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Federal Communications Commission
Washington, D.C. 20554

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In the Matter of	)	
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Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands	)	WT Docket No. 03-66 RM-10586
	)	
Part 1 of the Commission's Rules - Further Competitive Bidding Procedures	)	WT Docket No. 03-67
	)	
Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and the Instructional Television Fixed Service Amendment of Parts 21 and 74 to Engage in Fixed Two-Way Transmissions	)	MM Docket No. 97-217
	)	
Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico	)	WT Docket No. 02-68 RM-9718
	)	
Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets	)	WT Docket No. 00-230

REPORT AND ORDER AND FURTHER NOTICE OF PROPOSED RULEMAKING

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By the Commission: Chairman Powell and Commissioners Abernathy, Copps, Martin, and Adelstein issuing separate statements.

TABLE OF CONTENTS

Heading Paragraph #

I. INTRODUCTION 1
II. EXECUTIVE SUMMARY 6

III. BACKGROUND 9
A. Establishment and Evolution of the Services 9
B. Current Uses of the Band 15
C. The Coalition Proposal 16
IV. DISCUSSION 21
A. Changes to 2500-2690 MHz Band Plan 21
1. Addition of the 2495-2500 MHz band 25
2. Band Plan Alternatives 30
3. Border Regions 50
4. Geographic Area Licensing for Current Licensees 52
5. Transition to New Band Plan 68
B. Technical Issues 104
1. Signal Strength Limits at Geographic Service Area Boundaries 105
2. Authorization of Mobile Operation 111
3. Power and Antenna Height Limits 113
4. Emission Limits 124
5. Technology 131
6. Unlicensed "Underlay" Operation 135
7. RF Safety 140
8. North American Datum (NAD) 83 Coordinate Data 141
9. BRS Response Station Hubs 142
10. Radiation from Stations that are not Engaged in Communications 143
C. Eligibility Restrictions 149
1. ITFS Eligibility Restrictions 149
2. MDS/ITFS Cross Ownership Restrictions 165
3. Leasing and Secondary Markets 177
D. Standardization of Practices and Procedures 182
1. Consolidation of Procedural Rules in Part 1 182
2. Consolidation of Service Specific Rules in Part 27 184
3. Standardization of Major and Minor Filing Requirements 191
4. Amendments to New and Modification Applications 197
5. Assignments of Authorization and Transfers of Control 200
6. Partitioning and Disaggregation 207
7. License Renewal 211
8. Special Temporary Authority 221
9. Ownership Information 224
10. Regulatory Status 226
11. Discontinuance, Reduction or Impairment of Service 229
12. Foreign Ownership Restrictions 240
13. Annual Reports 242
14. Application Processing 244
15. Returns and Dismissals of Incomplete or Defective Applications 250
16. ULS Forms 254
17. Transition Periods 259
18. Suspension of Acceptance and Processing of Applications 261
V. FURTHER NOTICE OF PROPOSED RULEMAKING 264
A. Licensing All Available Spectrum Pursuant to the New Band Plan 264
1. New Licenses to be Assigned by Auction 266
2. Transitions to the New Band Plan When No Proponent Files a Timely Initiation Plan 289

B. Performance Requirements 320
C. Grandfathered E and F Channel ITFS Stations 333
D. Limitation on Channel Assignments for EBS Licensees 344
E. Wireless Cable Exception to EBS Eligibility Restrictions 347
F. Regulatory Fee Issues 351
G. Gulf of Mexico Proceeding 360
H. Streamlining FCC Review of Transactions 368
I. Continuing Review of Progress Towards Policy Goals 370
VI. PROCEDURAL MATTERS 375
A. *Ex Parte* Rules – Permit-But-Disclose 375
B. Comment Period and Procedures 376
C. Final Regulatory Flexibility Analysis 381
D. Initial Regulatory Flexibility Analysis 382
E. Paperwork Reduction Analysis 383
F. Further Information 385
VII. ORDERING CLAUSES 386
APPENDIX A - INITIAL REGULATORY FLEXIBILITY ANALYSIS A-1
APPENDIX B - FINAL REGULATORY FLEXIBILITY ANALYSIS B-1
APPENDIX C - FINAL RULES C-1
APPENDIX D - LIST OF COMMENTERS D-1
APPENDIX E - DISMISSED MUTUALLY EXCLUSIVE ITFS APPLICATIONS E-1
APPENDIX F – DISMISSED PLEADINGS RELATING TO MUTUALLY EXCLUSIVE ITFS APPLICATIONS F-1

I. INTRODUCTION

1. In this *Report and Order (R&O)*, we take important steps to transform our rules and policies governing the licensing of the Instructional Television Fixed Service (ITFS), the Multipoint Distribution Service (MDS), and the Multichannel Multipoint Distribution Service (MMDS) (collectively, the Services) in the 2500-2690 MHz band.[1] The actions taken in this order initiate a fundamental restructuring of the band that will provide both existing ITFS and MDS licensees and potential new entrants with greatly enhanced flexibility in order to encourage the highest and best use of spectrum domestically and internationally, and the growth and rapid deployment of innovative and efficient communications technologies and services.[2] By these actions, we make significant progress towards the goal of providing all Americans with access to ubiquitous wireless broadband connections, regardless of their location.[3]

2. A hallmark of our national communications policy is to encourage the provision of new

[1] The terms MDS and MMDS are often used interchangeably. The Commission coined the term "MDS" at a time when it was making only two channels available for the service, at 2150-2162 MHz. The Commission began using the term "MMDS" when formulating rules making additional channels for the service available in the 2500-2690 MHz band. For the purposes of this *Report and Order and Further Notice of Proposed Rulemaking (R&O and FNPRM as appropriate)*, we will use the term "MDS" to signify both services.

[2] Federal Communications Commission, Strategic Plan FY 2003-FY 2008 at 5 (2002) (*Strategic Plan*).

[3] *Id.* at 14.

technologies and services to the public.[4] The actions taken herein will foster the development of the 2500-2690 MHz band by enabling licensees to migrate to more technologically and economically efficient uses of the spectrum. The record in this proceeding overwhelmingly supports our tentative conclusion that providing 2500-2690 MHz licensees with additional flexibility of use serves the public interest and allows licensees to provide new and innovative services, consistent with the requirements of Section 303(y) of the Communications Act.[5]

3. In recent years, there has been steadily increasing demand for mobile telephone and mobile data services. In 2002, the mobile telephony sector generated more than $76 billion in revenues, increased subscribership from 128.5 million to 141.8 million (from the prior year), and produced a nationwide penetration rate of roughly forty-nine percent.[6] Estimates of the number of mobile Internet users at the end of 2001 ranged from approximately eight to ten million, up from 2 to 2.5 million at the end of 2000.[7] Also in recent years, the MDS industry has invested several billion dollars to develop broadband fixed wireless data systems in this band, including high-speed access to the Internet for residential customers, small and medium businesses, and educational institutions.[8] Such systems offer a significant opportunity to provide competition to cable and digital subscriber line (DSL) services in the provision of broadband services in all areas.[9] Additionally, these spectrum-based services will improve the ability of educators to serve America's students thereby facilitating educators' use of our national spectrum resource. This accomplishes our goal of ensuring that educational and medical institutions continue to have access to spectrum.

4. Our actions today also respond to proposals from the ITFS and MDS industries for major revision of current regulations so that these services will no longer be hindered by outdated and overly restrictive regulation. The restructured band plan we adopt will provide ITFS and MDS licensees with contiguous spectrum to deploy both existing and emerging technologies, and provides for both high and low-power operations in the band, thereby preserving the opportunity for incumbents to maintain existing operations. We also adopt a transition mechanism that will enable incumbents on a region-by-region basis to negotiate the transition to new spectrum assignments in the restructured band plan, with safeguards to ensure that all relocating incumbents are treated equitably. We also propose an alternative

[4] See 47 U.S.C. §§ 157(a), 309(j)(4)(C)(iii).

[5] 47 U.S.C. § 303(y). *See, e.g.*, Ad Hoc MMDS Licensee Consortium (AHMLC) Comments at 3; ArrayComm Comments at 1; School Board of Broward County (SBBC) Comments at 1; Cellular Telecommunications & Internet Association (CTIA) Comments at 3; Information Technology Industry Council (ITIC) Comments at 2-3.

[6] Federal Communications Commission, *Eighth Annual CMRS Competition Report* (FCC 03-150, rel. Jul. 14, 2003) at 11.

[7] *Id.*

[8] A Proposal for Revising the MDS and ITFS Regulatory Regime, submitted by the Wireless Communications Association International, Inc. (WCA), the National ITFS Association (NIA) and the Catholic Television Network (CTN), RM-10586 (filed Oct. 7, 2002) at 4 (Coalition Proposal or White Paper). WCA is the trade association of the wireless broadband industry. NIA is a non-profit, professional organization of ITFS licensees, applicants and others interested in the ITFS. CTN is an association of Roman Catholic archdioceses and dioceses that operate many of the largest parochial school systems in the United States. These entities represent that the proposals contained in the paper reflect a consensus among the organizations concerning rule changes for the 2500-2690 MHz band. *See* Coalition Proposal at 1, n.1.

[9] Spectrum Study of 2500-2690 MHz Band: The Potential for Accommodating Third Generation Mobile Systems, (rel. March 30, 2001) at 13 (*3G Final Report*).

market-based transition mechanism that would take effect after three years for any areas where a negotiated transition has not occurred. We will be monitoring the transition closely through the proponents' filing of Initiation Plans with the Commission and notifications of the completion of the transition in given markets, as well as through reports prepared by the Wireless Telecommunications Bureau (Bureau) for the Commission.

5. In addition to the broader objectives described above, our decisions in this proceeding have also been guided by the desire to accomplish these additional spectrum management objectives: (1) promoting availability of broadband to all Americans, including broadband technologies for educators; (2) encouraging increased competition in wireless broadband through the creation of new opportunities for new entrants; (3) promotion of the economic viability of services in this band by ensuring that the spectrum is as fungible, tradable, and marketable as possible; (4) facilitating the highest valued use of radio licenses; (5) facilitating speed of transition and deployment in the band; (6) providing incumbents with a reasonable opportunity to continue their current uses of the spectrum; and (7) the continued promotion of spectrum-based education services.

II. EXECUTIVE SUMMARY

6. In this *Report and Order*, we:

- Adopt a band plan that restructures the 2500-2690 MHz band into upper and lower-band segments for low-power operations (UBS and LBS, respectively), and a mid-band segment (MBS) for high-power operations. By grouping high and low-power spectrum uses into separate portions of the band, this band plan creates opportunities for spectrum-based systems or devices to migrate to compatible bands based on marketplace forces, and reduces the likelihood of interference caused by incompatible uses. The new band plan also provides new incentives for the development of low-power cellularized broadband uses of the 2500-2690 MHz band, which have been thwarted by the legacy band structure.

- Designate the 2495-2500 MHz band for use in connection with the 2500-2690 MHz band.

- Rename the MDS service as the "Broadband Radio Service" (BRS). This new designation connotes a more accurate description of the services we anticipate will develop in the band.

- Rename the ITFS service as the "Educational Broadband Service" (EBS), which more accurately describes the kinds of the services that we anticipate will develop in the band.

- Implement geographic area licensing for all licensees in the band. This will give licensees increased flexibility while greatly reducing administrative burdens on both licensees and the Commission

- Adopt a transition mechanism that enables incumbent licensees to develop regional plans for moving to new spectrum assignments in the restructured band plan. Under this mechanism, licensees have a three-year period during which they can initiate the transition process in their regional area and negotiate a transition plan with other regional licensees. Transition plans must conform to certain safeguards to ensure a smooth transition and equitable treatment of incumbents.

- Consolidate licensing and service rules for the Educational Broadband Service and Broadband Radio Services. This action promotes regulatory parity, and clarifies and stabilizes the regulatory treatment of similar spectrum-based services.
- Allow spectrum leasing for BRS and EBS under our secondary market spectrum leasing policies and procedures.
- Retain eligibility restrictions for licensing in the EBS band, while removing all non-statutory eligibility restrictions applicable to cable and DSL operators for the BRS.
- Set the signal strength limits for the low-power bands at the boundaries of the geographic service areas to 47 dBμV/m.
- Restrict the transmitter output power of response stations to 2.0 watts.
- Modify emission limits for stations that would operate on the LBS and UBS channels and measure out-of-band emissions.
- Provide licensees with the flexibility to employ the technologies of their choice in the band.
- Refrain from allowing high-power unlicensed operations in the 2500-2690 MHz band, but allow unlicensed operation under our existing Part 15 rules in the 2655-2690 MHz band.
- Apply the Part 1 Wireless Telecommunications Bureau rules to the BRS/EBS spectrum.
- Dismiss pending mutually exclusive applications for new ITFS stations.
- Consolidate the new rules for the band into Part 27.
- Take other actions to streamline the rules and eliminate unnecessary regulatory burdens.

7. In MM Docket No. 97-217, we address a minor issue concerning response stations that are not engaged in communications with their associated hubs to restrict their field strengths.[10]

8. In the Further *Notice of Proposed Rulemaking* (*FNPRM*), we seek comment on alternative methods to transition licensees to the extent that licensee-negotiated transitions do not occur within the three-year transition period. Specifically, we seek comment on utilizing a system whereby existing licenses would be exchanged for a tradable instrument. Upon completion of such exchange, the entire band will be auctioned, and entities can utilize these tradable instruments in this or any other Commission auction. We seek comment on other transition methods that can be utilized to transition licensees to the new band plan. We also seek further comment on issues relating to the Gulf of Mexico service area, performance requirements for licensees in the band, grandfathered ITFS stations on the E and F channel groups, limitations on the holdings of ITFS stations, the "wireless cable" exception to the ITFS eligibility

[10] Amendment of Parts 1, 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 on Further Reconsideration and Further Notice of Proposed Rulemaking*, 15 FCC Rcd 14566 (2000) (*Two-Way FNPRM*).

rules, issues relating to regulatory fees, methods of streamlining our review of transactions involving these services, and continuing our review of rules relating to these services.

III. BACKGROUND

A. Establishment and Evolution of the Services

9. The Commission has sought for several decades to develop regulatory policies in the 2500-2690 MHz band that would tap this band's great potential to host a variety of services. As discussed more fully below, however, the regulatory history of the band has been marked by changing and sometimes conflicting policy goals, which have tended to suppress investment, innovation, and responsiveness to changes in wireless technology and demand for services. In light of this history, our actions today represent a major step towards unleashing the unrealized potential of this spectrum. Below, we summarize the history of the establishment and evolution of this band.

10. In 1963, the Commission established ITFS in the 2500-2690 MHz band,[11] envisioning that it would be used for transmission of instructional material to accredited public and private schools, colleges, and universities for the formal education of students.[12] The Commission also permitted ITFS licensees to use the channels to transmit cultural and entertainment material to educational institutions, and to transmit instructional material to non-educational institutions such as hospitals, nursing homes, training centers, clinics, rehabilitation centers, commercial and industrial establishments, and professional groups. ITFS licensees were also allowed to use their systems to perform related services directly concerned with formal or informal instruction and training, and to carry administrative traffic when not being used for educational purposes.[13]

11. In 1974, the Commission established MDS as a new common carrier service and allotted the 2150-2160 MHz band for such use.[14] The Commission anticipated that the MDS spectrum would be used for wireless cable, a common carrier service for distribution of television programming from a central location to fixed points selected by the common carrier's subscribers.[15] The Commission allotted two 6 megahertz channels (2150-2162 MHz) in fifty of the largest metropolitan areas (referred to as MDS Channel Nos. 1 and 2).[16] In the rest of the country, only 10 megahertz of spectrum was allotted to MDS in

[11] *See* Educational Television, Docket No. 14744, *Report and Order*, 39 FCC 846 (1963) (*MDS R&O*), *recon. denied*, 39 FCC 873 (1964) (*ETV Decision*).

