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

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In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258
	)	
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
	)	
The Establishment of Policies and Service Rules for the Mobile-Satellite Service in the 2 GHz Band	)	IB Docket No. 99-81
	)	
Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service	)	RM-9498
	)	
Petition for Rule Making of UTStarcom, Inc., Concerning the Unlicensed Personal Communications Service	)	RM-10024

RECEIVED

MEMORANDUM OPINION AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING

Adopted: August 9, 2001 **Released: August 20, 2001**

Comment Date: [28 days after Federal Register publication]
Reply Comment Date: [42 days after Federal Register publication]

By the Commission: Commissioner Tristani approving in part, dissenting in part, and issuing a statement; Commissioner Martin issuing a statement.

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I. INTRODUCTION

1. In this *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking (MO&O and FNPRM)*, we continue our exploration of the possible use of frequency bands below 3 GHz to support the introduction of new advanced mobile and fixed terrestrial wireless services (advanced wireless services)—including third generation (3G) and future generations of wireless systems—which we began with the *Notice of Proposed Rule Making* in ET Docket No. 00-258.[1]

2. We now explore the possibility of introducing new advanced wireless services in frequency bands not identified in the original notice in this proceeding, including bands currently designated for the Mobile Satellite Service (MSS), the Unlicensed Personal Communications Service (UPCS), the Amateur Radio Service (ARS), and the Multipoint Distribution Service (MDS). Specifically, we seek comment on reallocating some spectrum in the 1910-1930 MHz, 1990-2025 MHz, 2150-2160 MHz, 2165-2200 MHz, and 2390-2400 MHz bands for new advanced wireless services.[2] In order to coordinate our actions here with various pending matters involving the MSS, we also take this opportunity to resolve issues raised in (a) petitions for reconsideration of our August 2000 decision adopting the 2 GHz MSS band arrangement in the 1990-2025 MHz and 2165-2200 MHz bands;[3] and (b) a petition for rulemaking concerning those bands.[4]

3. The overall purpose of this *MO&O and FNPRM* is to supplement the record by (a) providing new allocation options that were not addressed in the *New Advanced Wireless Services NPRM*; and (b) seeking comment on the benefits and costs of each new allocation option. For example, as explored below, we seek to determine how these additional options might work in conjunction with those options identified previously in the *New Advanced Wireless Services NPRM* in order to facilitate the provision of new advanced wireless services. Our intent is to explore spectrum options that would complement, rather than substitute for, options identified in the *New Advanced Wireless Services NPRM*. We seek comment on the potential for the commercial use of these additional spectrum bands directly for new advanced

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[1] Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, ET Docket No. 00-258, *Notice of Proposed Rule Making and Order*, 16 FCC Rcd 596 (2001) *(New Advanced Wireless Services NPRM)*.

[2] We ask commenters to file their comments in all three dockets listed in the caption of this *MO&O and FNPRM*.

[3] Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band, IB Docket No. 99-81, *Report and Order*, 15 FCC Rcd 16127, 16138 ¶ 16 (2000) (*2 GHz MSS R&O*).

[4] Petition for Rulemaking of the Cellular Telecommunications & Internet Association (filed May 18, 2001) (CTIA Petition).

wireless services, both paired and unpaired. We also seek comment on the use of these or other bands for the relocation of other incumbent licensees or operators who could be displaced by the final allocation established in this proceeding. We seek comment on the advantages and disadvantages of these options, including the potential for new advanced wireless services in these bands. We further seek comment on the potential effect of the allocation proposals described below on existing and prospective users of these bands and the services they provide (*e.g.*, MSS, UPCS, ARS and MDS). In addition, we seek comment on the costs and benefits to the United States of regional or global spectrum harmonization for advanced wireless services.[5]

II. BACKGROUND

4. Demand for mobile telephony and data applications has grown rapidly in recent years,[6] indicating that substantial additional spectrum will be needed in order to meet the projected requirements of advanced wireless systems (commonly referred to as International Mobile Telecommunications-2000 (IMT-2000 or 3G)).[7] The Commission staff has been working with staff of the National Telecommunications and Information Administration (NTIA) on selecting additional spectrum for advanced wireless systems, and more recently to update the plan for such selection. The Commission staff and NTIA have conducted studies of two of the spectrum bands identified at WRC-2000 that could be used for advanced wireless systems, and have issued staff reports on the current spectrum uses and potential for reallocation or sharing of these spectrum bands.[8] In December 2000, the Commission adopted the *New Advanced Wireless Services NPRM* to explore the service requirements for new advanced wireless services, the amount of spectrum needed to support such services, and the possible use of certain frequency bands below 3 GHz to support the introduction of new advanced wireless services, including 3G and future generations of wireless systems. The *New Advanced Wireless Services NPRM* specifically addressed the frequency bands currently used for cellular, broadband PCS and Specialized Mobile Radio (SMR) services, newly allocated spectrum in former television channels 60-69, and the

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[5] *See New Advanced Wireless Services NPRM*, 16 FCC Rcd at 607 ¶ 24.

[6] *See, e.g.*, Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993: Annual Report and Analysis of Competitive Market Conditions with Respect to Commercial Mobile Services, *Sixth Report*, FCC 01-192, at 5-7 (rel. July 17, 2001)

[7] ITU-R studies forecasted that on the order of 160 megahertz of spectrum, in addition to that already identified for IMT-2000 in No. S5.388, and in addition to the spectrum used for first- and second-generation mobile systems in all three ITU Regions, will be needed by 2010 in order to meet the projected requirements of IMT-2000 in those areas where the traffic is the highest. *See Final Acts of the World Radiocommunication Conference (Istanbul, WRC-2000)*, Resolution 223. IMT-2000 systems are 3G systems that are scheduled to be initiated around the year 2000, subject to market and other national considerations.

[8] The Commission released an interim report on the 2500-2690 MHz band on November 15, 2000, and a final report on March 30, 2001. *See* FCC Staff Report Issued by the Office of Engineering and Technology, Mass Media Bureau, Wireless Telecommunications Bureau, and International Bureau: "Spectrum Study of the 2500-2690 MHz Band: The Potential for Accommodating Third Generation Mobile Systems," Interim Report, ET Docket No. 00-232, DA 00-2583 (rel. Nov. 15, 2000); Final Report, ET Docket No. 00-232, DA 01-786 (*2500-2690 MHz Final Report*) (rel. Mar. 30, 2001). NTIA also completed an interim report and a final report on the 1755-1850 MHz band. *See* "Federal Operations in the 1755-1850 MHz Band: The Potential for Accommodating Third Generation Mobile Systems," Interim Report (rel. Nov. 15, 2000) <www.ntia.doc.gov/osmhome/reports/imt2000>; "The Potential for Accommodating Third Generation Mobile Systems in the 1710-1850 MHz Band: Federal Operations, Relocation Costs, and Operational Impacts," Final Report (rel. Mar. 30, 2001) <www.ntia.doc.gov/ntiahome/threeg/33001/3g33001.pdf>.

following five frequency bands: 1710-1755 MHz, 1755-1850 MHz, 2110-2150 MHz, 2160-2165 MHz and 2500-2690 MHz.[9]

5. With respect to 2500-2690 MHz, historically this band has been used predominantly for one-way analog video transmission. Increasingly, ITFS/MDS operators are using the band for two-way digital broadband services. Our July 1996 *Digital Declaratory Ruling* first permitted digital use of the band.[10] In October 1996, we allowed high-speed digital data applications, including Internet access.[11] In 1998, we approved the use of two-way transmissions, effectively enabling the provision of voice, video, and data services.[12] The initial filing window for two-way ITFS/MDS service occurred from August 14, 2000 until August 18, 2000,[13] and about 1,500 applications have now been granted. The FCC *Final Report* regarding the 2500-2690 MHz band – prepared by our staff – notes that the MDS industry has invested several billion dollars to develop broadband fixed wireless data systems in the band, including high-speed Internet access, and that these systems offer a significant opportunity for further competition with cable and digital subscriber line services in the provision of broadband services in urban and rural areas.[14]

6. Additionally, the *Final Report* notes that incumbent ITFS and MDS use of the 2500–2690 MHz band varies from one geographic area to another, and that this lack of uniformity presents serious challenges to developing segmentation options that could be used across the country without severely disrupting ITFS/MDS use. The *Final Report* concludes that segmentation would raise significant technical and economic difficulties for incumbents, especially if ITFS/MDS operations were to be relocated within the band. Segmentation could affect the economics of current and planned ITFS/MDS systems and lessen their ability to provide service to rural areas or smaller markets. The *Final Report* also states that there is no readily identifiable alternate frequency band that could accommodate a substantial relocation of incumbent operations from the 2500-2690 MHz band. Relocation of ITFS/MDS operations to a band above 3 GHz would affect deployment of these systems to account for changes in signal propagation in higher bands, and that incumbent users in the ITFS/MDS relocation band would also have to be relocated. The *Final Report* examined several potential relocation bands for ITFS/MDS and concludes that each band is severely capacity constrained,[15] that existing licensees in those bands would have to be relocated to accommodate ITFS/MDS incumbents, and the costs of moving those licensees would range from approximately $10.2-$30.4 billion.[16] The *Final Report* concludes that

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[9] *New Advanced Wireless Services NPRM*, 16 FCC Rcd at 609-22 ¶¶ 30-65.

[10] *See* Request for Declaratory Ruling on the Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations, *Declaratory Ruling and Order*, 11 FCC Rcd 18839, 18873 ¶ 59 (1996).

[11] *See The Mass Media Bureau Implements Policy for Provision of Internet Service on MDS and Leased ITFS Frequencies*, 11 FCC Rcd 22419 (1996).

[12] *See* Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and Instructional Television Fixed Service Licensees to Engage in Fixed Two-Way Transmissions, MM Docket No. 97-217, *Report and Order*, 13 FCC Rcd 19112 (1998), *recon.*, 14 FCC Rcd 12764 (1999), *further recon.*, 15 FCC Rcd 14566 (2000).

[13] *See Public Notice*, Report No. 337 (MMB Apr. 6, 2001).

[14] Several major companies are planning to use this spectrum to roll out high-speed Internet access in about 200 markets. WCA Comments at 23-25.

[15] *2500-2690 MHz Final Report* at 59-80.

[16] *Id.* at iii.

implementation of either the segmentation or relocation options would significantly affect deployment of fixed wireless broadband services and impose considerable costs on ITFS/MDS systems. For example, the *Final Report* notes that the relocation/segmentation costs to ITFS/MDS operators over a ten-year period could be up to $19 billion.[17]

7. We recognize that consideration of the 2500-2690 MHz band for advanced wireless services has created uncertainty about the future of the new fixed services being developed under the current allocation. We believe it is important to remove this uncertainty soon, and we are prepared to do so based on the extensive record that has been developed on these issues and subject to our normal coordination process with NTIA. To this end, we plan to address and resolve the issues involving this band that were raised in the *New Advanced Wireless Services NPRM* in the very near future.

