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

DISPATCHED BY

In the Matter of)	
)	
Allocation and Designation of Spectrum)	
for Fixed-Satellite Services)	
in the 37.5-38.5 GHz, 40.5-41.5 GHz,)	
and 48.2-50.2 GHz Frequency Bands;)	IB Docket No. 97-95
Allocation of Spectrum to Upgrade)	
Fixed and Mobile Allocations in the)	RM-8811
40.5-42.5 GHz Frequency Band;)	
Allocation of Spectrum in the)	
46.9-47.0 GHz Frequency Band for)	
Wireless Services; and Allocation of)	
Spectrum in the 37.0-38.0 GHz and)	
40.0-40.5 GHz for Government Operations.)	

ORDER ON RECONSIDERATION

Adopted: November 29, 1999

Released: December 1, 1999

By the Commission:

I. Introduction

1. In a *Report and Order* ("36-51 GHz Order") adopted on December 17, 1998, the Commission established a band segmentation plan for non-government operations in the 36.0-51.4 GHz frequency band.¹ Due to the difficulty of sharing between ubiquitous terrestrial wireless systems and satellite systems, the *36-51 GHz Order* provided separate designations within the band for non-government wireless services and for non-government fixed-satellite services ("FSS").² The Commission devised a band plan in

¹ In the Matter of Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz, and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band, Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 GHz and 40.0-40.5 GHz for Government Operations, IB Docket No. 97-95, *Report and Order*, 13 FCC Rcd 24649 (1998).

² The satellite designation established in the *36-51 GHz Order* is for exclusive FSS use, except for the 40.0-40.5 GHz band and the 40.5-41.0 GHz band, which are also designated for the mobile-satellite service ("MSS") and the broadcast-satellite service, respectively. *See id.* at 24667, ¶ 32.

order to create an overall framework for commercial development of the band, to increase certainty in business planning, and to clarify the relationship among various Commission proceedings ongoing at the time.

2. In response to the rulings in the *36-51 GHz Order*, the Commission received three petitions for reconsideration, two oppositions to the petitions, two replies to the oppositions, one set of comments in support of the petitions, and three ex parte filings.³ After considering the arguments raised in these filings, we affirm our earlier determinations and deny the petitions for reconsideration.⁴

II. Background

3. As we stated in the *36-51 GHz Order*, the 36.0-51.4 GHz frequency band has been largely underused for commercial purposes (aside from the 38.6-40.0 GHz band), despite the fact that most of the band is allocated for fixed, mobile, FSS, and MSS use.⁵ In an effort to stimulate commercial development of the band, the Commission devised a band segmentation plan in the *36-51 GHz Order*, as opposed to a sharing plan, to avoid the difficulties involved in sharing between ubiquitous wireless and satellite services.⁶ Within the 36.0-51.4 GHz band, the Commission designated 4 gigahertz of spectrum for FSS and 5.6 gigahertz of spectrum for wireless services.⁷ To accommodate the band plan, the Commission revised the U.S. Table of Frequency Allocations contained in Part 2 of the Commission's Rules.⁸ In addition, the Commission responded to a request from the National Telecommunications and Information Administration ("NTIA") by adding allocations for government services in the 37.0-38.0 GHz and 40.0-40.5 GHz bands.⁹ Prior to adopting the *36-51 GHz Order*, the Commission opened a satellite filing window for the 36.0-51.4 GHz band, during which 15 satellite applications were filed.¹⁰

³ A list of the parties that filed pleadings in response to the *36-51 GHz Order*, and the abbreviations used to refer to such parties, is attached as an Appendix. Because TRW and Lockheed Martin filed a joint reply to the oppositions after the pleading cycle closed, we will consider their reply an ex parte filing.

⁴ Certain members of the wireless and satellite communities are currently working to develop a proposal, to present at the World Radiocommunication Conference ("WRC") in 2000, that would establish a harmonized global plan for portions of the 36.0-51.4 GHz band. By adopting this Order on Reconsideration, we do not prejudice future requests to reexamine our rulings that might be filed in the event a proposal is adopted at WRC-2000 that would make it advisable to modify the band plan we affirm today.

⁵ *36-51 GHz Order*, 13 FCC Rcd at 24650, 24653, ¶¶ 1, 6.

⁶ *Id.* at 24651, 24656, ¶¶ 1, 13.