[12] *See* Amendment of the Commission's Rules With Regard to the Instructional Television Fixed Service, the Multipoint Distribution Service, and the Private Operational Fixed Microwave Service; and Applications for an Experimental Station and Establishment of Multi-Channel Systems, *Report and Order*, 48 Fed. Reg. 33873, 33875 ¶ 9 (1983) (*1983 R&O*) *citing ETV Decision*, 39 FCC 846, 853 ¶ 25.

[13] *Id.*

[14] Amendment of Parts 1, 2, 21, and 43 of the Commission's Rules and Regulations to Provide for Licensing and Regulation of Common Carrier Radio Stations in the Multipoint Distribution Service, *Report and Order*, Docket No. 19493, 45 FCC 2d 616 (1974), *recon. denied*, 57 FCC 2d 301 (1975) (*1974 R&O*). *See also 1983 R&O*, 48 Fed. Reg. at 33873 ¶ 5. Amendment of Parts 2 and 74 of the Commission's Rules to Establish a New Class of Educational Television Service for the Transmission of Instructional and Cultural Material to Multiple Receiving Locations on Channel in the 2500-2690 MHz Frequency Band, Docket No. 14744, *Second Report and Order*, 30 FCC 2d 197 ¶ 8 (1971) (*1971 R&O*).

[15] *Id.*

this band —namely, Channel No. 1 (2150-2156 MHz) and Channel No. 2A (2156-2160 MHz).[17]

12. In 1983, in response to the demand for additional spectrum for delivery of video entertainment programming to subscribers, the Commission re-allotted eight ITFS channels (the E and F channel blocks) and associated response channels for use by MDS.[18] The Commission determined that the ITFS spectrum was underutilized given that there were a substantial number of unused ITFS channels in many areas of the country, with several states having no ITFS licensees whatsoever.[19] At the same time, in an effort to encourage more intensive use of the spectrum and to help ITFS licensees generate needed revenue, the Commission began to relax use restrictions on ITFS licensees so that they could lease excess capacity on their facilities to commercial entities.[20] Following that decision, there was a significant increase in the number of applications filed for new ITFS facilities.[21] In 1985, the Commission further relaxed restrictions governing the leasing of excess capacity to commercial providers,[22] allowing ITFS operators to lease up to 95 percent of their capacity for non-educational purposes.[23] In 1987, the Commission allowed MDS operators to elect non-common carrier (and non-broadcast) status, leaving them subject to regulation pursuant to Part 21 of the Commission's Rules and the general provisions of Title III of the Communications Act of 1934, which apply to all radio station licensees.[24] That same year, the Commission eliminated the time-of-day restrictions on leasing ITFS spectrum and authorized operators to use automatic switching equipment.[25] In this same general timeframe, the Commission continued to relax requirements concerning ITFS licensees leasing spectrum for MDS operations.[26]

(Continued from previous page)

[16] Amendment of Part 21.703(g), and (h) of the Commission's Rules, *Memorandum Opinion and Order*, 47 FCC 2d 957 (1970).

[17] *Id.*

[18] Amendment of Parts 2, 21, 74 and 94 of the Commission's Rules and Regulations in regard to frequency allocation to the Instructional Television Fixed Service, the Multipoint Distribution Service, and the Private Operational Fixed Microwave Service, Gen Docket No. 80-112 and CC Docket No. 80-116, *Report and Order*, 94 FCC 2d 1203 (1983) (*First Leasing Decision*).

[19] *Id.* at 1203 ¶ 4.

[20] *First Leasing Decision*, 94 FCC 2d at 1203.

[21] *See* section IV.C.3, *infra*, for further discussion of leasing practices and issues.

[22] Amendment of Part 74 of the Commission's Rules and Regulations in Regard to the Instructional Television Fixed Service, MM Docket No. 83-523, *Second Report and Order*, 101 FCC 2d 50, 87 ¶ 95 (1985) (*1985 R&O*).

[23] *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, *Report and Order*, 13 FCC Rcd 19112, 19157 ¶¶ 86-87 (1998) (*Two-Way R&O*).

[24] Multipoint Distribution Service Regulatory Classification, CC Docket No. 86-179, *Report and Order*, 52 Fed. Reg. 27553 (1987) (summarizing FCC 87-210, released July 16, 1987).

[25] Amendment of Parts 21, 43, 74, 78, and 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands Affecting: Private Operational-Fixed Microwave Service, Multipoint Distribution Service, Multichannel Multipoint Distribution Service, Instructional Television Fixed Service, & Cable Television Relay Service, GN Docket No. 90-54, *Order on Reconsideration*, 6 FCC Rcd 6764, 6774 (1991), *recon. denied*, 7 FCC Rcd 5648 (1992) (*1991 R&O*).

[26] For example, the Commission eliminated the requirement that ITFS licensees fulfill their minimum educational usage obligations by transmitting such content on their own stations, allowing them the option of transmitting it on other licensees' ITFS or MDS stations. *See Two-Way R&O*, 13 FCC Rcd at 19165-66 ¶¶ 100-101.

13. In 1991, in an effort to provide more spectrum for multichannel video operations, the Commission re-allotted three additional channels in the 2500-2690 MHz band (the H channel block) from the Private Operational-Fixed Microwave Service[27] (OFS) to MDS.[28] This resulted in the current division of spectrum in the 2500-2690 MHz band between ITFS and MDS. Of the 190 megahertz of total spectrum, 122.5 megahertz is allocated to ITFS, including 20 6-megahertz main station video channels, while 66.5 megahertz is allocated to MDS, including 11 main station video channels.

14. Over the past decade, the Commission has taken a number of steps to increase the technical flexibility afforded to both ITFS and MDS licensees in the 2500-2690 MHz band. In 1993, the Commission granted ITFS licensees flexibility to use channel loading to shift their required educational programming onto a subset of their authorized number of channels by channel loading, e.g.., an ITFS licensee could move all of its ITFS programming on to one of its four channels and lease the remaining three channels on a twenty-four-hour basis to a wireless cable operator.[29] In 1996, the Commission permitted MDS and ITFS licensees to employ digital technologies,[30] and in 1998, it expanded the existing allocation for one-way video service to allow MDS and ITFS licensees to construct digital two-way systems capable of providing high-speed, high-capacity broadband service, including two-way Internet service via cellularized communication systems.[31] Finally, in 2001, the Commission added a mobile allocation to the 2500-2690 MHz band (excluding aeronautical mobile) to make it potentially available for advanced mobile wireless services, including IMT-2000 and future generations of wireless systems.[32]

B. Current Uses of the Band

15. System operators in the 2500-2690 MHz band (both licensees and lessees) are generally

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[27] Prior to its allocation to ITFS, the 2500-2690 MHz band was allocated to shared use by Private Operational Fixed Microwave Service (OFS) stations and international control stations. The traditional Fixed Service use of this band was primarily private microwave communications uses such as multichannel voice and data circuits. *See 1983 R&O,* 48 Fed. Reg. at 33873 ¶ 8.

[28] *1991 R&O,* 6 FCC Rcd at 6792. In the first *R&O* in this proceeding, the Commission made MDS operators eligible to use microwave frequencies in the Cable Television Relay Service (CARS). Amendment of Parts 21, 43, 74, 78 and 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands Affecting Private Operational-Fixed Microwave Service, Multipoint Distribution Service, Multi-Channel Multipoint Distribution Service, Instructional-Television Fixed Service, and Cable Television Relay Service, *Report and Order*, 5 FCC Rcd 6411, 6423 (1990) (*1990 R&O*). CARS is primarily a service for carrying video. Amendment of Eligibility Requirement in Part 78 Regarding 12 GHz Cable Television Relay Service, *Report and Order*, 17 FCC Rcd 9930, 9945-6 (2002) (*CARS R&O*). ITFS operators are currently not eligible for CARS licenses, except in very limited circumstances. 47 C.F.R. § 78.13(e).

[29] Amendment of Part 74 of the Commission's Rules Governing Use of the Frequencies in the Instructional Television Fixed Service, MM Docket 93-106, *Report and Order,* 9 FCC Rcd 3360 ¶ 2 (1994) (*1994 R&O*). *See also* 47 C.F.R. § 74.931(e)(9).

[30] *See* Use of Digital Modulation by Multipoint Distribution Service and Instructional Television Fixed Service Stations, *Declaratory Ruling and Order*, 11 FCC Rcd 18839 (1996) (*Digital Modulation Declaratory Ruling and Order*).

[31] *Two-Way NPRM,* 15 FCC Rcd at 14566.

[32] *See* 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, *First Report and Order and Memorandum Opinion and Order*, 16 FCC Rcd 17222 (2001) (*3G R&O*).

providing four categories of service offerings today: (1) downstream analog video; (2) downstream digital video; (3) downstream digital data; and (4) downstream/upstream digital data.[33] Licensees and lessees have deployed or sought to deploy these services via three types of system configuration: high-power video stations, high-power fixed two-way systems and low-power, cellularized two-way systems.[34] We noted in the *NPRM* that most MDS operators and a substantial proportion of ITFS operators are particularly interested in using low-power, cellularized two-way systems, because they are more spectrally efficient than high-power systems, can support provision of high-data-rate services to a large number of subscribers, can help overcome obstacles to line-of-sight service, and can more readily support mobile or portable services.[35] We also noted our concern that interference issues created by the distribution of high-power systems throughout the existing band plan have severely limited the ability of licensees and lessees to deploy low- power services.

C. The Coalition Proposal

16. On October 7, 2002, the Coalition submitted a paper entitled "A Proposal for Revising the MDS and ITFS Regulatory Regime" ("Coalition Proposal" or "White Paper"), which recommended fundamentally changing the rules governing the 2500-2690 MHz band.[36] In general, the Coalition argued that the band was not being used to the fullest extent possible[37] and that rule changes were necessary to allow new services to develop. The Coalition envisioned this band being used to provide new wireless two-way broadband services (e.g., provide commercial service to portable, nomadic and mobile laptops, Personal Digital Assistants (PDAs), and other non-stationary devices) where the network architecture is based on a low-power cellular concept. The Coalition contended that the explosive growth of 802.11b-compliant "hot spots" demonstrated the demand for this sort of service and that this band could be used to provide ubiquitous service, not just at hot spots. It pointed out that several MDS licensees were currently test marketing this new two-way broadband service.[38] It asserted, however, that a "radical reworking of the MDS and ITFS regulatory structure [wa]s needed" for such new services to develop and flourish in this band.[39] The Coalition focused primarily on engineering issues – accommodating the needs of two

[33] Amendment of Parts 1, 21, 73, 74 and 101 of the Commission's Rules to Facilitate the Provision of Fixed and Mobile Broadband Access, Educational and Other Advanced Services in the 2150-2162 and 2500-2690 MHz Bands; Part 1 of the Commission's Rules - Further Competitive Bidding Procedures; Amendment of Parts 21 and 74 to Enable Multipoint Distribution Service and the Instructional Television Fixed Service Amendment of Parts 21 and 74 to Engage in Fixed Two-Way Transmissions; Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico; WT Docket Nos. 03-66, 03-67, 02-68, MM Docket No. 97-217, *Notice of Proposed Rulemaking and Memorandum Opinion and Order*, 18 FCC Rcd 6722, 6734 ¶ 23 (2003) (*NPRM*).

[34] *Id.*

[35] *Id.*

[36] *See generally* Coalition Plan.

[37] For example, the Coalition contends that it has become clear that the growth of direct broadcast satellite (DBS) and cable systems has "closed the window of opportunity for wireless cable" in all but a relatively few markets where wireless cable has gained a foothold. Coalition Proposal at 2. In regard to two-way services, the Coalition states that because of problems associated with first generation two-way technology, many in the industry have decided to halt deployment of additional first generation systems until those problems can be resolved. Coalition Proposal at 4.

[38] Coalition Proposal at 5-7.

[39] *See* Letter from the Coalition to Thomas J. Sugrue, Chief, Wireless Telecommunications Bureau, Federal Communications Commission dated Oct. 7, 2002 (accompanied the Coalition Proposal).

incompatible types of users that presently share a single band: one-way, relatively high-powered stations and operators that seek to maximize spectral efficiency by deploying low-powered cellular systems.

17. To this end, the Coalition proposed establishing a new band plan to facilitate advanced low-power two-way broadband systems while at the same time protecting existing high-power systems (e.g., video operations). The Coalition proposed dividing the band into three segments, consisting of the LBS, MBS, and UBS.[40] Low-power operations would utilize the LBS and UBS while high-power video operations would operate in the MBS. The Coalition also proposed (1) eliminating unnecessary regulatory burdens imposed by site-by-site licensing,[41] (2) simplifying the technical rules to facilitate operations in the band,[42] (3) establishing a market-by-market mechanism for transitioning to the new band plan and (4) eliminating outdated regulations. On October 17, 2002, the Commission released a Public Notice detailing the Coalition's proposal.[43]

18. On April 2, 2003, we released the Notice of Proposed Rule Making (*NPRM*) in this proceeding.[44] In the Notice, we sought comment on the Coalition Proposal as well as other potential alternatives for restructuring the 2500-2690 MHz band. We noted that this proceeding provided an opportunity to help meet our statutory duty to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms). . ."[45] We also noted the potential for this band to be used for broadband technologies, including high-speed digital technologies that provide consumers integrated access to voice, high-speed data, video-on-demand, and interactive delivery services. We sought comment on how best to further our goal of promoting competition, innovation, and investment in broadband services and facilities while monitoring progress toward the deployment of broadband services in the

[40] The Coalition narrowed the channels in the LBS and UBS to 5.5 megahertz in order to provide room for the J and K bands to separate high-power and low-power services. The Coalition explains that "[a]lthough the channels in the LBS and the UBS will be 5.5 MHz wide rather than 6 MHz wide and the channels in the Transition Band will be 1.5 MHz wide, no change in the current rules affording licensees the flexibility to subchannelize and superchannelize is proposed. Therefore, even after the transition licensees can continue to utilize 6 MHz channels in the LBS, the UBS, and the Transition Bands, provided that appropriate consents are achieved." Coalition Proposal at 13 n.32.

[41] For example, the Coalition contends that under the current licensing model, it will take substantially more applications to license a populated market for second generation MDS service (*e.g.*, low-power, two-way broadband service). It estimates that it could take close to two thousand applications under the current licensing approach to fully license the band for a second generation system in just one major market. This licensing model, according to the Coalition, results in substantial transaction costs and delays of providing service. *See* Coalition Proposal at 7-8.

[42] For example, the Coalition argues that "an applicant is required by the complex 'Appendix D' interference-prediction methodology to assume in conducting analyses that each and every one of its subscribers is located at the very point most likely to cause interference to a neighbor. In other words, an applicant proposing to provide service on a given channel to 1000 subscribers simultaneously is required to assume that all 1000 subscribers will be at the very spot most likely to cause interference. Unfortunately, these hypothetical assumptions, for all practical purposes, preclude system operators from serving substantial portions of their authorized territories. *See* Coalition Proposal at 3.