III. DISCUSSION

8. Since release of the *New Advanced Wireless Services NPRM*, we have been examining other frequency bands proposed by commenters and otherwise identified by Commission staff, to determine the potential of such bands to accommodate new advanced wireless services. The frequency bands we identify below are in general proximity to other bands identified by ITU for possible new advanced wireless services and could produce two possible benefits. First, these bands may be considered for use for new advanced wireless services. Assembling the necessary spectrum blocks for such services by aggregating smaller bands from several existing services, rather than by reallocating a larger block from potentially only one existing service, will likely reduce the adverse impact of reallocation on any individual category of incumbent user. Second, these bands may be considered as possible relocation spectrum to accommodate incumbent users displaced to make room for new advanced wireless services. The addition of these bands increases substantially the options over the next decade for the use of spectrum for advanced wireless services.

A. *1910-1930 MHz and 2390-2400 MHz.*

9. The 1910-1930 MHz band is allocated worldwide to the Fixed and Mobile Services. In the United States, the 1910-1920 MHz portion of the band is used for asynchronous data UPCS devices, and the 1920-1930 MHz portion is used for isochronous voice UPCS devices, operating under Part 15 of the Commission's rules (unlicensed operations).[18] The 2390-2400 MHz band is allocated in International Telecommunication Union (ITU) Region 2 (the Americas)[19] on a co-primary basis to the Fixed, Mobile, and Radiolocation Services, and on a secondary basis to the Amateur Service. In the United States, it is allocated on a primary basis to the Amateur Service; it is also designated for use by asynchronous data

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[17] *Id.* at ii-iii.

[18] *See* Amendment of the Commission's Rules to Establish New Personal Communications Services, GEN Docket No. 90-314, *Memorandum Opinion and Order*, 9 FCC Rcd 4957, 5037 ¶ 208 (1994). Section 15.303 of the Commission's rules defines asynchronous devices as those "that transmit RF energy at irregular time intervals, as typified by local area network data systems," and isochronous devices as those "that transmit at a regular interval, typified by time-division voice systems." 47 C.F.R. § 15.303(a), (d).

[19] The Members of the ITU have divided the world into three Regions. Generally, Region 1 includes Africa, Europe, Northern and Western portions of Asia; Region 2 includes the Americas and Greenland; and Region 3 includes Southern portions of Asia, Australia and the South Pacific. *See* ITU Radio Regulations Article S5, Section I.

UPCS devices for operation under Part 15 of the Commission's rules.[20] UTAM, Inc., the frequency coordinator for the UPCS bands, was required to relocate incumbent fixed operations before nomadic UPCS operation is permitted. We understand that UTAM has relocated approximately 85 percent of the fixed links that existed since the band was made available for other uses. All three bands are among those identified by either the 1992 World Administrative Radio Conference (WARC-92) or WRC-2000 for possible new advanced wireless services use.[21]

10. There has been little development of unlicensed asynchronous devices in the 1910-1920 MHz and 2390-2400 MHz bands, and only limited wireless PBX use has begun in the 1920-1930 MHz segment.[22] The underutilization by unlicensed devices of the 1910-1920 MHz and 2390-2400 MHz bands has prompted the filing of two petitions for rulemaking by requesting certain changes to these bands.[23] We seek comment on these two pending petitions for rulemaking, as well as whether these bands could be used for other possible uses consistent with this proceeding.

11. We seek comment on whether some or all of the 1910-1930 MHz band should be reallocated for new advanced wireless services use or for incumbents displaced by advanced wireless services. To what extent is it being used or likely to be needed for UPCS or other permitted uses? How could it fit with other spectrum being considered for new advanced wireless services? How might it be used to provide spectrum for incumbents that need to be relocated to accommodate new advanced wireless services allocations? If part of this spectrum should be reallocated directly for new advanced wireless services or for relocation in support of new advanced wireless services, how much, and which parts? How would reallocation affect the UPCS service rules? Is the location of the 1910-1930 MHz bands in proximity to the PCS bands either a limitation on or a benefit to their possible use for new advanced wireless services? In view of the expenses incurred by UPCS for relocating the fixed microwave facilities in the 1910-1930 MHz bands, how might these expenses be redistributed, if these bands could be used for new advanced wireless services? Could existing UPCS operations continue in this band, or would they have to cease?

12. The 2390-2400 MHz band was identified for reallocation from Federal Government to exclusive non-Federal Government use pursuant to the Omnibus Budget Reconciliation Act of 1993 ("OBRA-93").[24] At that time, the band was being used by the Amateur Radio Service on a secondary basis. In 1995 the Commission decided to reallocate this band for unlicensed PCS use and to elevate the Amateur Radio Service to primary status because it found that amateur services and unlicensed devices

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[20] *See* Allocation of Spectrum below 5 GHz Transferred from Federal Government Use, ET Docket No. 94-32, *First Report and Order and Second Notice of Proposed Rule Making*, 10 FCC Rcd 4769, 4779-80 ¶¶ 16-17 (1995).

[21] With respect to 1910-1930 MHz, ITU RR S5.388 states that the band 1885-2025 MHz is intended for use, on a worldwide basis, by administrations wishing to implement IMT-2000, and that such use does not preclude the use of the band by other services to which it is allocated. With respect to 2390-2400 MHz, *see Final Acts of the World Radiocommunication Conference (Istanbul, WRC-2000)*, Resolution 223, recognizing a).

[22] The Commission has approved 45 devices for use in this band.

[23] Wireless Information Networks Forum (WINForum) Petition for Rulemaking, RM-9498, Jan. 8, 1999; UTStarcom, Inc., Petition for Rulemaking, RM-10024, Nov. 6, 2000.

[24] Effective August 10, 1994, any Federal Government operations must not cause harmful interference to authorized non-Federal Government operations. *See* 47 C.F.R. § 2.106, footnote G122.

have been able to share spectrum and it wanted to preserve adequate spectrum for amateur services.[25] The Commission also concluded that an allocation for certain wide-area, high power Fixed and Mobile services proposed by other parties at that time would be incompatible with amateur use of this band.[26] We seek comment on whether these continue to be valid concerns regarding sharing this band between amateur and other services, and thus would preclude allocating this band for advanced wireless service use.[27] Because amateur services previously shared this band with Federal Government operations, we seek comment on whether certain Federal Government uses could again share this band with the amateur services, and request that commenters specify what type of allocation might be feasible. We also seek comment on the impact on the amateur services of further shared use. In this proceeding we have sought comment on the possible use of the 1755-1850 MHz band for advanced wireless services and noted that Federal Government users there would have to be relocated to other spectrum. We also note that Motorola recently filed an *ex parte* requesting that the adjacent band, 2385-2390 MHz, be used in conjunction with the 2390-2400 MHz band to relocate Government users from spectrum under consideration for advanced wireless services.[28]

13. We also seek comment on the changes to our rules proposed in the WINForum and UTStarcom petitions for rulemaking. WINForum asks the Commission to modify certain technical requirements for all UPCS devices, to allow isochronous UPCS devices to use the 1910-1920 MHz band, and to phase out asynchronous use in this band, thereby providing 20 megahertz of spectrum (1910-1930 MHz) for isochronous devices.[29] WINForum also requests that certain technical requirements for the 2390-2400 MHz band be modified to make it more attractive for asynchronous use.[30] UTStarcom requests that the Commission reallocate the 1910-1920 MHz UPCS band for operation of licensed community wireless networks in rural areas or for underserved populations in all geographic areas. Specifically, we seek comment on whether the 1910-1920 MHz band should be made available for isochronous use and whether asynchronous use should be phased out, as suggested by WINForum. We also seek comment on whether the 1910-1920 MHz band should be reallocated for community wireless networks to facilitate rapid and cost effective provision of wireless telecommunications services in small

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[25] *See* Allocation of Spectrum Below 5 GHz Transferred from Federal Government Use, ET Docket No. 94-32, *First Report and Order and Second Notice of Proposed Rulemaking*, 10 FCC Rcd 4769, 4773-75 ¶¶ 6-9 (1995).

[26] The Amateur Radio Relay League, Inc. ("ARRL") has identified the following uses of the 2390-2400 MHz band: 2390-2396 MHz—fast-scan TV; 2396-2399 MHz—high-rate data; 2399-2399.5 MHz—packet; and 2399.5-2400 MHz—control and auxiliary links. *See* ARRL's FCC Rule Book 4-22 (12th ed. 2000).

[27] ARRL has filed a petition for rulemaking to upgrade the amateur allocation in the adjacent band, 2400-2402 MHz, from secondary to primary status. ARRL has requested this change primarily to protect amateur satellite operations in this band. *See* ARRL Petition for Rulemaking, RM-9949, July 17, 2000. In the 2.4 GHz band, the amateur service also has allocations at 2402-2417 GHz (primary) and 2417-2450 MHz (secondary). Approximately 200 megahertz of spectrum below 3 GHz is now allocated to amateur services for either primary or secondary use.

[28] *See* Letter from Steve B. Sharkey, Motorola to Secretary, FCC, July 18, 2001. This letter referenced both this docket on advanced wireless services and ET Docket No. 00-221, which proposed Fixed and Mobile allocations for the 2385-2390 MHz band.

[29] WINForum seeks a modification to the spectrum etiquette requirements in 47 CFR §15.323 and certain technical rules (*e.g.*, 47 CFR §§ 15.319 (peak power), 15.321 (frequency stability)) in conjunction with its proposed use of the 1910-1920 MHz band.

[30] WINForum seeks modifications to these technical rules for operations in the 2390-2400 MHz band: 47 CFR §§ 15.319 (peak power), 15.321 (frequency stability), 15.323 (spectrum etiquette).

towns and tribal areas or to other underserved populations, as suggested by UTStarcom. If we conclude that the 1910-1920 MHz band is not appropriate for UTStarcom's proposed service, we seek comment on what other bands may be considered for this service. What would be the best regulatory framework for community wireless networks, *i.e.*, should transmitters be individually licensed or blanket licensed, or should unlicensed operation of these devices be allowed? Would the UPCS operations contemplated by WINForum be compatible with the new community based service proposed by UTStarcom and thus could both uses be accommodated? What changes would need to be made to the Part 15 rules to accommodate either or both of these services? Finally, we seek comment on whether certain Part 15 technical rules should be modified for the 2390-2400 MHz band, as proposed by WINForum, to facilitate asynchronous use.

B. *1990-2025 MHz and 2165-2200 MHz.*

(1) *Background.*

14. The 1990-2025 MHz band is allocated in Region 2 on a co-primary basis to the Fixed, Mobile, and Mobile-satellite (Earth-to-space) Services; the 2165-2200 MHz band is allocated in Region 2 on a co-primary basis to the Fixed, Mobile, and Mobile-satellite (space-to-Earth) Services.[31] Both bands are included within those frequency bands identified by WARC-92 for IMT-2000.[32] In addition, the 1980-2010 MHz and 2170-2200 MHz bands have been identified by the ITU for the satellite component of IMT-2000.[33] In the United States, the Commission allocated the 1990-2025 MHz and 2165-2200 MHz bands to the MSS, effective January 1, 2000.[34] In August 2000, the Commission adopted the licensing and service rules for 2 GHz MSS, providing spectrum for all then-pending systems.[35]

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[31] The frequencies 1980-2010 MHz and 2170-2200 MHz are allocated to the MSS on a primary basis worldwide; the frequencies 2010-2025 MHz and 2160-2170 MHz are also allocated to the MSS on a primary basis in the Americas (ITU Region 2). The allocation of 2010-2025 MHz and 2160-2170 MHz to MSS in Region 2 is generally effective January 1, 2002, but a footnote (S5.389D) to this allocation provides that these frequencies are usable by MSS in the United States effective January 1, 2000.

