

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

In the Matter of	)	
	)	
Revisions to Broadcast Auxiliary Service Rules in Part 74 and Conforming Technical Rules for Broadcast Auxiliary Service, Cable Television Relay Service and Fixed Services in Parts 74, 78 and 101 of the Commission's Rules	)	ET Docket No. 01-75
	)	
Telecommunications Industry Association, Petition for Rule Making Regarding Digital Modulation for the Television Broadcast Auxiliary Service	)	RM-9418
	)	
Alliance of Motion Picture and Television Producers, Petition for Rule Making Regarding Low-Power Video Assist Devices in Portions of the UHF and VHF Television Bands	)	RM-9856
	)	

**REPORT AND ORDER**

**Adopted: October 30, 2002**

**Released: November 13, 2002**

By the Commission:

**TABLE OF CONTENTS**

<u>Subject</u>	<u>Paragraph</u>
I. INTRODUCTION AND EXECUTIVE SUMMARY.....	1
II. BACKGROUND.....	6
III. DISCUSSION .....	7
A. BAS Technical Rules (Part 74) and Conforming Technical Rules for Parts 74, 78 and 101	
1. Digital Modulation in All Television and Aural BAS Bands .....	8
2. Maximum Effective Isotropic Radiated Power for Short Paths.....	21
3. Transmitter Power.....	27
4. Emission Masks .....	33
5. Automatic Transmit Power Control.....	46
6. Interference to Geostationary Satellites.....	49
7. Frequency Coordination .....	53
8. Frequency Tolerance.....	66
9. Use of the 13.150-13.2125 GHz Band by BAS and CARS Pickup Stations .....	69
10. Use of the 31.0-31.3 GHz and 38.6-40.0 GHz Bands by the BAS and CARS .....	72
11. Antennas .....	77

B.	BAS Service Rules (Part 74)	
1.	Temporary Conditional Authority .....	79
2.	Short Term Operation .....	82
3.	Use of UHF-TV Channels for TV STLs and TV Relay Stations .....	93
4.	TV BAS Sound Channels .....	101
5.	Remote Pickup Broadcast Auxiliary Frequency Assignment.....	103
6.	Federal Narrowbanding of 162-174 MHz Band Land Mobile Frequencies.....	116
7.	950 MHz Aural BAS Channel Splits .....	121
C.	Universal Licensing System and BAS .....	122
1.	Application Procedures and Construction Periods.....	123
2.	Classification of Filings as Major or Minor .....	130
3.	Emission Designators.....	135
D.	Additional BAS Issues .....	138
E.	AMPTP Petition .....	139
1.	Authorization of WAVDS .....	140
2.	Eligibility, Permitted Use, and Licensing.....	143
3.	Authorized Frequencies .....	150
4.	Technical and Operational Requirements.....	156
IV.	CONCLUSION .....	162
V.	PROCEDURAL MATTERS .....	163
VI.	ORDERING CLAUSES .....	165

#### APPENDICES

- A. Final Rules
- B. Final Regulatory Flexibility Analysis
- C. List of Commenters

#### I. INTRODUCTION AND EXECUTIVE SUMMARY

1. In this *Report and Order*, we amend Part 74 of our rules pertaining to the Broadcast Auxiliary Services (BAS) to permit BAS stations to introduce new technologies and create a more efficient BAS that can more readily adapt as the broadcast industry converts to the use of digital technology, such as digital television (DTV). We also make conforming amendments to Part 73 of our rules pertaining to the Radio Broadcast Services, to Part 78 of our rules pertaining to the Cable Television Relay Service (CARS),<sup>1</sup> and to Part 101 of our rules pertaining to Fixed Microwave Services (FS). In many cases, the BAS, CARS, and FS share frequency bands and have technically and operationally similar stations, and our rule changes will permit these three services to operate under consistent regulatory guidelines.<sup>2</sup>

<sup>1</sup> CARS stations are point-to-point or point-to-multipoint microwave systems used by cable and Multichannel Multipoint Distribution Service (wireless cable) operators to receive signals from remote locations. Alternatively, CARS can also be used for distribution of programming to microwave hubs where it may be physically impossible or too expensive to run cable to these hubs. CARS stations cannot be used to directly distribute programming to subscribers and can operate on the following shared frequency bands: 1990-2110 MHz (mobile only), 6425-6525 MHz (mobile only), 6875-7125 MHz (mobile only), 12.70-13.20 GHz, and 17.70-19.70 GHz.

<sup>2</sup> For example, the 13,200-13,250 MHz band is shared by common carrier and private point-to-point operations – as well as the local television transmission service – in Part 101, TV BAS operations in Part 74, and CARS operations in Part 78. See 47 C.F.R. §§ 74.602, 78.18, and 101.147. In all cases, the maximum authorized bandwidth is (continued....)