[43] Wireless Telecommunications Bureau Seeks Comment of Proposal to Revise Multichannel Multipoint Distribution Service and the Instructional Television Fixed Service Rules, DA 02-2732, *Public Notice* (rel. Oct. 17, 2002) *(MDS/ITFS Public Notice)*. Fifty-three entities filed comments and eight filed reply comments.

[44] *See NPRM*, 18 FCC Rcd at 6722.

[45] *See* Telecommunications Act of 1996, Pub. L. 104-104, § 706(a), 110 Stat. 56 (1996); 47 U.S.C. § 157.

United States and abroad.[46]

19. We noted in the *NPRM* that both the Coalition's analysis of the problems in the 2500-2690 MHz band and its proposed solutions were broadly consistent with the conclusions articulated in the Commission's 2001 3G Final Report.[47] Of particular importance is the Commission's conclusion therein that traditional MDS/ITFS stations and third generation (3G) cellular systems are not compatible with each other when they are operating on the same frequencies. Their service area borders must be separated by distances exceeding 100 miles to ensure that MDS/ITFS transmitters will not cause harmful interference to 3G receivers.[48] We further noted the report's conclusion that existing MDS/ITFS systems preclude operation of 3G systems in forty-nine of the fifty largest cities in the U.S., because all thirty-one of the MDS and ITFS channels in the 2500-2690 MHz band are licensed within 100 miles of those forty-nine cities.[49] In the 3G Final Report, the Commission concluded that it would not be feasible to move the incumbent licensees to a different band. Instead, it recommended segmenting the band into separate high- and low-power segments and requiring both incumbents and new applicants to conform with the new technical rules.[50] While the 3G Final Report focused on one particular type of new technology, its conclusions may apply with respect to any low-powered two-way service that seeks to achieve spectral efficiencies through a cellular-style configuration.

20. In the *NPRM*, we acknowledged that the Coalition's proposal was a major step forward to examination of this band. However, we also believed that significant progress would also require a discussion of ownership and eligibility issues, transition timetables, and, perhaps, a more thorough resolution of engineering issues as well. In this regard, we sought comment on the possibility of eliminating eligibility and use criteria for ITFS spectrum and the possibility of merging MDS and ITFS into a single Broadband Communications Service. We also sought comment on the best manner in which to accomplish the transition process, and whether we should establish a timetable for conversion of the entire 2500-2690 MHz band to low-power operations compatible with two-way, broadband cellular services. We emphasized that we did not propose to reclaim licenses from any incumbent operators that have complied with our existing rules and continue to comply with our new rules.

IV. DISCUSSION

A. Changes to 2500-2690 MHz Band Plan

21. *Background.* The 2500–2690 MHz band is currently comprised of twenty 6 megahertz ITFS channels and eleven 6 megahertz MDS channels. The channels in this band are licensed in groups of four (except for the MDS H block, consisting of three channels), but the channels in each group are interleaved rather than contiguous. As discussed in detail in the *NPRM*, this band plan, designed primarily to promote wireless cable and educational television services, was established in the early 1960s when television technology precluded the use of adjacent channels.[51] This channelization framework, which has remained

[46] *Id.*

[47] *See NPRM*, 18 FCC Rcd at 6743 ¶ 45.

[48] *See* Principles for Promoting Efficient Use of Spectrum By Encouraging the Development of Secondary Markets, Policy Statement, 15 FCC Rcd 24178, 24191 ¶ 31 (2000) (*2000 Spectrum Policy Statement).*

[49] *Id.* at 24191 ¶ 32.

[50] *Id.* at 24194 ¶ 40.

[51] *See NPRM*, 18 FCC Rcd at 6744-45 ¶ 47-48.

essentially unchanged since that time, was appropriate for when the Commission created ITFS and MDS, but is not optimal for digital two-way services. Additionally, there is no longer a technical rationale for the interleaved band plan, because MDS and ITFS systems have been technically able to use adjacent channels for the past 20 years. Moreover, the interleaved channelization scheme is particularly problematic when one licensee seeks to operate at low-power while the adjacent licensee operates at high power, because low-power services are especially susceptible to interference from high-power transmissions on adjacent channels.

22. The current interleaved band plan, coupled with the current adjacent channel interference protection rules, effectively precludes any licensee from providing broadband service unless consent is received from the licensee of the interleaved channel group (e.g., the licensee of the A Group cannot deploy two-way services without consent from the licensee of the B Group, and vice versa). This hampers the ability of individual MDS and ITFS licensees to deploy broadband services by giving adjacent channel licensees veto power over any such offering. Another consideration is that when using spread-spectrum techniques to avoid interference, service providers can operate more efficiently when they have access to large blocks of contiguous spectrum. Thus, we noted in the *NPRM* that any plan we adopt should address the need to provide a means by which licensees could consolidate their channels into contiguous blocks while resolving the incompatibility between high-power one-way services and low-power cellular services.

23. Additionally, MDS Channels 1 and 2 were allotted the 2150-2160 MHz band and operated with corresponding channels in the 2500-2690 MHz band.[52] In fifty of the largest metropolitan areas, the Commission allotted an extra megahertz for MDS Channels 1 and 2 to create two 6 MHz channels (2150-2162 MHz).[53] Because of their frequency separation from the rest of the MDS spectrum, these channels were not as extensively used. Therefore, in order to accommodate a new 90 megahertz allocation for advanced wireless services (AWS), the Commission, in ET Docket No. 00-258, reallocated the 1710-1755 MHz and 2110-2155 MHz bands to the fixed and mobile services for AWS.[54] That action, however, deferred on the relocation of MDS Channels that were impacted to a later proceeding.

24. Contemporaneously with the adoption of this item, we have, in IB Docket No. 02-364 (Big Leo Spectrum Sharing R&O proceeding) added a co-primary fixed and mobile (except aeronautical mobile) service allocation to the 2495-2500 MHz band.[55] That allocation is intended to facilitate the

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[52] Amendment of Parts 1, 2, 21, and 43 of the Commission's Rules and Regulations to Provide for Licensing and Regulation of Common Carrier Radio Stations in the Multipoint Distribution Service, Docket No. 19493, *Report and Order*, 45 FCC 2d 616 (1974), *recon. denied*, 57 FCC 2d 301 (1975) (*1974 R&O*). *See also 1993 R&O*, 48 Fed. Reg. at 33873 ¶ 5; *1971 R&O*, 30 FCC 2d at 197 ¶ 8. As noted above, in the top fifty markets, MDS Channel 2 is 2156-2162 MHz. Unless the context requires us to specifically discuss the top fifty markets, we will refer to MDS Channel 2 as 2156-2160 MHz.

[53] Amendment of Part 21.703(g), and (h) of the Commission's Rules, *Memorandum Opinion and Order*, 47 FCC 2d 957 (1970).

[54] *See* 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, *Second Report and Order*, 17 FCC Rcd. 23193 (2002) (*3G 2nd R&O*).

[55] *See* Review of the Spectrum Sharing Plan Among Non-Geostationary Satellite Orbit Mobile Satellite Service Systems in the 1.6/2.4 GHz Bands, IB Docket No. 02-364 (*Big LEO R&O*); 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, FCC 04-134, *Report and Order, Fourth Report and Order, and Further Notice of Proposed Rulemaking* (adopted June (continued....)

relocation of MDS Channels 1 and 2 to spectrum embedded with other MDS operations that we address herein. The actions within the Big Leo Spectrum Sharing R&O proceeding combined with the new band plan for the band will increase the efficient utilization of the 2496-2690 MHz spectrum and resolves the relocation of MDS Channels 1 and 2 by integrating these licensees with similar operations.[56] The details of the new band plan will be discussed below.

1. Addition of the 2495-2500 MHz band

25. As indicated above, in the Big Leo Spectrum Sharing R&O proceeding, we allocated the 2495-2500 MHz band to the fixed and mobile, except aeronautical mobile, services in order to provide additional spectrum to the 2500-2690 MHz band to accommodate the relocation of MDS Channels 1 and 2. We note that in the AWS *2nd Report and Order*, parties suggested a variety of potential relocation options for MDS Channels 1 and 2, including: 1) shifting the MDS channels up in frequency by five megahertz to the 2155-2165 MHz band;[57] 2) moving the MDS channels to spectrum within or adjacent to the MDS spectrum at 2500-2690 MHz;[58] 3) moving the channels to share the mobile satellite service (MSS) spectrum at 2010-2025 MHz;[59] and 4) considering whether replacement spectrum for MDS is even needed considering market forces, and if so, considering spectrum in the 2385-2400 MHz band, abandoned MSS spectrum below 2025 MHz, or 700 MHz spectrum bands.[60]

26. WCA, however, argues that each of these options poses difficulties for MDS operations. With respect to moving MDS to the 2155-2165 MHz band, it notes that in 50 markets, MDS licensees may use up to 12 megahertz which must be accommodated, that such relocation would eliminate the *de facto* guard band between MDS and MSS,[61] and that such a transition would have to be accomplished without disrupting service to customers and all costs must be reimbursed.[62] WCA further states that

(Continued from previous page)
10, 2004).

[56] MDS Channels 1 & 2 are located at 2150-2156 MHz and 2156-2162 MHz respectively. Some licensees are authorized to use the 2156-2160 MHz portion of the band, known as "Channel 2A." The Office of Engineering and Technology has designated MDS 1 and 2 for reallocation. *See* 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, *Third Report and Order, Third Notice of Proposed Rulemaking and Second Memorandum Opinion and Order,* 18 FCC Rcd. 2223 (2002) (*3G 3rd R&O & NPRM*).

[57] AT&T Wireless Comments to the *3G 3rd R&O & NPRM* at 12.

[58] Verizon Comments to the *3G 3rd R&O & NPRM* at 15.

[59] Cingular Comments to the *3G 3rd R&O & NPRM* at 11.

[60] Ericsson Comments to the *3G 3rd R&O & NPRM* at 10-11.

[61] WCA notes that it has filed a Petition for Reconsideration of the *Report and Order* in IB Docket No. 99-81 seeking to revise the MSS spectral mask to limit the power flux density into the MDS band. WCA Reply Comments at 32.

[62] *See id.* at 31-33.

moving MDS into the MSS bands is problematic because it would reduce the size of the MSS spectrum.[63] Additionally, WCA states that the 2385-2400 MHz band is not suitable for MDS relocation because the 2385-2390 MHz band is not readily available and there is a likelihood of adjacent channel interference from Federal Government airborne telemetry operations and co-channel interference to amateur operations in the 2390-2400 MHz band.[64] WCA does, however, offer a relocation solution, stating that in the event the Commission deems relocation necessary, an acceptable compromise would be to relocate MDS Channels 1 and 2/2A to the 1910-1916/1990-1996 MHz bands and allow fixed or mobile use.[65]

27. We find that spectrum within the 2500 MHz band is the optimal location to relocate existing MDS licensees because it will allow the creation of an optimal band plan with contiguous spectrum, and integrate these licenses into the new BRS instead of orphaning MDS operations such that they would be part of a different service. Therefore, we find the allocation actions taken in the Big Leo Spectrum Sharing R&O proceeding produce the optimal situation for the relocation of MDS Channels 1 and 2. In order to promote sharing in the 2495-2500 MHz portion, we took the following actions in the Big Leo Spectrum Sharing R&O proceeding: 1) shifted mobile satellite service (MSS) ancillary terrestrial component (ATC) operations down from the 2492.5-2498 MHz band to the 2487.5-2493 MHz band;[66] 2) dictated that MSS receive operations in the 2495-2500 MHz portion will not be able to claim interference protection from new fixed and mobile operations;[67] and 3) designated the 2495-2496 MHz portion as a guard band to separate new BRS operations and incumbent operations below 2495 MHz. While these actions will allow the licensing of new terrestrial operations in the 2496-2500 MHz band, certain sharing constraints will be required.

28. We note that currently, there are 108 grandfathered terrestrial licenses for broadcast auxiliary service (BAS) and private radio services that are protected by primary status.[68] New licensees in this spectrum could share the spectrum through coordination efforts, which should be successful given the limited number of licensees. Nevertheless, we will explore in a future proceeding possible relocation steps for these operations. Indeed, because we are establishing a low-power BRS, we believe it would be appropriate to consider moving BAS at this time. Further, the entire 2400-2500 MHz band is available for

[63] *See WCA Letter*, *supra* n.19. This letter was sent jointly by WCA, Bellsouth, Nucentrix, Sprint, and Worldcom. WCA is the trade association of the MDS industry. The other parties to the letter hold the majority of licenses in the 2150-2160 MHz band.

[64] *Id.* at 8-9.

[65] *Id.* at 2.

[66] This action will reduce the potential for interference conflicts between new terrestrial services and ATC terrestrial deployments.

[67] Because MSS receive units can operate globally, this action is needed to ensure new terrestrial services can deploy without having to protect globally roaming devices. We also note that the MSS downlink allocation goes down to 2483.5 MHz, so the majority of the MSS channels will be unencumbered by new terrestrial use of the 2496-2500 MHz band. The MSS allocation is maintained however in the upper portion, so MSS can make use of these channels prior to deployment of the new BRS operations in the band, and in geographic areas, such as remote areas where new terrestrial services are not likely to deploy.

[68] See 47 C.F.R. §2.106 NG147. Specifically, these operations include: 1 local television transmission license, 12 point-to-point microwave, private-industrial business licenses, 4 conventional public safety pool licenses, 12 TV intercity relay licenses, 78 TV pickup licenses, and 1 TV translator relay license.

Industrial, Scientific, and Medical (ISM) operations which use electromagnetic energy to perform a function other than communications, such as heating substances in a microwave oven.[69] We anticipate that BRS operations will be able to coexist with ISM operations because ISM operations use frequencies closer to the center of the band and in a controlled environment.

29. We also note that non-geostationary MSS space station downlink operations in the 2495-2500 MHz portion have a downlink power flux density (pfd) limit of -144 dBW/m^2 per 4 kilohertz or -126 dBW/m^2 per 1 megahertz reference bandwidth, depending on the angle of arrival.[70] This limit was designed to accommodate multiple MSS systems using code division multiple access (CDMA) techniques which is a form of spread spectrum modulation that can facilitate spectrum sharing. The limit was specifically designed to protect analog fixed relay systems and the ITU radio regulations indicate that they should be adequate to protect most digital fixed systems. These limits were not designed to protect mobile services. However, we believe there are some factors that could enable mobile services in this band should licensees take this approach. For example, the ITU limits were designed under conservative assumptions and were designed for multiple MSS systems overlapping in the same spectrum. Currently, however, the MSS in this band is only being used by one licensee, so the actual interference potential from satellite operations is much lower than the limit would indicate. Furthermore, mobile systems, such as cellular telephone and PCS systems, often utilize fairly strong signals throughout their coverage area in order to provide adequate capacity within each cell. Therefore, we conclude that the pfd limit does allow sharing with various terrestrial operations. New terrestrial entrants in the band should be aware of the MSS downlink emissions in the design of their systems.