[32] ITU RR S5.388, which was adopted at WARC-92, states that the 1885-2025 MHz and 2110-2200 MHz bands are intended for use, on a worldwide basis, by administrations wishing to implement IMT-2000, and that such use does not preclude the use of the bands by other services to which they are allocated.

[33] *See* ITU-R Resolution 212 (Rev. WRC-97) and Resolution 716 (Rev. WRC-2000).

[34] *See* 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, *First Report and Order and Further Notice of Proposed Rule Making*, 12 FCC Rcd 7388 (1997) (*2 GHz MSS Allocation Order*) (international allocation of portions of the 2 GHz frequency band for mobile satellite service links adopted for use in the United States), *aff'd on recon., Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order*, 13 FCC Rcd 23949 (1998) (affirming 2 GHz MSS allocation and seeking further comment on relocation issues). The 1990-2025 MHz band is now being used by the broadcast auxiliary, cable relay and local television transmission services. The 2110-2200 MHz band is currently used for fixed and multipoint distribution services. In 2000, the Commission finalized the relocation procedures for incumbent broadcast auxiliary services at 1990-2025 MHz and the fixed services at 2165-2200 MHz. *See* 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, *Second Report And Order and Second Memorandum Opinion and Order*, 15 FCC Rcd 12315 (2000) (*2 GHz MSS 2R&O*). Under these procedures, broadcast auxiliary services are subject to a phased relocation from the 1990-2025 MHz band.

[35] *2 GHz MSS R&O*, 15 FCC Rcd 16127. The Commission permitted the existing MSS system proponents to file amendments to conform their applications or letters of intent to the new service rules. These amendments were (continued....)

15. The *2 GHz MSS R&O* adopted a band arrangement that divided the 2 GHz MSS uplink (1990-2025 MHz) and downlink (2165-2200 MHz) bands into segments of equal bandwidth based on the number of systems seeking assignments,[36] with an additional spectrum segment reserved for system expansion by operators meeting certain criteria for service to unserved areas.[37] The *2 GHz MSS R&O* set forth the following formula for determining the amount of spectrum (in each direction of transmission) available for each system at the time of initial authorization:

35 megahertz ÷ (Number of System Proponents + One) = Size of Each Spectrum Segment[38]

At the time the Commission issued the *2 GHz MSS R&O*, nine entities were requesting 2 GHz MSS spectrum assignments to serve the United States.[39] Thus, the licensing arrangement was premised on providing each of the systems a minimum of 3.5 megahertz of spectrum in each direction of transmission at the time of initial authorization, on a primary basis, *i.e.*, a "Selected Assignment."[40] After release of the *2 GHz MSS R&O*, one of the nine MSS system proponents, Inmarsat Horizons, withdrew its request for MSS spectrum.[41] As a result, with eight remaining MSS system proponents, the size of the Selected Assignment under the above formula would have increased to 3.88 megahertz of spectrum in each direction of transmission.

16. The Commission also established milestones for system implementation.[42] Achievement of these milestones is a condition of the authorization.[43] Recognizing that not all systems may be

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placed on Public Notice on November 29, 2000. *See* Public Notice, Report No. SAT-00061 (rel. November 29, 2000) (*2 GHz MSS Amendment PN*). Comments were received on December 14, 2000 and reply comments were received on January 16, 2001. Commission staff issued the 2 GHz MSS authorizations on July 17, 2001. *See infra* para. 21.

[36] *2 GHz MSS R&O*, 15 FCC Rcd at 16138 ¶ 16. Under the *2 GHz MSS R&O*, the number of system proponents is determined at the time that the first 2 GHz MSS system is authorized. *Id.*

[37] *Id.* at 16146-47 ¶¶ 35-39. This spectrum is available one year after the first 2 GHz MSS license is issued.

[38] *Id.* at 16138 ¶ 16.

[39] Specifically, The Boeing Company, Celsat America, Inc., Constellation Communications, Inc., Globalstar, L.P., Iridium LLC, and Mobile Communications Holding, Inc. filed applications for U.S. space station licenses; and ICO Services Limited, Inmarsat Horizons, and TMI Communications and Company, Limited Partnership filed letters of intent seeking reservation of spectrum to serve the U.S. market from non-U.S.-licensed systems.

[40] Each 2 GHz MSS operator must identify the specific frequencies of its Selected Assignment when the first satellite in its system reaches the intended orbit and notify the Commission in writing of its selection. *2 Ghz MSS R&O*, 15 FCC Rcd at 16138 ¶ 16. Consistent with the *2 GHz MSS R&O*, an operator may also elect to operate outside its Selected Assignment on a secondary basis with respect to other 2 GHz MSS operators, subject to certain conditions. *Id.* at 16139-40 ¶ 19.

[41] *2 GHz MSS Amendment PN*, Report No. SAT-00061, at 2.

[42] All systems must enter into a non-contingent satellite manufacturing contract for the system within one year of authorization, and complete critical design review within two years of authorization. *Non-geostationary satellite systems* must begin physical construction of all satellites in the system within two and a half years of authorization, and complete construction and launch of the first two satellites within three and a half years of grant. *Geostationary satellite systems* must begin physical construction of all satellites in the system within three years, and complete construction of, and launch, one satellite of its constellation into its assigned orbital location within five years of authorization. The entire system must be launched and operational within six years of authorization. *2 GHz MSS R&O*, 15 FCC Rcd at 16177-78 ¶ 106.

implemented, the Commission indicated that it would evaluate what to do with any "abandoned" spectrum after the passage of each of the milestones.[44] The Commission indicated that possible options include: (a) redistributing the abandoned spectrum among systems that are operational and require additional spectrum; (b) making the abandoned spectrum available for new entrants; and (c) awarding the abandoned spectrum to operators serving unserved areas as per the criteria set forth in the *2 GHz MSS R&O*.[45]

17. Two parties filed timely requests for reconsideration of the Commission's band arrangement decision.[46] Specifically, Globalstar, L.P. (Globalstar), operator of an MSS system in the 1.6/2.4 GHz bands and licensee of a 2 GHz MSS system, sought reconsideration of the Commission's decision that 3.5 megahertz is a sufficient minimum amount for each operator.[47] Globalstar asserts that satellite providers need greater bandwidth if satellite services are to provide advanced wireless services that complement 3G technologies. In addition, Globalstar claims that the *2 GHz MSS R&O* should have established a mechanism for redistributing abandoned spectrum. Furthermore, Globalstar argues that the Commission should reconsider its rejection of Globalstar's proposed "all-shared" licensing arrangement.[48] While all parties responding to Globalstar's petition oppose adoption of the "all-shared" licensing arrangement,[49] several parties agree with Globalstar that the Commission should have prescribed a plan for distributing abandoned spectrum to the remaining licensees.[50] Final Analysis Communication Services, Inc. (Final Analysis), licensee of a non-voice non-geostationary mobile-satellite system, and the other petitioner for reconsideration we address here, specifically argues that the Commission should have made abandoned spectrum available not just for 2 GHz MSS systems proposing voice (among other) services, but to all MSS proponents, including those proposing or providing exclusively non-voice services.[51]

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[43] 2 GHz MSS systems must, within ten days after a milestone, either certify its completion or inform the Commission that the milestone has not been met. If a system does not file a certification that the milestone has been met, the authorization is automatically cancelled. 47 C.F.R. § 25.143(e)(3).

[44] *2 GHz MSS R&O*, 15 FCC Rcd at 16139 ¶ 18. In this context, "abandoned spectrum" includes all licensed (or, for non-U.S.-entity access, reserved) spectrum that the Commission reclaims as a result of the system proponent voluntarily turning in the license or missing milestones.

[45] *Id.* at 16144-49 ¶¶ 31-44.

[46] Petition for Reconsideration of Globalstar, L.P., IB Docket No. 99-81 (filed Nov. 3, 2000) (Globalstar Petition for Reconsideration); Petition for Reconsideration of Final Analysis Communication Services, Inc., IB Docket No. 99-81 (filed Nov. 3, 2000) (Final Analysis Petition for Reconsideration). Reconsideration petition issues not related to the band arrangement are addressed in para. 36, *infra*.

[47] Globalstar Petition for Reconsideration at 2-10.

[48] Under this arrangement, immediately upon licensing all eligible systems would share the available 2 GHz MSS spectrum through coordination. As we indicated in the *2 GHz MSS R&O*, this approach could require the Commission to mandate completion of coordination or individual systems choices of technology (*e.g.*, modulation scheme). *2 GHz MSS R&O,* 15 FCC Rcd at 16142-43 ¶¶ 26-27.

[49] Consolidated Opposition of Celsat America, Inc., IB Docket No. 99-81, at 1-3 (filed Dec. 28, 2000) (Celsat Opposition); Opposition of ICO Services Limited, IB Docket No. 99-81, at 1-4 (filed Dec. 28, 2000) (ICO Opposition); Reply of The Boeing Company, IB Docket No. 99-81, at 1-3 (filed Jan. 8, 2001) (Boeing Reply).

[50] ICO Opposition at 2; Boeing Reply at 3-4.

[51] Final Analysis Petition for Reconsideration at 3-9. *Compare* Opposition of Globalstar, L.P., IB Docket No. 99-81, at 4-7 (filed Dec. 28, 2000) (arguing that Final Analysis seeks to access the 2 GHz MSS band outside of a processing round); Celsat Opposition at 5-7 (same); ICO Opposition at 4-6 (same); Boeing Reply at 4-5 (same) (continued....)

18. Globalstar and Final Analysis also seek reconsideration of the Commission's decision to reserve spectrum for system expansion by systems that target service to unserved areas.[52] Globalstar argues that this aspect of the *2 GHz MSS R&O* is unnecessary, claiming that satellite systems will by their nature make an effort to serve unserved areas.[53] Final Analysis asks that eligibility to apply for the expansion spectrum not be limited to 2 GHz MSS systems, and that other MSS systems be permitted to apply for the reserved spectrum.[54]

19. Subsequently, several parties filed requests for additional actions or clarifications regarding the 2 GHz MSS allocation and service rules. New ICO Global Communications (Holdings) Ltd. (New ICO)[55] recently requested rule changes to allow ancillary terrestrial operations to supplement its planned satellite service.[56] New ICO contends that recent technological advances will enable MSS operators to use spectrum more efficiently by incorporating an ancillary terrestrial component (ATC) that re-uses spectrum that is assigned to MSS operators to extend MSS availability to indoor and urban areas that would otherwise go unserved by a satellite-only MSS network.[57] New ICO also argues that increased flexibility is needed to overcome financial and technical difficulties that have been faced by the MSS industry in recent years.[58] New ICO maintains that "the Commission has allowed such flexibility in the past when necessary to make an underlying service viable."[59] We note, however, that other MSS proponents dispute ICO's characterization of the state of the MSS industry.[60] We are considering, in a

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with Reply to Oppositions of Final Analysis Communication Services, Inc., IB Docket No. 99-81, at 3 (filed Jan. 10, 2001) (clarifying that any 2 GHz MSS second processing round should be open to all MSS operators, including those proposing or providing exclusively non-voice services).