2. Specifically, to conform the BAS, CARS, and FS rules, we:

- Permit TV and aural BAS stations to use any available digital modulation technique in all BAS frequency bands so that BAS stations can take advantage of the latest developments in technology and make smooth the transition to digital TV and digital radio.
- Update BAS emission masks to facilitate the introduction of digital equipment and to provide consistency with emission masks used in Part 101 of the rules.
- Modify the equation used by BAS and CARS services for determining the maximum effective isotropic radiated power (EIRP) for short path lengths. This change eliminates the steep reduction in EIRP for BAS and CARS path lengths shorter than the minimum.
- Allow BAS and CARS stations to use automatic transmit power control (ATPC) in order to facilitate more efficient spectrum use.
- Update transmitter power rules for BAS and CARS services to provide EIRP limits for all frequency bands.
- Require TV BAS and CARS services to prior coordinate their frequency use when using shared frequency bands to minimize the potential for harmful interference occurring when a new station begins transmitting.

3. In addition, we update many other BAS rules and make minor rule changes to clarify or fix typographical errors in the existing rules. These updates include instituting temporary conditional authority for all BAS stations to operate upon filing of a license application, provided certain conditions are met; modifying the Remote Pickup BAS channel plan to provide compatibility with the channel plan adopted for private land mobile radio (PLMR) in the Commission's Refarming proceeding (PR Docket No. 92-235); modifying the BAS short-term operation rules; and modifying the BAS application rules to make them consistent with the Universal Licensing System (ULS).

4. This *Report and Order* also authorizes wireless assist video devices (WAVDs) to operate on certain VHF-TV and UHF-TV channels on a non-interference basis to services allocated on that spectrum. These devices, which are already used by broadcasters, are needed to aid film and television producers in filming at various locations in a safe and cost effective manner.

5. These changes will increase the efficiency of the BAS and permit BAS, CARS, and FS licensees to operate in an environment in which the potential for interference is significantly reduced, while affording significant flexibility to these licensees.

## II. BACKGROUND

6. In the *Notice of Proposed Rule Making (Notice)*, released March 19, 2001, the Commission initiated an extensive review of the BAS rules and proposed changes to create a more

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25 MHz. See 47 C.F.R. §§ 74.637, 78.103, and 101.109. Other technical rules, such as EIRP on short paths, differ among the services. This action will align certain technical requirements for these services. See, e.g., 47 C.F.R. §§ 74.644, 78.108, and 101.143.

efficient BAS that can readily adapt to technological changes in the industry.<sup>3</sup> The *Notice* followed petitions filed by the Telecommunications Industry Association (TIA) in March 1998 (RM-9418) and the Alliance of Motion Picture and Television Producers (AMPTP) in November 1999 (RM-9856). The TIA Petition requested rule changes for the 23 GHz band, as well as rule changes to permit digital modulation schemes in all of the bands used by the TV BAS.<sup>4</sup> The AMPTP Petition requested authority to use low power WAVDs on unused TV channels in the upper portion of the VHF-TV band and in the UHF-TV band.<sup>5</sup> In addition to these requests, the Commission sought comment on many other changes to the rules. The proposals were crafted to update the rules and to complement many of the requests made by the petitioners.

### III. DISCUSSION

7. Commenting parties generally support the proposals set forth in the *Notice*.<sup>6</sup> For example, the Society of Broadcast Engineers, Inc. (SBE) states that it applauds virtually all of the proposals made in the *Notice*; the Association of America's Public Television Stations (APTS) and the Public Broadcasting Service (PBS) state that they generally support the proposals; and the Association for Maximum Service Television, Inc. (MSTV) and the National Association of Broadcasters (NAB) state that they applaud allowing digital modulation for all BAS bands and support the revision and conformance of BAS with CARS and FS rules.<sup>7</sup>

#### A. BAS Technical Rules (Part 74) and Conforming Technical Rules for Parts 74, 78 and 101

##### 1. Digital Modulation in All Television and Aural BAS Bands

8. Section 74.637 of the Commission's rules sets forth emission requirements for TV BAS operations. Digital modulation is specifically addressed only in paragraph (c), which provides for analog or digital modulation in the 6425-6525 MHz, 17.7-19.7 GHz, and 31.0-31.3 GHz bands. Although the rules do not specifically prohibit digital modulation in other TV BAS bands (*i.e.*, 2025-2110 MHz and 2450-2483.5 MHz (2 GHz), 6875-7125 MHz (7 GHz), and 12.7-13.25 GHz (13 GHz)), the Commission's policy relative to BAS has been to allow digital modulation only in bands where it is

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<sup>3</sup> Revisions to Broadcast Auxiliary Service Rules in Part 74 and Conforming Technical Rules for Broadcast Auxiliary Service, Cable Television Relay Service and Fixed Services in Parts 74, 78 and 101 of the Commission's Rules, *Notice of Proposed Rule Making*, ET Docket No. 01-75, 16 FCC Rcd 10556 (2001).