2. Band Plan Alternatives

30. In the *NPRM*, we sought comment on several band plans that could potentially resolve the incompatibility between high-power one-way services and low-power cellular services. As previously noted, the Coalition's approach involved dividing the 2500-2690 MHz into three larger and three smaller segments, with the MBS reserved for high-power MDS and ITFS stations and the UBS and LBS reserved for low-power operations. The LBS would be designated as the mobile station transmit band while the UBS would be designated as the base station transmit band. The three minor segments would consist of the I band at 2686-2690 (narrowband auxiliary channels) and two transition or guard bands, the J band, located between the LBS and MBS at 2566-2572 MHz, and the K band located between the MBS and the UBS at 2614-2620 MHz. Under the Coalition's proposed band plan, a licensee that currently has four interleaved 6-megahertz channels and four interleaved 0.125 megahertz channels would be assigned 16.5 megahertz of contiguous spectrum in either the LBS or UBS, 6 megahertz of spectrum in the MBS, .5 megahertz of contiguous spectrum in the I band, and 1.5 megahertz of contiguous spectrum in bands that the Coalition refers to as the J and K bands after transitioning to the new band plan. Because there is no pairing of bands pursuant to this approach, a licensee who wishes to deploy Frequency Division Duplex (FDD) technology must assemble paired blocks through a white space auction or secondary market transactions.[71] Assuming that paired blocks can be acquired, however, this band plan allows for either

[69] *See* 47 C.F.R. Part 18.

[70] *See* International Telecommunication Union (ITU) Radio Regulations, Appendix 5, Table 5-2.

[71] Frequency Division Duplex (FDD) provides simultaneous communications between two devices through the use of two different bands. The forward band refers to the spectrum used by base stations and the reverse band refers to the spectrum used by the subscriber. In FDD systems, frequency separation between the forward band and the reverse bands remains constant among each subscriber-base station communication.

FDD or Time Division Duplex (TDD) technology.[72] Pursuant to the Coalition's proposal, every MDS and ITFS licensee would be assigned a geographic service area (GSA).[73] Existing circular protected service areas (PSAs) would be converted to GSAs with signal strength limits applied at their boundaries.[74]

31. In the *NPRM*, we also sought comment on two other types of band segmentation plans.[75] The first type, outlined in the 3G Final Report, involves alternating bands for low and high-power services, respectively, with guard bands in between the two 45 megahertz frequency blocks for low-power services. The *NPRM* noted that this approach might be beneficial because it would allow both types of operations to provide frequency separation between paired channel blocks for 3G and ITFS/MDS operations and would permit both FDD and TDD operations. Another band plan option proposed in the *NPRM* involved separating the band into one block for low-power operations and one block for high-power operations, separated by a guard band. We noted that such a band plan would provide a large block of contiguous spectrum for both types of operations and is particularly well suited to TDD technology.[76]

32. The other basic approach presented in the *NPRM* involved avoiding any segmentation of the band by applying an across-the-board limit on signal strengths sufficient to accommodate low-power cellularized operations on all channels throughout the 2500-2690 MHz band. We noted that the Coalition Proposal, or any other band segmentation plan, would require extensive, mandatory re-shuffling of channel assignments to avoid leaving high-power channels adjacent to low-power channels, in order to avoid adjacent channel interference.[77] By contrast, applying an across-the-board limitation on signal strengths could make de-interleaving a less urgent necessity and, perhaps, make it possible for acquisitions, channel trades, and other voluntary market processes to effectuate any needed consolidation of channels. We sought comment on the extent to which such a rule would reduce the need to apply mandatory channel reassignments or whether it would interfere with future uses of this spectrum by educators.

33. From a broader perspective, the *NPRM* stated that Coalition members appear to believe that the predominant future use of this band will be low-power mobile services. On that basis, we sought comment on whether it would be necessary to reserve a portion of this band in the long term to accommodate high-power services. We expressed particular interest in hearing from licensees who are engaging in high-power operations as to their long-term plans for the spectrum. We sought comment on the technical feasibility of this approach and the cost involved in complying with technical rules that may require licensees to substantially lower their signal strength outside their PSAs.

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[72] Time Division Duplex (TDD) provides communications between two devices sharing the same band by dynamically allocating short duration time intervals for transmitting and receiving. In TDD systems, a subscriber's device will operate in a transmit mode while the corresponding base station operates in a receive mode and vice versa, eliminating the need for duplex filters, as in FDD systems.

[73] A GSA is defined as a protected service area (PSA) that is bounded by political and/or geographical boundaries. *See* para. *53, infra*. A PSA is a land area over which an approved licensee is allowed to operate transmitting equipment.

[74] *See* para. 55, *infra*.

[75] *3G Final Report* at 37-57.

[76] *Id.* at 42.

[77] We address the complex transitional issues implicated by that process in section IV.A.5.

34. We note that the Coalition's band plan received support from a majority of commenters.[78] For example, Alvarion supports the plan because it allows flexible use of the band, supports both TDD and FDD technologies, permits both current commercial and ITFS licensees to continue operations using the MBS, maintains the location of the I channels, and permits the band to lend itself to mass production of equipment, thereby serving as a catalyst to launch the wireless broadband market into the same realm served by cable modem and DSL broadband solutions today.[79]

35. Not all commenters, however, support the Coalition's band plan. Some commenters maintain that the Coalition's band plan, with only seven high-power channels, has too few high-power channels to support their needs. MDS providers further maintain that it would be too expensive for them to serve their customers using low-power network configurations.[80] ITFS providers argue that one MBS channel will not be able to accommodate their current or planned systems.[81] For instance, Stanford and Northeastern indicate that they have tested 5:1 compression and found it is not adequate for instructional programming because the quality is unsatisfactory and the delay unacceptable. Consequently, they contend, the loss of high-power channels would prevent them from expanding their systems from the present four channels to eight or even sixteen video programming channels and could[82] result in significant costs for purchasing new equipment for low-power operations, if these costs are not covered by the transition process. NAF urges that the 2500-2590 MHz portion of the band be redesignated for primary unlicensed use.[83]

36. *Discussion.* As previously noted, our main goals in this proceeding include: (1) promoting availability of broadband to all Americans, including broadband technologies for educators; (2) promoting innovation by maximizing flexibility in the service rules; (3) facilitating speed of transition and deployment in the band; and (4) providing incumbents with a reasonable opportunity to continue their current uses of the spectrum. In order to accomplish these goals, we believe that the optimal band plan

[78] Specifically, commenters, such as Alvarion Ltd. (Alvarion), California Amplifier, Celplan Technologies, Inc. (Celplan), ComSpec Corporation (ComSpec), Ericsson, Inc. (Ericsson), Flarion Technologies, Inc. (Flarion), Illinois Institute of Technology (IIT), Intel Corporation (Intel), Lucent Technologies (Lucent), Mississippi Ednet Institute, Inc. (Mississippi Ednet), Navini Networks, Inc. (Navini), The North Carolina Community College System (NCCCS), SBC Communications, Inc. (SBC), Sioux Valley Wireless, SOMA Networks, Inc. (SOMA), South Carolina Educational Television (SCETV), Blake Twedt & John Dudeck (Twedt & Dudeck) and the University of Arizona (UA) support the Coalition's band plan proposal. *See also* Alvarion Reply Comments at 3; IIT Comments at 15-16; California Amplifier Reply Comments at 1-2; Celplan Reply Comments at 2; ComSpec Comments at 2; Flarion Reply Comments at 2; Intel Comments at 6; Lucent Comments at 3; Mississippi Ednet Reply Comments at 1; Navini Reply Comments at 2; NCCCS Reply Comments at 1; SBC Communications; Sioux Valley Wireless Reply Comments at 1; SOMA Reply Comments at 1; SCETV Comments at 1; Twedt & Dudeck Reply Comments at 2; UA Reply Comments at 1. SCETV adds that the separation of the two low-power bands is necessary to support both FDD and TDD technologies. SCETV Comments at 6. SCETV also believes that PSA overlap should be equally divided among the respective licensees to create non-overlapping GSA's, but existing receivers outside the new GSA should receive grandfathered protection. SCETV Comments at 6.

[79] Alvarion Reply Comments at 3-5.

[80] *See* Joint commenters Adams Telecom, Inc., Central Texas Communications, Inc., and Leaco Rural Telephone Cooperative, Inc. (Adams et. al.) Comments at 5. *See also* Teton Wireless Television, Inc. (Teton) Comments at 9-10.

[81] *See* Stanford and Northeastern Comments at 8.

[82] Stanford and Northeastern Comments at 7.

[83] New America Foundation, et. al. (NAF) Comments at 4.

must: (1) provide for low-power operations while maintaining some spectrum for high-power services; (2) promote consistent regulatory treatment with similar wireless broadband services;[84] and (3) offer flexibility through technological neutrality. We conclude that it is in the public interest to adopt the band plan described below because it best accomplishes the goals of this proceeding.

37. The following chart shows the band plan we are adopting:

Commission Band Plan				
Channel Designation	Lower Frequency	Upper Frequency		
N/A	2495	2496	Guard Band	
BRS 1	2496	2502		
A1	2502	2507.5		
A2	2507.5	2513		
A3	2513	2518.5		
B1	2518.5	2524		
B2	2524	2529.5		
B3	2529.5	2535		
C1	2535	2540.5		LBS
C2	2540.5	2546		
C3	2546	2551.5		
D1	2551.5	2557		
D2	2557	2562.5		
D3	2562.5	2568		
J	2568	2572	Guard Band	
A4	2572	2578		
B4	2578	2584		
C4	2584	2590		
D4	2590	2596		MBS
G4	2596	2602		
F4	2602	2608		
E4	2608	2614		
K	2614	2618	Guard Band	
BRS 2	2618	2624		
E1	2624	2629.5		
E2	2629.5	2635		
E3	2635	2640.5		

[84] Consistent regulatory treatment among similar services entails establishing similar technical and other rules among similar services. With respect to the band plan channel widths, 5 MHz is the least common multiple in the Personal Communications Systems band (PCS) (47 C.F.R § 24.1 et. seq.) and the Advanced Wireless Services band(AWS) (47 C.F.R § 27.1 et. seq.). Also, 5 MHz appears to be the most desired current wideband channel size, for FDD (specifically CDMA2000) and TDD technologies. The 5.5-megahertz-wide, low-power channels in our adopted band plan can easily accommodate a 5-megahertz-wide channel with 0.5 MHz of spectrum for a guard band, thereby enhancing a channel's capacity when considering adjacent channel use. We believe that common minimum channel allocations among similar services will readily lend the LBS and UBS to current as well as future equipment technology standards, thereby substantially lowering the cost of deployment.

F1	2640.5	2646		
F2	2646	2651.5		
F3	2651.5	2657		UBS
H1	2657	2662.5		
H2	2662.5	2668		
H3	2668	2673.5		
G1	2673.5	2679		
G2	2679	2684.5		
G3	2684.5	2690		

38. Specifically, we adopt a three segment band plan, consisting of: the LBS, extending from 2496-2572 MHz, and comprised of twelve 5.5-megahertz-wide channels, one 6-megahertz-wide channel, and one 4-megahertz-wide guard band; the MBS, extending from 2572-2614 MHz, and comprised of seven 6-megahertz wide channels; and the UBS, extending from 2614-2690 MHz, and comprised of twelve 5.5-megahertz wide channels, one 6-megahertz-wide channel, and one 4-megahertz-wide guard band. MDS channel 1 will be relocated from 2150-2156 MHz to 2496-2502 MHz, the LBS, and MDS channel 2 will be relocated from 2156-2162 MHz to 2618-2624 MHz, the Upper Band Segment.

39. The plan we adopt today incorporates a number of key elements from the Coalition proposal that received broad support from commenters. Dividing the band into high and low-power segments resolves the problems created by the current interleaved configuration of the band which inhibits the development of low-power cellularized broadband uses of the band.[85] In addition to creating an environment for development of low-power systems, the plan reserves some spectrum for high-powered use for both EBS and rural licensees who have a continued need to deploy high-power systems. Like the Coalition proposal, the plan we adopt is also technologically neutral, affording licensees the flexibility to deploy either FDD or TDD technology anywhere in the 2.5 GHz band.

40. However, the band plan we adopt departs in some respects from the Coalition's proposed band plan. As noted above, we have expanded the overall bandwidth of the existing BRS-EBS band by reallocating 2495-2500 MHz to fixed and mobile except aeronautical mobile services. Moreover, the Commission band plan will make full use of the 4 megahertz of spectrum (I band) located at the end of the band at 2686-2690 MHz.[86] Finally, whereas the Coalition proposes to create 6-megahertz-wide guard bands in the low-power LBS and UBS (referred to as the J and K bands, respectively) the Commission's plan designates the J and K bands as 4-megahertz-wide bands. The use of 4-megahertz J and K bands is consistent with conclusions in the *3G Final Report* that 4 megahertz was sufficient to separate low-power and high-power uses.[87] Furthermore, reducing the guard band increases the amount of spectrum available for low-power and high-power use. As discussed below, these changes will accommodate the relocation of incumbents to new spectrum assignments in the band that will give them substantially greater flexibility than the current band plan, while also facilitating the relocation of MDS Channels 1 and 2.

[85] Although power restrictions in both the low-power segments (UBS and LBS) are identical, low-power, mobile operations at 2496-2572 MHz and 2614-2690 MHz will be protected through the transition plan and transmitting antenna height requirements.

[86] Presently, the response band is largely unused as there are only six licenses in this band in the entire U.S.

[87] *3G Final Report* at 49.

41. Adoption of the Coalition's proposed 16.5 megahertz-wide LBS and UBS blocks provides ample capacity for existing MDS and ITFS licensees to develop low-power broadband services of the type contemplated by the Coalition. These blocks will enable licensees to deploy any possible combination of the most current FDD and TDD standard channel sizes, which are based on channelizing in 5 megahertz increments.[88] Basing the LBS and UBS band plan on a minimum channel width of 5 megahertz is also consistent with our band plans for other wireless services such as broadband PCS and the 1710-1755/2110-2155 MHz AWS band, which utilize 5 megahertz multiples as the basis for their frequency blocks. In addition, the assignment of 5.5 megahertz-wide channels throughout the band promotes consistency between commercial wireless services and provides licensees the opportunity to take advantage of existing and future technologies thereby substantially lowering the cost of deployment. Furthermore, as discussed later in this text, the BRS/EBS technical rules we are adopting for the low-power bands are similar to those of both the PCS and AWS rules, thus making all three services similar.[89]

42. The LBS and UBS will also contain two smaller segments, the J and K bands, which will serve primarily as guard bands. The J band will be located between the LBS and MBS at 2568-2572 MHz, and the K band will be located between the MBS and UBS at 2614-2618 MHz. The new channel assignments will be assigned on a pro rata basis to existing licensees in the other channel groups.

43. Under the band plan we adopt in this order, a licensee that presently has four interleaved 6 megahertz channels and four associated 0.125 megahertz response channels will receive 16.5 megahertz of contiguous spectrum in either the LBS or UBS, a 6 megahertz channel in the MBS, and 1 megahertz of contiguous spectrum in either the J or K guard bands after the transition. A licensee presently assigned one channel in the band, will receive one 5.5 megahertz channel in either the LBS or UBS or one 6 megahertz channel in the MBS.[90] The provision of contiguous spectrum, combined with the deployment of compressed digital signals, will provide incumbents with the opportunity to maintain their current level of analog operations. At the same time, the relocation of MDS Channels 1 and 2 to the band will make these channels more useful as part of a contiguous broadband service band and may foster competition and new service options. These additional competitive opportunities will, in turn, promote the public interest. Incumbents will enjoy the benefit of spectrum with increased flexibility and utility while the public benefits from the likely innovation and cost savings that will result from increased competition.

