request involuntary relocation of the incumbent. However, in that case, the emerging technology service provider must guarantee payment of all relocation expenses, build the new microwave facilities at the relocation frequencies, and demonstrate that the new facilities are comparable to the old as follows:
> (1) The emerging technology service provider must guarantee payment of all relocation costs. This includes all engineering, equipment, site and FCC fees, as well as any reasonable, additional costs that the relocated fixed microwave licensee may incur as a result of operation in a different fixed microwave band or migration to other media. (2) The emerging technology service provider must complete all activities necessary for implementing the new facilities, including engineering, frequency coordination and cost analysis of the complete relocation procedure. This also includes identifying and obtaining, on the incumbents' behalf, new microwave frequencies or other facilities where applicable. (3) The emerging technology service provider must build the new microwave system (or alternative) and test it for comparability to the existing 2 GHz system. The 2 GHz microwave licensee would not be required to relocate until the comparable alternative facilities are available to it for a reasonable time to make adjustments and ensure a seamless handoff. If within one year after the new facilities are in operation, they are demonstrated by the 2 GHz microwave licensee to be not comparable to the former facilities, the emerging technology service provider must remedy any deficiencies or pay to relocate the microwave licensee back to the former 2 GHz frequencies.[194]

109. We undertook that proceeding because we "believe[d] that the public interest will be served best by making spectrum in the 2 GHz band available for emerging technologies. There is an immediate need for additional spectrum to sustain the growth of services made possible through new technologies."[195] In order to serve this need, we devised a plan to allow early access to the 2 GHz band to new technology services. Our intention was to foster the rapid emergence of services using new and innovative technologies. At the same time, we were concerned about maintaining the services that incumbent licensees in the 2 GHz band provided to the American public. We stated that "[i]n considering transition mechanisms for licensed services, we observe that the 2 GHz fixed microwave bands support important communications providing vital services to the public. We consider it essential that the process not disrupt the communications services provided by the existing 2 GHz fixed microwave operations."[196] Therefore, "[t]hroughout this proceeding we have recognized the important and essential functions, such as public safety and utility management communications, that 2 GHz fixed microwave operations now provide and indicated our intention to minimize the impact of our spectrum redevelopment plan on those services."[197] At the same time, we provide motivation to incumbents to negotiate and relocate expeditiously by providing for comparable facilities, and by providing a sunset date after which new licensees are no longer required to relocate incumbents (see above). The two features of comparable facilities and a sunset date act to

[194] *Emerging Technologies First Report and Order and Third Notice*, 7 FCC Rcd 6886, at ¶ 24.

[195] *Id.* at ¶ 14.

[196] *Emerging Technologies Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589, at ¶13.

[197] *Id.* at ¶ 21.

encourage incumbents to vacate the reallocated spectrum quickly, thus providing early access for new technology licensees.

110. In order to balance the public interests in new technology services and in maintenance of the integrity of incumbent 2 GHz services, we adopted a policy that allowed new technology to gain access to 2 GHz spectrum earlier than would have been possible if we had simply reallocated the spectrum. We stated that our policy would "provide for fair and equitable sharing of the 2 GHz frequencies by new services and the existing fixed microwave services that currently use this spectrum and/or relocation of existing 2 GHz facilities to other spectrum. The transition plan for sharing and relocation . . . is intended to prevent disruption of existing 2 GHz services and minimize the economic impact on the licensees of those services."[198]

111. In this proceeding, we have acknowledged that MSS licensees in the 2 GHz band will face unusually high costs in gaining early access to 2 GHz spectrum because of the nationwide nature of their service and the nature of the BAS transition. We have taken a number of steps to reduce the costs incurred by MSS licensees. Our BAS transition plan contains many features intended to defer as many costs as possible from the early stages of the transition to later stages, when there will be more MSS licensees to share the burdens, and when costs can be paid out of operating revenues rather than initial capital. For example, we have required new MSS licensees to relocate only those BAS licensees in the 30 largest television markets before they begin operations. We also designed the two-phase BAS transition plan so that Phase I is relatively inexpensive to accomplish, in most cases requiring only reprogramming or retuning and filtering of BAS equipment, as opposed to the replacement of large amounts of BAS equipment, which is likely to be necessary in Phase II. Similarly, in the relocation of FS microwave licensees, we have clarified that MSS licensees need relocate only those licensees with whom they cannot share spectrum, according to the standards of TSB86. We have also ensured that half of the cost of relocating FS microwave links will be reimbursed by future licensees in the 2115-2150 MHz band. Many of the measures we have adopted will work hardships upon the incumbents in order to minimize relocation costs to MSS licensees. We believe that any further relief from relocation costs for MSS licensees, such as allowing them to pay only the depreciated value of the equipment operated by incumbents, would be contrary to the policies we established in our *Emerging Technologies* proceeding, and would threaten the integrity and continuity of the services provided to the public by incumbent 2 GHz licensees.

112. Finally, we wish to point out that the formulation advanced by ICO/IUSG of our relocation policy as “relocation compensation” is not, and has never been, a part of our relocation policy. To restate that policy, there is a period, in this case two years for BAS and non-public safety FS microwave licensees, and three years for public safety FS microwave licensees, during which the parties concerned may negotiate in good faith to any conclusion that they find mutually satisfactory. At the end of this period, MSS licensees may involuntarily relocate incumbents. If MSS licensees choose this option, however, they will be required to take all actions necessary to build comparable facilities for the incumbents, test those facilities, and turn them over in working order to the incumbents. Relocation is not a question of compensation, but rather a requirement that the new technology licensees take upon themselves the burden of all actions necessary to provide incumbents with comparable facilities. While we are aware that, in practice, the parties may simply agree to a cash payment from the new licensee to the incumbent, the incumbent is entitled to fully constructed, tested, authorized, and operational new facilities in the case of involuntary relocation. Thus, the characterization of our policy as one of “compensation” is inaccurate

[198] *Id.* at ¶ 1.

and misleading. We find that the ICO/IUSG position on relocation compensation is an inappropriate model for our relocation policy, and decline to adopt it.

SECOND MEMORANDUM OPINION AND ORDER

113. We have before us three petitions for reconsideration of the *Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order*. The first, filed by IUSG and styled "*Petition for Expedited Reconsideration*," requests reconsideration of the *Order* portion, which dismissed the IUSG request for mandatory submission of information from BAS and FS microwave licensees in the 1990-2110 MHz and 2165-2200 MHz bands. The second, also filed by IUSG and styled "*Emergency Petition for Further Limited Reconsideration*," requests that we immediately freeze or condition BAS licenses in the 1990-2025 MHz band to preclude new licensees from receiving relocation by new MSS licensees. The third, filed by ICO and styled "*Petition for Further Limited Reconsideration*," requests that we reconsider our decision to require new MSS licensees to relocate incumbent licensees in the bands which have been reallocated to MSS. We also have before us an *ex parte* letter from ICO, which argues that our relocation policy violates international law. Because of the wide variety of issues presented in these petitions, we will address each separately.

114. *The Petition for Expedited Reconsideration.* IUSG requests reconsideration of our dismissal of its request that we collect extensive technical, operational, and equipment inventory data from BAS and FS microwave licensees. IUSG claims that the information it seeks is essential for MSS licensees to begin negotiations for relocation of incumbent licensees. IUSG claims that under the terms of the *Order*, neither ICO nor IUSG will be able to receive all of the information they seek until the mandatory negotiation period required by our relocation rules. IUSG states that without accurate information on relocation costs, potential investors in the ICO satellite venture may be unable to remain financially committed. IUSG points out that we requested in the *Third Notice* that BAS licensees provide us with some information on their operations,[199] but that we did not require the filing of the information described in the IUSG request.[200] IUSG also states that we requested information from BAS licensees, but not from

[199] "We also request parties to provide any available information on the approximate costs of new digital equipment, the extent to which 2 GHz ENG equipment currently deployed can be externally tuned to new carrier frequencies and/or bandwidth, the extent to which BAS channels 1 and 2 (1990-2025) are currently used, the particulars of BAS operation with respect to fixed BAS receive sites, the typical hours of operation of ENG systems during the day and night, the average duration of ENG transmissions, and whether there will be any impact on equipment other than the transmission equipment itself." *Third Notice*, 13 FCC Rcd 13,949, at ¶ 43.

[200] IUSG's *Request for Mandatory Submission of Information* asked that we collect from each BAS licensee its Nielsen DMA; the approximate region encompassed by that market; the manufacturer, model number, age, acquisition cost, present value, depreciation schedule, serial number, and description of any 2 GHz ENG transmitters, whether those transmitters were permanently installed in vehicles, permanently installed in fixed locations, or portable; the manufacturer, model number, age, acquisition cost, present value, depreciation schedule, serial number, and description of any 2 GHz ENG receivers, and whether the receivers were portable or installed in fixed locations; identification of any 2 GHz ENG equipment that can be externally tuned to new carrier frequencies or bandwidth; identification of all transmit and/or receive vehicles/locations that can operate only in the 1990-2110 MHz band; identification of all transmit and/or receive vehicles/locations that can operate in the 1990-2110 MHz band as well as the 2450-2483.5 MHz band, the 6875-7125 MHz band and/or any other ENG bands or with satellite newsgathering capability. The *Request* asked that we collect from each BAS coordinator identification of all television stations for whose ENG operations the coordinator is responsible; any stations whose ENG equipment uses ENG Channel 1, ENG Channel 2, or both, and whether that use is designated as primary or secondary; identification of the number of ENG receive sites and the number of receivers at each site, by geographic coordinates and with details about site configurations and use; identification (continued….)