<sup>4</sup> See TIA Petition, RM-9418, filed March 5, 1998. We note that the changes sought by TIA for the 23 GHz band have been considered in a separate proceeding. See Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, Telecommunications Industry Association Petition for Rulemaking, *Report and Order*, WT Docket No. 00-19 and RM-9418, (FCC 02-218) (rel. July 31, 2002) at ¶¶ 52-77.

<sup>5</sup> See AMPTP Petition, RM-9856, filed November 15, 1999.

<sup>6</sup> Commenting parties are listed in Appendix B. Comments to the *Notice* were originally due by June 25, 2001 and reply comments were originally due by July 23, 2001. However, those deadlines were extended until July 9, 2001 and August 7, 2001, respectively. See *Order Granting Extension of Time*, ET Docket No. 01-75, 16 FCC Rcd 12656 (2001).

<sup>7</sup> SBE Comments at 1; APTS/PBS Comments at 2, 9; MSTV/NAB Comments at 2-3.

specifically authorized. Therefore, under current policy, licensees must obtain a waiver of the rules to transmit using digital modulation in the 2 GHz, 7 GHz, and 13 GHz bands.<sup>8</sup>

9. In the *Notice*, the Commission observed that most TV BAS stations currently transmit frequency modulated analog NTSC video signals, but that with the current transition of television from analog to digital, broadcasters will need to transmit DTV digital signals in addition to their existing NTSC analog signal. The Commission also observed that the digital conversion of TV stations is not the only reason for allowing digital modulation in all TV BAS frequency bands. The rules adopted in the *Second Report and Order and Second Memorandum Opinion and Order* in ET Docket No. 95-18 specify channelization plans for TV BAS licensees to narrow their channel bandwidth in the 2025-2110 MHz band to accommodate the new Mobile Satellite Service (MSS) allocation in the 1990-2025 MHz band. The Commission noted that, as these channels are narrowed, broadcasters will likely switch from analog to digital transmission in order to attain the necessary signal fidelity in the narrower channel. Therefore, primarily to facilitate the transition to digital TV and to accommodate narrower channels in the 2 GHz band, the Commission proposed to modify the rules in Section 74.637 to permit digital modulation in all TV BAS bands.<sup>9</sup>

10. In the *Notice*, the Commission also stated that the rules for aural BAS in Section 74.535 create a situation similar to that for TV BAS with respect to digital modulation because it allows the use of digital modulation by aural BAS licensees in the 18 GHz band, but does not address such use in the 944-952 MHz band. The Commission stated its belief that aural BAS licensees could benefit from the ability to use digital modulation in all bands, and that such flexibility would allow aural BAS licensees to take advantage of the spectral efficiency that digital modulation offers. Therefore, the Commission proposed to modify Section 74.535 to permit the use of digital modulation in all aural BAS bands.<sup>10</sup>

11. Several parties support the Commission's proposals to permit digital modulation in the 2 GHz, 7 GHz, and 13 GHz TV BAS bands, and all aural BAS bands.<sup>11</sup> SBE, while supporting the introduction of digital modulation in all TV and aural BAS bands, cautions that digitally modulated signals tend to more fully occupy the channel bandwidth than analog signals, thereby creating a greater chance for interference to occur into adjacent channel FM receivers.<sup>12</sup> Accordingly, SBE recommends that conversion from analog to digital modulation be accompanied by frequency coordination, except where an existing digital system has been operating under STA and there is no evidence of interference. SBE states that it may be appropriate to conduct a further rulemaking to establish loading standards for digitally modulated point-to-point BAS links. It opposes, however, similar standards for digitally modulated TV Pickup or ENG operations because TV Pickup operations require more robust digital

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<sup>8</sup> Currently, there are approximately 500 pending waiver requests for use of digital modulation in the 2 GHz, 7 GHz, and 13 GHz bands on file at the Commission. In general, the Commission's Wireless Telecommunications Bureau (WTB) has been issuing Special Temporary Authority (STA) to stations to permit them to transmit with digital modulation in these bands.

<sup>9</sup> Notice at ¶ 11.

<sup>10</sup> *Id.* at ¶ 12.

<sup>11</sup> See SBE Comments at 1-2; Comsearch Comments at 2; APTS/PBS Comments at 2; MSTV/NAB Comments at 3; Red River Reply Comments at 1; TIA Reply Comments at 2; Viacom Reply Comments at 5.