44. The MBS portion of the band plan also addresses concerns of commenters who seek to continue providing high-power video services. The MBS will continue to be divided into 6 megahertz channels, consistent with the existing band plan. Through use of digital technology, this should provide ample capacity for most EBS incumbents to continue providing existing instructional programming if they wish to do so. In addition, to the extent that EBS incumbents must find funding for new equipment to make up for the loss of additional high-power channels, we note that under the transition plan we adopt today, EBS licensees' conversions will be fully funded.[91] Thus, this does not prohibit channel expansion at a later date. Although MDS licensees currently providing competitive video services in rural areas will

[88] FDD code division multiple access (CDMA) channel widths are currently 1.25 MHz, 3.75MHz and 5 MHz. TDD standard channel sizes are currently 5, 10 and 15 MHz.

[89] For discussion on technical rules *see* section IV.B, *infra*. For PCS and AWS technical rules and frequency assignments *see* 47 C.F.R. Parts 24 and 27 respectively.

[90] If a licensee currently has only the fourth channel in a group, they will receive one 6 megahertz channel.

[91] *See* discussion on Transition, see section IV.A.5, *infra*.

most likely have to alter their systems, they will be afforded ample opportunity to do so.[92] Hence, although the new band plan may result in some inconveniences, the long term benefits of the new band plan will ultimately benefit most licensees and the public. We also note that conversion of the band to provide for low-power operations will allow for more diversity in services that can be offered.[93]

45. Commenters, such as Grand Alliance, FWH, and Spectrum Market favor across-the-board power reductions in signal strength limits to resolve the issue of the incompatibility between high and low-power systems.[94] Grand Alliance states that uniform low-power operations are the most efficient way to use the spectrum, permitting the provision of new, advanced services in order to keep the United States at the forefront of technology development. Grand Alliance further states that "despite billions of dollars of investment, the existing high-power services have failed to establish any clear value."[95] FWH adds that this approach would be consistent with the approach the Commission has taken with respect to the other bands allocated for flexible use.[96] Similarly, Spectrum Market suggests that both public and private interest, short and long term, will be served if the Commission requires conversion of the entire MDS/ITFS band for low-power two-way services, and that it is essential for educators to transition ITFS use to broadband, interactive educational technologies.[97]

46. While we see merit to the arguments presented by commenters who support across-the-board power reductions, we are nonetheless persuaded by commenters such as IIT, IPWireless, BellSouth, OWTC and Teton Wireless Television (Teton), who convincingly argue that there remains a continued need for high-power operations in the band. Furthermore, commenters such as Teton convincingly argue that high-power operations allow use of spectrum in rural areas where low-power systems are not as effective. Teton and other rural MDS commenters have also expressed concern that the inability to engage in high-power operations will effectively shut down their operations. Moreover, we are concerned by comments presented by the Diocese of Brooklyn, the Archdiocese of New York and Region 10 who argue that an across-the-board reduction in power would jeopardize and disrupt the important services they offer via high-powered operations.[98] Similarly, MDS operators such as Digital TV One assert that commenters such as FWH do not take into account the spectrally efficient digital MDS/ITFS multi-channel video systems operated by entities such as itself and WATCH TV.[99] Likewise, Digital TV One criticizes Spectrum Market for not discussing how its suggestions will benefit customers who rely on

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[92] *Id.*

[93] The Coalition originally proposed placing Channel G4 next to the K band. It later proposed switching Channels E4 and G4 so that Channel E4, an MDS channel, would be located next to the K band. Coalition Ex Parte Presentation, June 3, 2004. We adopt this proposal because it prevents ITFS licensees from having to address interference issues that might arise if ITFS were located adjacent to a low-power band.

[94] Fixed Wireless Holdings (FWH) Comments at 6.

[95] Grand Alliance Comments at 6.

[96] FWH Comments at 6 (referencing Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), GN Docket No. 01-74, Report and Order, 17 FCC Rcd 1022, 1063-63 ¶ 102, 1068-69 ¶ 119, and 1069-70 ¶ 122 (2002) (*Lower 700 MHz R&O*)).

[97] Spectrum Market Reply Comments at 5, quoting SCETV Comments at 5.

[98] Diocese of Brooklyn Comments at 1-2; Archdiocese of New York Comments at 1.

[99] Digital TV One Reply Comments at 4.

Digital TV One and other MDS/ITFS operators as a source of multi-channel video programming.[100] Similar arguments have also been convincingly presented by Teton, which argues that those who advocate this approach have no regard to what these important services mean to rural families, and no appreciation for the technical reality of providing service in such rural areas, because a low-power cellular architecture is not financially feasible in rural markets.[101] We agree with Teton that the expenses involved in deploying multiple cell sites to serve sparse populations may make it impractical to continue most services offered over high-power systems.[102] Finally, we agree with BellSouth's assertions that the former regulatory regime, ill equipped to accommodate nationwide deployment of TDD and FDD technologies, is largely responsible for the slowed deployment of low-power systems.[103] For these reasons, we conclude that we should not adopt across-the-board power reductions in the band. We note that the question of whether high-power operations are still needed in this band can be reassessed in the future when low-power BRS/EBS systems provide substantial service over large areas.

47. We also reject NAF's proposal to reallocate 2500-2590 MHz to unlicensed use and leave 2590-2690 MHz for licensed use. NAF argues that creating a primary unlicensed band would offer an opportunity to expand on existing Wi-Fi technology and provide an incentive for others to develop new communications technologies.[104] The NAF proposal, however, would not leave sufficient room for viable high-power and low-power licensed operations. The record does not demonstrate that there is a need for the 2500-2590 MHz band to be designated for unlicensed use. We note that the Commission is considering authorizing unlicensed use in several other bands.[105] Indeed, we believe that authorizing licensed spectrum for wireless broadband access is a strong complement to our existing and proposed unlicensed allocations. The volume of comments we have received in this proceeding demonstrates that there is a strong interest in having licensed spectrum available for use in wireless broadband applications.

a. Response Channels

48. In 1991, we allocated the seven 125 kHz response channels (part of the R channels under the Coalition band plan) associated with MDS channels E3, E4, F3, F4, H1, H2, and H3 to the OFS.[106] The Coalition proposed to return these channels for MDS use.[107] In the *NPRM*, we stated that we believed the Coalition's proposal was meritorious because there are no OFS licensees currently on these channels,

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[100] Digital TV One Reply Comments at 4-5.

[101] Teton Wireless Television (Teton) Reply Comments at 5.

[102] Teton Reply Comments at 5.

[103] BellSouth Reply Comments at 12.

[104] NAF Comments at 4.

[105] *See* Unlicensed Operation in the TV Broadcast Bands; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band, (ET Docket Nos. 02-380, 04-186, *Notice of Proposed Rule Making*, FCC 04-113 (rel. May 25, 2004); In the Matter of Unlicensed Operation in the Band 3650 – 3700 MHz; Additional Spectrum for Unlicensed Devices Below 900 MHz and in the 3 GHz Band; Amendment of the Commission's Rules With Regard to the 3650-3700 MHz Government Transfer Band; ET Docket Nos. 04-151, 02-380, 98-237, *Notice of Proposed Rulemaking*, FCC 04-100 (rel. Apr. 23, 2004) (*Unlicensed NPRM*).

[106] *1991 R&O*, 6 FCC Rcd at 6795.

[107] Coalition Proposal at 12, n.30.

[109] MMDS Licensee Coalition Comments at 8.

probably because they are too narrow to be usable by themselves. We sought comment on this proposal. We also sought comment on whether we should automatically give the channels to the geographic area licensee of the corresponding 6-megahertz main channel, or implement some other method of assignment such as licensing the channels on a geographic area basis and allowing any eligible entity to apply for these channels. Inasmuch as there were no objections to the Coalition's proposal, we conclude that we will return the 2686-2690 MHz response channel band to BRS/EBS use as described in the adopted band plan.

49. In the *NPRM*, we sought comment on the Coalition's recommendation that operation on the response channels be secondary to operation on the LBS, MBS, and UBS channels. The MMDS Licensee Coalition opposes this recommendation and states that response channels should receive equal status.[109] We believe affording 2686-2690 MHz spectrum secondary status to the LBS, MBS, and UBS is a moot issue at this point because we are adopting a band plan that absorbs the I band into the BRS/EBS spectrum in order to allow for 5.5-megahertz-wide channels as well as the reallocation of MDS 1 and 2 to the lower and upper bands. With proper planning, these types of operations should be able to operate adjacent channel to other operations and there is no justifiable reason to relegate licensed services in the 2686-2690 MHz spectrum to secondary status relative to the LBS, MBS and UBS operations. In a related matter, we believe that the recently revised footnote US269 in the Table of Frequency Allocations affords sufficient protection of the passive services in the 2690-2700 MHz band.[110] Thus, with proper coordination, operations on channel G3 will be reasonably possible while sufficiently protecting the 2690-2700 MHz band.

3. Border Regions

50. On June 25, 2002, the Commission and Industry Canada entered into an interim sharing arrangement concerning the use of the frequency bands 2150 – 2162 MHz and 2500 – 2690 MHz near the Canada/United States of America border.[111] That interim sharing arrangement replaced the General FCC/Industry Canada Understanding.[112] The interim sharing arrangement requires licensees to coordinate their operations with each other for their respective service areas on both sides of the border and does not apply to stations in the mobile service.[113] The current agreement with Mexico generally requires coordination of facilities within 80 km of the United States/Mexico border along with consideration of other technical criteria such as power flux density at the border and antenna polarization, and does not take into account the use of stations in the mobile service.[114]

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[110] *See* In the Matter of Amendment of Parts 2, 25, and 87 of the Commission's Rules to Implement Decisions from World Radiocommunication Conferences Concerning Frequency Bands Between 28 MHz and 36 GHz and to Otherwise Update the Rules in this Frequency Range, ET Docket No. 02-305, *Order*, 19 FCC Rcd 4653 ¶¶ 1-2 (2004) (*36 GHz Order*).

[111] Interim Arrangement Concerning the Use of the Frequency Bands 2150 – 2162 MHz and 2500 – 2690 MHz by MCS and MDS Stations Near the Canada/United States of America Border (dated Jun. 25, 2002) (Interim Sharing Arrangement).

[112] General FCC/Industry Canada Understanding Concerning the Coordination of the 2500-2686 MHz Band within 80 km (50 Miles) of the United States of America/Canada Border (dated December 5, 1997).

[113] Interim Sharing Arrangement, ¶ 22.

[114] Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Assignment of Frequencies and Usage of the 2500-2686 MHz Band along the United States-(continued....)

51. We are in the process of reviewing our existing agreements with Canada and Mexico in order to ensure that we can fully implement the band plan and other provisions we have adopted today. To the extent necessary, we will engage in negotiations to effect appropriate revisions to those agreements with the Mexican and Canadian governments. Our principal goal of these discussions will be to allow full implementation of our new rules in the border regions and full utilization of the 2495-2690 MHz band in all three countries. Until revised border agreements are reached, however, BRS and EBS licenses in the border area will be conditioned on compliance with existing international agreements.

4. Geographic Area Licensing for Current Licensees

a. Adoption of Geographic Service Areas based on existing service areas

52. *Background.* Under current Commission rules, MDS auction winners are granted licenses for Basic Trading Areas (BTAs), but do not have the same flexibility to operate under those licenses as geographic licensees in other services. Under the current rules, a BTA authorization holder may not provide service within those portions of its BTA that encompass the PSA of incumbent stations and previously proposed MDS and ITFS facilities.[115] In addition, a BTA authorization holder must apply for an individual station license for each transmitter within its BTA.[116]

53. In the *NPRM*, we proposed the full implementation of geographic area licensing for MDS and ITFS licensees, noting that such licensing could increase the intensity and efficiency of use of this spectrum.[117] We noted that in other bands where we contemplated the development of mobile or other wide-area services, we concluded that geographic licensing based on predefined service areas has significant advantages over site-based licensing because of the greater operational flexibility it gives licensees and the greater ease of administration for consumers, licensees, and regulators.[118] We also noted that geographic area licensing reduces administrative burdens and operating costs by allowing licensees to modify, move, and add to their facilities within specified geographic areas without prior Commission approval. Our experience has been that such licensing affords licensees substantial flexibility to respond to market demand and may hence result in significant improvements in spectrum utilization. Based upon these observations, we sought comment on our proposal to implement geographic area licensing in the band, while protecting incumbent operations.

54. *Discussion.* We conclude that all BRS and EBS licensees will be licensed on a geographic area basis.[119] Accordingly, BRS and EBS authorization holders will be allowed to place transmitters anywhere within their defined service area without prior authorization so long as the licensee's operations

(Continued from previous page)
Mexico Border (dated Aug. 11, 1992, as amended by exchange of Diplomatic Notes dated October 1, 1998 and October 23, 1998).

[115] 47 C.F.R. § 21.924(c).

[116] 47 C.F.R. § 21.925(b).

[117] *See NPRM*, 18 FCC Rcd at 6756 ¶¶ 83-89.

[118] *See* 47 C.F.R § § 90.663 (800 MHz SMR), 101.525(a) (24 GHz), and 101.1009 (LMDS). *See also NPRM*, 18 FCC Rcd at 6756 ¶ 83.

[119] A geographic area licensing scheme will be implemented for all the band segments in the MDS and ITFS services, which includes the low-power LBS and UBS, as well as the high-power MBS.

comply with the applicable service rules, do not affect radio-frequency quiet zones, or require environmental review or international coordination. Implementing geographic area licensing will allow licensees to rapidly deploy and modify facilities within their geographic licensing areas to provide ubiquitous service without the regulatory burdens of notifying and securing Commission approval. Geographic area licensing for BRS and EBS will also have the benefit of eliminating inefficient, administratively burdensome site-by-site licensing rules, the transaction costs of which are too high to permit competitive businesses to flourish using next generation technology. As part and parcel of geographic area licensing, we also adopt our tentative conclusion, stated in the *NPRM*, that where an existing license is canceled or forfeited, the right to operate in that area automatically reverts to the licensee that holds the corresponding BTA license,[120] which is consistent with the approach we have taken in other wireless services.[121]

55. In addition, as proposed in the *NPRM*, we will require geographic area licensees to protect the operations of both EBS incumbents[122] and BRS site-based incumbents within the incumbent's GSA as defined by this order.[123] For incumbent BRS and EBS site-based licensees, the GSA will be based upon the licensee's current PSA as provided in Sections 21.902(d)[124] or 74.903(d)[125] of the Commission's rules. For BRS BTA authorization holders, the boundaries of the GSA will be exactly the same as the current PSA pursuant to Section 21.933(a).[126] Except with respect to situations where MDS and ITFS PSAs

[120] *See NPRM*, 18 FCC Rcd at 6756 ¶ 86.

[121] *See, e.g.*, In the Matter of 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, *Report and Order and Second Notice of Proposed Rule Making*, 12 FCC Rcd 18600, 18637-8 ¶ 79 (1997) *(39 GHz R&O)*.