FS microwave licensees.

115. IUSG states that our decision not to request information from FS microwave licensees must be reversed because it deprives potential MSS licensees and the Commission of information upon which to make decisions about 2 GHz FS microwave operations. IUSG claims that our request that BAS licensees provide us with operational and technical information confirms the importance of IUSG's request. IUSG asserts that we did not seek enough information of BAS licensees, and that our phrasing of questions is unlikely to produce the information that potential MSS licensees claim to need for estimating relocation costs.

116. IUSG goes on to state that without the information sought in its request, useful negotiations with BAS and FS microwave licensees will be impossible, that potential MSS licensees will have no way of knowing with which incumbents they need to negotiate, and that the information sought is of benefit to incumbent 2 GHz licensees as well as to potential MSS licensees. According to IUSG, the good faith rules we have proposed in the *Third Notice* will be insufficient to ensure that information is provided in the negotiation process, because MSS licensees will be unable to provide estimates of relocation costs in the case of a failure of negotiations due to bad faith on the part of incumbents. At all events, IUSG claims that the information it seeks will not arrive in time to allow ICO to begin operations as it expects. IUSG provides an analysis of the Communications Act of 1934, as amended, and the Commission's Rules to support its assertion that we have the authority to implement IUSG's request. According to IUSG, sections 4(i), 303(n), 308(b), and 403 of the Communications Act empower us to conduct investigations in areas under our jurisdiction. Under Section 1.17 of our rules, we may require in writing from any applicant, permittee or licensee "written statements of fact relevant to . . . matter[s] within the jurisdiction of the Commission." Finally, IUSG contends that we have full power and authority "to obtain the information necessary to discharge [the Commission's] proper functions. . . ."[201]

117. We deny the petition because we find that the relocation negotiation process is the appropriate forum to seek any information which is not currently available through Commission or industry sources. While we do not doubt IUSG's sincerity in its desire for technical, operational, and financial information, we question whether we are under an obligation to require the submission of such information, and whether such information may be obtained elsewhere.

(Continued from previous page)
of the number of fixed and mobile ENG transmit sites in the area that the coordinator serves, their geographic coordinates, and details about their configuration and use; identification of all television stations using frequency offset in the coordinator's service area, and a specific description of the nature of each offset; operators in the area that avoid ENG Channel 1 or make other allowances for PCS interference, and the allowances they make; typical hours of operation of ENG systems during the day and night, and the average duration of ENG transmissions; identification of all sites in which fewer than the seven new BAS channels proposed by the FCC are required to be simultaneously available in any given calendar day, such that BAS licensees could forgo use of Channels 1 and/or 2 rather than rechannelizing; identification of all records or logs concerning the foregoing information, where they are maintained, and the format or storage medium. The *Request* also asked that we collect from each affected FS microwave licensee the manufacturer, model number, age, acquisition cost, present value, depreciation schedule, serial number, and description of any FS transmitters or receivers (including antennas) licensed to the licensee; the typical link margins for links operated under the license; the extent to which the licensee's FS operations in the 2165-2200 MHz band also involve operations in the 2110-2150 MHz band such that relocation of the operations in the former band would require relocation of those in the latter; and indication of which microwave links, if any, use space diversity either to improve performance or prevent outage. *See Request for Mandatory Submission of Information* at 8-10.

[201] *See Petition for Expedited Reconsideration* at 17 (quoting 47 C.F.R. § 1.17; *Stahlman v. FCC*, 126 F.2d 124, 127 (D.C. Cir. 1942)).

118. IUSG has asked, *inter alia*, that we require BAS licensees to provide schedules for conversion to digital equipment; number of channels used at least once per week in the last 12 months; and age, acquisition cost, and depreciation schedule of BAS equipment. IUSG requests that we require BAS frequency coordinators to provide the typical hours of operation of ENG systems in their areas, and the usage of each channel, including the location of records and logs. IUSG also requests that we collect from FS microwave licensees the age, acquisition cost, and depreciation schedule of their equipment. As parties in opposition point out, this information is irrelevant to relocation calculations and unnecessary to the performance of our agency functions.[202] We can see no reason for information on age, acquisition cost, and depreciation schedule of equipment other than allowing certain MSS parties to continue to argue that they should pay only the depreciated cost of equipment, a position we have repeatedly rejected, and do so again today.[203]

119. The petition states, "the Commission is neglecting the more pressing needs of MSS operators who are prepared to offer 2 GHz MSS in the U.S. market in the very near future,"[204] "the Commission's decision... must be reconsidered and reversed,"[205] and "[t]he ineffectiveness of the Commission's information request is partly due to the phrasing of many of its questions...."[206] These phrases could lead to an impression that IUSG believes it has a right to have the Commission collect the information it seeks, in the form it seeks, and force current licensees to divulge information. We do not agree. We note that we collected no information at the behest of PCS licensees, yet these entities had little difficulty in negotiating relocation of incumbents using only the information already on file and available to the public at the Commission, industry sources, and the incumbent licensees themselves. Further, as MSTV/NAB point out, information gathering is a business cost, and "[t]he Commission should not shift the burden of paying those [] costs onto itself and the incumbents..."[207] We find that we are under no obligation to provide more information than we possess as to our licensees. Of course, the technical, operational, and other information we do possess will be made available to any requesting party.

120. As API aptly points out, IUSG has apparently overlooked the fact that a great deal of information about Commission licensees, including both BAS and FS microwave licensees, is currently available to the public.[208] Nothing prevents IUSG from gaining access to this information, and using it as the starting point for negotiations. IUSG states that, unless its request is approved, it will not receive all of the requested information until the mandatory negotiation period, and that the information is necessary for assessment of business costs, without which "IUSG and other potential investors may find themselves unable to remain financially committed to ICO's satellite venture."[209] We do not believe, however, that such precise data are needed for business planning purposes. As MSTV/NAB point out, "the detailed

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[202] *See* API Opposition at 15-16; MSTV/NAB Opposition at 4.

[203] *See supra* ¶ 111.

[204] *Petition for Expedited Reconsideration* at 2.

[205] *Id.* at 6.

[206] *Id.* at 11.

[207] *See* MSTV/NAB Joint Opposition to Petition for Expedited Reconsideration at 4.

[208] *See* API Opposition at 12-13.

[209] IUSG Petition at 4.

information sought in the Request would inevitably be obsolete by the time" of relocation.[210] We believe that enough information is currently available, both in our databases and from commercial sources, to permit sufficient estimates for business planning. As to the timing when IUSG will receive the information it needs to negotiate relocation, IUSG's assertion that it would not receive the relevant information from BAS and FS microwave licensees until the mandatory negotiation phase is mooted by our decision above, which eliminates the voluntary negotiation period in the case of MSS negotiations with 2 GHz incumbents. BAS and FS microwave licensees will be required by our good faith rules to provide any necessary information to MSS licensees in the negotiation process.[211]

121. Finally, IUSG points out that we did request that BAS licensees file some of the information requested, and claims that our

> information request in the *Third NPRM* essentially affirms the importance to the Commission's policymaking activities and to MSS operators' planning processes of the questions first posed in the Request. Given the substantial common ground between the Commission's information request and the information sought by Petitioners ... it is unclear why the Commission did not simply require that the information sought in the Request be submitted in the first place.[212]

We wish to make it clear that the information we requested is that which we believe will be of use to us in our policy making and regulatory functions. The balance of the information requested by IUSG is information which will help it in its business planning. IUSG reminds us that the *Third Notice* "agrees with Petitioners that possession of accurate information of the kind sought in the Request '*is necessary both to us in the formation of our regulatory policies, and to the parties to any relocation negotiation.*'"[213] IUSG fails to mention, however, that the next two sentences read "[w]e have asked herein in the *Third Further Notice of Proposed Rulemaking* [sic] for the information we believe is necessary to establish appropriate regulatory policies. We do not believe the formation of regulatory policy requires the level of detail that IUSGs request."[214] For these reasons, we deny the Petition for Expedited Reconsideration filed by IUSG.

122. *The Emergency Petition for Further Limited Reconsideration.* IUSG requests that we immediately freeze or condition BAS licenses in the 1990-2025 MHz band to preclude new licensees from receiving relocation by new MSS licensees.[215] IUSG states accurately that in the *First R&O/Further Notice* in this proceeding, we inquired whether we should freeze new BAS license applications during the negotiation period, or, given that new BAS license applicants would be on notice of the pending relocation of BAS, if we should subject new BAS licenses issued after the release of the *First R&O/Further Notice* to a condition requiring relocation to be at their licensees' own expense.[216] IUSG goes on to say we "failed to

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[210] MSTV/NAB Opposition at 4.

[211] *See* 47 C.F.R. § 101.73(b).

[212] IUSG Petition at 7.

[213] *Id.* at 5 (quoting *Third Notice*, 13 FCC Rcd 23,949, at ¶ 55).

[214] *Third Notice*, 13 FCC Rcd 23,949 at ¶ 55.

[215] *See* IUSG, Emergency Petition for Further Limited Reconsideration (hereafter "Emergency Petition").