[52] *2 GHz MSS R&O*, 15 FCC Rcd at 16144-49 ¶¶ 31-44.

[53] Globalstar Petition for Reconsideration at 10-14.

[54] Final Analysis Petition for Reconsideration at 8-9.

[55] New ICO, a Delaware corporation, is the parent of ICO Services Limited, a United Kingdom company that has filed a letter of intent to provide 2 GHz MSS in the United States.

[56] *Ex parte* letter of New ICO Global Communications (Holdings) Ltd., IB Docket No. 99-81 (filed Mar. 8, 2001) (New ICO *ex parte* letter).

[57] *Id. But see Ex parte* letter of Verizon Wireless, ET Docket No. 00-258 & IB Docket No. 99-81, at 4 (filed Apr. 24, 2001) (opposing New ICO's request); *ex parte* Letters of Michele Farquhar and Ari Fitzgerald, Counsels for Alaska Native Wireless Corporation, WT Docket No. 00-230 & IB Docket No. 99-81, at 2 (filed June 29 & July 2, 2001)(same).

[58] New ICO *ex parte* letter at 3-6. *Accord* Application of Motient Services Inc. and Mobile Satellite Ventures Subsidiary LLC for Assignment of Licenses and for Authority to Launch and Operate a Next-Generation Mobile Satellite Service System at 12 (filed Mar. 1, 2001) (in an amendment to its second generation MSS application, Motient requests authority to deploy terrestrial base stations in the 1.5/1.6 GHz MSS bands, noting that "after more than four years of commercial operations, it has become clear to Motient that unavoidable technical limitations make it difficult to sustain a viable, satellite-only mobile communications business.").

[59] New ICO *ex parte* letter at 12.

[60] "[W]hile the MSS industry has consolidated, much as the terrestrial industry has done, the industry will be vibrant and offer a wide panoply of public services . . . . MSS is not 'dead' or lacking in the public interest and it does not require protection . . . ." Request of the Mobile Satellite Users Association at 2 (filed May 31, 2001) (MSUA Request). *See also Ex parte* letter of The Boeing Company, IB Docket No. 99-81, at 1 (filed May 24, 2001) ("Boeing has designed its 2 GHz MSS system as a dedicated *satellite-based* infrastructure . . . ." (emphasis added)); *Ex parte* letter of Celsat America, Inc., IB Docket No. 99-81, at 1 (filed June 25, 2001) (Celsat "strongly disagrees with the sentiments of New ICO" that 2 GHz MSS systems are not economically viable without ATC).

separate proceeding, whether MSS licensees should be accorded additional flexibility in the mode of delivery of service to consumers in the use of their spectrum, and, if so, the conditions under which such flexibility should be accorded.[61]

20. The Cellular Telecommunications & Internet Association (CTIA) subsequently submitted a petition for rulemaking requesting that the 2 GHz MSS bands be reallocated for other uses, such as terrestrial wireless services, and asking that we withhold grant of 2 GHz MSS licenses while we consider its petition.[62] A number of parties have filed comments on CTIA's requests.[63]

21. On July 17, 2001, the Commission staff issued authorizations for the eight 2 GHz MSS system proponents to provide 2 GHz MSS in the United States.[64] Pursuant to the *2 GHz MSS R&O*, the authorizations provide each system access to Selected Assignments of 3.5 megahertz of spectrum in each of the 1990-2025 MHz and 2165-2200 MHz bands. Commission staff delayed full implementation of the *2 GHz MSS R&O* with regard to an incremental 0.38 megahertz of spectrum per licensee in each band, in order to allow the Commission to address the proposals set forth in the CTIA Petition and the New ICO *ex parte* letter.

(2) *Discussion.*

22. In today's action, we grant in part Globalstar's and Final Analysis's petitions for reconsideration and CTIA's petition for rulemaking. Specifically, we reconsider the decision in the *2 GHz MSS R&O* to defer until "after achievement of each of our system implementation milestones" evaluation of whether to redistribute abandoned spectrum or make it available to new entrants.[65] We seek comment at this time regarding how to treat abandoned spectrum, as set forth in detail below, and

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[61] *See* Flexibility for Delivery of Mobile Satellite Services in the 2 GHz Band, the L-Band, and the 1.6/2.4 GHz Band; Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Service, IB Docket No. 01-185, ET Docket No. 95-18, *Notice of Proposed Rulemaking*, FCC 01-225 (adopted Aug. 9, 2001).

[62] CTIA Petition, *supra* note 4.

[63] *See* MSUA Request (urging the Commission to reject or dismiss CTIA's petition for rulemaking prior to accepting it for filing); *Ex parte* Letter of ICO Services Ltd., IB Docket No. 99-81 (filed May 25, 2001) (urging the Commission to dismiss CTIA's petition for rulemaking and immediately license 2 GHz MSS systems); Joint *Ex parte* Letter of AT&T Wireless Services, Inc., Cingular Wireless, LLC, Sprint Corporation, and Verizon Wireless, IB Docket No. 99-81 (filed June 13, 2001) (urging full consideration of the CTIA proposal). *Cf. Ex parte* Letter of Celsat America, Inc., IB Docket No. 99-81 (filed May 23, 2001) (addressing its need for spectrum to provide mobile-satellite service in the 2 GHz bands). In response to these *ex parte* letters, CTIA filed an *ex parte* letter urging the Commission to consider the possible reallocation of the entire 2 GHz MSS spectrum and New ICO's ATC proposal before it grants any 2 GHz MSS licenses. *See Ex parte* Letter of CTIA, IB Docket No. 99-81 (filed July 12, 2001).

[64] *See* The Boeing Company, *Order and Authorization*, DA 01-1631 (Int'l Bur., rel. July 17, 2001); Celsat America, Inc., *Order and Authorization*, DA 01-1632 (Int'l Bur., rel. July 17, 2001); Constellation Communications Holdings, Inc., *Order and Authorization*, DA 01-1633 (Int'l Bur./OET, rel. July 17, 2001); Globalstar, L.P., *Order and Authorization*, DA 01-1634 (Int'l Bur./OET, rel. July 17, 2001); ICO Services Limited, *Order*, DA 01-1635 (Int'l Bur./OET, rel. July 17, 2001); Iridium LLC, *Order and Authorization*, DA 01-1636 (Int'l Bur., rel. July 17, 2001); Mobile Communications Holdings, Inc., *Order and Authorization*, DA 01-1637 (Int'l Bur./OET, rel. July 17, 2001); TMI Communications and Company, *Order*, DA 01-1638 (Int'l Bur., rel. July 17, 2001).

[65] *2 GHz MSS R&O*, 15 FCC Rcd at 16139 ¶ 18.

include among the options whether to reallocate a portion of this spectrum for advanced wireless services. We also reconsider the decision reserving a segment of the 2 GHz MSS spectrum for system expansion, which under the formula adopted in the *2 GHz MSS R&O* equaled the same amount of spectrum to be awarded initially to each system. We seek comment on whether we should retain some or all of this spectrum for system expansion. These actions provide opportunity to explore and seek comment here on a broader range of options for deployment of advanced wireless services, without adversely affecting the 2 GHz MSS systems' ability to commence operations.

23. We deny, however, CTIA's petition for rulemaking insofar as it requests reallocation of the entire 2 GHz MSS band and a delay in authorizing of 2 GHz MSS systems. The actions we are taking in this *MO&O and FNPRM* better serve the public interest with respect to these issues, and are consistent with the International Bureau's recent action granting 2 GHz MSS authorizations. We also deny Globalstar's petition for reconsideration insofar as it seeks adoption of its "all-shared" licensing arrangement. Globalstar's arguments concerning the merits of its approach were addressed and rejected in the *2 GHz MSS R&O*, and Globalstar's petition and the record generated by it do not persuade us to change the Commission's prior decision.

24. We now turn to options and proposals for alternative use of 2 GHz MSS spectrum. Based on our understanding of the likely time frames in which spectrum would need to be made available for advanced wireless services, we propose that ten to 14 megahertz of MSS spectrum be reallocated for advanced wireless services within the next year, without waiting for spectrum to be abandoned. Alternatively, this spectrum could be made available for displaced incumbents. We seek comment on two possible approaches to making this spectrum available for advanced wireless services, as described in the following paragraphs.

25. One approach would be to base the distribution of 2 GHz MSS spectrum on ten Selected Assignment pairs of seven megahertz each (3.5 megahertz in each direction of transmission). Under this scenario, the following formula would express the amount of spectrum available for each MSS system, in each direction of transmission:

35 megahertz ÷ (Number of System Proponents + 2) = Size of Each Spectrum Segment

Under this approach, each of the eight 2 GHz MSS system proponents would choose Selected Assignments of seven megahertz. The two remaining pairs (totaling 14 megahertz of spectrum) would consist of the segment originally reserved for system expansion and the segment that would have been reserved for Inmarsat Horizons. Ten megahertz of this spectrum could be reallocated for advanced wireless services, and four megahertz could be retained for MSS system expansion or made available for other purposes, as set forth below.

26. Another approach would be to use the segment of the 2 GHz MSS spectrum set aside for system expansion, plus 1.12 megahertz of MSS spectrum from each direction of transmission, to make ten megahertz (five megahertz in each direction) of spectrum available for reallocation to other services, and to distribute the remaining 60 MHz of spectrum among the MSS proponents. Under this scenario, the following formula would express the amount of spectrum available for each MSS system, in each direction of transmission:

30 megahertz ÷ (Number of System Proponents) = Size of Each Spectrum Segment

Thus, under this approach, the eight 2 GHz MSS system proponents would choose Selected Assignments of 7.5 megahertz (3.75 megahertz in each direction of transmission) each.

27. Either of these approaches would make it possible to allocate the 2020-2025 MHz and 2165-2170 MHz frequency bands for other services, if supported in the record as being in the public interest. Under either approach, we would retain 56 to 60 megahertz of spectrum for MSS in the 1990-2020 and

2170-2200 MHz bands. Under the first approach, however, two megahertz of spectrum in each direction of transmission could either be retained for MSS use, but not immediately assigned to MSS systems, or be reallocated for advanced wireless or other services. If retained for MSS, this spectrum could be distributed among the 2 GHz MSS systems or made available for other MSS systems. We seek comment on this proposal, and these various approaches, concerning reallocation of MSS spectrum.