⁷ There may be opportunities for satellite providers to use the spectrum designated for wireless services, consistent with the U.S. Table of Frequency Allocations. The bands designated for wireless services will be subject to future proceedings to define the specific services and operating parameters for particular bands. *Id.* at 24650-51, 24665, 24668, ¶¶ 1 n.4, 28, 36.

⁸ *Id.* at 24652, ¶ 4.

⁹ *Id.* at 24652, ¶ 5.

¹⁰ The satellite filing window opened July 22, 1997 and closed September 26, 1997.

III. Discussion

4. *Spectrum designated for satellite use.* In the *36-51 GHz Order*, we carefully considered the competing interests of satellite and wireless service providers in designating 4 gigahertz of spectrum for FSS use. We continue to believe that the satellite designation achieves a reasonable division of spectrum resources between FSS and wireless services and provides the FSS industry the opportunity to meet its current and future needs.¹¹ We therefore disagree with Hughes and GE Americom that more than 4 gigahertz of spectrum should be designated at this time for FSS.¹² Hughes and GE Americom merely assert, without furnishing any specific supporting evidence, that the FSS industry requires at least 6 gigahertz of spectrum in the 36.0-51.4 GHz band.¹³ They contend that the Commission unfairly designated an additional 1.6 gigahertz of spectrum for wireless services.¹⁴ Simply protesting a larger designation for wireless services, however, does not demonstrate satellite spectrum requirements.

5. In support of their contention that more spectrum is needed, both Hughes and GE Americom refer generally to the 15 satellite applications that were filed and to the comments filed by the satellite industry regarding the Commission's initial proposals.¹⁵ In the *36-51 GHz Order*, the Commission responded fully to the issues raised in those applications and comments, and petitioners do not provide any new evidence or put forth any new arguments in support of their position. In addition, as even Hughes notes, only seven of the satellite applicants proposed using more than 4 gigahertz of spectrum.¹⁶ Moreover, none of the other satellite applicants filed petitions for reconsideration arguing that the Commission designated an inadequate amount of spectrum for FSS.¹⁷

6. We also disagree with Hughes's and GE Americom's claim that we failed to provide an adequate rationale for our decision to set aside 4 gigahertz of spectrum for

¹¹ See FWCC Opposition at 2 (“[T]he Commission struck a fair balance in its effort to accommodate competing interests seeking access to the 36-51 GHz band.”); WinStar Opposition at 4 (“It is simply premature for Petitioners to claim that an additional allocation for FSS is necessary in the 38 GHz band when satellite licensees have not even launched their systems in the Ka-band.”); Letter from Frederick R. Fromm, President, Siemens Information and Communication Networks, Inc. to Magalie Roman Salas, Secretary, Federal Communications Commission (April 21, 1999) (supporting the Commission's band segmentation plan).

¹² See Hughes Petition at 2-9; GE Americom Petition at 4-10; see also Spectrum Astro Comments at 1-5; Letter from Patricia Mahoney, Chair, and Clayton Mowry, Executive Director, Satellite Industry Association to Magalie R. Salas, Secretary, Federal Communications Commission (June 16, 1999) at 1-2 (“SIA Letter”).

¹³ Hughes Petition at 2 and Reply at 7; GE Americom Petition at 10; see also SIA Letter at 1.

¹⁴ See Hughes Petition at 3-8 and Reply at 1-7; GE Americom Petition at 7-10.

¹⁵ Hughes Petition at 4-6 and Reply at 2, 5; GE Americom Petition at 4-5 and Reply at 3-4; see also Spectrum Astro Comments at 3-4; SIA Letter at 1-2.

¹⁶ See Hughes Petition at 4; see also Spectrum Astro Comments at 4.

¹⁷ But see Spectrum Astro Comments 2-4 (supporting Hughes's and GE Americom's position that the FSS industry needs additional spectrum).