<sup>12</sup> SBE Comments at 1.

modulation types and higher levels of forward error correction than fixed links.<sup>13</sup> Finally, SBE requests that the Commission grant a blanket waiver for the approximately 500 pending digital BAS applications, to allow their immediate grant and obviate the need for further STA filing and processing.<sup>14</sup>

12. MSTV/NAB support allowing digital modulation on all BAS frequencies and urge that the Commission grant a blanket waiver to allow digital modulation on an interim basis pending the outcome of this proceeding. They contend that permitting broadcasters to use digital modulation in all BAS bands will facilitate the transition to DTV.<sup>15</sup> However, they also believe that, in the 2 GHz band, there is uncertainty about the likelihood of implementing MSS. MSTV/NAB therefore urge the Commission to proceed slowly with the development of digital technical rules for the 2 GHz band and to defer adoption of any rules until the issue of potentially reallocating the MSS spectrum is resolved.<sup>16</sup>

13. Comsearch states that it supports allowing digital modulation in the 944-952 MHz and 2, 7, and 13 GHz bands without the need for a rule waiver. Comsearch states that, once digital modulation is permitted in these bands, the Commission should consider modifying the BAS frequency plans in these bands, such as by overlaying narrowband channels on the existing 25 MHz channels in the 7 GHz band. Comsearch also recommends that, to promote efficient use of the spectrum, the Commission consider capacity and loading requirements for digital BAS systems, similar to those in Section 101.141(a)(3), but adjusted for technical differences in the services.<sup>17</sup>

14. Microwave Radio Communications, LLC (MRC) recommends that digitally modulated BAS transmissions be required to contain a signal identifier, either in the program source or the digital modulation process, and recommends a phase-in period during which a universally recognized standard can be adopted.<sup>18</sup> SBE asserts that there is a need for automatic identification for digitally modulated BAS and CARS TV Pickup and Local Television Transmission Service stations, to permit quick and easy identification in case of inadvertent interference. SBE recommends that such identification should be comprised of an FCC call sign, a unit number or other identifier, a contact telephone number, and a

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<sup>13</sup> *Id.* at 2-3.

<sup>14</sup> *Id.* at 3.

<sup>15</sup> MSTV/NAB Comments at 4.

<sup>16</sup> *Id.* at 5. The Commission is considering various options for alternative uses and new allocations in portions of the 1990-2025 MHz band used by the Mobile Satellite Service (MSS), previously allocated to TV BAS. For example, in IB Docket No. 01-185, we are seeking comment on proposals that would allow MSS licensees to provide ancillary terrestrial component (ATC) operations in the 1990-2025 MHz MSS band. In ET Docket No. 00-258, we are seeking comment on proposals to support the introduction of new advanced wireless services, including Third Generation (3-G) wireless systems in spectrum below 3 GHz, including some of the MSS spectrum in the 1990-2025 MHz band. In WT Docket No. 02-55, we are exploring various options to improve public safety communications in the 800 MHz band that could include relocating incumbent 800 MHz services to the current MSS allocation in the 1990-2025 MHz band. In this connection, we recently suspended for one year, until September 6, 2003, the expiration date for the initial two-year mandatory negotiation period for Phase 1 of the 2 GHz band relocation plan between MSS and BAS. *See* Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, *Order*, ET Docket No. 95-18, 67 FR 53754 (rel. Aug. 19, 2002).

<sup>17</sup> Comsearch Comments at 2.

<sup>18</sup> MRC Comments at 8.

manufacturer identification and serial number. SBE asserts that such an identification system would be inexpensive and therefore recommends that a Further Notice of Proposed Rule Making be issued to explore this issue.<sup>19</sup>

15. *Discussion.* As proposed in the *Notice*, we are modifying Section 74.637 to permit use of any available digital modulation technique in all TV BAS bands and are modifying Section 74.535 to permit digital modulation in all aural BAS bands. We find that permitting digital modulation in the 2 GHz, 7 GHz, 13 GHz TV BAS bands, and all aural BAS bands will provide licensees with increased flexibility in the provision of BAS operations, promote more efficient use of this spectrum, and facilitate the transition to reduced channel bandwidths in the 2 GHz band, and to DTV.

16. We see no need to delay the adoption of technical rules for digital modulation in the 2 GHz band, as suggested by MSTV/NAB. We note that there are approximately twenty pending applications for use of digital modulation in the 2 GHz band and see no reason to delay such operations. Licensees may apply for licenses using digital emissions beginning on the effective date of the rules of this *Report and Order*.

17. We find no need to impose digital loading requirements at this time. We note that no specific proposals were offered and there is no indication that these bands are being used inefficiently. On the contrary, we expect that these bands will be used more intensively with the transition to DTV and the development of new broadcast services.