28. We also seek comment on the use of abandoned spectrum. Should the Commission make abandoned spectrum available for use only by 2 GHz MSS systems, or for other types of MSS systems (such as those that provide exclusively non-voice services)? Alternatively, should the Commission provide other services, such as advanced wireless services, an opportunity to pursue use of this spectrum? Based on the timing of authorizing the 2 GHz MSS systems, it is unlikely that any abandoned 2 GHz MSS spectrum would first be available for at least one year. We seek comment on the extent to which making spectrum available in this time frame would affect planned time frames for the assignment of spectrum for, and implementation of service by, advanced wireless services, and with the range of options under consideration in this *MO&O and FNPRM.*

29. Under any combination of mechanisms described above, we seek comment on whether we should retain at least the 40 megahertz of spectrum for MSS in the 1990-2010 MHz and 2180-2200 MHz bands, where MSS is allocated globally and which WRC-2000 identified for the satellite component of IMT-2000. However, we propose that any reallocation of existing MSS spectrum would not significantly impair any of the current licensees' rights and reasonable expectations to retain its current assigned spectrum allotment and acquire additional MSS spectrum for purposes of deploying and operating a fully matured 2 GHz MSS system. We seek comment on the impact of these mechanisms on the development and longer-term operations of 2 GHz and other MSS services, including possible future entrants into the MSS market. Would the impact differ based on the number of currently authorized 2 GHz MSS systems that ultimately commence operations? How should potential combinations or acquisitions of existing licensees through transfers, assignments or license modifications be considered in connection with our ultimate reallocation decision?[66]

30. We note that, at the conclusion of this proceeding, it may be necessary to make conforming changes to the provisions of the 2 GHz MSS system authorizations concerning Selected Assignments. Specifically, we would propose to modify the authorizations, if necessary, concerning the amount of spectrum for Selected Assignments, from the currently specified 3.5 megahertz, to 3.75 megahertz, 3.88 megahertz, or another appropriate amount. We also propose to modify, if necessary, the location of individual Selected Assignments, which are currently required to be in increments of 3.88 megahertz from the band edge. The licenses would be modified to specify increments of 3.5 megahertz, 3.75 megahertz, or another appropriate amount. Finally, we propose to modify the licenses, if necessary, concerning frequency bands in which Selected Assignment may be made, from the 1990-2025 and 2165-2200 MHz bands currently specified, to the 1990-2020 and 2170-2200 MHz or other appropriate bands. We propose to make any necessary changes to the licenses pursuant to Section 316 of the Communications Act. We note that, in the *2 GHz MSS Order*, we required that 2 GHz MSS systems be capable of operating across at least 70% of the 1990-2025 MHz and 2165-2200 MHz bands.[67] Given this

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[66] *See infra* para. 35.

[67] *See 2 GHz MSS R&O*, 15 FCC Rcd at 16152 ¶ 52. All of the authorized 2 GHz MSS systems meet this requirement, and all but one propose to operate throughout the entire 70 megahertz of MSS spectrum. The ICO system will operate in the United States in the 1990-2015 MHz and 2170-2200 MHz frequency bands. *See* Letter of Intent of ICO Services Limited, File No. 188-SAT-LOI-97; IBFS File NO. SAT-LOI-19970926-00163 at 15 (Sept. 26, 1997).

requirement, there would appear to be adequate flexibility in the MSS satellite designs to accommodate possible changes to Selected Assignments.

31. We also seek comment on whether additional limitations concerning Selected Assignments may be appropriate if we decide to pursue reallocation of abandoned spectrum. In particular, in order to make available contiguous spectrum for other services, should we adopt limits on the specific 2 GHz bands in which MSS systems can specify Selected Assignments? For example, should we require MSS operators to preserve contiguous spectrum in the upper portion of the 1990-2025 MHz frequency band, *e.g.*, 2015-2025 MHz, and the lower portion of the 2165-2200 MHz frequency band, *e.g.*, 2165-2175 MHz? Alternatively, should we develop some other process now for "repacking" 2 GHz spectrum, if it should become necessary in order to provide contiguous spectrum?

32. If we were to reallocate some portion of the 2 GHz MSS band, we seek comment on changes that would have to be made to the Commission's plan recently adopted in ET Docket No. 95-18 to relocate incumbent broadcast auxiliary service (BAS) and Fixed service (FS) users from the 1990-2025 MHz and 2165-2200 MHz bands, respectively. Under the current allocation, the 1990-2025 MHz band is to be used for MSS uplinks, and to avoid unacceptable mutual interference between MSS and incumbent BAS, the Commission has adopted a phased relocation plan.[68] The plan for relocation of the BAS was designed to ensure the integrity of BAS throughout the transition, as well as to minimize the costs and barriers to entry for MSS licensees. Specifically, BAS relocation from the 1990-2025 MHz band is to occur in two phases. The first phase will free 18 megahertz of former BAS spectrum at 1990-2008 MHz for MSS use. It requires MSS to relocate BAS licensees in the top 30 Nielsen Designated Market Areas ("DMAs") before MSS operations begin. Once MSS operations begin, BAS licensees are prohibited from operating in the 1990-2008 MHz range in all other markets. In Phase I, MSS licensees are required to relocate BAS licensees in the 1990-2008 MHz band in Nielsen DMAs 31-100 within three years after operations begin. The second phase will begin when the Phase I spectrum is no longer sufficient to meet MSS requirements.[69] In Phase II, MSS is required to relocate BAS from the 2008-2023 MHz range in the top 30 Nielsen DMAs before operating in that range. Once MSS operations begin in the 2008-2023 MHz range, BAS in the remaining markets will be prohibited from operating in that range. MSS then has three years to complete relocation of BAS from 2008-2023 MHz in the Nielsen DMAs 31-100, and five years to complete BAS relocation from 1990-2023 MHz in all Nielsen DMAs. Finally, on September 6, 2010, all existing incumbent licensees become secondary in the 1990-2025 MHz band. Negotiations between MSS and BAS are mandatory, and the negotiation period began September 6, 2000. At the end of the two-year negotiation period, the MSS licensee can involuntarily relocate a BAS licensee if the parties have not reached a relocation agreement.

33. If the Commission were to reallocate spectrum for advanced wireless use, including reallocating five megahertz of spectrum at 2020-2025 MHz, the phased relocation of BAS may not be practical. Instead, BAS operations may have to relocate to their allocated 85 megahertz of spectrum at 2025-2110 MHz in one step. Under these circumstances, the relocation of BAS from 1990-2025 MHz would be shared between new MSS entrant and new advanced wireless entrants. The first new MSS and

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[68] The incumbent licensees in the 2 GHz MSS uplink band from 1990-2025 MHz are the broadcast auxiliary service, cable television relay service, and local television transmission service (collectively, "BAS"). Interference will occur from BAS transmitters into MSS uplinks, and from MSS handsets into BAS receivers.

[69] The Commission recognized that if an MSS system could share spectrum with BAS, it would not have to participate in relocating BAS incumbents provided it operated in uncleared spectrum. *See* 2 *GHz MSS R&O*, 15 FCC Rcd at 16142 ¶ 25; *2 GHz MSS 2R&O*, 15 FCC Rcd 12336 ¶ 63.

advanced wireless entrants would be responsible for clearing all of the spectrum below 2025 and would seek reimbursement on a pro rata basis from other new entrants. We seek comment on how the BAS relocation plan would have to be modified to accommodate a reallocation of spectrum for advanced wireless use; what the relocation responsibilities of new MSS and advanced wireless entrants would be; and whether new MSS and advanced wireless entrants would share the relocation costs on a pro rata basis. We also seek comment on any other effect these options may have on BAS relocation plans and procedures (including, for example, revised band channel plans and the length of the negotiation period, among other issues) recently adopted in ET Docket No. 95-18 for incumbent BAS operations in these bands. We also seek comment on how these options would affect the implementation of the band plan in the recently adopted *2 GHz MSS R&O*, and in particular, the flexibility of 2 GHz MSS licensees to use the entire band on a secondary basis.[70]

34. Under the current allocation, the 2165-2200 MHz band is to be used for MSS downlinks.[71] In the *2 GHz MSS Allocation Order*, we stated that MSS licensees would be required to relocate those FS operations that would receive harmful interference from MSS, but MSS would not be required to relocate any FS licensee with which it could successfully share spectrum.[72] Incumbent FS microwave links in the 2165-2200 MHz band are paired with 35 megahertz 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, a subsequent new licensee who benefits from a prior relocation will reimburse the initial new entrant who paid for relocation of paired channels. We seek comment on any effect the advanced wireless services reallocation options may have on FS relocation plans and procedures (including, for example, the length of the negotiation period, among other issues) recently adopted in ET Docket No. 95-18 for incumbent FS operations. We also seek comment on how these options would affect the implementation of the band plan in the recently adopted *2 GHz MSS R&O*, and in particular, the flexibility of 2 GHz MSS licensees to use the entire band on a secondary basis.

35. We further seek comment on whether there are marketplace approaches that could facilitate more intensive or efficient use of the 2 GHz MSS bands. For example, our 2 GHz MSS licensing is premised on the construction of eight separate systems, and authorizations become null and void if the particular system authorized is not constructed. We seek comment on whether we should permit MSS operators to consolidate operations, such that system operators that reach an agreement would be able to use, for a single system, all or some portion of the spectrum assigned to their individual systems. We note that various Commission rules and policies may prevent[73] or place limitations on[74] such

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[70] The band arrangement adopted in the *2 GHz MSS R&O* was intended to provide "sufficient flexibility to maximize the use of the 2 GHz MSS spectrum and minimize the burdens of incumbent relocation." *2 GHz MSS R&O*, 15 FCC Rcd at 16144 ¶ 30. In particular, the Commission permitted each MSS system to operate outside its Selected Assignment on a secondary basis, in order to "allow MSS systems to begin providing service in any available frequencies during the incumbent transition process...." *Id.* at 16140 ¶ 21. This flexibility may minimize unnecessary disruption to incumbents and cost to MSS entrants. Particularly in the 2165-2200 MHz band, an MSS operator could begin operations in portions of the band that would require only minimal incumbent relocation.

[71] Interference will occur from MSS downlinks into FS receivers, and from FS transmitters into MSS handsets.

[72] *2 GHz MSS Allocation Order*, 12 FCC Rcd at 7406-07 ¶¶ 42-43.

[73] *See 2 GHz MSS R&O*, 15 FCC Rcd at 16177-80 ¶¶ 106-111 (milestones for system implementation); 47 C.F.R. § 25.143(g) (prohibiting the trafficking in bare licenses).

[74] *See* 47 C.F.R. § 25.143(g) (prohibiting the trafficking in bare licenses).

arrangements, and seek comment both on whether those rules should be waived or modified, and on whether such actions would frustrate the purposes of those rules, or implicate other policy concerns.[75] Commenters should address related public interest considerations regarding the potential effects of consolidation on 2 GHz MSS services, such as spectrum management and efficiency, licensing and regulatory policies, market and business factors, deployment of telecommunications services and effect on competition (*e.g.*, in the MSS market as well as in broader markets). For example, should we permit MSS licensees to consolidate operations in order to ensure enough spectrum for full operations? To what extent are limits necessary in order to address unjust enrichment of entities that have not completed system construction? To what extent would waivers or modifications of rules tend to promote the filing of speculative applications in future satellite processing rounds?

(3) *Other Matters on Reconsideration of the 2 GHz MSS R&O*

36. In paragraph 22, *supra*, we address Globalstar's and Final Analysis's timely-filed requests for reconsideration of the Commission's band arrangement decisions in the *2 GHz MSS R&O*. Final Analysis also seeks reconsideration of an issue not related to the band arrangement. Specifically, in the *2 GHz MSS R&O*, the Commission concluded that there was insufficient information in the record of that proceeding to mandate specific requirements for 2 GHz MSS proponents to implement their systems with enhanced 911 (E911) capabilities.[76] The Commission concluded that it is better to address the E911 issue in the Global Mobile Personal Communications by Satellite (GMPCS) Proceeding, IB Docket No. 99-67.[77] In that regard, the Commission stated that "[a]ddressing this issue in the GMPCS Proceeding, moreover, will allow us to simultaneously consider the full scope of technical and other issues on a wide-scale basis for the entire satellite industry . . . ."[78] Final Analysis requests that the Commission not defer consideration of E911 requirements for 2 GHz MSS systems until resolution of the GMPCS Proceeding.[79] We deny this request. We continue to believe that these issues should be considered in a proceeding in which their impact on all MSS systems can be assessed. We also note that the Wireless Communications Association International, Inc., filed a timely petition for reconsideration of the rules regarding protecting MDS operations at 2150-2162 MHz from out-of-band emissions in the 2 GHz MSS downlinks at 2165-2200 MHz.[80] To the extent this issue is not rendered moot by actions in this proceeding, it will be considered in a future Memorandum Opinion and Order in IB Docket No. 99-81.