FSS.¹⁸ We believe our decision is justified on several grounds. First, as we explained in the *36-51 GHz Order*, our FSS and wireless designations strike “a reasonable balance of spectrum resources between the needs of these services and will provide the users with the opportunity to meet their current and future needs in this band.”¹⁹ In evaluating these competing needs, we carefully examined the entire record, including the satellite applications, and petitioners raise no new or novel arguments to justify altering the balance we concluded would best serve the public interest. In addition, although we provided a larger amount of spectrum for wireless services in this particular band, our designations should be viewed in light of the reduction, or proposed reduction, of spectrum available for wireless services in other bands.²⁰

7. Second, we concluded in the *36-51 GHz Order* that the satellite designation is sufficient because all 4 gigahertz is available for satellite services on an exclusive basis.²¹ In other words, no other types of services may use the spectrum through sharing arrangements or underlay licenses.²² This exclusivity will benefit satellite providers by eliminating the possibility that their access to this spectrum could be reduced by the entry of other types of services before satellite systems are deployed.²³

8. Third, satellite providers may eventually be afforded opportunities to use the spectrum designated for wireless services, consistent with the U.S. Table of Frequency Allocations.²⁴ We stated in the *36-51 GHz Order* that the bands designated for wireless services would be subject to future proceedings to define the specific services and operating parameters for particular bands.²⁵ GE Americom claims, however, that even if satellite entities are allowed to participate in auctions for spectrum designated for wireless services, such auctions “necessarily will favor terrestrial bidders, as the timing of the auctions and the segmentation or channelization of the frequencies . . . undoubtedly will be targeted to terrestrial services.”²⁶ We disagree, and we believe that such auctions

¹⁸ See Hughes Petition at 2-8 and Reply at 1-2 (arguing that the Commission’s decision is arbitrary and capricious and thus violates the Administrative Procedure Act); GE Americom Petition at 6-10; see also Spectrum Astro Comments at 3-5.

¹⁹ *36-51 GHz Order*, 13 FCC Rcd at 24656, ¶ 13; see also *id.* at 24665, ¶ 28.

²⁰ See FWCC Opposition at 3-4 (the Commission has either limited, or proposed to limit, access to spectrum by fixed services in the 2, 6, 11, and 18 GHz bands).

²¹ See *supra* note 2.

²² *36-51 GHz Order*, 13 FCC Rcd at 24665, ¶ 28. GE Americom argues that, because wireless services are also protected from underlay licenses, the absence of underlays does not justify designating a smaller amount of spectrum for FSS. GE Americom Petition at 8 and Reply at 4. However, despite the elimination of underlay licensing from the entire band plan, spectrum designated for wireless services potentially may be available to other services for which the spectrum is allocated.

²³ *36-51 GHz Order*, 13 FCC Rcd at 24665, ¶ 28.

²⁴ We did not delete FSS allocations from the U.S. Table of Frequency Allocations where they were already contained in bands designated for wireless services.

²⁵ *36-51 GHz Order*, 13 FCC Rcd at 24650-51, 24665, 24668, ¶¶ 1 n.4, 28, 36.

²⁶ GE Americom Petition at 8-10; see also Hughes Petition at 7-8; GE Americom Reply at 4; SIA Letter at 2.

could provide useful opportunities for satellite operators to gain additional spectrum. Therefore, we affirm our conclusion that our designations strike the appropriate balance among the interested parties. We believe that 4 gigahertz of spectrum is a sufficient satellite designation at this time, particularly given that satellite providers have exclusive use of that spectrum and have the potential to gain access to additional spectrum designated for wireless services.

9. We note that, in a Memorandum Opinion and Order adopted in the 39 GHz proceeding, the Commission maintained the possibility for satellite operators to gain access to the 39.5-40.0 GHz band.²⁷ The Commission, while rejecting TRW's request to reallocate the 39.5-40.0 GHz band exclusively for satellite services, nonetheless recognized that the current allocation contains satellite services in the 39.5-40.0 GHz band and stated that wireless licensees would not be constrained from deploying satellite earth stations in the band.²⁸ Satellite operators therefore will be free to provide service either through a license won at auction (thereby becoming a wireless licensee) or through a post-auction arrangement with a winning bidder.²⁹ Although the Commission did not grant TRW's request to require fixed and mobile licensees in the 39.5-40.0 GHz band to coordinate with satellite operators to facilitate spectrum sharing,³⁰ such licensees are not precluded from negotiating terms and conditions allowing a satellite operator to provide downlink earth station service within a licensee's license area (through partitioning, disaggregation, a leasing arrangement, or some other means). We note that the 39.5-40.0 GHz band is also allocated for government FSS and MSS and that NTIA has notified the Commission of a possible future government requirement in this band.³¹

10. In addition, the Commission has made it clear that FSS will be permitted in the 47.2-48.2 GHz band. In a Memorandum Opinion and Order adopted in the 47 GHz proceeding, the Commission repeatedly affirmed its position that satellite providers may operate within the band.³² Further, the Commission proposed a broad licensing

²⁷ See Amendment of the Commission's Rules Regarding the 37.0-38.6 GHz and 38.6-40.0 GHz Bands, ET Docket No. 95-183, and Implementation of Section 309(j) of the Communications Act – Competitive Bidding, 37.0-38.6 GHz and 38.6-40.0 GHz Bands, PP Docket No. 93-253, *Memorandum Opinion and Order*, FCC 99-179, at ¶¶ 47-49 (released July 29, 1999) (“39 GHz MO&O”).