[216] *See First R&O/Further Notice*, 12 FCC Rcd 7388 at ¶ 71.

consider comments regarding whether to freeze or condition new BAS license applications" in the *Third Notice*.[217] According to IUSG,

> Well-established judicial precedent requires further Commission reconsideration of a significant issue when the agency has failed to consider it during its initial deliberations.... In this case, the Commission itself raised a significant issue, received comments directly addressing the Commission's questions and then failed to consider these comments in the *MO&O*.... The Commission's failure to consider the treatment of new BAS applications here ... renders its decision arbitrary and capricious.[218]

123. IUSG goes on to state that our failure to condition or freeze new BAS licenses is a departure from past policy, noting that "the Commission concluded early on that permitting unrestricted fixed microwave growth in the 2 GHz Emerging Technologies bands would limit future use of these bands by new services. Accordingly, pursuant to its Emerging Technologies policies, the Commission in 1992 [sic] required all new fixed microwave licensees in the 2 GHz band to be awarded on a secondary basis only."[219] IUSG notes other examples of licensing freezes in spectrum reallocation proceedings.[220]

124. We first address the procedural position of the *Emergency Petition*, and find that it is improper and untimely filed under both our rules and the Communications Act of 1934, as amended. The Communications Act states that "[a]fter an order, decision, report, or action has been made or taken in any proceeding by the Commission ... any party thereto ... may petition for reconsideration...."[221] Our rules similarly state that "[p]etitions requesting reconsideration of a final Commission action will be acted on by the Commission."[222] Prior to the instant *Second Report and Order*, we have not taken action relevant to the freezing or conditioning of BAS licenses in the 2 GHz band. IUSG's contention that we failed to consider comments filed in response to the *First R&O/Further Notice* in this proceeding is in error. We note that the only document released in this proceeding since the *First R&O/Further Notice* has been the *Third Notice*. The *Third Notice of Proposed Rule Making* portion of that document made no final decisions. The *Memorandum Opinion and Order* portion of this document addressed only petitions for reconsideration of the decisions made in the *First R&O/Further Notice*, where no decision was reached regarding freezing or conditioning BAS licenses. The *Order* portion of the document dealt only with IUSG's *Request for Mandatory Submission of Information*. We realize that our consideration of this issue has been prolonged. This is due to the complexity of the issues in this proceeding, and the actions taken by Congress during the course of this proceeding. We deal with this and all other outstanding issues in this proceeding in the *Second Report and Order* portion of this document. However, we find no authority that requires us to deal with issues in our proceedings in the manner or time preferred by a party to the proceedings. As we did not previously make a decision regarding freezing or conditioning BAS licenses,

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[217] IUSG Emergency Petition at 4.

[218] *Id.* at 5-6 (citing *Schurz Communications, Inc. v FCC*, 982 F.2d 1043 (D.C. Cir. 1992)).

[219] IUSG Emergency Petition at 6 (citing *In re Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, ET Docket No. 92-9, *Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589, 6612 (1993)).

[220] *See id*. at 7-8.

[221] 47 U.S.C. § 405(a).

[222] 47 C.F.R. § 1.106(a)(1).

the *Emergency Petition* is premature and improper. We see nothing in the case cited by IUSG to cause us to change this view. In *Schurz Communications, Inc. v. FCC*, the court addressed the Commission's decision regarding new financial interest and syndication rules for television. The Court criticized the Commission's decision, and stated that the Commission had overlooked key evidence and ignored formerly persuasive arguments.[223] However, the Court said nothing about issues that were not decided, but rather addressed a controversial Commission final decision. We fail to see how the review of a final Commission decision in *Schurz Communications, Inc.* presents "similar circumstances"[224] to this proceeding, where we have yet to finalize a decision on freezing or conditioning BAS licenses.

125. As regards IUSG's assertion that our putative failure to freeze or condition BAS licenses is a departure from past policy, we note that the same case that IUSG cites to bolster its argument states that "[a]n administrative agency is no more straitjacketed by precedent than a court is. It can reject its previous decisions. But it must explain why it is doing so."[225] We address the issue of freezing or conditioning BAS licenses in the *Second Report and Order* portion of this document, and there explain our reasoning. Because a decision had not been made as of the time of the *Emergency Petition*, there was nothing to reconsider. For this reason, we dismiss the *Emergency Petition.*

126. *The Petition for Further Limited Reconsideration.* ICO Services Limited (ICO) requests that we reconsider and reverse our decision to require new MSS licensees to bear the cost of relocating incumbent FS microwave and BAS licensees in the 2 GHz band, and that we require all new BAS licensees and BAS and FS microwave license renewals issued after the release of the *First R&O/Further Notice* be conditioned to require the licensees to operate on a secondary basis and to relocate at their own expense. ICO bases its petition on the assertion that our relocation policies adopted in the *First R&O/Further Notice* violate the Communications Act.

127. ICO recognizes that this is the first time in this proceeding that it has raised this argument, but states that the time limits on reconsideration of the Communications Act are not an absolute bar to reconsideration of new issues.[226] ICO then engages in an analysis of precisely when and how we decided that new MSS licensees in the 2 GHz band would be responsible for relocating incumbents in the 1990-2025 MHz and 2165-2200 MHz bands, concluding that we did not decide the issue until we adopted the *First R&O/Further Notice* on March 13, 1997, and that we are therefore obligated to further reconsider this decision.[227]

128. ICO begins its substantive analysis by stating that the Communications Act prohibits the private ownership of frequencies, and creates no license rights beyond the terms, conditions and periods of the license.[228] ICO notes that we retain the discretion to terminate the use of spectrum for specific services in order to permit reallocation of spectrum to higher public interests,[229] but that the broad authority granted

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[223] *See Schurz Communications*, 982 F.2d at 1050.

[224] *See* IUSG Emergency Petition at 6.

[225] *Schurz Communications*, 982 F.2d at 1053.

[226] *See* ICO Petition for Further Limited Consideration at 4 (citing *Meredith Corp. v. FCC*, 809 F.2d 863, 869 (D.C. Cir 1987); *Graceba Total Communications, Inc. v. FCC*, 115 F.3d 1038, 1040 (D.C. Cir. 1997)).

[227] *See id.* at 5.

[228] *See id.* at 5-6 (citing 47 U.S.C. § 301).

[229] *See id.* at 6 (citing *FCC v. Sanders Brothers Radio Station*, 309 U.S. 470, 474-475 (1940)).

by Congress to the Commission does not permit us to adopt regulations inconsistent with the obligations of the Communications Act, Sections 301, 304, which requires licensees to waive any claims to frequency use based on previous use of the spectrum, and 309(h), which specifically states that a "station license shall not vest in the licensee any right to the station nor any right in the use of the frequencies designated in the license beyond the term thereof." ICO claims that we have violated these sections of the Communications Act in adopting our relocation policies.[230]

129. ICO notes that the Commission has, in the past, conferred some limited property rights in licenses, such as allowing the sale of cellular construction authorizations and broadcast station authorizations for profit.[231] ICO notes that the courts have not addressed whether limited rights in a license constitute "impermissible property rights in a license," and asserts that our relocation policies do indeed constitute such impermissible property rights.[232] In support of its contention, ICO quotes a dissenting statement from a 1985 Commission decision, wherein a commissioner stated "this pay-to-play spectrum acquisition mechanism contravenes language in Section 301 and 304 of the Communications Act, frustrating the congressional determination that spectrum belongs to the government and that a licensee's right to use the spectrum is limited to the specified term of the license. . . . Section 309, governing the process of applying for the use of the spectrum reinforces these limitations on licensees' rights."[233]

130. ICO presents an analysis of property rights, concluding that "[i]n granting ... possessory interest in the spectrum, the FCC provides with 'a property right in [a] frequency beyond the contemplation of both Congress and the courts.'"[234] ICO contends that our relocation policies contravene the Communications Act. The argument proceeds to claim that our "failure" to freeze or condition renewed licenses for incumbents "effectively has granted incumbent licensees an entitlement to rights in their licenses that extend beyond the terms, conditions and periods of the license in contravention of the Act."[235] According to ICO, "by ensuring that these renewal incumbents would be subject to full reimbursement for any relocation required during the *subsequent* renewal term, the Commission has granted incumbent licensees future rights in their licenses based solely upon their past occupancy of the spectrum."[236]

131. Finally, ICO estimates that there are over 1000 BAS licensees and over 10,000 FS microwave licensees, and states that our previous reimbursement policies were used for single channel or link-by-link relocation by PCS licensees in limited geographical areas. ICO concludes that the magnitude of a nationwide relocation and our "failure to adequately address the public interest considerations raised by the decision demands that the lawfulness of the Commission's relocation reimbursement policies under

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[230] *See id.* at 6.

[231] *See id.* at 7-8 (citing *Application of Bill Welch*, 3 FCC Rcd 6502 (1988); *1998 Biennial Regulatory Review -- Streamlining of Mass Media Applications, Rules, and Processes*, MM Docket No. 98-43, 13 FCC Rcd 23056 (1998)).

[232] *Id.* at 8.

[233] *See id.* at 9 (quoting *In re Amendment to the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to, a Radiodetermination Satellite Service*, 58 RR 2d 1416, 1423-28 (1985)(Commissioner Rivera, dissenting in part)).

[234] *Id.* at 11 (quoting *New South Media Corp. v. FCC*, 685 F.2d 708, 716 (D.C. Cir. 1982)).

[235] *Id.* at 13.