18. With respect to embedded automatic identification for digital modulation, we note that such identification is currently technically feasible and legally permissible under current rules.<sup>20</sup> Rather than codifying mandatory automatic identification procedures and standards, we believe that the industry would be better served with flexibility to develop and maintain such a standard. Under this approach a standard could be quickly updated when new modulation techniques are used. Therefore, we decline to adopt a mandatory standard for automatic identification for digital modulation.

19. In order to facilitate the expeditious processing of the approximately 500 pending applications for digital BAS operations, the following BAS rules as amended in Appendix A will become effective as of the adoption date of this *Report and Order*: Sections 74.535 and 74.637.<sup>21</sup> Pursuant to 5 U.S.C. §§ 553(d)(1) and 553(d)(3), we find good cause to make these rules effective immediately rather than to follow the normal practice of making them effective 30 days after publication in the Federal Register, due to the pendency of the BAS applications. Accordingly, we will begin processing these BAS applications on the adoption date of this *Report and Order*. Defective BAS applications filed on or before the release date of this *Report and Order* will be returned with the opportunity to amend. Defective BAS applications filed after the release date of this *Report and Order* may be subject to dismissal. In addition, we will allow relief from any new frequency coordination requirement imposed by the rules we are adopting, such as new prior coordination procedures for fixed systems proposed in applications

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<sup>19</sup> SBE Comments at 3, 4 and 27. SBE would exempt from automatic identification low power, size/weight critical applications until those applications would not be burdened by compliance. *Id.* at 3-4. *See also* Viacom Reply Comments at 5.

<sup>20</sup> We note that station identification is required for remote pickup BAS stations, aural BAS stations, TV BAS stations with output power of one watt or more, and low power auxiliary stations with output power exceeding 50 milliwatts. *See* Sections 74.482, 74.582, 74.682, and 74.882. 47 C.F.R. §§ 74.482, 74.582, 74.682, and 74.882.

<sup>21</sup> 47 C.F.R. §§ 74.535 and 74.637.

accepted for filing before the effective date of the rules.<sup>22</sup> Specifically, we will deem digital applications filed before the effective date of the rules in this *Report and Order* to have been properly coordinated under the existing coordination requirements, absent any evidence to the contrary, and we will not require re-coordination of these applications under prior coordination procedures effective under the new rules that also permit digital modulation.<sup>23</sup> We conclude that adherence to the existing frequency coordination requirements has been sufficient to ensure that these digital and analog/digital systems do not cause harmful interference to existing stations, and that re-coordination, or the imposition of frequency coordination where it was not previously required, would be unnecessarily burdensome to the applicants. Moreover, most digital BAS systems that have been applied for are operating under an STA and we have not received any evidence of interference from these systems. We therefore will not require re-coordination for digital applications filed before the effective date of the rules. Finally, we will exercise flexibility with respect to compliance with the technical rules adopted herein when processing these applications.

20. Given the expedited handling and reliefs set forth above, we believe that a blanket waiver as requested by SBE and MSTV/NAB would not further hasten the processing of pending digital applications, and its benefit would be minimal. We therefore find the issuance of a blanket waiver unnecessary, and decline to do so.

## 2. Maximum Effective Isotropic Radiated Power for Short Paths

21. There are several TV BAS rules that work in tandem to regulate the amount of power that can be used at a specific station. Specifically, Section 74.636 limits, for some frequency bands, the maximum EIRP<sup>24</sup> for which a TV BAS station can be licensed,<sup>25</sup> and Section 74.644 specifies the

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<sup>22</sup> Generally, these are the applications previously filed with the WTB seeking a waiver of the rules to allow the use of digital modulation in the 2 GHz, 7 GHz, and 13 GHz bands.

<sup>23</sup> Current BAS rules encourage local coordination procedures, except in the 6425-6525 MHz and 17.7-19.7 GHz bands shared with FS operations, where the procedures set forth in Section 101.103(d), commonly referred to as “prior coordination procedures,” are required for both services prior to the filing of an application, and in the 12.7-13.25 GHz band, where an engineering study must be conducted prior to the filing of an application. See 47 C.F.R. §§ 74.502(c), 74.503(a), 74.604(a), 74.638, and 101.103(d). Local coordination procedures are not defined in the rules, but rather, Sections 74.503(a) and 74.604(a) place the responsibility for frequency selection to avoid interference on applicants, encouraging the use of local BAS coordinators or coordination committees where they exist, and no evidence of the accomplishment of frequency coordination is required to be submitted with the license application. This process is collectively referred to as “local frequency coordination” or as “local coordination procedures” Prior coordination procedures in Section 101.103(d) require formal notification to and response from all potentially affected licensees/applicants prior to filing an application and the submission of a certification of completion of notification and response, and a list of licensees/applicants notified, with the application. As detailed in Section III.A.7 below, this *Report and Order* adopts prior coordination procedures for all fixed BAS operations except in the 1990-2110 MHz band, where local coordination procedures will remain in effect. We address the need for frequency coordination for applications for digital or analog/digital operation filed under new frequency coordination and major/minor classification rules in Sections III.A.4 and III.C.2 below.