C. *2150-2160 MHz.*

37. The 2150-2160 MHz band is allocated on a primary basis worldwide to the Fixed and Mobile Services, and on a secondary basis in Region 2 to the Mobile-satellite (space-to-Earth) Service. It is also

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[75] *See, e.g.*, Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets, WT Docket No. 00-230, *Notice of Proposed Rulemaking,* 15 FCC Rcd 24203 (2000); Principles for Promoting the Efficient Use of Spectrum by Encouraging the Development of Secondary Markets, *Policy Statement*, 15 FCC Rcd 24178 (2000).

[76] *2 GHz MSS R&O*, 15 FCC Rcd at 16185 ¶ 125.

[77] *Id.* (citing Amendment of Parts 2 and 25 to Implement the Global Mobile Personal Communications by Satellite (GMPCS) Memorandum of Understanding and Arrangements, IB Docket No. 99-67, *Notice of Proposed Rule Making*, 14 FCC Rcd 5871 (1999)).

[78] *2 GHz MSS R&O*, 15 FCC Rcd at 16185 ¶ 125.

[79] Final Analysis Petition for Reconsideration at 9-11.

[80] Petition for Reconsideration of Wireless Communications Association International, Inc. (filed Nov. 3, 2000).

part of the spectrum identified by WARC-92 for possible new advanced wireless services use.[81] In the United States, this band is designated for channel 1 and for channel 2A, which is the lower four megahertz of channel 2, of the Multipoint Distribution Service.[82] Like the 2500-2690 MHz band discussed in the *New Advanced Wireless Services NPRM*, while this spectrum traditionally was used for one-way analog video transmission, current licensees are taking advantage of Commission service rule changes to permit use of this band for high speed, fixed wireless broadband services.[83] Under an informal agreement among MDS licensees, the principal use of this spectrum is for upstream communications to hub receiving facilities.[84] Notably, this MDS spectrum lies between two frequency bands already being considered for new advanced wireless services use: 2110-2150 MHz and 2160-2165 MHz.[85]

38. The spectrum efficiencies inherent in allocating contiguous frequency blocks for new advanced wireless services and the availability of possible relocation spectrum for MDS incumbents support consideration of this spectrum for new advanced wireless services. We seek comment on whether we should reallocate the 2150-2160 MHz band for new advanced wireless services, or for relocation purposes. We also seek comment on how the 2150-2160 MHz band might fit with other spectrum being considered for new advanced wireless services.

39. The *2500-2690 MHz Final Report* concludes that if the 2500-2690 MHz MDS/ITFS band is chosen for advanced wireless services, segmentation or relocation of incumbents could significantly affect MDS/ITFS deployment and impose considerable costs on both private entities and the public.[86] In addition, although the 2500-2690 MHz band is available for advanced wireless systems in other countries, such as in Europe by the year 2010, it still remains unclear how these countries will actually use that band for such systems.[87] Moreover, we have received several comments in the New Advanced Wireless Services proceeding stating that the threat of relocation has had a detrimental effect on MDS/ITFS licensees trying to roll-out new advanced broadband services.[88] Similarly, the record in this proceeding also includes extensive comments on issues related to the possible reallocation of the 2150-2160 MHz band. Comments filed by the MDS/ITFS industry and several equipment manufacturers, for example, state that the 2150-2160 MHz band is necessary for the continued roll-out of fixed wireless services across the country.[89] On the other hand, many parties filed comments in support of using of

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[81] *See supra* note 32.

[82] In the 50 largest markets, MDS uses two six-megahertz channels: channel no. 1 at 2150-2156 MHz and channel no. 2 at 2156-2162 MHz. In the rest of the country, the six-megahertz channel no. 2 is replaced by a four-megahertz channel no. 2-A at 2156-2160 MHz. In the *New Advanced Wireless Services NPRM* we sought comment on reallocating the 2160-2165 MHz band, which includes at 2160-2162 MHz the upper two megahertz of MDS channel 2. *New Advanced Wireless Services NPRM*, 16 FCC Rcd at 617-18 ¶¶ 50-52.

[83] *See id.* at 620-22 ¶¶ 58-65.

[84] *See generally* Sprint Comments at 31; WCA Comments at 42-43.

[85] *See 2500-2690 MHz Final Report* at 13-24.

[86] *See id.* at 92.

[87] *See New Advanced Wireless Services NPRM*, 16 FCC Rcd at 623-24 ¶ 69.

[88] *See, e.g.,* IPWireless Comments at 12.

[89] *See* Ad Hoc MDS Alliance Comments at 4-6; Cisco Systems Comments at 8; Hubbard Trust, Wireless World and Centimeterwave Television Comments at 11; National ITFS Association Comments at 22 n.36; Nucentrix Broadband Networks Comments at 20-21; Sprint Reply Comments at 4-6; Wireless Communications Association (continued....)

2150-2160 MHz band for advanced wireless services.[90] We seek comment on whether, and if so to what extent, the conclusions in the *2500-2690 MHz Final Report* apply to the 2150-2160 MHz band.

40. We seek comment on the impact of reallocating this spectrum for new advanced wireless services or for relocation purposes. We also request that commenters identify other frequency bands that could accommodate incumbent MDS services. In the Emerging Technologies proceeding, we allowed new entrants to provide incumbents with comparable facilities using any acceptable technology.[91] Should relocation be deemed necessary, we propose that MDS incumbents similarly be entitled to comparable facilities and/or adequate replacement spectrum. We seek comment on how to apply to incumbent users the same relocation procedures that we applied in the Emerging Technologies proceeding.[92] We also seek comment on the types and magnitudes of costs to relocate incumbent operations. For example, could equipment be retuned or would facilities need to be replaced? What would be the cost to retune or replace equipment? We also seek comment on a suggested timeframe to clear the band.

41. Furthermore, as discussed above, the Commission is considering issues about whether MDS licensees should be accorded additional flexibility in the use of their spectrum, and, if so, the conditions under which such flexibility should be accorded. In the *New Advanced Wireless Services NPRM*, we sought comment on whether the 2500-2690 MHz band should be allocated for mobile and fixed services on a co-primary basis.[93] Similarly, we invite comment on the public interest costs and benefits of adding a mobile allocation to the 2150-2160 MHz band. We invite MDS and ITFS licensees to discuss whether adding a mobile service allocation in the 2150-2160 MHz band would be beneficial or harmful to their plans for use of the band.

D. *Pairing*

42. In the *New Advanced Wireless Services NPRM* we noted that different technologies use bandwidth in different ways, and invited comments on the spectrum requirements of technologies that use paired or unpaired spectrum.[94] We also solicited comments on four illustrative pairing options,[95] as well as other spectrum pairing options. Were the Federal Government to agree to the reallocation of spectrum from some of the bands identified above, additional pairing options would be possible. For example, we

(Continued from previous page)

International Comments at 40-44; Wireless One of North Carolina Comments at 9-10; and WorldCom Comments at 23-24.

[90] *See generally, e.g.*, Motorola Comments; Qualcomm Comments; and Siemens Comments.

[91] *See* Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies, ET Docket No. 92-9, *Second Report and Order*, 8 FCC Rcd 6495 (1993) (*Emerging Technologies Proceeding*).

[92] *See New Advanced Wireless Services NPRM*, 16 FCC Rcd at 618-19 ¶¶ 54-55 (proposing to use for incumbents in the 2110-2150 MHz and 2160-2165 MHz bands the relocation procedures designated for fixed microwave service incumbents in the 2110-2115 MHz and 2165-2200 MHz bands). *See also* 47 C.F.R. §§ 101.69-101.83; *2 GHz MSS 2R&O*, 15 FCC Rcd 12315.

[93] *New Advanced Wireless Services NPRM*, 16 FCC Rcd at 621 ¶ 63.

[94] *See id.* at 608-09 ¶ 29.

[95] The illustrative pairing options are: (1) 1710-1755 MHz paired with spectrum from the 1755-1850 MHz band; (2) 1710-1755 MHz paired with 2110-2150/2160-2165 MHz; (3) 1710-1755 MHz paired with spectrum from the 2500-2690 MHz band; and (4) 2110-2150/2160-2165 MHz paired with spectrum from the 2500-2690 MHz band. *See id.* at 622-24 ¶¶ 66-69.

could pair 1710-1770 MHz with 2110-2170 MHz, to provide 120 MHz of spectrum for advanced wireless services. This option, consistent with Option 2 for dual band pairing of the 1710-1790 MHz band discussed by NTIA in its *Final Report*,[96] would require redesignation of 15 MHz of spectrum currently occupied by Federal Government incumbents (1755-1770 MHz), 10 MHz of spectrum occupied by MDS incumbents (2150-2160 MHz), and 5 MHz of spectrum designated for 2 GHz MSS operators (2165-2170 MHz).[97] Alternatively, we could pair 1710-1780 MHz with 2110-2180 MHz to provide 140 MHz of spectrum for advanced wireless services. This option, again consistent with the *NTIA Final Report*, would require redesignation of 25 MHz of spectrum currently occupied by Federal Government incumbents (1755-1780 MHz), 10 MHz of spectrum occupied by MDS incumbents (2150-2160 MHz), and 15 MHz of spectrum designated for 2 GHz MSS operators (2165-2180 MHz).[98]

43. We seek comment on these pairing options, as well as on additional pairing options made possible by the spectrum identified in this *MO&O and FNPRM*, and on the benefits of particular pairing plans. We seek comment in particular as to whether the use of the 2170-2180 MHz band for advanced wireless services would be appropriate since the ITU had previously identified this spectrum for the satellite component of IMT-2000 and no other country has proposed or licensed this spectrum for terrestrial use. We also request comment as to whether we should reallocate the MSS spectrum at 2165-2180 MHz before it is clear whether additional government spectrum above 1755 MHz (which could be paired with this spectrum) can be redesignated for nongovernment use.[99] As previously discussed, some of the bands identified in this *MO&O and FNPRM* could also be used for relocation purposes. Should one of the pairing options identified above be adopted, would spectrum currently designated for use by 2 GHz MSS or UPCS be suitable for relocating MDS incumbents?

44. Some comments filed in response to the *New Advanced Wireless Services NPRM* maintain that the preferred minimum allocation per operator would provide both paired and unpaired spectrum.[100] In light of the additional spectrum options discussed herein, we now seek comment on how various allocation choices that we could make would affect our ability to provide for unpaired use for advanced wireless services in our service rules. For example, would spectrum currently allocated for MSS or UPCS be suitable for unpaired use for advanced wireless services?