[236] *Id.* at 13.

the Act finally be addressed."[237]

132. We deny the *Petition for Further Limited Reconsideration*, finding it both procedurally defective and inaccurate in its claims. In the first place, we agree with ICO that the issue of relocation was decided in the *First R&O/Further Notice* in this proceeding, on March 13, 1997. According to our rules, "petition[s] for reconsideration shall be filed within 30 days from the date of public notice of such action..."[238] In order for us to consider a petition for reconsideration filed after the expiration of the 30-day period, we must be presented with very substantial reasons for considering the petition,[239] such as new facts that were unknowable at the time of the action, or a party that did not have and could not have been expected to receive notice of the action through the exercise of prudence and due diligence, or a substantial shift in the state of the law. None of these circumstances applies here. No significant new facts or circumstances have arisen in regard to our relocation policies, ICO was well aware of our actions and has been intimately involved in this proceeding since well before the *First R&O/Further Notice*.

133. Moreover, we disagree with ICO's contention that it is the intent or the effect of our relocation policies to create property rights in spectrum, or even limited property rights in licenses, beyond those that already exist. In our *Emerging Technologies* proceeding, we noted that FS microwave licensees provide vital services to the public.[240] These licensees provide telephone communications, communications indispensable to industry, and public safety communications which are dedicated to preserving the lives, health, and safety of the American public. BAS is no less vital to the public, as it provides news and weather information of great importance. While we have found that it is in the public interest to allocate spectrum for MSS,[241] this public interest is in no way superior to or holding priority over the public interest in efficient and effective industrial, safety, and emergency communications; or robust broadcasting and newsgathering. For this reason, we allocated MSS a co-primary status in the 1990-2025 MHz and 2165-2200 MHz bands.[242] Because MSS licensees will enjoy co-primary status with BAS and FS microwave licensees, all licensees will have equal rights to use the bands. Under our first-in-time rule, the first co-primary licensee is entitled to protection from harmful interference by subsequent licensees. As the subsequent licensees, MSS licensees have the option of sharing spectrum with BAS and FS microwave licensees, provided that they do not cause harmful interference to the incumbents. Should this be impossible or undesirable, MSS licensees will be obligated to relocate licensees with which they cannot share spectrum. The benefit MSS licensees receive from relocation is early access to the 1990-2025 MHz and 2165-2200 MHz bands. None of these policies creates new property rights in spectrum. Expansion of such rights, in this context, may violate Sections 301, 304, and 309(h) of the Communications Act.[243]

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[237] *See id.* at 12-13.

[238] 47 C.F.R. § 1.429(d). The date of public notice of the *First Report and Order and Further Notice* was April 22, 1997. *See* 62 Fed. Reg. 19509 (Apr. 22, 1997).

[239] "Although section 405 does not absolutely prohibit FCC consideration of untimely petitions for reconsideration, we have discouraged the Commission from accepting such petitions in the absence of extremely unusual circumstances." *Virgin Islands Telephone Corp. v. FCC*, 989 F.2d. 1231, 1237 (D.C. Cir. 1993).

[240] *See Emerging Technologies Third Report and Order and Memorandum Opinion and Order*, 8 FCC Rcd 6589 at ¶ 13.

[241] *See First R&O/Further Notice*, 12 FCC Rcd 7388 at ¶ 13.

[242] *See id.* at Appx. C.

Rather, our relocation policies are designed solely to prevent interference between stations.[244] Our relocation rules support our policy of providing for spectrum sharing between incumbents and new technology licensees, and relocation of incumbents where necessary.

134. ICO claims that our "failure" to freeze or condition new licenses and renewals gives incumbent licensees an entitlement to rights in their licenses that extend beyond the terms of those licenses, in contravention of the Act.[245] This is inaccurate. Our relocation policies apply to licensees who are operating at the time of the relocation. Any incumbent licensee now operating, whose license is to be renewed before relocation, will have the right to relocation only if its license is renewed. In order to obtain such renewal, the incumbent licensee will have to be operating in the public interest. Any current incumbent licensee whose license is not renewed will have no right to be relocated by new MSS licensees. Therefore, our relocation policies cannot be said to give incumbent licensees rights beyond the terms of their current licenses.

135. We are aware that relocation of incumbent licensees nationwide will be a very large undertaking. No single broadband PCS licensee relocated as many incumbent licensees as will be necessary for MSS service to begin. At the same time, no single broadband PCS licensee received a nationwide service area, with the attendant opportunity for profitable service. We believe that we have adequately addressed the balance of the public interest in a new service *versus* well-established services which have provided information and entertainment, industrial communications, telephone trunk lines, and public safety communications as part of the standing American telecommunications infrastructure.

136. ICO also submits an *ex parte* letter with an attached analysis of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies (Outer Space Treaty),[246] by Dr. Ram Jakhu. Dr. Jakhu's analysis examines Article I of the Outer Space Treaty, which states that outer space shall be free for exploration and use by all States without discrimination.[247] The analysis goes into great detail on the meaning of the language in Article II, stating that "Outer Space... is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means."[248] The analysis claims that an "unreasonable restriction imposed by a State (or its regulatory agency like the FCC) on the use of radio frequencies by any satellite system of a foreign State is undoubtedly an indirect, if not direct, way of restricting the freedom of use by

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[243] 47 U.S.C. §§ 301, 304, 309(h). The ICO petition contends that the creation of such property rights is a *per se* violations of these sections. The Commission takes no position on whether these sections proscribe the creation of new property rights in spectrum. We only emphasize that the interference and relocation policies adoted here do not create new property rights in spectrum.

[244] Except as otherwise provided in this Act, the Commission from time to time, as public convenience, interest, and necessity requires, shall --...

(f) Make such regulations not inconsistent with law as it may deem necessary to prevent interference between stations and to carry out the provisions of this Act....

47 U.S.C. § 303.

[245] *See* ICO Petition for Further Limited Consideration at 12.

[246] 18 U.S.T. 2410; 610 U.N.T.S. 205; T.I.A.S. 6347 (1967).

[247] *See id.*, Art. I.

[248] *Id.*, Art. II.

that foreign State."[249] Finally, the analysis concludes that

> the imposition of relocation costs on the [sic] non-US satellite systems (a) implies the granting of or recognizing the property rights in outer space of the US licensed, terrestrial wireless or satellite, systems which are clearly prohibited by the provisions of Article II of the 1967 Outer Space Treaty, (b) is a sort of discrimination against and restriction on non-US satellite systems, which are clearly prohibited by the provisions of Article I of the 1967 Outer Space Treaty, and (c) is contrary to general international law since it constitutes an abuse of its rights by the US because it causes "injury" in the form of financial burdens on accessing outer space by satellite systems of other States.[250]

137. As with ICO's argument that our relocation policies violate the Communications Act, this submission is procedurally deficient. As we noted *supra*, no significant new facts or circumstances have arisen in regard to our relocation policies, ICO was well aware of our actions and has been intimately involved in this proceeding since well before *First R&O/Further Notice*, and we are unaware of any substantial change in the Communications Act that affects our ability to decide the conditions of licenses. Nonetheless, because of the severity of the claim that our relocation policies violate international law, we will briefly discuss this *ex parte* presentation.

138. We fail to see how our policies constitute a denial of the right of the use of space to ICO or to the Government of the United Kingdom or of Wales, the countries where ICO is organized. Our relocation policy does not prevent ICO from launching satellites, controlling those satellites by radio, or using any radio frequency they choose outside the United States. Even should ICO choose not to relocate incumbent licensees, or even to forgo seeking licensing in the United States, our relocation policies will not prevent ICO from offering service wherever else in the world it should choose. As such, we must disagree with the assertion that conditioning a U.S. radio license constitutes a denial of the use of outer space under the Outer Space Treaty.

139. Dr. Jakhu concludes that our relocation policies imply the granting of or recognizing the property rights in outer space to U.S. licensed terrestrial wireless systems, contrary to the provisions of Article II of the Outer Space Treaty. We disagree. As stated *supra*, our relocation policies do nothing to create any property rights in spectrum for any licensee. These policies certainly do not grant incumbent licensees property rights in outer space. Rather, these policies are intended to ensure a smooth transition of 2 GHz spectrum to new technology users, while maintaining, in the public interest, the incumbent services in the affected bands.

140. We also disagree with Dr. Jakhu's conclusion that our relocation policies discriminate against non-U.S. satellite systems, which is clearly prohibited by the provisions of Article I of the 1967 Outer Space Treaty. We have accepted applications from nine parties for licenses to provide MSS in the 2 GHz band. Six of the nine are U.S. systems. All nine will be subject to our relocation policies in precisely the same fashion. We therefore cannot see how these policies constitute discrimination against non-U.S. systems.

141. As to Dr. Jakhu's final conclusion, that our relocation policies are contrary to general

[249] Legal Opinion of Dr. Ram Jakhu at 10-11 (submitted with letter from C. Tritt, Morrison & Foerster, to the Federal Communications Commission, May 5, 1999).