<sup>24</sup> EIRP is the product of the power supplied to the antenna and the antenna gain. The power supplied to the antenna is the transmitter output power minus some line loss due to the transmission of the signal from the transmitter to the antenna.

<sup>25</sup> 47 C.F.R. § 74.636.



minimum path length for which the maximum EIRP will be authorized for fixed links.<sup>26</sup> Applicants proposing path lengths shorter than the minimum path lengths specified in Section 74.644, are required to reduce power in accordance with the equation provided in that section.<sup>27</sup>

22. Currently, the equation specified in Section 74.644 requires a steep reduction in EIRP for paths slightly shorter than the specified minimum.<sup>28</sup> For example, the maximum EIRP for fixed links operating in the 6875-7125 MHz band is 55 dBW and the minimum path length is 17 km. Based on the current equation, an applicant proposing a path length of 16 km would have to reduce its EIRP to 29.5 dBW, a reduction of more than 25 dB. As stated in the *Notice*, this equation was previously used for determining maximum EIRP for short paths for FS operations in Part 101 as well. The *Notice* observed that, in the *Report and Order* in WT Docket No. 94-148, the Commission adopted a new equation for Part 101 that eliminated the steep drop in EIRP at path lengths slightly shorter than the minimum.<sup>29</sup> Using the equation now codified at Section 101.143,<sup>30</sup> the reduction in EIRP for the example above would be approximately 1 dB – a sharp contrast to the 25 dB computed using the current equation in Section 74.644.

23. The Commission further noted that the same equation as currently used for the BAS is also used for CARS. The Commission stated that it believed that the CARS would also benefit from modifying the equation for determining maximum power for short path lengths. Accordingly, the Commission proposed to modify Sections 74.644 and 78.108 to implement the same equation codified at Section 101.143 for determining the maximum EIRP for path lengths shorter than the specified minimum.<sup>31</sup> The Commission noted that BAS rules do not currently specify a minimum path length in the 2450-2483.5 MHz band, but FS rules do so for FS operations. The Commission therefore also proposed to adopt a minimum path length, at which the maximum EIRP would be allowed, of 17 km for the BAS in the 2450–2483.5 MHz band, consistent with the minimum path length imposed on similar FS operations in that spectrum. It took this action to promote spectrum efficiency by preventing the use of overpowered systems by BAS over short paths in that band. Finally, the Commission proposed to grandfather at their current power any existing fixed links in the 2450-2483.5 MHz band that are less than 17 km.<sup>32</sup>

24. The parties generally support the Commission's proposals changing the equation for

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<sup>26</sup> 47 C.F.R. § 74.644. We will refer to the minimum path length for which maximum EIRP will be authorized simply as minimum path length. We note, however, that this discussion concerns the accommodation of path lengths that are shorter than the minimum path length.

<sup>27</sup> 47 C.F.R. § 74.644(b). The equation specified in the rules is  $EIRP = 30 - 20 \log(A/B)$  dBW; where A is the minimum path length specified in paragraph (a) of this section and B is the actual path length in kilometers.

<sup>28</sup> See *TIA Petition* at A.28.

<sup>29</sup> See In The Matter Of Reorganization And Revision Of Parts 1, 2, 21, And 94 Of The Rules To Establish A New Part 101 Governing Terrestrial Microwave Fixed Radio Services, WT Docket No. 94-148, *Report and Order*, 11 FCC Rcd 13449 (1996) (*Part 101 Order*). The equation adopted in that action is  $EIRP = MAXEIRP - 40 \log(A/B)$ ; where MAXEIRP is the maximum allowable EIRP, A is the minimum path length specified in the rules, and B is the actual path length in kilometers.

<sup>30</sup> 47 C.F.R. § 101.143.

<sup>31</sup> *Notice* at ¶ 16.

<sup>32</sup> *Id.* at ¶ 17.