[122] *See* 47 C.F.R. §§ 74.903(d), 21.902(d). Beginning on September 15, 1995, the initial service boundaries were frozen, *i.e.*, the circular PSA boundaries were not to be changed regardless of whether the licensee subsequently moved its transmitter. *Id.* An ITFS licensee's PSA includes the area within a 35-mile radius of its transmitter site plus any reception sites beyond that radius that were registered with the Commission as of September 17, 1998.

[123] We note that MDS incumbents that obtained their licenses prior to our 1996 MDS BTA auction have 35-mile PSAs around their main stations. *See* 47 C.F.R. §§ 21.902(d), 21.933(a).

[124] Section 21.902(d) provides that (1) .... each MDS station licensee shall be protected from harmful electrical interference, as determined by the theoretical calculations, within a protected service area of which the boundary will be 56.3255 kilometers *(35 miles) from the transmitter site*. (2) As of September 15, 1995, the location of these protected service area boundaries shall become fixed. The center of the circular area shall be the geographic latitude and longitude of the transmitting antenna site specified in station authorizations or previously proposed applications filed at the Commission before September 15, 1995. Subsequent transmitter site changes will not change the location of the 56.3255 kilometers (35 mile) protected service area boundaries. 47 C.F.R. § 21.902(d) (emphasis added).

[125] Section 74.903(d) provides that each authorized or previously-proposed applicant, or licensee must be protected from harmful electrical interference at each of its receive sites registered previously as of September 17, 1998, and within a protected service area as defined at § 21.902(d) of this chapter and in accordance with the reference receive antenna characteristics specified at § 21.902. 47 C.F.R. § 74.903(d).

[126] Section 21.933(a) provides that stations licensed to the holder of a BTA authorization shall have a protected service area that is coterminous with the boundaries of that BTA, subject to the exclusion of the 56.33 km (35 mile) protected service area of incumbent MDS stations and of previously proposed and authorized ITFS facilities within that BTA, even if these protected service areas extend into adjacent BTAs. The protected service area also includes registered receive sites. 47 C.F.R. § 21.933(a).

overlap (discussed below), we did not receive many significant expressions of concern over interference resulting from this approach. Indeed, we note that many commenters such as BellSouth and SCETV support the implementation of geographic area licensing in the band.[127] Additionally, AHMLC and IMLC also support establishing the new GSAs by reference to the present transmitter location, reasoning that new filers and incumbents alike can make interference analyses by reference to present site data.[128] Moreover, Teton,[129] the Rural Commenters, and VCI[130] support the proposal to allow BTA holders to place transmitters anywhere within their service area without prior authorization so long as the operation complies with the applicable service rules, does not affect radiofrequency quiet zones or require environmental review or international coordination.[131] We agree with these commenters and will thus provide incumbents with a GSA based on their existing PSAs, subject to the exceptions discussed below.

56. In apparent misunderstanding of the geographic licensing proposal, Grand Wireless argues that expanding the current service areas for incumbent MDS and ITFS licensees to conform to the BTA system of geographical allocation intrudes upon the rights of successful MDS BTA authorization holders who obtained rights in the band through the auction process.[133] We disagree with Grand Wireless. Permitting BRS and EBS incumbents who were previously licensed using a site-by-site scheme to now use a geographic area licensing scheme which is based on the current PSA, neither extends an incumbent's service area nor impacts BTA authorization holders.

57. We note that the Coalition only advocates geographic area licensing for the low-power LBS and UBS and proposes to keep site-based licensing for high-power operations in the MBS.[134] The only justification that the Coalition offers for imposing site-based licensing requirements in the MBS channels is the "belief" that a site-based licensing requirement affords protection to site-based systems and that the protection is worth the costs of site-based licensing.[135] However, the Coalition fails to point to any unique feature of the MBS that would make geographic area licensing unworkable in that band. Furthermore, we conclude that adopting geographic area licensing would provide MBS operators with additional flexibility to coordinate spectrum usage, and allow operators to quickly adjust and react to market changes independently without Commission action. Accordingly, we adopt geographic area licensing for all operations in, and all segments of the band.

58. In light of our decision to institute geographic area licensing for BRS and EBS, we direct the Wireless Telecommunications Bureau to dismiss all pending applications to modify MDS or ITFS stations, except for modification applications that could change an applicant's PSA, or applications for facilities that would have to be separately applied for under the rules we adopt today. In light of the fact that we are initiating geographic area licensing immediately, we see no public interest in processing

[127] *See* BellSouth Comments at 10-13; SCETV Comments at 1, 6.

[128] *See* AHMLC Comments at 16; Independent MMDS Licensee Coalition (IMLC) Comments at 11-12.

[129] *See* Teton Comments at 15-16.

[130] *See* Rural Commenters Reply at 3.

[131] *See* Virginia Communications Comments at 2.

[133] *See* Grand Wireless Comments at 7.

[134] *See* Coalition Proposal at 19-22, 33-34.

[135] Coalition Proposal at 33-34.

modification applications that are no longer necessary. We note WCA's concern that the Commission should not freeze the processing of modification applications because of possible delays in instituting service, but we believe that WCA's concern, premised on the possibility of the rules we adopt today not becoming effective until early 2005, is misguided.[136] We will entertain requests for special temporary authority in instances where operators make the necessary showing and require authority to operate prior to the effective date of the new rules.

b. Splitting of Overlapping GSAs and Out of GSA Receive Sites

59. *Background.* In recent years, the rules defining protected areas have changed or otherwise been modified in a manner that has resulted in overlapping PSAs being assigned to co-channel incumbent BRS and EBS licensees.[137] The Coalition argues that these overlap areas result in a major operational barrier to anyone operating in these areas because none of the licensees with service areas that overlap can satisfy the interference protection criteria in the overlap area.[138] According to the Coalition, the MDS and ITFS industry developed an informal method for handling this problem by drawing a boundary line through a "football"-shaped area where the PSAs intersect, with each licensee agreeing to limit the interference it generates across the boundary.[139] The Coalition urged that if we adopted the proposal to base GSAs under the new rules on licensees' existing PSAs, we formally adopt this method of handling potential interference issues where GSAs would overlap. We sought comment on the Coalition's proposal.

60. *Discussion-- Receive sites within a PSA but outside a GSA.* We conclude that the Coalition's proposed "splitting the football" approach is the best compromise to remedying the difficulties associated with overlapping GSAs. This approach is supported by many commenters in the record. HITN supports geographic area licensing and bifurcation of overlapping areas between current incumbent PSAs in order to create new, discrete geographical service areas.[140] Likewise, IMWED argues that the region within overlapping PSAs has become a "no man's land" where neither licensee is able to secure authorizations without the other's consent and this creates a prescription for gridlock and spectrum inefficiency that is cured by the GSA concept.[141] The IMLC agrees that splitting the football is an appropriate way to handle overlapping PSAs, stating that there is a real value in establishing clearly who has the rights to operate in which territories. Both AHMLC and IMLC take the pragmatic view that splitting the difference, while not

[136] Coalition Ex Parte (filed Jun. 4, 2004).

[137] Effective September 15, 1995, the Commission expanded the PSAs of incumbent site-based MDS and ITFS licensees from fifteen miles to thirty-five miles. *See* Amendment of Parts 21, 43, 74, 78, and 94 of the Commission's Rules Governing Use of the Frequencies in the 2.1 and 2.5 GHz Bands Affecting: Private Operational-Fixed Microwave Service, Multipoint Distribution Service, Multichannel Multipoint Distribution Service, Instructional Television Fixed Service, & Cable Television Relay Service, *Second Report and Order*, Gen. Docket Nos. 90-54 and 80-113, 10 FCC Rcd 7074 (1995) (*1995 R&O*). In doing so, it created a number of overlaps between licensees whose PSAs had not overlapped before the standard PSA radius was increased.

[138] Coalition Proposal at 20-21.

[139] *See* Coalition Proposal Appendix C for a detailed explanation. This approach is commonly referred known as "splitting the football."

[140] Hispanic Information and Telecommunications Network, Inc. (HITN) Comments at 10.

[141] The ITFS/2.5 GHz Mobile Wireless Engineering & Development Alliance (IMWED) Comments at 18.

ideal, provides a rough-justice solution.[142] We concur.

61. Some commenters point out that adopting the Coalition's approach could result in some incumbent facilities in overlap areas being "marooned" without protection because they are on the wrong side of the dividing line. Region 10 asserts that many incumbent ITFS licensees, including itself, will have marooned receive sites. [143] The Rural Commenters and NTCA argue that both existing transmit and receive sites must be protected against harmful interference.[144] Similarly, Stanford and Northeastern believe that "splitting the football" does not necessarily take into account the service base that a station might have developed for its programming business.[145] Additionally, SCETV believes that while the Coalition approach could apply prospectively, existing receivers within the current PSAs that would not be protected under the new rules should be grandfathered to allow continued service by the original license holder.[146]

62. On balance, we conclude that reception sites that fall on the "wrong" side of the boundary as described above should not be protected. Generally, we have not protected sites outside established PSAs in other services where we have implemented geographic area licensing.[147] Moreover, mandating protection of these sites could be unduly disruptive to those licensees who have a GSA that encompasses an out-of-area receive site. Given the increasing use of low-power cellularized systems that will be serving a broader area, we believe that requiring protection of out-of-area receive sites will inhibit the development of broadband service and could make it more difficult for licensees to deploy systems. Nonetheless, we agree with IPWireless's suggestion that licensed facilities may continue to serve receive sites lying outside the GSA boundary as of the effective date of the rules on a secondary non-interference basis.[148] We further agree with AMHLC and IMLC that the Commission should also recognize voluntary agreements among parties to be protected in defining their GSAs.[149] Accordingly, we will allow marooned receive sites to be served on a secondary non-interference basis.

63. Furthermore, as explained above, we believe this is the best compromise to remedy the difficulties associated with overlapping GSAs and receive sites that fall outside a GSA. The Coalition argues that its proposal merely sustains the status quo with respect to the protection of receive sites either outside the GSA or caught on the wrong side of the chord when the football is split and the adoption of a rule that does not protect these sites will result in the loss of existing service to operators.[150]

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[142] *See* AMHLC Comments at 16; IMLC Comments at 11-12.

[143] *See* Education Service Center Region 10 (Region 10) Comments at iii, 3-4, 9.

[144] Rural Commenters Reply Comments at 4.

[145] *See* Joint Comments of Stanford and Northeastern Universities at 20.

[146] *See* SCETV Comments at 1, 6.

[147] Examples of services where service areas are defined exclusively on the basis of signal strength limits at geographic borders include the lower 700 MHz band (47 C.F.R. § 27.55(a)(2)), broadband PCS (47 C.F.R. § 24.236), Part 27 services in the 2305-2320 and 2345-2360 MHz bands (47 C.F.R. § 27.55(a)(1)), and Part 27 services in the 1390-1395 and 1432-1435 MHz bands (47 C.F.R. § 27.55(a) (3)).

[148] *See* IP Wireless Comments at 11.

[149] *See* AHMLC Comments at 16; IMLC Comments at 12.

[150] *See* Coalition Comments at 59-60.

64. To avoid future conflicts between licensees as to the actual location of the overlap area dividing line, Comspec recommends that the Commission either define the method to be utilized when calculating such boundaries, or provide a public database of the boundaries for all incumbent PSAs.[151] We conclude that neither approach is necessary. As noted above, the industry has informally resolved these boundary issues on its own for years without federal regulation. Indeed, as the Coalition explains, "the contemplated protections are merely a continuation of existing protection relationships between licensees [that] the MDS/ITFS industry has been living for two decades with rules requiring protection to both GSAs and to individual receive sites, and has done so without any of the confusion feared by the *NPRM*."[152] Comspec fails to explain why it is necessary for the Commission to micromanage this process when the record indicates that parties will continue to be able to resolve these issues on a voluntary basis.

65. We recognize that splitting the football is not a perfect solution. Rather, we agree with the Coalition that it is the best available alternative where parties are unable to reach voluntary agreements. Indeed, as noted above, we strongly encourage parties to work together on a voluntary basis and believe that such participation will ultimately result in receive site protection outside the GSA in many cases. In this regard, if incumbent licensees can reach agreements with operators on the other side of the chord, they will be permitted to provide service on the outside of their respective chords after the operating lines have been drawn. We strongly encourage such participation and are optimistic that the cooperation the MDS and ITFS industries have shared for years will persist and serve to facilitate amicable solutions to any potential difficulties.

66. *Discussion – Grandfathered receive sites outside a PSA.* Although the Coalition's states that "[t]here is no current ITFS receive site protection outside of the current PSA,"[153] we disagree. Under our current rules, all receive sites registered as of September 17, 1998 are entitled to interference protection, including registered receive sites located outside existing thirty-five mile PSAs.[154] Accordingly, we believe that we must address the issue of whether we will continue to grant interference protection to grandfathered receive sites located outside the PSA.

67. We conclude that we should not continue to provide interference protection to receive sites located outside the PSAs. As noted above, we believe that providing interference protection to receive sites outside the new GSAs could be unduly disruptive to those licensees who have a GSA that encompasses an out-of-area receive site and could hinder the deployment of new services. However, as with receive sites located inside the former PSA but outside the new GSA, we will allow continued service of such receive sites on a secondary, non-interference basis.

5. Transition to New Band Plan

a. Background

[151] *See* ComSpec Comments at 2.

[152] *See* Coalition Comments at 61.

[153] *See* Coalition Proposal at 59 n. 118.

[154] 47 C.F.R. § 74.903(d). We note that the Coalition asserts that there is no current ITFS receive site protection outside the PSA. *See* Coalition Proposal at 59 n. 118. The Coalition is incorrect. Although 47 C.F.R. § 74.903(a)(5) states that "[n]o receive site more than 35 miles from the transmitter shall be entitled to interference protection," this provision must be read in conjunction with the latter occurring provision in 47 C.F.R. § 74.903(d), which under certain instances allows receive site protection outside of the 35 mile PSA.

68. Generally, the Coalition recommends that we adopt a rather complex market-by-market four-phased transition approach. Although the Coalition's transition plan is described in detail in the *NPRM* of this proceeding, a brief overview of the Coalition's transition plan follows.[155] Under the Coalition's plan, the first phase of the transition involves identifying the parties that must participate in the transition.[156] To determine whether a licensee is a required party,[157] the proponent[158] seeks information by serving a "pre-transition data request" on licensees.[159] Under the second phase, planning the transition, the proponent starts the 90-day transition planning period by serving "transition notices" on licensees that are required to transition.[160] After serving the transition notice, the proponent must provide the required participants with a written plan for transitioning a given market no later than 30 days before the end of the transition planning period.[161] In response to the proponent's offer, the required participants may submit a counter proposal no later than 10 days before the end of the transition planning period.[162] Under the third phase, the proponent physically shifts educational ITFS programming tracks to spectrum in the MBS and outfits eligible ITFS receive sites with improved downconverters designed to limit the reception of signals from outside the MBS.[163] Under the fourth phase, licensees terminate existing operations in transitioned markets that do not comply with the new rules.[164] The Coalition's Plan further provides for dispute resolution procedures should the parties fail to agree on the terms of the transition.[165] In addition, the Coalition's plan contains nine safe harbors; if a proponent's offer falls into one of those nine safe harbors, it would be deemed "reasonable" in the event of a dispute between the proponent and a required participant.[166] The Coalition's plan also allows certain MVPD providers to "opt-out" of the transition.[167] Under the Coalition's plan the proponent would pay the costs for replacement downconverters for eligible ITFS receive sites, the relocation costs of ITFS licensees that wish to continue to operate downstream high-power, high-site educational video programming,[168] and the expenses of MVPD providers that elect

[155] *See NPRM,* 18 FCC Rcd at 6842-55, Appendix C.