[250] *Id.* at 12.

international law, constituting an abuse of its rights by the U.S. by causing "injury" in the form of financial burdens on access to outer space by satellite systems of other States, we are again forced to disagree. Both U.S. and non-U.S. systems are perfectly free to gain access to outer space as they choose. If, however, they choose to do business in the United States, they must seek licenses, and must obey the terms and conditions of those licenses. We condition licenses in various ways, each of which undoubtedly causes some financial burden upon licensees. We do so in the public interest, under the obligations imposed upon us by Section 303 of the Communications Act to "as public convenience, interest, or necessity requires... [m]ake such regulations not inconsistent with law as it may deem necessary to prevent interference between stations..."[251] We note that the 1990-2025 MHz and 2165-2200 MHz bands remain allocated on a primary basis to the Fixed and Mobile Services worldwide under the international allocation plan of the International Telecommunication Union (ITU).[252] We therefore believe that the sharing of these bands between the Fixed and Mobile Services and MSS was contemplated by the ITU. It is our policy that if a new, co-primary licensee is unable to share spectrum with incumbents in these bands, the new licensee must relocate the incumbents. We find that our relocation policies are in accordance with U.S. and international law.

PROCEDURAL INFORMATION

142. *Final Regulatory Flexibility Analysis.* The Final Regulatory Flexibility Analysis for this *Second Report and Order*, pursuant to the Regulatory Flexibility Act, 5 U.S.C. §604, is contained in Appendix B.

143. For further information concerning this proceeding, contact Sean White at (202) 418-2453, internet: swhite@fcc.gov, Office of Engineering and Technology, Federal Communications Commission, Washington, DC 20554.

ORDERING CLAUSES

144. IT IS ORDERED that, pursuant to Sections 4(i), 7, 302, 303(c), 303(e), 303(f) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. Section 154(i), 157, 302, 303(c), 303(e), 303(f) and 303(r), this *Second Report and Order and Second Memorandum Opinion and Order* IS ADOPTED and that Parts 2, 74, and 101 of the Commission's Rules ARE AMENDED, as specified in Appendix A, effective 30 days after publication in the Federal Register.

145. IT IS FURTHER ORDERED that the *Petition for Expedited Reconsideration* filed by the ICO U.S.A. Service Group IS DENIED, the *Emergency Petition for Further Limited Consideration* filed by the ICO U.S.A. Service Group IS DISMISSED, and the *Petition for Further Limited Consideration* filed by ICO Services Ltd. IS DENIED.

146. IT IS FURTHER ORDERED THAT the Regulatory Flexibility Analysis, as required by Section 604 of the Regulatory Flexibility Act and as set forth in Appendix B, IS ADOPTED.

147. IT IS FURTHER ORDERED that the Commission's Consumer Information Bureau, Reference Information Center, SHALL SEND a copy of this *Second Report and Order and Second Memorandum*

[251] 47 U.S.C. § 303(f).

[252] *See* 47 C.F.R. § 2.106.

Opinion and Order, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONSCOMMISSION

Magalie Roman Salas
Secretary

APPENDIX A

Final Rules

For the reasons set forth in the preamble, parts 2, 74, 78, and 101 of title 47 of the Code of Federal Regulations are 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, 303, 307, 336, and 337, unless otherwise noted.

2. Amend § 2.106 as follows:
a. Revise pages 48 and 49 of the Table of Frequency Allocations.
b. In the list of United States footnotes, revise footnote US90, remove footnotes US111 and US219, and add footnotes US346 and US347.
c. In the list of non-Federal Government footnotes, revise footnotes NG118 and NG153, and add footnotes NG156 and NG168.

The additions and revisions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

			1755-1850 FIXED MOBILE G42	1755-1850	
S5.149 S5.341 S5.385 S5.386 S5.387 S5.388			1850-1990	1850-1990 FIXED MOBILE	RF Devices (15) Personal Communications (24) Fixed Microwave (101)
1930-1970 FIXED MOBILE S5.388	1930-1970 FIXED MOBILE Mobile-satellite (Earth-to-space) S5.388	1930-1970 FIXED MOBILE S5.388			
1970-1980 FIXED MOBILE S5.388					
1980-2010 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389A S5.389B S5.389F			1990-2025	1990-2025 MOBILE-SATELLITE (Earth-to-space) NG156	Satellite Communications (25)
2010-2025 FIXED MOBILE S5.388	2010-2025 FIXED MOBILE MOBILE-SATELLITE (Earth-to-space) S5.388 S5.389C S5.389D S5.389E S5.390	2010-2025 FIXED MOBILE S5.388			
2025B2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (Earth-to-space) (space-to-space) S5.392			2025-2110 SPACE OPERATION (Earth-to-space) (space-to-space) EARTH EXPLORATION-SATELLITE (Earth-to-space) (space-to-space) SPACE RESEARCH (Earth-to-space) (space-to-space) S5.391 S5.392 US90 US222 US346 US347	2025-2110 FIXED NG23 NG118 MOBILE S5.391 S5.392 US90 US222 US346 US347	TV Auxiliary Broadcasting (74F) Cable TV Relay (78) Local TV Transmission (101J)

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
2110-2120 FIXED MOBILE SPACE RESEARCH (deep space) (Earth-to-space) S5.388			2110-2120 US252	2110-2150 FIXED NG23 MOBILE US252 NG153	 Public Mobile (22) Fixed Microwave (101) Note: 2110-2150 MHz must be auctioned by September 30, 2002.
2120-2160 FIXED MOBILE S5.388	2120-2160 FIXED MOBILE Mobile-satellite (space-to-Earth) S5.388	2120-2160 FIXED MOBILE S5.388	2120-2200	2150-2160 FIXED NG23	 Domestic Public Fixed (21) Fixed Microwave (101)
2160-2170 FIXED MOBILE S5.388 S5.392A	2160-2170 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389C S5.389D S5.389E S5.390	2160-2170 FIXED MOBILE S5.388		2160-2165 FIXED NG23 MOBILE NG153 2165-2200 MOBILE-SATELLITE (space-to-Earth) NG23 NG168	 Domestic Public Fixed (21) Public Mobile (22) Fixed Microwave (101) Satellite Communications (25)
2170-2200 FIXED MOBILE MOBILE-SATELLITE (space-to-Earth) S5.388 S5.389A S5.389F S5.392A					
2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED MOBILE S5.391 SPACE RESEARCH (space-to-Earth) (space-to-space)			2200-2290 SPACE OPERATION (space-to-Earth) (space-to-space) EARTH EXPLORATION-SATELLITE (space-to-Earth) (space-to-space) FIXED (line-of-sight only)	2200-2290	

* * * * *

United States (US) Footnotes

* * * * *

US90 In the band 2025-2110 MHz, the power flux-density at the Earth's surface produced by emissions from a space station in the space operation, Earth exploration-satellite, or space research services that is transmitting in the space-to-space direction, for all conditions and all methods of modulation, shall not exceed the following values in any 4 kHz sub-band:

(a) -154 dBW/m^2 for angles of arrival above the horizontal plane (δ) of 0° to 5°,

(b) -154 + 0.5(δ-5) dBW/m^2 for δ of 5° to 25°, and

(c) -144 dBW/m^2 for δ of 25° to 90°.

* * * * *

US346 Except as provided by footnote US222, the use of the band 2025-2110 MHz by the Government space operation service (Earth-to-space), Earth-exploration-satellite service (Earth-to-space), and space research service (Earth-to-space) shall not constrain the deployment of the Television Broadcast Auxiliary Service, the Cable Television Relay Service, or the Local Television Transmission Service. To facilitate compatible operations between non-Government terrestrial receiving stations at fixed sites and Government earth station transmitters, coordination is required. To facilitate compatible operations between non-government terrestrial transmitting stations and Government spacecraft receivers, the terrestrial transmitters shall not be high-density systems (see Recommendations ITU-R SA.1154 and ITU-R F.1247).

US347 In the band 2025-2110 MHz, non-Government Earth-to-space and space-to-space transmissions may be authorized in the space research and Earth exploration-satellite services subject to such conditions as may be applied on a case-by-case basis. Such transmissions shall not cause harmful interference to Government and non-Government stations operating in accordance with the Table of Frequency Allocations.

* * * * *

Non-Federal Government (NG) Footnotes

* * * * *

NG23 Frequencies in the band 2100-2200 MHz may also be assigned to stations in the International Fixed Public Radiocommunication Services located south of 25° 30' North Latitude in the State of Florida and in U.S. insular areas in the Caribbean, except that no new assignments in the band 2150-2162 MHz will be made to such stations after February 25, 1974 and no new assignments in the band 2165-2200 MHz will be made to such stations after June 27, 2000.

* * * * *

NG118 In the band 2025-2110 MHz, television translator relay stations may be authorized to use frequencies on a secondary basis to other stations in the Television Broadcast Auxiliary Service that are operating in accordance with the Table of Frequency Allocations.

* * * * *

NG153 The bands 2110-2150 MHz and 2160-2165 MHz are reserved for future emerging technologies

on a co-primary basis with the fixed and mobile services. Allocations to specific services will be made in future proceedings.

* * * * *

NG156 The band 1990-2025 MHz is also allocated to the fixed and mobile services on a primary basis for facilities where the receipt date of the initial application was prior to June 27, 2000, and on a secondary basis for all other initial applications. Not later than **[insert date that is ten years and 30 days after publication in the Federal Register]**, the band 1990-2025 MHz is allocated to the fixed and mobile services on a secondary basis.

* * * * *

NG168 The band 2165-2200 MHz is also allocated to the fixed and mobile services on a primary basis for facilities where the receipt date of the initial application was prior to January 16, 1992, and on a secondary basis for all other initial applications. Not later than **[insert date that is ten years and 30 days after publication in the Federal Register]**, the band 2165-2200 MHz is allocated to the fixed and mobile services on a secondary basis.