maximum EIRP for short paths, establishing a minimum path length of 17 km for the 2450-2483.5 MHz band, and grandfathering at their current power level any existing fixed links in the 2450-2483.5 MHz band that are less than 17 km.<sup>33</sup> In addition, SBE and MRC recommend that existing BAS links that were authorized before April 1, 1987 and grandfathered by the current provisions of Section 74.644 with respect to path length and EIRP, and that are modifying their authorizations to convert from analog to multiplexed analog plus digital or to digital operation, should not lose their grandfathered status.<sup>34</sup> SBE explains that such paths may require continued operation at elevated power levels to avert interference from other systems. MRC asserts that grandfathered status should continue for such paths, provided the converted paths do not cause harmful interference to existing co-channel or adjacent channel systems. MRC also asserts that if any existing TV studio-transmitter link (STL) or TV relay link<sup>35</sup> is converted from analog to multiplexed digital/analog operation and is approved by a local coordinating body, that conversion should be treated as a minor modification. MRC recommends that existing inefficient analog receivers not be protected from converting grandfathered links. Specifically, MRC recommends that, if a grandfathered link converting from analog to multiplexed analog/digital operation would cause harmful interference to an analog receiver with a 3 dB bandwidth greater than 30 MHz, that receiver would be required to be upgraded. Finally, MRC recommends that the 1990-2110 MHz and 2450-2483.5 MHz bands be made available for use by Remote Pickup BAS as well as mobile TV BAS operations currently occupying the spectrum, and that fixed operations in these bands be phased out over time, in favor of mobile use of the spectrum, which MRC believes is more appropriate. In order to encourage the migration of point-to-point fixed links out of these bands, MRC recommends that new point-to-point fixed links with path lengths less than 17 km not be permitted and that existing such links be phased out of these bands within five years.<sup>36</sup>

25. *Discussion.* We find that adopting the proposals set forth in the *Notice* will enhance the reliability of fixed links for the BAS in Part 74 and the CARS in Part 78. Adopting the same equation for fixed operations in each of these rule parts will treat similar stations in a comparable manner, simplify station coordination in shared frequency bands, and reduce the potential of harmful interference occurring among stations authorized under different rule parts. Accordingly, we are modifying our rules to implement in Sections 74.644 and 78.108 the same equation codified at Section 101.143 for determining the maximum EIRP for path lengths shorter than the specified minimum. Further, we are grandfathering existing fixed links that are less than 17 km in length in the 2450-2483.5 MHz band. However, we will not permit grandfathered or other existing links that are modifying from analog operation to analog/digital or digital operation, to retain grandfathered status, and thus continue operation at their current elevated power levels, or be treated as minor modifications, even if operation is interference-free or is frequency coordinated, unless operation at the higher power levels is justified. Such continuation would otherwise

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<sup>33</sup> See SBE Comments at 4-5; Comsearch Comments at 2-3; APTS/PBS Comments at 3; MSTV/NAB Comments at 6; MRC Comments at 7; TIA Reply Comments at 2.

<sup>34</sup> SBE Comments at 4-5; MRC Comments at 7.

<sup>35</sup> Section 74.601 defines a TV STL station (studio-transmitter link) as a fixed station used for the transmission of TV program material and related communications from the studio to the transmitter of a TV broadcast, Class A TV, or low power TV station, or for other purposes as authorized in § 74.631. Section 74.601 defines a TV relay station as a fixed station used for transmission of TV program material and related communications for use by TV broadcast, Class A TV, and low power TV stations, or for other purposes as authorized in § 74.631. 47 C.F.R. § 74.601.

<sup>36</sup> MRC Comments at 7.

ignore the existing requirement in Sections 74.644 and 78.108(c) that power in excess of that specified be justified by an appropriate technical showing,<sup>37</sup> and could lead to the continuation of unnecessarily excessive power levels, thus defeating the spectral efficiency intended by minimum path length requirements. We decline to classify the conversion from analog to analog/digital or digital operation as a minor modification, as recommended by MRC. For reasons explained in detail in III.A.4, III.A.7, and III.C.2 below, such a change is and will remain classified as major under Section 1.929.<sup>38</sup> Further, while operation without interference is possible, and frequency coordination may demonstrate the ability of the system to operate without interference, neither would necessarily justify the continuation of higher power levels, or thus warrant the continuation. We therefore decline to accept such conditions as sufficient justification to warrant the continuation of higher power levels, and will continue to require an appropriate technical showing justifying the elevated power, as required by Section 74.644. With respect to MRC's recommendation to require upgrade of old analog receivers to avert harmful interference from a system converting to multiplexed analog/digital operation, we decline to impose such an upgrade, as our rules do not contain minimum receiver performance requirements.

26. Finally, we decline to designate the 1990-2110 MHz and 2450-2483.5 MHz bands for use by Remote Pickup BAS operations as requested by MRC. MRC does not provide justification or elaboration for this proposal, no other commenters support it, and, moreover, it is outside the scope of this proceeding. We also decline to phase out fixed operation in these bands, to prohibit new fixed path lengths shorter than 17 km in these bands, or to phase out existing short paths in these bands in five years. We recognize that it is possible that the removal of fixed paths could free up spectrum for mobile use in some areas. However, we find that such action would unnecessarily limit the flexibility of TV BAS to accommodate fixed paths, where such paths are feasible and desirable with respect to mobile use of the band. This is particularly true for short paths, whose reduced EIRP can accommodate them in a spectrally efficient way. Moreover, the forced relocation of existing fixed links would be a burden on licensees. Finally, no commenters from the BAS community that would be affected by MRC's proposed curtailments support them. We thus find their adoption unwarranted.