[156] Coalition Proposal, Appendix B at 4, 12.

[157] Generally, under the Coalition's plan the following are required participants: (1) every licensee that has not previously been transitioned and that has a transition impact area (TIA) that overlaps the GSA in which the contemplated base station will be located; (2) every non-transitioned licensee with a TIA to which any of the contemplated facility's transmission antennas will have an unobstructed transmission path calculated assuming receive antenna heights of 9.1 meters above ground level employing a smooth earth with 413 earth curvature propagation model; and (3) every non-transitioned licensee with a GSA that overlaps the GSA of a licensee being transitioned pursuant to (1) or (2). *Id.* at 12-13.

[158] The Coalition's plan does not specify who is permitted to be a proponent.

[159] Coalition Proposal, Appendix B at 14-15.

[160] *Id.* at 16.

[161] *Id.* at 18.

[162] *Id.* at 20.

[163] *Id.* at 4.

[164] *Id.*

[165] *Id.* at 21.

[166] *Id.* at 21-27.

[167] *Id.* at 16-18.

[168] *Id.* at 4.

not to participate in the transition, but whose facilities must be modified to prevent interference to licensees that are transitioning.[169] MDS licensees pay their own costs of transitioning under the Coalition's plan.[170]

69. The Coalition's plan received both favorable and unfavorable comments. Commenters who favored the Coalition's transition plan stated that it would enable the transition to occur quickly,[171] permit multichannel video programming distributors to "opt-out" of the transition process,[172] fund the migration of ITFS licensees to the MBS,[173] and prevent "unscrupulous licensees from green mailing system operators."[174]

70. Commenters who opposed the Coalition's transition plan argue that the Coalition's transition plan would be too lengthy, too regulatory, and would invite litigation.[175] Moreover, they state that the Coalition's plan does not specify the requisite financial ability of the proponent and does not address what would happen if the proponent withdraws.[176] One commenter maintains that the Coalition's plan potentially puts in the hands of one entity the potential power to dictate to all other entities in a market how their operations must be structured.[177] One of the most significant issues, according to some commenters, is that the Coalition's transition plan would lead to "daisy chains."[178] In this connection, Spectrum Market indicates that it has performed a case study which analyzes all GSAs, the center coordinates of which are in the 28 BTAs in the Washington, D.C.-New York City Corridor. Spectrum Market's study finds, based on GSA overlap, that under the Coalition's transition plan, any proponent that desires to transition any GSA in this corridor will have to transition all of them.[179] This would be particularly difficult, Spectrum Market notes, because this corridor has a population of approximately 43 million people and 96 separate licensees with a total of 172 stations.[180] Spectrum Market asserts that its case study demonstrates that a proponent would be required to follow the Coalition's complicated procedure of obtaining information from each licensee concerning their respective facilities, developing and submitting a transition plan to all licensees, waiting, then responding to any objections, and if all objections are rectified, implementing the plan and paying the transition costs of all ITFS licensees.[181] Spectrum Market adds that if a proponent withdraws from the plan, the conversion process will be stalled. Other commenters agree with Spectrum Market. MMDS Licensees, an ad hoc coalition of MDS

[169] *Id.* at 18.

[170] *Id.* at 5.

[171] *See* Earthlink Comments at 8.

[172] *See* Teton Reply Comments at 4.

[173] Sprint Comments at 7.

[174] *Id.*

[175] *See* Grand Alliance Comments at 8; NAF Reply Comments at 30.

[176] *See* Grand Alliance Comments at 9.

[177] *See* IMLC Comments at 13-14.

[178] *See* Grand Alliance Comments at 9.

[179] *See* Spectrum Market Comments at 5 and Appendix 1 at 5-8, Exhibits 3-13.

[180] *See* Spectrum Market Comments, Engineering Statement of Carl T. Jones, Jr., Appendix 1, Exhibit 2.

[181] Spectrum Market Comments at 6.

licensees, views the Coalition's transition plan as requiring complex reimbursement schemes, 150-mile daisy chains and other complications resulting from the voluntary market-by-market approach.[182] They assert that the net result of adopting the Coalition Plan would be to delay the transition rather than to expedite it because the parties would be embroiled in constant bickering over the terms of transition and who should be responsible for what costs.[183]

71. Other commenters supported other options mentioned in the *NPRM*. For instance, several commenters supported the adoption of a three-phase transition plan, which involves a voluntary negotiation period, a mandatory negotiation period, and a mandatory relocation.[184] IP Wireless supports either the three-phase transition plan or mandatory negotiation with a two-year deadline to complete the transition.[185] IMLC recommended that the transition plan should be based on the top 30-markets, with a deadline imposed.[186] Intel stressed the need for the transition process to be predictable to create an attractive environment for innovation and investment, thus offsetting the long lead times that are needed for research and development of new technologies.[187]

b. Discussion

72. We adopt the Transition Plan, detailed below, which we believe will enable us to achieve our goal of transitioning the band quickly and will be fair and equitable to all parties concerned. In this regard, we emphasize that under the plan we adopt today, EBS licensees will receive spectrum in the new band plan that is comparable to the spectrum they currently hold in terms of throughput and therefore we believe that they will not be negatively affected by reduced capacity. Moreover, we further emphasize that licensees that have four interleaved 6-MHz channels and four interleaved 125 kHz "I" channels will, under the new band plan, receive 16.5 MHz of contiguous spectrum in either the LBS or UBS, a 6-MHz channel in the MBS, and 1 MHz of contiguous spectrum in either the "J" or "K" bands. Thus, for instance, a licensee on the interleaved "A" group channels will receive 16.5 MHz of spectrum from 2502 to 2518.5 in the LBS and a 6-MHz channel in the MBS, whereas a licensee on the interleaved "E" group channels will receive 16.5 MHz of contiguous spectrum from 2624 to 2640.5 MHz in the UBS and a 6-MHz channel in the MBS. We further note that the new band plan provides space for MDS 1 and MDS 2 licensees, thus co-locating all MDS licensees. The spectrum assignments for the remaining channels are detailed above.[188] We recognize that during the transition process, in addition to being relocated from their current channel locations to their new spectrum blocks, licensees may, for a variety of reasons, wish to transfer, assign, partition, disaggregate, or lease their spectrum to meet the needs of their customers and/or to facilitate the transition of a particular Major Economic Area (MEA).[189] In the *FNPRM* attached

[182] MMDS Licensee Coalition ("MMDS Licensees") Comments, filed November 14, 2002, at 3.

[183] *Id.*

[184] *See* Rural Commenters Comments at 4.

[185] IP Wireless Comments at 12.

[186] IMLC Comments at 16.

[187] Intel Comments at 7.

[188] *See* paras. 37-44, *supra*.

[189] There are fifty-two MEAs, which are comprised of one or more Economic Areas. Additionally, there are three EA-like areas: Guam and Northern Mariana Islands; Puerto Rico and the U.S. Virgin Islands; and American Samoa. *See* 47 C.F.R. § 27.6(a)

to this *Report and Order*, we seek comment on ways to streamline our administrative processes to further facilitate the transition of the 2.5 GHz band in an effective and efficient manner. Also in connection with the transition, we emphasize that there is a relationship between the transition, the new band plan, and the technical rules for EBS and BRS licensees. Generally, the LBS and the UBS will be used for low-power cellularized services whereas the MBS will be used for high-powered services. The rules provide, however, that licensees may offer low-power service in the MBS and high-power service in the LBS and UBS if the licensee can reach an agreement with neighboring licensees. For instance, in a particular market where an MVPD provider uses the entire BRS/EBS spectrum, it may seek consent agreements with licensees in neighboring Major Economic Areas (MEAs) to continue their high-powered operation in the LBS and UBS. Similarly, the rules allow low-power operations in the MBS if the licensee can reach an agreement with other licensees concerning interference from high-powered operations. Thus, the rules we adopt today permit licensees the flexibility to meet the demands of a particular market. The Transition Plan we adopt also requires the proponent to ensure that incumbents occupying the spectrum designated for MDS 1 and 2 in the 2.5 GHz band be relocated to provide space for MDS 1 and 2 licensees in the 2.5 GHz band. Lastly, the Transition Plan provides for the replacement of comparable facilities for EBS licensees.

73. In light of the comments that the Coalition's plan would be too lengthy, too regulatory, and would invite litigation if adopted,[190] we adopt the Transition Plan that we believe, retains the essential framework of the Coalition's proposal and provides flexibility to both the proponent and incumbent licensee. Ultimately, we conclude that the Transition Plan we adopt is in the public interest because it will create an attractive environment for innovation and investment in the 2496-2690 MHz band. We also believe that the transition represents an efficient means of managing the transition and managing the spectrum.

74. The Transition Plan we adopt has five phases, as follows: (1) initiating the transition process by filing a Initiation Plan with the Commission; (2) planning the transition; (3) reimbursing the costs of the transition; (4) terminating existing operations in transitioned markets; and (5) filing the post-transition notification. In the first phase, initiating the transition, a proponent, through a pre-transition data request, gathers information from BRS and EBS licensees in a given MEA, which the proponent uses to draft a Transition Plan. Under the first phase, a proponent initiates a transition by filing specified information in a document called an Initiation Plan with the Commission. Also during the first phase, a proponent notifies the BRS and EBS licensees in the MEA that the proponent will initiate a transition. During the second phase, planning the transition, the proponent sends each BRS and EBS licensee a proposal, called the Transition Plan, which not only identifies all of the licensees that will be transitioned and explains the details of the transition, but also marks the start of the phase of the transition where the proponent and the individual licensees negotiate over the details of the transition. Because disputes may arise during this phase, we have adopted two safe harbors in which we indicate that we believe that the proponent's offer is reasonable. After the proponent has reached an agreement with individual licensees, the third phase begins. During this phase, the proponent physically shifts the EBS programming tracks to new channels and outfits eligible EBS reception sites with improved downconverters. During the fourth phase, the licensees cease their current service offerings. During the fifth phase, the proponent and affected BRS and EBS licensees file a notification with the Commission that the transition has been completed. These phases are further discussed in detail below. We note that licensees may continue to operate under the current rules until the transition occurs.

75. *Exclusions.* Before addressing the particulars of our Transition Plan, however, we note that

[190] *See* n.175, *supra*.

we have concluded not to adopt the Coalition's recommendation to allow certain licensees to "opt-out" of the transition.[191] Under the Coalition's Plan, an MVPD licensee is permitted to "opt-out" of the transition if it certifies within 30 days of the effective date of the rules that it or its affiliate is a multichannel video programming distributor ("MVPD") as defined in Section 522 of the Act and, as of the date of its certification, it provides MVPD service to five percent or more of the households within its GSA, and must certify again at the start of the transition that it still provides service to five percent or more of the households within its GSA. The Coalition's plan also allows any MDS or ITFS licensee that is collocated with any qualified MVPD licensee that elects to opt-out may also opt-out the transition.

76. While we note the successful deployment of MVPD service by licensees such as W.A.T.C.H. T.V.[192]and Sioux Valley Wireless,[193] we believe that adopting the Coalition's proposal to allow MVPD licensees that meet the requirements detailed above to "opt-out" of the transition needlessly complicates the transition process and is unnecessary to protect MVPD licensees, especially those that are currently using the entire BRS/EBS spectrum. We are particularly concerned, moreover, that the adoption of a blanket "opt-out" for high-powered MVPD licensees may result in interference to licensees in neighboring population centers, which would prevent these neighboring locales from receiving wireless broadband services under the rules adopted today. Moreover, we believe that existing MVPD providers could be accommodated under the Transition Plan we have adopted today. An MVPD provider would be free to be a proponent in its MEA. To the extent an MVPD provider was only interested in transitioning a portion of an MEA, it could become a joint proponent with other entities that were interested in transitioning other portions of the MEA.

77. Notwithstanding our decision not to adopt the Coalition's proposed opt-out for MVPD providers, we are sympathetic to the predicament of those MVPD licensees that developed successful businesses under the old rules, and to their customers that receive both video and broadband services from those MVPD licensees. We are also sympathetic to those BRS licensees that have a viable business for high-powered operations, but who need more that seven digitized MBS channels to deliver service to their customers, which would constitute all of the high-power spectrum in the 2.5 GHz band. Therefore, we find that it is in the public interest to consider waivers on a case-by-case basis for those operators or their affiliates that meet the definition of a multichannel video programming distributor as defined in Section 522 of the Communications Act of 1934, as amended and that provide MVPD service to five percent or more of the households within their respective GSAs, the calculation made in accordance with the requirements Section 76.905(c) of the Commission's Rules.[194] We further find that it is in the public interest to consider waivers for any BRS or EBS licensee that is co-located with any qualified MVPD licensee that elects to opt-out may also opt-out the transition. We further find that it is in the public interest to consider waivers for those BRS licensees that have a viable business for high-powered operations, but who need more than seven digitized high-powered MBS channels to deliver their service to

[191] *See* Coalition Proposal, Appendix B at 17-18.

[192] WATCH T.V. Company (WATCH TV) provides over 200 channels of digital video and audio service to over 13,000 subscribers by using and reusing every megahertz available to it in the 2150-2162 MHz band and in the 2500-2690 MHz band in Lima, Ohio. WATCH T.V. Company *Ex Parte*, filed June 1, 2004 at 1.

[193] Sioux Valley Wireless uses 33 MDS and ITFS channels in the Sioux Falls, South Dakota Basic Trading Area to deliver a combination of video and broadband wireless internet services to over 6000 mostly rural subscribers. Sioux Valley Wireless, *Ex Parte*, filed June 1, 2004.

[194] 47 CFR § 76.905(c).

their customers. In reviewing requests to waive the rules adopted today, we will consider the actions taken by MVPD or BRS licensees to minimize the affect of interference on neighboring markets, as well as the licensee's explanation as to why it cannot work within the transition rules we have adopted. Waivers will be granted if it is shown that: (i) the underlying purpose of the rules(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or (ii) in view of the unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative.[195]

(i) Initiating the Transition Process

78. Under the rules we adopt today, the first phase of the transition consists of initiating the transition process. This phase begins on the effective date of the rules adopted in this *Report and Order* and lasts for a maximum of three years. During this three-year period, a proponent or multiple proponents, BRS or EBS licensees or EBS lessees, initiate a transition by filing an Initiation Plan with the Commission. Furthermore, the proponent or multiple proponents must transition the 2.5 GHz band by MEA. During this phase of the transition and before filing the Initiation Plan with the Commission, the proponent or multiple proponents must send a pre-transition data request and a transition notice to all affected licensees in a given MEA. We emphasize that the three-year deadline is a maximum deadline and that a proponent or joint proponents may shorten the duration of this phase of the transition process. These requirements are explained in more detail below.