* * * * *

PART 74 -- EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCAST AND OTHER PROGRAM DISTRIBUTION SERVICES

3. The authority citation for Part 74 is revised to read as follows:

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

4. Section 74.602 is amended as follows:

a. Add the following subparagraphs (a)(3) and (a)(4)

* * * * *

(3) After January 1, 2000, stations may adhere to the channel plan specified in subparagraph (a) above, or to the following channel plan in Band A:

Channel A01	--	2008-2023 MHz
Channel A02	--	2023-2037.5 MHz
Channel A03	--	2037.5-2052 MHz
Channel A04	--	2052-2066.5 MHz
Channel A05	--	2066.5-2081 MHz
Channel A06	--	2081-2095.5 MHz
Channel A07	--	2095.5-2110 MHz

Broadcast Auxiliary Service, Cable Television Remote Pickup Service, and Local Television Transmission Service licensees in Nielsen Designated Market Areas 1-30 will be required to use this Band A channel plan after completion of relocation by an Emerging Technologies licensee in accordance with § 74.690. Licensees declining relocation and licensees in Nielsen Designated Market Areas 31 and higher will be required to discontinue use of the 1990-2008 MHz band when informed by a Mobile-Satellite Service

licensee that it intends to begin operations in the 1990-2008 MHz band.

(4) When Mobile-Satellite Service licensees begin operations in the 2008-2025 MHz band, stations may adhere to the channel plan specified above, but forbidden to use Channel A01, or may adhere to the following channel plan in Band A:

Channel A01	--	2025-2037.4 MHz
Channel A02	--	2037.4-2049.5 MHz
Channel A03	--	2049.5-2061.6 MHz
Channel A04	--	2061.6-2073.7 MHz
Channel A05	--	2073.7 -2085.8 MHz
Channel A06	--	2085.8-2097.9 MHz
Channel A07	--	2097.9-2110 MHz

Broadcast Auxiliary Service, Cable Television Remote Pickup Service, and Local Television Transmission Service licensees in Nielsen Designated Market Areas 1-30 will be required to use this Band A channel plan after completion of relocation by an Emerging Technologies licensee in accordance with § 74.690. Licensees declining relocation and licensees in Nielsen Designated Market Areas 31 and higher will be required to discontinue use of the 2008-2025 MHz band when informed by a Mobile-Satellite Service licensee that it intends to begin operations in the 2008-2025 MHz band.

5. Add the new Section 74.690 as follows:

§ 74.690 Transition of the 1990-2025 MHz band from the Broadcast Auxiliary Service to emerging technologies.

(a) Licensees proposing to implement Mobile-Satellite Services using emerging technologies (MSS Licensees) may negotiate with Broadcast Auxiliary Service licensees (Existing Licensees) in the 1990-2110 MHz band for the purpose of agreeing to terms under which the Existing Licensees would relocate their operations to the 2025-2110 MHz band, to other authorized bands, or to other media; or alternatively, would discontinue use of the 2008-2025 MHz band when informed by a Mobile-Satellite Service licensee that it intends to begin operations in the 2008-2025 MHz band.

(b) Existing Licensees in the 1990-2025 MHz band allocated for licensed emerging technology services will maintain primary status in these bands until an MSS Licensee completes relocation of the Existing Licensee's operations.

(c) The Commission will amend the operating license of the Existing Licensee to secondary status only if the following requirements are met:

(1) The service applicant, provider, licensee, or representative using an emerging technology guarantees payment of all relocation costs, including all engineering, equipment, site and FCC fees, as well as any reasonable additional costs that the relocated Existing Licensee might incur as a result of operation in another authorized band or migration to another medium.

(2) The MSS Licensee completes all activities necessary for implementing the replacement facilities, including engineering and cost analysis of the relocation procedure and, if radio facilities are used, identifying and obtaining, on the incumbents' behalf, new microwave or Local Television Transmission frequencies and frequency coordination; and

(3) The MSS Licensee builds the replacement system and tests it for comparability with the existing system.

(d) The Existing Licensee is not required to relocate until the alternative facilities are available to it for a reasonable time to make adjustments, determine comparability, and ensure a seamless handoff. If within one year after the relocation to new facilities the Existing Licensee demonstrates that the new facilities are not comparable to the former facilities, the MSS Licensee must remedy the defects.

(e) Subject to the terms of this subparagraph, Phase I of the relocation of Existing Licensees will be carried out in the following manner:

(1) Beginning **[insert date that is ten years and 30 days after publication in the Federal Register]**, Existing Licensees and MSS Licensees may negotiate individually or collectively for relocation of Existing Licensees to one of the channel plans specified in § 74.602(a)(3) above. Parties may not decline to negotiate, though Existing Licensees may decline to be relocated. MSS Licensees must relocate all Existing Licensees in Nielsen Designated Market Areas 1-30 prior to beginning operations, except those Existing Licensees that decline relocation. If the parties are unable to reach a negotiated agreement, MSS Licensees may involuntarily relocate Existing Licensees after two years. As of the date that any MSS Licensee announces the beginning of operations in the 1990-2008 MHz band, licensees who are not on the new channel plan specified in § 74.602(a)(3) must discontinue use of Channel A01 (1990-2008 MHz).

(2) Before negotiating with MSS Licensees, Existing Licensees in Nielsen Designated Market Areas where there is a BAS frequency coordinator must coordinate and select a band plan for the market area. Thereafter, all negotiations must produce solutions that adhere to the market area's band plan.

(3) After the date the first MSS Licensee begins operations, MSS Licensees must relocate Existing Licensees in Nielsen Designated Market Areas 31-100 within three years, unless any Existing Licensee declines relocation.

(4) Beginning on the date any MSS Licensee announces in writing to Existing Licensees its intention to begin operations in the 2008-2025 MHz band, Existing Licensees and MSS Licensees may negotiate individually or collectively for relocation of Existing Licensees to one of the channel plans specified in § 74.602(a)(4) above. MSS Licensees must relocate all Existing Licensees in Nielsen Designated Market Areas 1-30 prior to beginning operations, except those Existing Licensees that decline relocation. If the parties are unable to reach a negotiated agreement, MSS Licensees may involuntarily relocate Existing Licensees after two years. As of the date that any MSS Licensee announces its intention to begin operations in the 2008-2025 MHz band, licensees who are not on the new channel plan specified in § 74.602(a)(4) must discontinue use of Channel A01 (2008-2023 MHz).

(5) After the date the first MSS Licensee begins operations in the 2008-2025 MHz band, MSS Licensees must relocate Existing Licensees in Nielsen Designated Market Areas 31-100 within three years, and in the remaining Nielsen Designated Market Areas within five years.

(6) Ten years after the date specified in subparagraph (e)(1), all Existing Licensees will become secondary in the 1990-2025 MHz band. Upon written demand by any MSS Licensee, Existing Licensees must cease all operations in the 1990-2025 MHz band within six months.

PART 78 -- CABLE TELEVISION RELAY SERVICE

6. The authority citation for Part 78 continues to read as follows:

AUTHORITY: Secs. 2, 3, 4, 301, 303, 307, 308, 309, 48 Stat., as amended, 1064, 1066, 1081, 1082, 1083, 1084, 1085; 47 U.S.C. 152, 153, 154, 301, 303, 307, 308, 309.

7. Section 78.11(f) is amended by replacing the text "1990-2110 MHz" with the text "2025-2110 MHz."

8. Section 78.18 is amended as follows:

a. Add the following to the end of subparagraph (a)(7)

* * * * *

(3) After a licensee has been relocated in accordance with the provisions of § 78.40, operations will be in the band 2025-2110 MHz. The following channel plan will apply, subject to the provisions of § 74.604.

Frequency Band (MHz)

2025-2037.4
2037.4-2049.5
2049.5-2061.6
2061.6-2073.7
2073.7-2085.8
2085.8-2097.9
2097.9-2110

9. Add the new Section 78.40 as follows:

§ 78.40 Transition of the 1990-2025 MHz band from the Cable Television Relay Service to Emerging Technologies.

(a) Licensees proposing to implement Mobile-Satellite Services using emerging technologies (MSS Licensees) may negotiate with Cable Television Relay Service licensees (Existing Licensees) in the 1990-2110 MHz band for the purpose of agreeing to terms under which the Existing Licensees would relocate their operations to the 2025-2110 MHz band, to other authorized bands, or to other media; or alternatively, would accept a sharing arrangement with the MSS Licensee that may result in an otherwise impermissible level of interference to the Existing Licensee's operations.

(b) Existing Licensees in the 1990-2025 MHz band allocated for licensed emerging technology services will maintain primary status in these bands until an MSS Licensee completes relocation of the Existing Licensee's operations.

(c) The Commission will amend the operating license of the Existing Licensee to secondary status only if the following requirements are met:

(1) The service applicant, provider, licensee, or representative using an emerging technology guarantees payment of all relocation costs, including all engineering, equipment, site and FCC fees, as well as any reasonable additional costs that the relocated Existing Licensee might incur as a result of operation in another authorized band or migration to another medium.

(2) The MSS Licensee completes all activities necessary for implementing the replacement facilities, including engineering and cost analysis of the relocation procedure and, if radio facilities are used, identifying and obtaining, on the incumbents' behalf, new microwave or Local Television Transmission frequencies and frequency coordination; and

(3) The MSS Licensee builds the replacement system and tests it for comparability with the existing system.