IV. PROCEDURAL INFORMATION

A. Initial Regulatory Flexibility Analysis

45. As required by the Regulatory Flexibility Act (RFA),[101] the Commission has prepared an Initial Regulatory Flexibility Analysis (IRFA) of the possible significant impact on small entities of the

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[96] *See NTIA Final Report* at 4-16 through 4-20.

[97] Under this approach, we would most likely reallocate the corresponding uplink spectrum for 2 GHz MSS at 2020-2025 MHz (for a total reallocation of 10 MHz from MSS), which could be used for relocation or other purposes. *See also supra* para. 27.

[98] As with the 120 MHz option, we would most likely reallocate the corresponding uplink spectrum for 2 GHz MSS at 2010-2025 (for a total reallocation of 30 MHz from MSS), which could be used for relocation or other purposes. *See supra* note 97.

[99] *See* National Defense Authorization Act for 2000, Pub. L. No. 106-65, 113 Stat. 512 (1999).

[100] *See, e.g.*, Comments of Siemens Corporation at 23.

[101] *See* 5 U.S.C. § 603.

policies and rules proposed in this *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*. The IRFA is set forth in Appendix A. We request written public comment on the IRFA. In order to fulfill the mandate of the Contract with America Advancement Act of 1996 regarding the Final Regulatory Flexibility Analysis, we ask a number of questions in our IRFA regarding the prevalence of small businesses in the affected industries. Comments on the IRFA must be filed in accordance with the same filing deadlines as comments filed to the *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, and must have a separate and distinct heading designating them as response to the IRFA.

B. Paperwork Reduction Analysis

46. The *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking* does not contain a proposed information collection.

C. *Ex Parte* Presentations

47. For purposes of this permit-but-disclose notice and comment rulemaking proceeding, members of the public are advised that *ex parte* presentations are permitted, except during the Sunshine Agenda period, provided they are disclosed under the Commission's Rules.[102]

D. Comment Dates

48. Pursuant to Sections 1.415 and 1.419 of the Commission's Rules, 47 C.F.R. §§ 1.415, 1.419, interested parties may file comments on the Further Notice of Proposed Rulemaking on or before [28 days after Federal Register publication] and reply comments on or before [42 days after Federal Register publication]. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies.[103] All relevant and timely comments will be considered by the Commission before final action is taken in this proceeding. To file formally, interested parties must file an original and four copies of all comments, reply comments, and supporting comments. If interested parties want each Commissioner to receive a personal copy of their comments, they must file an original plus nine copies. Interested parties should send comments and reply comments to the Office of the Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C., 20054. Parties are also encouraged to file a copy of all pleadings on a 3.5-inch diskette in Word 97 format.

49. Comments filed through the ECFS can be sent as an electronic file via the Internet to http://www.fcc.gov/e-file/ecfs.html. Generally, only one copy of an electronic submission must be filed. In completing the transmittal screen, commenter should include their full name, Postal Service mailing address, and the applicable docket or rulemaking number. Parties may also submit an electronic comment by Internet e-mail. To get filing instructions for e-mail comments, commenters should send an e-mail to ecfs@fcc.gov, and should include the following words in the body of the message: "get form <your e-mail address>". A sample form and directions will be sent in reply.

50. Parties who choose to file by paper must file an original and four copies of each filing. If more than one docket or rulemaking number appears in the caption of this proceeding, commenters must submit two additional copies for each additional docket or rulemaking number. All filings must be sent to

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

[103] *See* Electronic Filing of Documents in Rulemaking Proceedings, GC Docket No. 97-113, *Memorandum Opinion and Order on Reconsideration*, 13 FCC Rcd 21517 (1998); *Report and Order*, 13 FCC Rcd 11322 (1998).

the Commission's Secretary, Magalie Roman Salas, Office of Secretary, Federal Communications Commission, 445 12th Street, S.W., Washington, D.C. 20554.

51. Comments and reply comments will be available for public inspection during regular business hours in the FCC Reference Center, 445 12th Street, S.W., Washington, D.C. 20554. Comments are also available on the ECFS, at http://gullfoss2.fcc.gov/cgi-bin/websql/prod//ecfs/comsrch_v2.hts.

E. Further Information

52. For further information concerning this *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking*, contact the Wireless Telecommunications Bureau – John Spencer at (202) 418-1310, or the International Bureau – Karl Kensinger at (202) 418-0773.

V. ORDERING CLAUSES

53. Accordingly, **IT IS ORDERED** that pursuant to the authority contained in Sections 1, 4(j), 7(a), 301, 303(c), 303(f), 303(g), 303(r), 308, and 309(j) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 151, 154(j), 157(a), 301, 303(c), 303(f), 303(g), 303(r), 308, and 309(j), this *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking* **IS ADOPTED**.

54. **IT IS FURTHER ORDERED** that the petition for rulemaking filed by Wireless Information Networks Forum, RM-9498, **IS GRANTED** to the extent indicated in the *Memorandum Opinion and Order and Further Notice of Proposed Rule Making*.

55. **IT IS FURTHER ORDERED** that the petition for rulemaking filed by UTStarcom, Inc., RM-10024, **IS GRANTED** to the extent indicated in the *Memorandum Opinion and Order and Further Notice of Proposed Rule Making*.

56. **IT IS FURTHER ORDERED** that the petition for reconsideration of the *2 GHz MSS R&O* filed by Globalstar, L.P. **IS GRANTED** to the extent indicated in the *Memorandum Opinion and Order and Further Notice of Proposed Rule Making*, and **IS OTHERWISE DENIED**.

57. **IT IS FURTHER ORDERED** that the petition for reconsideration of the *2 GHz MSS R&O* filed by Final Analysis Communications Services, Inc. **IS GRANTED** to the extent indicated in the *Memorandum Opinion and Order and Further Notice of Proposed Rule Making*, and **IS OTHERWISE DENIED**.

58. **IT IS FURTHER ORDERED** that the Petition for Rulemaking filed by the Cellular Telecommunications & Internet Association **IS GRANTED** to the extent indicated in this *Memorandum Opinion and Order and Further Notice of Proposed Rule Making*, and **IS OTHERWISE DENIED**.

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

FEDERAL COMMUNICATIONS COMMISSION

Magalie Roman Salas

Magalie Roman Salas
Secretary

APPENDIX A

Initial Regulatory Flexibility Analysis

As required by the Regulatory Flexibility Act (RFA),[1] the Commission has prepared this Initial Regulatory Flexibility Analysis (IRFA) of the possible significant economic impact on small entities by the policies and rules proposed in this *Memorandum Opinion and Order and Further Notice of Proposed Rulemaking* (*FNPRM*), ET Docket No. 00-258, ET Docket No. 95-18, and IB Docket No. 99-81. Written public comments are requested on this IRFA. Comments must be identified as responses to the IRFA and must be filed by the deadlines for comments on the *FNPRM* as provided above in paragraph 48. We further ask that comments to the IRFA be submitted to all three dockets listed in the caption of the *FNPRM*, ET Docket No. 00-258, ET Docket No. 95-18, and IB Docket No. 99-81. The Commission will send a copy of the *FNPRM*, including the IRFA, to the Chief Counsel for Advocacy of the Small Business Administration (SBA).[2] In addition, the *FNPRM* and the IRFA (or summaries thereof) will be published in the Federal Register.[3]

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

This *FNPRM* seeks to supplement the record created through the earlier *Notice of Proposed Rulemaking* (*NPRM*) in this proceeding, by proposing the possible use of several additional frequency bands below 3 GHz that could be used for advanced wireless communications systems, but that were not specifically addressed in the *NPRM*. In particular, the *FNPRM* seeks comment on reallocation of spectrum currently designated for the Mobile Satellite Service, the Unlicensed Personal Communications Service, the Amateur Radio Service, and the Multipoint Distribution Service in the 1910-1930 MHz, 1990-2025 MHz, 2150-2160 MHz, 2165-2200 MHz and 2390-2400 MHz bands for new advanced wireless services. The objective of these proposed actions is to reallocate spectrum that could be used to provide a wide range of voice, data, and broadband services over a variety of mobile and fixed networks, thus offering all entities, including small entities, greater opportunity to participate in the telecommunications industry and greater flexibility.

B. Legal Basis for Proposed Rules

The proposed action is authorized under Sections 1, 4(j), 7(a), 301, 303(c), 303(f), 303(g), 303(r), 308, and 309(j) of the Communications Act of 1934, 47 U.S.C. §§ 151, 154(j), 157(a), 301, 303(c), 303(f), 303(g), 303(r), 308, and 309(j).

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[1] *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).

[2] 5 U.S.C. § 603(a).

[3] *See id.*

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

The RFA directs agencies to provide a description of and, where feasible, an estimate of the number of small entities that may be affected by the proposed rules, if adopted.[4] The RFA generally defines the term "small entity" as having the same meaning as the terms "small business," "small organization," and "small governmental jurisdiction."[5]

The term "small business" has the same meaning as the term "small business concern" under Section 3 of the Small Business Act, unless the Commission has developed one or more definitions that are appropriate for its activities.[6] Under the Small Business Act, a "small business concern" is one that: (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.[7] Nationwide, as of 1992 there were approximately 4.44 million small business firms, according to SBA reporting data.[8]

A "small organization" is generally "any not-for-profit enterprise which is independently owned and operated and is not dominant in its field."[9] Nationwide, as of 1992, there were approximately 275,801 small organizations.[10]

The definition of "small governmental jurisdiction" is one with populations of fewer than 50,000.[11] As of 1992, there were approximately 85,006 governmental entities in the nation.[12] This number includes such entities as states, counties, cities, utility districts and school districts. There are no figures available on what portion of this number has populations of fewer than 50,000. However, this number includes 38,978 counties, cities and towns, and of those, 37,556, or ninety-six percent, have populations of fewer than 50,000.[13] The Census Bureau estimates that this ratio is approximately accurate for all government entities. Thus, of the 85,006 governmental entities, we estimate that ninety-six percent, or about 81,600, are small entities that may be affected by our proposed rules.

Geostationary, Non-Geostationary Orbit, Fixed Satellite, or Mobile Satellite Service Operators. The Commission has not developed a definition of small entities applicable to geostationary or non-

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[4] 5 U.S.C. § 603(b)(3).

[5] 5 U.S.C. § 601(6).

[6] 5 U.S.C. § 601(3).

[7] 15 U.S.C. § 632.

[8] *See* U.S. Department of Commerce, Bureau of the Census, 1992 Economic Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

[9] 5 U.S.C. § 601(4).

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

[11] 5 U.S.C. § 601(5).

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

[13] *Id.*

geostationary orbit, fixed-satellite or mobile-satellite service operators. Therefore, the applicable definition of small entity is the definition under the SBA rules applicable to Communications Services, Not Elsewhere Classified. This definition provides that a small entity is one with $11.0 million or less in annual receipts.[14] According to Census Bureau data, there are 848 firms that fall under the category of Communications Services, Not Elsewhere Classified. Of those, approximately 775 reported annual receipts of $11 million or less and qualify as small entities.[15] Small businesses may not have the financial ability to become geostationary or non-geostationary, fixed-satellite or mobile-satellite service system operators because of the high implementation costs associated with satellite systems and services. At this time, at least one of the 2 GHz MSS applicants may be considered a small business. The Commission expects, however, that by the time of implementation it will no longer be considered a small business due to the capital requirements for launching and operating its proposed system. Because there are limited spectrum and orbital resources available for assignment, the Commission estimates that no more than nine entities will be approved by the Commission as operators providing these services.