²⁸ *Id.*

²⁹ Note that a provider of satellite services in the 39.5-40.0 GHz band must also obtain a Part 25 license, which could be sought after an amendment of the Part 25 service rules or upon a waiver of those rules.

³⁰ 39 GHz MO&O at ¶¶ 47-49.

³¹ See Letter dated September 23, 1999 to Dale N. Hatfield, Chief, Office of Engineering and Technology, Federal Communications Commission, from William T. Hatch, Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration.

³² Amendment to Parts 2, 15, and 97 of the Commission's Rules To Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, ET Docket No. 94-124, International Harmonization of Frequency Bands Above 40 GHz, Petition of Sky Station International, Inc., For Amendment of the Commission's Rules To Establish Requirements for a Global Stratospheric Telecommunications Service in the 47.2-47.5 GHz and 47.9-48.2 GHz Frequency Bands, Amendment to Part 27 of the Commission's Rules To Revise Rules for Services in the 2.3 GHz Band and To Include

framework for the band that would authorize licensees to provide a variety of services, including FSS.³³ In future service rulemakings, we will consider similar policies in other wireless-designated bands containing satellite allocations.

11. **FSS worldwide allocations.** We affirm our decision in the *36-51 GHz Order* to designate the 40.5-41.0 GHz band for FSS (downlink), even though this spectrum is not yet allocated on a global basis for FSS.³⁴ GE Americom argues that all FSS-designated bands should be in bands globally allocated to FSS and asks that the 500 megahertz of downlink spectrum at 40.5-41.0 GHz not currently allocated to FSS for certain countries be replaced by 500 megahertz contiguous with a global FSS downlink allocation.³⁵ We agree with GE Americom that the FSS allocation at 40.5-41.0 GHz ideally would be global to maintain maximum flexibility for authorizing both geostationary orbit ("GSO") and non-geostationary orbit ("NGSO") systems. That objective, however, does not necessitate modification of the FSS designations adopted in the *36-51 GHz Order*.³⁶ Moreover, there is a distinct possibility that the international allocation for the 40.5-41.0 GHz band will be revised at WRC-2000. In any event, even if the allocation is not changed to a global allocation for FSS, it is still possible to operate domestic satellite systems and various international systems within the scope of the current allocation. We therefore see no reason to amend our FSS designations at this time.

12. **Use of FSS-designated bands for GSO/NGSO systems.** GE Americom argues that the *36-51 GHz Order* does not offer sufficient reassurances for the planning of GSO systems.³⁷ Without specifying the protections it seeks, GE Americom calls upon the Commission to provide technical safeguards that ensure adequate spectrum for GSO systems. It asserts that GSO system operators cannot develop serious business plans

Licensing of Services in the 47 GHz Band, WT Docket No. 98-136, *Memorandum Opinion and Order on Reconsideration and Notice of Proposed Rulemaking*, 13 FCC Rcd 16947, 16951, 16959, 16965-66, ¶¶ 5, 25, 42 (1998).

³³ *Id.* at 16974, ¶ 67. Note that satellite use of the 47.2-48.2 GHz band will require pairing with another frequency band. *Id.* at 16965, ¶¶ 40-41.

³⁴ At WRC-97, there was a provisional international allocation for FSS in part of Region 1 (excluding Europe and a few African countries), all of Region 2, and most of Region 3 (excluding India and Korea). The allocation could be made global at WRC-2000. See *36-51 GHz Order*, 13 FCC Rcd at 24666, ¶ 30 n.76.

³⁵ GE Americom Petition at 10-13. GE Americom argues that, alternatively, the Commission could withdraw the *36-51 GHz Order* and delay taking action on the band until all spectrum currently designated for FSS use is guaranteed to be within international FSS allocations. *Id.* at 12-13. See Spectrum Astro Comments at 5-6 (supporting GE Americom's position that the Commission's FSS designations should conform to international allocations).