(d) The Existing Licensee is not required to relocate until the alternative facilities are available to it for a reasonable time to make adjustments, determine comparability, and ensure a seamless handoff.

(e) If within one year after the relocation to new facilities the Existing Licensee demonstrates that the new facilities are not comparable to the former facilities, the MSS Licensee must remedy the defect.

(e) Subject to the terms of this subparagraph, Phase I of the relocation of Existing Licensees will be carried out in the following manner:

(1) Beginning (30 days after Federal Register publication), Existing Licensees and MSS Licensees may negotiate individually or collectively for relocation of Existing Licensees to one of the channel plans specified in § 74.602(a)(3) above. Parties may not decline to negotiate, though Existing Licensees may decline to be relocated. MSS Licensees must relocate all Existing Licensees in Nielsen Designated Market Areas 1-30 prior to beginning operations, except those Existing Licensees that decline relocation. If the parties are unable to reach a negotiated agreement, MSS Licensees may involuntarily relocate Existing Licensees after two years. As of the date that any MSS Licensee announces the beginning of operations in the 1990-2008 MHz band, licensees who are not on the new channel plan specified in § 74.602(a)(3) must discontinue use of Channel A01 (1990-2008 MHz).

(2) Before negotiating with MSS Licensees, Existing Licensees in Nielsen Designated Market Areas where there is a BAS frequency coordinator must coordinate and select a band plan for the market area. Thereafter, all negotiations must produce solutions that adhere to the market area's band plan.

(3) After the date the first MSS Licensee begins operations, MSS Licensees must relocate Existing Licensees in Nielsen Designated Market Areas 31-100 within three years, unless any Existing Licensee declines relocation.

(4) Beginning on the date any MSS Licensee announces in writing to Existing Licensees its intention to begin operations in the 2008-2025 MHz band, Existing Licensees and MSS Licensees may negotiate individually or collectively for relocation of Existing Licensees to one of the channel plans specified in § 74.602(a)(4) above. MSS Licensees must relocate all Existing Licensees in Nielsen Designated Market Areas 1-30 prior to beginning operations, except those Existing Licensees that decline relocation. If the parties are unable to reach a negotiated agreement, MSS Licensees may involuntarily relocate Existing Licensees after two years. As of the date that any MSS Licensee announces its intention to begin operations in the 2008-2025 MHz band, licensees who are not on the new channel plan specified in § 74.602(a)(4) must discontinue use of Channel A01 (2008-2023 MHz).

(5) After the date the first MSS Licensee begins operations in the 2008-2025 MHz band, MSS Licensees must relocate Existing Licensees in the remaining Nielsen Designated Market Areas within three years.

(6) Ten years after the date specified in subparagraph (e)(1), all Existing Licensees will become secondary in the 1990-2025 MHz band. Upon written demand by any MSS Licensee, Existing Licensees must cease all operations in the 1990-2025 MHz band within six months.

10. In Section 78.101(a), the table is amended by replacing "1,990 to 2,110" in the first line with "2,025 to 2,110."

11. In Section 78.103(e), replace the table with the following:

Frequency band (MHz)	Maximum authorized bandwidth (MHz)
1,990 to 2,110	17 or 18.[1]
6,425 to 6,525	8 or 25.
6,875 to 7,125	25.
12,700 to 13,250	25.
17,700 to 19,700	80.
31,000 to 31,300	25 or 50.

[1] After a licensee has been relocated in accordance with § 78.40, the maximum authorized bandwidth in the frequency band 2,025 to 2,110 MHz will be 12.1/12.4 MHz.

* * * * *

12. In Section 78.111, the table is amended by replacing the first line with the following:

Frequency Band (MHz)	Frequency tolerance	
	Fixed (percent)	Mobile (percent)
1,990 to 2,110	000	0.005

* * * * *

PART 101 -- FIXED MICROWAVE SERVICES

13. The authority citation for Part 101 continues to read as follows:

AUTHORITY: 47 U.S.C. 154, 303.

14. At the end of Section 101.69, add the following subparagraph (d):

(d) Relocation of FMS licensees in the 2165-2200 MHz band by Mobile-Satellite Service (MSS) licensees will be subject to mandatory negotiations only. Mandatory negotiation periods are defined as follows:
(1) Non-public safety incumbents will have a two-year mandatory negotiation period; and
(2) Public safety incumbents will have a three-year mandatory negotiation period.

15. At the end of Section 101.73, add the following subparagraph (d):

(d) Provisions for Relocation of Fixed Microwave Licensees in the 2165-2200 MHz band. Mandatory negotiations will commence when the Mobile-Satellite Service (MSS) licensee informs the fixed microwave licensee in writing of its desire to negotiate. Mandatory negotiations will be conducted with the goal of providing the fixed microwave licensee with comparable facilities, defined as facilities possessing the following characteristics:
(1) *Throughput.* Communications throughput is the amount of information transferred within a system in a given amount of time. If analog facilities are being replaced with analog, comparable facilities provide an equivalent number of 4 kHz voice channels. If digital facilities are being replaced with digital, comparable facilities provide equivalent data loading bits per second (bps).
(2) *Reliability.* System reliability is the degree to which information is transferred accurately within a system. Comparable facilities provide reliability equal to the overall reliability of the FMS system. For digital systems, reliability is measured by the percent of time the bit error rate (BER) exceeds a desired value, and for analog or digital voice transmission, it is measured by the percent of time that audio signal quality meets an established threshold. If an analog system is replaced with a digital system, only the resulting frequency response, harmonic distortion, signal-to-noise and its reliability will be considered in determining comparable reliability.
(3) *Operating Costs.* Operating costs are the cost to operate and maintain the FMS system. MSS licensees would compensate FMS licensees for any increased recurring costs associated with the replacement facilities (*e.g.*, additional rental payments, and increased utility fees) for five years after relocation. MSS licensees could satisfy this obligation by making a lump-sum payment based on present value using current interest rates. Additionally, the maintenance costs to the FMS licensee would be equivalent to the 2 GHz system in order for the replacement system to be comparable.

16. At the end of Section 101.75(d), add the following.

FMS licensees relocated from the 2165-2200 MHz band may not be returned to their former 2 GHz channels. All other remedies specified in this paragraph are available to FMS licensees relocated from the 2165-2200 MHz band, and may be invoked whenever the FMS licensee demonstrates that its replacement facility is not comparable, subject to no time limit.

17. Add a new Section 101.83 as follows:

§ 101.83 Reimbursement of relocation expenses in the 2115-2150 MHz and 2165-2200 MHz bands.

(a) Whenever an ET licensee (including Mobile-Satellite Service licensees) in the 2115-2150 MHz or

2165-2200 MHz bands relocates an incumbent paired microwave link with one path in the 2115-2150 MHz band, and the paired path in the 2165-2200 MHz band, the ET licensee is entitled to reimbursement of 50% of its relocation costs from any subsequently entering ET licensee which would have been required to relocate the same fixed microwave link.

(b) The subsequently entering ET licensee must reimburse the relocating ET licensee before the subsequently entering licensee may begin operations in these bands, unless the subsequently entering ET licensee can demonstrate that, according to established interference criteria, it would not have interfered with the microwave link in question.

(c) The total costs of which 50% is to be reimbursed will not exceed $250,000 per paired fixed microwave link relocated, nor $150,000 if a new or modified tower is required.

APPENDIX B

Final Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA),[253] an Initial Regulatory Flexibility Analysis (IRFA) was incorporated into the *First Report and Order and Further Notice of Proposed Rule Making (First R&O/Further Notice)*[254] and the *Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order (Third Notice)*[255] in this docket, ET Docket No. 95-18. The Commission sought written comment on the proposals in the *First R&O/Further Notice* and the *Third Notice*, including comment on the IRFAs. The present Final Regulatory Flexibility Analysis (FRFA) in this *Second Report and Order and Second Memorandum Opinion and Order (Second R&O/Second MO&O)* conforms to the RFA.[256]

A. Need for, and Objectives of, this *Second R&O/Second MO&O*.

This *Second R&O/Second MO&O* establishes rules to govern the relocation of Broadcast Auxiliary Service (BAS), Local Television Transmission Service (LTTS), and Cable Television Relay Service (CARS) licensees from the 1990-2025 MHz band to the remainder of the BAS band, at 2025-2110 MHz. The 1990-2025 MHz band has been reallocated to the Mobile-Satellite Service (MSS). This *Second R&O/Second MO&O* also establishes rules to govern the relocation of Fixed Service (FS) licensees from the 2165-2200 MHz spectrum, reallocated to the MSS, to FS bands above 4 GHz. These rules are designed to ensure an orderly and expeditious transition of these licensees from the 2 GHz spectrum so that MSS operations may be conducted in a designated segment of the spectrum. At the same time, the rules are designed to ensure that incumbent BAS, LTTS, CARS, and FS licensees suffer no harm from relocation.

B. Summary of Significant Issues Raised in Comments in Response to the IRFAs.

No comments were filed in response to the IRFAs. Nonetheless, the Commission considered the impact of our rules governing the relocation of the BAS, LTTS, CARS, and FS licensees, some of whom may be small entities, from the 2 GHz spectrum. This 2 GHz spectrum was reallocated to the MSS, none of whose licensees will be small entities. The Commission considered several different relocation scenarios, some of which would have imposed the economic burden of relocation on BAS, LTTS, CARS, and FS licensees, including small entities. The Commission rejected a variety of scenarios which would have shifted some or all of the economic burden of relocation from MSS licensees to BAS, LTTS, CARS, and FS licensees. See Section E *infra* for a discussion of the alternatives considered by the Commission.