Multipoint Distribution Service (MDS). This service involves a variety of transmitters, which are used to relay data and programming to the home or office, similar to that provided by cable television systems. In connection with the 1996 MDS auction, the Commission defined small businesses as entities that had annual average gross revenues for the three preceding years not in excess of $40 million.[16] This definition of a small entity in the context of MDS auctions has been approved by the SBA.[17] Licenses for new MDS facilities are now awarded to auction winners in Basic Trading Areas (BTAs) and BTA-like areas.[18] The MDS auctions resulted in 67 successful bidders obtaining licensing opportunities for 493 BTAs. Of the 67 auction winners, 61 meet the definition of a small business.

MDS is also heavily encumbered with licensees of stations authorized prior to the MDS auction. SBA has developed a definition of small entities for pay television services, which includes all such companies generating $11 million or less in annual receipts.[19] This definition includes MDS systems, and thus applies to incumbent MDS licensees and wireless cable operators which may not have participated or been successful in the MDS auction. Information available to us indicates that there are 892 of these licensees and operators that do not generate revenue in excess of $11 million annually. Therefore, for purposes of this analysis, we find there are approximately 892 small MDS providers as defined by the SBA and the Commission's auction rules, all of whom could be affected by the Commission's proposed action.

Amateur Radio Service (ARS). Incumbent licensees in the ARS could be affected by actions

[14] North American Industry Classification System (NAICS) code 513322.

[15] NAICS code 513322

[16] 47 C.F.R. § 1.2110.

[17] Amendment of Parts 21 and 74 of the Commission's Rules with Regard to Filing Procedures in the Multipoint Distribution Service and in the Instructional Television Fixed Service; Implementation of Section 309(j) of the Communications Act-Competitive Bidding, MM Docket No. 94-111, PP Docket No. 93-253, *Report and Order*, 10 FCC Rcd 9589 (1995), 60 FR 36524 (July 17, 1995).

[18] *Id.* A Basic Trading Area (BTA) is the geographic area by which the Multipoint Distribution Service is licensed. *See* Rand McNally, 1992 Commercial Atlas and Marketing Guide 36-39 (123rd ed. 1992).

[19] 13 C.F.R. § 121.201.

taken in this proceeding, however, because the ARS is comprised of individuals, no small entities will be affected.

Unlicensed Personal Communications Service (UPCS). As its name indicates, UPCS is not a licensed service. UPCS consists of intentional radiators operating in the frequency bands 1910-1930 MHz and 2390-2400 MHz, that provide a wide array of mobile and ancillary fixed communication services to individuals and businesses. There is no accurate source for the number of operators in the UPCS. Manufacturers could be affected, however, if UPCS frequencies are transferred for other uses because need for their product could be minimized or eliminated, depending on the final action taken. This hardship could be offset if UPCS operators are moved to other frequencies or if manufacturers can sell equipment to new services occupying the UPCS frequencies. The Commission has not developed a definition of small entities applicable to UPCS equipment manufacturers. Therefore, the applicable definition of small entity is the definition under the SBA rules applicable to Communications Services, Not Elsewhere Classified. This definition provides that a small entity is one with $11.0 million or less in annual receipts.[20] According to Census Bureau data, there are 848 firms that fall under the category of Communications Services, Not Elsewhere Classified. Of those, approximately 775 reported annual receipts of $11 million or less and qualify as small entities. There are currently 15 manufacturers that have 45 equipment authorizations for devices that operate in the 1910-1930 MHz band. No equipment authorizations have been issued for devices operating in the 2390-2400 MHz band.

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

This *FNPRM* deals only with the possible reallocation of frequency bands below 3 GHz to support the introduction of new wireless services, and does not propose assignment or service rules. Thus, the item proposes no new reporting, recordkeeping, or other compliance requirements. Once it has been decided whether to reallocate this spectrum, the Commission will consider adoption of implementing rules, some of which might entail compliance requirements.

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

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives, among others: (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or reporting requirements under the rule for small entities; (3) the use of performance, rather than design standards; (4) an exemption from coverage of the rule, or any part thereof, for small entities.[21]

Providing spectrum to support the introduction of new advanced mobile and fixed terrestrial wireless services is critical to the continuation of technological advancement. First and foremost, the Commission believes that our proposal to explore the possible use of several frequency bands that could offer a wide range of voice, data, and broadband services over a variety of mobile and fixed networks may provide substantial new opportunities for small entities.

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[20] NAICS code 513322.

[21] *See* 5 U.S.C. § 603(c).

However, depending on the final action taken in this proceeding, small incumbent entities could be affected in a negative way as well, because some entities must be displaced to clear spectrum for new uses. We endeavored to avoid this effect by identifying unencumbered spectrum, but spectrum in the suitable frequency range is heavily used already and sufficient unencumbered spectrum simply does not exist. We have therefore sought to minimize an adverse impact by proposing to reallocate frequency bands for those incumbents, including small entities, which might be accommodated in other spectrum and could be relocated more easily. We are also considering compensation of displaced incumbents, including any small entity which is displaced. At this nascent stage of the proceeding, the Commission is soliciting comment on a variety of issues relevant to these possibilities.

The *FNPRM* also suggests in paragraph 40 the alternative of grandfathering incumbent licensees who qualify as small entities, until they are ready to move to new frequencies, thus easing their transition to new spectrum. Another alternative that the Commission believes has worked in the past, would be to encourage small entities to participate by offering them bidding credits if the reallocation is adopted and the spectrum is auctioned.

The *FNPRM* more specifically considers a variety of alternatives that could make frequencies available to incumbents, including small entities, who could be subject to relocation. For example, one alternative discussed in paragraphs 11-13 would be to use spectrum in the 1910-1930 MHz or 2390-2400 MHz bands for relocation. A second alternative, discussed in paragraphs 27-28 *FNPRM,* would be to use some of the 2 GHz MSS spectrum for relocation. Paragraph 38 seeks comment on using the 2150-2160 MHz MDS band for relocation purposes. Any of these alternatives would facilitate the relocation of displaced incumbents, including small entities.

Finally, the Commission has already received extensive comments on issues related to the possible reallocation of the 2150-2160 MHz (2.1 GHz) spectrum for advanced wireless purposes. Comments filed by the multipoint distribution/instructional television fixed services industry and several equipment manufacturers argue that the 2.1 GHz band is necessary for the continued roll-out of fixed wireless services across the country. Other commenters support the use of 2.1 GHz for advanced wireless services. We are considering both alternatives, and are attempting to minimize any negative impact on licensees, including small entities, in the 2150-2160 band. These alternatives are discussed in paragraphs 37-41, and include the possibility of providing displaced incumbents with relocation spectrum or compensating such licensees.

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

None.

SEPARATE STATEMENT OF COMMISSIONER GLORIA TRISTANI

Dissenting in Part

Re: *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems (Aug. 9, 2001)*

I dissent in part. The task of identifying spectrum appropriate for third generation (3G) and other advanced wireless services cannot be underestimated. As we are all aware, the spectrum "pie" is not getting any bigger and the competing interests at issue here each hold the promise of serving the public interest in their own way. I appreciate the hard work that Commission staff, other government personnel, and private parties are engaged in to find solutions to these difficult issues. This *Further Notice* takes additional steps to refine the path to 3G. While today's action adds new spectrum bands into the mix for 3G allocation, the Commission should have also used this opportunity to lay to rest the uncertainty surrounding the ITFS and mulitpoint MDS operations in the 2500-2690 MHz (2.5 GHz) band.

For more than a year, the specter of relocation or any reallocation in the 2.5 GHz band has hampered the ability of the MDS/ITFS community to deploy and deliver broadband services to the public and to educational users. While MDS offers a significant opportunity for competition to DSL and cable modem services, particularly in rural areas, many consumers still relegated to a dial-up Internet world have lost out on this opportunity for broadband access. And for the ITFS community, two-way, digital services are a powerful medium that can serve as a critical component of our educational programming delivery system. Delayed deployment here is a disservice. As one ITFS advocate noted recently, "A single school year is a very long time in the life of a student."

Last January, the Commission sought comment on whether spectrum in the 2.5 GHz band should be made available for 3G and other advanced wireless services. The extensive record demonstrates the importance of the MDS/ITFS relationship and the promise of fixed broadband systems in the 2.5 GHz band. Further, the Commission staff's *Final Report* on this band identifies significant hurdles posed by any modification to the current allocation. We've made a good faith review, and it's high time to remove the dark cloud of uncertainty hanging over the MDS/ITFS community.

Our action today is the first opportunity the Commission has had to express views on the 2.5 GHz band since we sought comment in January. At a minimum, we should have eliminated the cloud of relocation. For this reason, I dissent in part.

SEPARATE STATEMENT OF COMMISSIONER KEVIN J. MARTIN

Re: *Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems,* Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, ET Docket No. 00-258, ET Docket No. 95-18, IB Docket No. 99-81, RM-9498, and RM-10024

The future deployment of increasingly advanced wireless services is challenging and critical. Technological innovation and new service offerings are fueling a period of exploding growth in the demand for mobile telephone, Internet, and data applications. According to at least one study, more than one-third of us will be on the "wireless web" by 2005.

If we are to meet this anticipated demand, we must develop a broad spectrum management policy that ensures efficiency and flexible use, and we must also continue to work to make additional spectrum available for 3G use. This item moves us forward in that direction. As we debate where to find the spectrum to meet this demand, we should keep in mind that the amount of available spectrum and our ability to use it is ultimately limited only by technology. Indeed, I am hopeful that future technological development will allow us to make more efficient use of current spectrum allocations, and make further use of additional frequency bands. With such developments, spectrum may no longer be viewed as a scarce natural resource. Today, however, we face practical limitations, and, as a result, our spectrum management policies are critical.

In the coming months, we should challenge ourselves to make decisions that will best promote the highest valued use of the spectrum currently available. We should work toward policies that allow the free market to meet demand, thus offering increased flexibility and regulatory certainty, while still respecting the rights of current license holders.

Providing regulatory certainty is particularly important for systems in the 2500-2690 MHz band, which the Commission has been considering using for 3G allocation for over a year. In March, Commission staff prepared an exhaustive report analyzing whether to relocate incumbents in this band. The report concluded that relocation of incumbent licensees in this band would cause significant economic and technical difficulties for the ITFS/MDS community. The report explained that relocation would require considerable time and costs to reengineer and deploy systems in alternate frequency bands, which, in turn, would delay delivery of the valuable services provided in this band. The report also recognized that there is a great deal of variation in the architectures and technical characteristics of systems in this band and concluded that there is no readily identifiable alternate frequency band that can accommodate a substantial relocation of the incumbent operations.

In light of this report, I have serious concerns about relocating the incumbents in this band. At the very least, we should try to resolve this issue as soon as possible to provide current licensees the regulatory stability they need for investment in new technologies and service offerings. While I am disappointed that we were not able to do so in this item, I look forward to working with the Chairman and other Commissioners to resolve this issue in the near future.