79. As mentioned above, a transition is initiated by a proponent, which will generally be either a current BRS or EBS licensee or EBS lessee. To enable the 2500-2690 MHz band to be transitioned in an efficient manner and to give flexibility to proponents, however, we have concluded to permit more than one proponent to initiate a transition in a given MEA. Moreover, when a BTA-holder is a proponent and the BTA is in more than one MEA, the BTA-holder may elect to be the proponent of only one MEA or may elect to transition two or more MEAs that overlap the proponent's BTA.

80. We stress that more than one proponent may transition a particular MEA. Thus we do not believe that our decision to transition by MEA would be burdensome to proponents. On the contrary, we believe our decision strikes a balance between the goals of a proponent to transition by GSA or Transition Impact Area (TIA) (defined as a station's GSA, plus in the case of ITFS licensees, the specific location of ITFS reception sites that are certified as eligible to receive a new downconverter under the transition rules)[196] and our goals to ensure the efficient utilization of spectrum and the development of new and innovative wireless services throughout the United States. Moreover, we believe that our decision to allow multiple proponents to transition a given MEA promotes flexibility by allowing proponents to team up to transition a given MEA. We note that BRS and EBS licensees and EBS lessees have several options. Under the first option, they can become a proponent and take primary control of transitioning the MEA. Under the second option, they can become a proponent and seek other proponents to assist in transitioning a particular MEA, which will reduce costs to each individual proponent. Under the second option, the multiple proponents must agree on how they will transition a particular MEA and this agreement must occur before the proponents file the Initiation Plan with the Commission. Multiple proponents may divide the MEA in any manner that suits their needs. At the end of the transition, however, the entire MEA must be transitioned to the new band plan or consents received from

[195] 47 C.F.R. § 1.925(b)(3).

[196] *See* Coalition Proposal, Appendix B at 12-13 n.34.

neighboring licensees. Under the third option, the BRS or EBS licensee or EBS lessee may wait for another licensee to step forward as the proponent. A licensee that selects the third option would wait to receive the Transition Plan from the proponent and then either accept the Transition Plan or make a counteroffer.

81. Licensees operating in MEAs for which an Initiation Plan has not been filed with the Commission within three years, may continue to operate until they are transitioned by another method determined as a result of the *FNPRM* attached to this *R&O*. In markets where no transition plan is filed, we will not require licensees to cease existing operations until at least eighteen months after the deadline for proponents to file initiation plans. Under any alternative transition scenario we adopt, we contemplate that it would take most or all of the 18-month period to institute the transition mechanism we adopt, conduct any necessary auctions, and have any new licensee ready to offer service. We believe that establishing this date will provide a measure of certainty to licensees and allow licensees to plan for the future. Beyond that date, licensees will know that they face the possibility of having to discontinue operations.

82. We believe that transitioning the band by MEA, instead of by market area, will enable a proponent or proponents to transition large areas of the country at once, which will ensure that the 2500-2690 MHz band is transitioned quickly and will enable the provision of new and innovative services for all Americans, including those in rural areas. We therefore decline to adopt the first phase of the Coalition's plan, which they called "identifying the parties to the transition process." We believe that the adoption of the first phase of the Coalition's plan where a single proponent would transition an area based on a station's GSA and/or TIA, would result in a haphazard transition on a nationwide basis. Under the Coalition's plan, which does not propose a time frame for initiating a transition, some areas of the country might not be transitioned for many years. We conclude that transitioning the band by MEA instead of on a market-by-market basis selected by the proponent will result in a quicker and more even transition of the band throughout the nation and enable the development of new and innovative wireless services. We further conclude that transitioning the band by MEA will lead to the development of a rational market for spectrum in the 2500-2690 MHz band, thus allowing prospective licensees and lessees to develop a predictable business strategy. We note that there are fifty-two MEAs, which are comprised of one or more Economic Areas. Additionally, there are three EA-like areas: Guam and Northern Mariana Islands; Puerto Rico and the U.S. Virgin Islands; and American Samoa, which will also be transitioned to the band plan. We further note that we incorporated the docket of an ongoing Commission proceeding regarding possible BRS and EBS service in the Gulf of Mexico.[197] At this time, we have concluded to defer any consideration of transitioning the MEA associated with the Gulf of Mexico, because we are seeking comment on a variety of issues concerning the Gulf of Mexico service area in the *Further Notice of Proposed Rulemaking* attached to the *Report and Order*.

83. Thus, in light of the record on this point, and in conjunction with our decisions to transition the 2500-2690 MHz band by MEA and to allow more than one proponent to transition a given MEA, we further conclude to require a proponent(s) to initiate a transition within three years of the effective date the rules adopted in the *Report and Order*. We believe that three years is an adequate amount of time to distribute a pre-transition data request and a transition notice and to determine whether to transition a

[197] Amendment of Parts 21 and 74 of the Commission's Rules With Regard to Licensing in the Multipoint Distribution Service and in the Instructional Television Fixed Service for the Gulf of Mexico, WT Docket No. 02-68, *Notice of Proposed Rulemaking*, 17 FCC Rcd 8446 (2002) (*Gulf Notice* or *Gulf of Mexico MDS NPRM* or *Gulf NPRM*). That proceeding was incorporated alongside the *NPRM* in this proceeding. *NPRM*, 18 FCC Rcd at 6759 ¶ 91.

particular MEA. Although we believe that three years is ample time for a proponent(s) to initiate a transition, we believe that a transition will not be initiated for all MEAs within this time frame. Consequently, if a transition is not initiated within three years of the effective date of the rules, we conclude that we will use another method of transitioning an MEA. We note that we are seeking comment on alternative methods in the *NPRM* attached to this *Report and Order* for transitioning these MEA(s).

84. *The Pre-Transition Data Request.* To assist potential proponents in assessing whether to transition an MEA, and in light of the fact that all of the necessary information is not publicly available in the Commission's records, we believe that it is necessary for licensees within an MEA to provide certain information to a potential proponent(s). In this connection, we conclude that prior to commencing a transition, a potential proponent(s) of a given MEA may request information from EBS and BRS licensees. Before requesting this information from BRS and EBS licensees, the proponent(s) must provide the following information to the recipients of the Pre-Transition Data Request: the proponent(s)'s full name, postal mailing address, contact person, e-mail address, and phone and fax number. A recipient of a Pre-Transition Data Request must provide the following information to the potential proponent(s): (1) a listing that identifies the location (by street address and geographic coordinates) of every constructed EBS receive site that, as of the date of receipt of the Pre-Transition Data Request is entitled to a replacement downconverter upon transition (see discussion of eligibility for a replacement downconverter below); (2) whether the downconverter is mounted on a structure attached to the building or on a free-standing structure; (3) the approximate height above ground level of the downconverter; (4) the adjacent channel D/U ratio that can be tolerated by any receiver(s) at the receive site, if known; and (5) the number of EBS video programming or data transmission tracks the EBS licensee is entitled to receive in the MBS and whether the EBS licensee will accept fewer tracks in the MBS. A proponent(s) must file an Initiation Plan after it has assessed the information in the pre-transition data request and decides to transition an MEA.

85. *The Transition Notice.* The next step in the transition for a given MEA occurs when the proponent(s) serves Transition Notices to all BRS/EBS licensees within a given MEA. Accordingly, the proponent(s) must serve Transition Notices on EBS licensees before the proponent files the Initiation Plan with the Commission. The proponent(s) must include in the Transition Notice, the proponent(s)'s full name, postal mailing address, contact person, e-mail address, and phone and fax numbers, identify the other BRS/EBS licensees that will be transitioned, and provide copies of the most recent response to a Pre-Transition Data Request for each participant in the process. The Transition Notice must contain a certification by the proponent(s) to the recipient and to the Commission that it has the funds available to pay the reasonably expected costs of the transition based on the information contained in the Pre-Transition Data Request responses. These requirements are consistent with the Coalition's recommendations and we believe are necessary to ensure the orderly and rapid transition of the 2500-2690 MHz band in a given MEA.

86. *Initiation Plan.* To determine when a transition has been initiated and to determine if it has been initiated within three years of the effective date of the rules, we have concluded to require a proponent(s) to file an Initiation Plan with the Commission. An Initiation Plan consists of the following information. First, the proponent(s) must identify the MEA or MEAs that will be transitioned. Second, the proponent(s) must identify, by call sign, all of the BRS and EBS licensees that are being transitioned. Third, the proponent(s) must have concluded an engineering analysis on transitioning all BRS and EBS licensees in a given MEA. Fourth, the proponent(s) must indicate when the transition will be completed. Fifth, if the engineering analysis indicates that licensees in an adjoining or adjacent MEA must be transitioned to avoid interference with licensees being transitioned, the proponent(s) must indicate that an agreement with the proponent(s) of the adjoining or adjacent MEA has been reached on transitioning those licensees. Instead of reaching an agreement with the proponent(s) of the adjacent or adjoining MEA, the proponent(s) may indicate an alternative means of transitioning these licensees in the adjoining

or adjacent MEA.[198] Sixth, when there are two or more proponents that are transitioning the same MEA, the proponent(s) must indicate that they have reached an agreement on how a given MEA will be transitioned. Seventh, the proponent(s) must certify that it has the funds to pay the reasonably expected costs of the transition based on the information contained in the Pre-Transition Data Request (see below for a discussion of the Pre-Transition Data Request). Eighth, the proponent(s) must indicate that it has sent Transition Notices to all of the BRS and EBS licensees in the MEA (See discussion below or Transition Notices.) Once all of this information is filed, the proponent(s) or proponents have initiated a transition in a given MEA on the date the information is filed with the Commission.

87. As mentioned above, the Initiation Plan must be filed with the Commission within three years of the effective date of the *Report and Order*. A proponent or proponents may withdraw from the Initiation Plan by formally informing all of the BRS and EBS licensees that were included in the Initiation Plan that the proponent(s) will no longer transition the MEA, and by amending the Initiation Plan filed with the Commission. A proponent(s) that decides to withdraw an Initiation Plan may not then seek to transition that MEA at a future time. Should a proponent(s) withdraw from the Initiation Plan and there is no other proponent(s) to take its place or no proponent(s) seeks to transition a given MEA within the three-year initiation period, the Commission may use another method to transition a given MEA. In the *Further Notice of Proposed Rulemaking* attached to this *Report and Order*, the Commission seeks comment on other methods to transition a given MEA.

(ii) The Transition Plan

88. *The Transition Plan.* The Transition Planning Period is the ninety-day period that commences on the day after the proponent(s) files the Initiation Plan with the Commission. No later than thirty days prior to the conclusion of the Transition Planning Period, the proponent(s) must provide a Transition Plan to all the licensees in a given MEA. The Transition Plan must identify the call signs of the stations that will transition to the new band plan, the specific channels that each will receive following the transition,[199] the receive sites at which replacement downconverters will be installed, the video programming and data transmission tracks that will be migrated to the MBS, the technical configuration of the MBS facilities, and the approximate time line for effectuating the transition and ceasing operations pursuant to the current band plan. The Transition Plan must include plans for relocating the EBS and BRS incumbents from spectrum that has been redesignated for MDS 1 and 2 under the rules adopted today. We note that the Transition Plan may provide for interruptions of EBS transmissions, so long as those interruptions are limited to a period of less than seven days at any reception site and that the proponent must coordinate with each EBS licensee to minimize the extent of any disruption. The timeline for completing the transition may not exceed 18 months from the conclusion of the Transition Planning Period or, in the event that the transition is delayed pending dispute resolution, the resolution of any dispute. The Transition Plan must also provide for the establishment of an escrow or other appropriate mechanism for ensuring completion of the transition in accordance with the Transition Plan. These requirements are generally consistent with the recommendations of the Coalition and will enable the parties to the transition be to fully informed of the overall effect of the transition on their operations and on the operations of their neighbors.

[198] In those instances where there is no proponent in an adjoining MEA, and operations in that adjoining MEA would cause interference in the proponent's MEA, the proponent must also transition the interfering facilities in the adjoining MEA to resolve the interference problem.

[199] Under § 27.5(i)(2) of the rules we adopt today, we identify post-transition frequency assignments for licensees.

40 pages

89. *Counterproposals to the Transition Plan.* No later than ten days before the conclusion of the Transition Planning Period, affected licensees may submit a counterproposal to the proponent(s) if they believe that the Transition Plan is unreasonable. If a timely filed counterproposal is received, the proponent(s) may accept the counterproposal and modify the Transition Plan accordingly or invoke dispute resolution procedures for a determination of whether the Transition Plan is reasonable. We note that the proponent would have two options should it decide to seek dispute resolution. First, the proponent(s) could take no action to transition the MEA until the dispute is resolved. Second, the proponent(s) could continue to transition the MEA while it awaits the results of the dispute resolution process. If a proponent(s) modifies a Transition Plan based on the counterproposal of a BRS or EBS licensee, the proponent(s) must send the modified Transition Plan to all affected BRS and EBS licensees in the MEA. In this connection, we encourage the use of Alternative Dispute Resolution procedures to resolve disputes that may arise in an equitable and fair manner. While we expect that parties will be able to work out disputes amongst themselves, we reserve the right to determine whether transition plans comply with our rules.

90. *Safe harbors.* To establish an orderly and quick transition of the 2500-2690 MHz band, we adopt two safe harbors. If a proponent(s)'s offer falls under either of these safe harbors it shall be deemed reasonable in the event of a dispute. We decline, however, to adopt all nine safe harbors[200] that were recommended by the Coalition. Several of the proposed safe harbors proposed by the Coalition are designed to meet the conditions of specific markets. Because these safe harbors would not be generally applicable throughout the nation, we conclude that they are inappropriate to be included in our rules. We have limited the adoption of safe harbors to those that we believe are of general applicability, which are the Coalition's safe harbors numbers 1 and 2. Rather than adopt safe harbors numbers 6 and 7, we have incorporated the key principle of these safe harbors into the Transition Plan (see Transition Plan discussion above) and subject to negotiation between the proponent(s) and the licensees being transitioned. We, however, do not adopt, whether explicitly or implicitly, the Coalition plan's safe harbors numbers 3, 4, 5, 8, and 9, because they are not of general applicability.

91. *Safe Harbor # 1.* This safe harbor may apply when the default high-power channel assigned each channel group is authorized to operate after the transition with the same transmission parameters (coordinates, antenna pattern, height of center of radiation, EIRP, etc.) as the current downstream facilities authorized for the channel group. We agree with the Coalition that there may be situations that arise where minor changes to the operating parameters are necessary to accomplish the transition. Thus a neighboring co-channel or adjacent channel licensee may not object to any change from the default configuration if: (1) the change is not a major modification; or (2) the change is a major modification and the Transition Plan calls for the appropriate application for Commission consent to be filed, for it to be processed in accordance with the procedures assuring public notice and an opportunity to object, and for it to be granted prior to implementation. The EBS licensee being migrated may not object to a Transition Plan that proposes affording the EBS licensee with post-transition operating equipment that is as good as or better than that used before the transition. Provided that the proponent(s) is not proposing a change in the geographic coordinates of the facilities (other than as necessary to conform the actual location with the Commission's Antenna Survey Branch database) and provided further that the minimum D/U benchmarks discussed above will be achieved, the proponent(s) may in the Transition Plan propose:

- An increase in the height of the center of radiation of the transmission antenna or a decrease in such height of no more than 8 meters (provided that such change does not result in an increase in antenna support structure lease costs to the EBS licensee and the

[200] *See* Coalition's Proposal, Appendix B at 21-27, for a description of the Coalition's nine safe harbors.