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

The RFA directs agencies to provide a description of, and, where feasible, an estimate of the

[253] *See* 5 U.S.C. § 603. The RFA, *see* 5 U.S.C. § 601 *et. seq.*, has been amended by the Contract With America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996) (CWAAA). Title II of the CWAAA is the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA).

[254] *First R&O/Further Notice*, 12 FCC Rcd 7388, Appx. E (*Further Notice* IRFA). Collectively, the *Further Notice* IRFA and the *Third Notice* IRFA will be referred to as the IRFAs.

[255] *Third Notice*, 13 FCC Rcd 23,949, Appx. A (*Third Notice* IRFA). Collectively, the *Further Notice* IRFA and the *Third Notice* IRFA will be referred to as the IRFAs.

[256] *See* 5 U.S.C. § 604.

number of small entities that may be affected by the proposed rules, if adopted.[257] The RFA defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small business concern" under section 3 of the Small Business Act.[258] 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 SBA.[259] The term "small entity" also has the same meaning as "small governmental jurisdiction," which means "governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000."[260]

(a) **BAS, LTTS, and CARS Licensees:** This service involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit to the studio). CARS includes transmitters generally used to relay cable programming within cable television system distribution systems. BAS and LTTS licensees are entities classified by the SBA as Category 4833 (Television Broadcasting Stations), which are small businesses if they have annual revenues below 10.5 million dollars.[261] CARS licensees are classified as Category 4841 (Cable and Other Pay Television Services), which are small businesses if they have annual revenues below 11 million dollars.[262]

The Commission estimates that there are a total of approximately 2200 BAS, LTTS, and CARS licensees in the United States. Neither the Commission nor the Department of Commerce collect financial information on any broadcast facility, including these auxiliary facilities. We believe, however, that few, if any, of these licensees could be classified as small businesses. Most auxiliary transmitters are owned by parent stations that would likely have annual revenues that exceed the SBA maximum to be designated as a small business ($10.5 million for a TV station and $11 million for a cable system). Furthermore, they do not meet the Small Business Act's definition of a "small business concern" because they are not independently owned and operated.

(b) **MSS Licensees:** The Commission has not developed a definition of small entities applicable to MSS licensees. Therefore, the applicable definition of small entity is the definition under the SBA rules applicable to Category 4899 (Communications Services "Not Elsewhere Classified" (NEC)). This definition provides that a small entity is one with $11.0 million or less in annual receipts.[263] Eight potential MSS licensees will be affected by this rule making proceeding. Given the extremely high start-up costs for MSS companies, none will be small entities.

(c) **FS Licensees:** The Commission has not developed a definition of small entities applicable to FS microwave licensees. Licensees in this service are State and local governments and SBA Categories 4813 (Telephone Communications, Except Radiotelephone),[264] 4619 (Pipelines, N.E.C.),[265] 4911 (Electric

[257] 5 U.S.C. § 603(b)(3).

[258] *Id.* § 601(3).

[259] *Id.* at § 632.

[260] *Id.* at § 601(5).

[261] 13 C.F.R. § 121.201, Standard Industrial Classification (SIC) Code 4833.

[262] *Id.*, SIC Code 4812.

[263] *Id.*, SIC Code 4899.

[264] *Id.*, SIC Code 4813.

Services) and other utility companies,[266] and Major Group 47 (Transportation Services, *i.e.*, railroads).[267] Therefore, the applicable definitions of small entity are the definition under the SBA rules applicable to these activities. This definition provides that small entities are Telephone Communications companies employing fewer than 1500 employees, Pipeline companies with annual receipts of less than $25 million, Electric Services companies generating less than 4 million megawatt hours annually, and Transportation Services, including railroads, with annual receipts of less than $5 million annually. Licensees in the FS also include State and local governments with populations of less than 50,000.

Some FS licensees are likely to be small entities. Using Census Bureau data we estimate that 81,600 of the State and local Governments are small entities.[268] There are approximately 4200 FS microwave links licensed to Telephone Communications companies. The Commission has no data on how many of these links belong to each licensee. Therefore, the total number of telephone licensees must be 4200 or less, of whom a minority may be small entities. Approximately 4000 FS microwave links are licensed to Pipeline companies, Electric Services companies, Transportation Services including railroads, and local and State governments. The Commission has no data on how many of these links belong to each licensee. Therefore, the total number of Pipeline companies, Electric Services companies, Transportation Services including railroads, and local and State government licensees must be 4000 or less, of whom a minority may be small entities.

(d) Using the best data available, the Commission estimates that a large majority of BAS, LTTS, CARS, and FS licensees are not small entities. Because of the high costs attendant to the start-up of MSS operations, none of the eight MSS licensees affected by this rule making will be small entities.

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

The adopted rules would require affected BAS, LTTS, CARS, and FS licensees, some of whom may be small entities, to negotiate with MSS licensees for relocation (including replacement or retuning of equipment) or rechannelization or both. These negotiations would include negotiating timetables for relocation and costs. These negotiations are likely to require the skills of accountants and engineers to evaluate the economic and technical requirements of relocation, and of attorneys or other negotiators to conduct negotiations. The estimated cost per incumbent BAS, LTTS, CARS, or FS licensee of relocation negotiations is $2000 to $8000. The Commission has permitted BAS, LTTS, CARS, and FS licensees to negotiate collectively for relocation. Collective negotiations, if employed by these licensees, will reduce the costs of negotiation for each licensee.

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

The Commission decided that new MSS licensees, none of whom will be small entities, will be required to relocate or rechannelize incumbent BAS, LTTS, CARS, and FS licensees in the 2 GHz band, some of whom are likely to be small entities, at the expense of the new MSS licensees. The Commission considered the alternative of requiring current BAS, LTTS, CARS, and FS licensees in the 2 GHz band to

(Continued from previous page)

[265] *Id.*, SIC Code 4619.

[266] *Id.*, SIC Code 4911.

[267] *Id.*, SIC Major Group 47.

[268] *See* 5 U.S.C. § 601(5).

relocate or rechannelize at their own expense. The Commission rejected this alternative as excessively burdensome on these incumbent licensees, including small entities, and not in the public interest.

MSS commenters advocated requiring BAS, LTTS, and CARS licensees to finance their own relocation as their equipment depreciated and they purchased new equipment, claiming that the total costs of relocation, added to the high cost of launching satellites, would cripple the nascent MSS industry. MSS commenters also asserted, however, that there is a huge, underserved demand for MSS. We believe that MSS licensees will build the cost of relocating BAS, LTTS, and CARS licensees into their financial plans, and still will be able to provide service at a profit. In the alternative, MSS may choose to defer expeditious access to the spectrum currently heavily used by BAS, LTTS, and CARS licensees and defer deployment of MSS systems for ten years, in which case no relocation or rechannelization would be required.

MSS commenters advocated requiring MSS licensees to pay only the depreciated value of the equipment of incumbent FS licensees, some of which may be small entities. The Commission rejected this position, adhering to our requirement that MSS licensees must provide relocated incumbent FS licensees with comparable facilities in the bands to which the FS licensees are relocated.

In the case of involuntary relocation of BAS, LTTS, CARS, and FS licensees, the Commission applied the requirements of our *Emerging Technologies* policies: (1) payment of all relocation expenses by the MSS operator, (2) full comparability of replacement facilities, and (3) the right of the incumbents to demand that MSS licensees cure any defects, should the replacement facilities prove not to be fully comparable after relocation. The relocation requirements adopted by the Commission will guarantee that BAS, LTTS, CARS, and FS licensees, some of whom are likely to be small entities, will suffer no, or minimal, economic impact as a result of relocation.

Report to Congress: The Commission will send a copy of the *Second R&O/Second MO&O*, including this FRFA, in a report to be sent to Congress pursuant to the SBREFA, *see* 5 U.S.C. § 801(a)(1)(A). In addition, the Commission will send a copy of the *Second R&O/Second MO&O*, including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration. A copy of the *Second R&O/Second MO&O* and FRFA (or summaries thereof) will also be published in the Federal Register. *See* 5 U.S.C. § 604(b).

SEPARATE STATEMENT OF COMMISSIONER HAROLD FURCHTGOTT-ROTH
Dissenting in Part

Re: Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service ET Docket No. 95-18; FCC 00-XX (rel. June 29, 2000)

In the recent 18 GHz Report and Order,[269] I set forth some proposals for modifying the Commission's relocation policy.[270] Those proposals are equally relevant here. The potentially extensive spectrum needs of the 2 GHz satellite community may require extensive relocation in both the up- and down-links. The multitude of transactions that will be necessary before satellite service can be offered cries out for clear, efficient, and predictable relocation procedures and policies. Thus I continue to urge my colleagues to explore other relocation policy options, such as those described in my prior Separate Statement. Based on these concerns, I respectfully dissent in part from the relocation policy portion of this item.

[269] *See Re: Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 Frequency Bands, et al.* IB Docket No. 98-172, RM-9005, RM-9118 (rel. June 21, 2000) (18 GHz Report and Order).

[270] *See* Separate Statement of Harold Furchtgott-Roth, Approving in Part, Dissenting in Part, *18 GHz Report and Order*, *supra note* 1.