³⁶ See FWCC Opposition at 5-6 (the proper forum for GE Americom's complaint is the ITU, not the Commission). *But see* GE Americom Reply at 6-7 (it is easier for the Commission to make its domestic designations consistent with international allocations than it is to effectuate a change through the ITU process).

³⁷ GE Americom Petition at 13-15; see also Spectrum Astro Comments at 6.

because they do not know how or to what extent their use of FSS-designated frequencies can overlap or interact with NGSO systems.

13. The satellite industry was divided in its response to the Commission's initial proposal to designate separate FSS band segments for GSO and NGSO systems.³⁸ After careful consideration, the Commission ultimately concluded that it was premature to make separate designations.³⁹ We affirm this decision and reiterate our belief that it is preferable to allow for maximum flexibility in later satellite proceedings where compatibility of the satellite applications can be assessed and any service rule issues can be addressed.⁴⁰ Any GSO/NGSO sharing criteria that need to be developed will be dealt with in those proceedings.

14. *FSS sharing of bands designated for wireless services.* We deny TRW's petition seeking clarification that the *36-51 GHz Order* allows FSS systems to utilize internationally allocated FSS band segments that fall within the wireless-designated bands on an essentially secondary basis. TRW argues that such use should be permitted provided that FSS operators: (1) abide by international power flux density limits to protect terrestrial fixed facilities and (2) accept interference that might be caused by fixed service operators.⁴¹ As discussed above, wireless-designated bands will be subject to additional rulemaking proceedings that will further define the parameters under which specific services can operate in particular bands, consistent with the U.S. Table of Frequency Allocations. We believe that use of these bands by FSS should be addressed in those proceedings.

IV. Ordering Clause

15. Accordingly, IT IS ORDERED, pursuant to Section 1.429 of the Commission's Rules, 47 C.F.R. § 1.429, and pursuant to Sections 4(i), 301, 302, 303(e), 303(f), 303(g), 303(r), 304, and 307 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 301, 302, 303(e), 303(f), 303(g), 303(r), 304, and 307, that the petitions

³⁸ *36-51 GHz Order*, 13 FCC Rcd at 24660, ¶ 20.

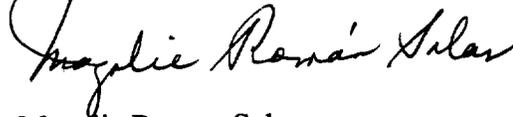
³⁹ *Id.* at 24660-61, ¶ 21; *see also* TRW Petition at 4 (supporting the Commission's decision to refrain from specifying GSO and NGSO designations).

⁴⁰ *See 36-51 GHz Order*, 13 FCC Rcd at 24660-61, ¶ 21.

⁴¹ TRW Petition at 5; *see also* SIA Letter at 2 (supporting TRW's proposal); TRW and Lockheed Martin Joint Reply at 7 (placing an FSS earth station in a remote area without reaching an agreement with the area's wireless licensee or without obtaining the rights to do so through an auction will not create a "hole" for the wireless licensee). Both FWCC and WinStar oppose TRW's request. FWCC Opposition at 6-7; WinStar Opposition at 7-15.

for reconsideration filed by GE Americom Communications, Inc.; Hughes Communications, Inc.; and TRW Inc. are DENIED.

FEDERAL COMMUNICATIONS COMMISSION

A handwritten signature in cursive script that reads "Magalie Roman Salas". The signature is written in black ink and is positioned below the printed name of the signatory.

Magalie Roman Salas
Secretary

APPENDIX**Petitions for Reconsideration**

1. GE American Communications, Inc. ("GE Americom")
2. Hughes Communications, Inc. ("Hughes")
3. TRW Inc. ("TRW")

Oppositions to Petitions

1. Fixed Wireless Communications Coalition ("FWCC")
2. WinStar Communications, Inc. ("WinStar")

Replies to Oppositions

1. GE American Communications, Inc. ("GE Americom")
2. Hughes Communications, Inc. ("Hughes")

Comments in Support of Petitions for Reconsideration

1. Spectrum Astro, Inc. ("Spectrum Astro")

Ex Parte Filings

1. Satellite Industry Association ("SIA")
2. Siemens Information and Communication Networks, Inc. ("Siemens")
3. TRW Inc. and Lockheed Martin Corporation ("TRW and Lockheed Martin")