### 3. Transmitter Power

27. Currently, Sections 74.636 and 74.534 of the Commission's rules specify the power limitations for TV and aural BAS operations, respectively.<sup>39</sup> For some frequency bands, only transmitter output power is specified, and for other bands, both transmitter output power and EIRP, which describes the amount of energy that is actually being radiated by the transmitting antenna, are specified.<sup>40</sup> In the

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<sup>37</sup> Sections 74.644(c) and 78.108(c) state that upon appropriate technical showing, applicants and licensees unable to meet the minimum path length requirement may be granted an exception to the EIRP reduction requirements. *See* 47 C.F.R. §§ 74.644(c), 78.108(c). For example, operation through a passive repeater, where the path of the transmitted signal comprises two segments, one before and one after the repeater, may necessitate that the EIRP on a shorter first segment be elevated to ensure that the signal will, after propagating over both segments, be sufficient for reliable reception at the final receive antenna.

<sup>38</sup> 47 C.F.R. § 1.929.

<sup>39</sup> 47 C.F.R. §§ 74.534, 74.636. We note that it is common for a single transmitter to be certificated for use in Parts 74, 78, and 101 and Sections 74.534 and 74.636.

<sup>40</sup> 47 C.F.R. §§ 74.636 and 74.534. For example, Section 74.636 specifies a maximum allowable transmitter power of 20.0 watts for fixed TV BAS operations in the 1990-2110 MHz band, but does not specify a maximum allowable EIRP. In contrast, this rule Section specifies a maximum allowable output power of 20 watts and a maximum allowable EIRP of 55 dBW for fixed TV BAS operations in the 6875-7125 MHz band.

*Notice*, the Commission proposed to modify the BAS rules to specify only EIRP values for all aural and TV BAS frequency bands. It proposed to conform EIRP limitations on BAS and CARS operations with those for FS operations in bands where operation is similar, and to specify EIRP limitations on mobile BAS and CARS operations based on existing maximum transmitter power and typical antenna gain. Specifically, the Commission proposed that: (a) aural BAS operations in the 944-952 MHz band be limited to a maximum EIRP of 40 dBW; (b) fixed operations for TV BAS in the 1990-2110 MHz and 2450-2500 MHz bands be limited to a maximum EIRP of 45 dBW; and (c) mobile operations for TV BAS in those same bands and CARS operations in the 1990-2110 MHz band be limited to a maximum EIRP of 35 dBW. The Commission sought comment on whether the 50 dBW EIRP limit on FS operations in the 12,700-13,250 MHz band should be increased to conform with the 55 dBW limit on BAS and CARS operations in that band. It also sought comment on whether different power standards should be adopted for digital and analog equipment. The Commission also requested comment as to whether it should remove the specifications for transmitter output power from the BAS rules consistent with the Part 101 approach.<sup>41</sup>

28. Most parties generally support the proposals set forth in the *Notice*.<sup>42</sup> Comsearch states that it agrees with harmonizing the power limits among Parts 74, 78, and 101 and expressing power limits in terms of maximum permitted EIRP. However, Comsearch states that it believes that multichannel video transmission under Parts 74 and 78 do not require higher EIRP than systems under Part 101 in the 12,700-13,250 MHz band. It recommends that the Part 101 EIRP limit of 50 dBW be conformed to the higher 55 dBW limit for this band in Parts 74 and 78, if future licensing is permitted under Part 101 in that band.<sup>43</sup> MRC states that it supports the proposed maximum EIRP of 35 dBW for mobile TV BAS operations in the 2 GHz and 2.5 GHz bands because that EIRP is representative of current ENG systems. MRC also supports specifying EIRP rather than output power because specifying EIRP would facilitate designing more practical systems and reduce the need to mount transmitters close to antennas.<sup>44</sup> Globalstar USA, Inc. and Globalstar, L.P. (Globalstar) urge the Commission to correct its terminology and proposed tables to specify the 2450-2483.5 MHz, rather than the 2450-2500 MHz, band, since the 2483.5-2500 MHz band is no longer available to new BAS stations.<sup>45</sup>

29. SBE agrees with the proposal to eliminate transmitter output power limits in favor of EIRP limits for fixed links, because it would allow a licensee the option of installing a high power transmitter to overcome prohibitive waveguide losses on a tall tower. However, SBE opposes eliminating output power limits for TV Pickup stations because the lack of antenna standards for these stations would pose an interference threat to other users. SBE concurs with the proposed EIRP limits for 950 MHz Aural BAS fixed links and 2 and 2.5 GHz fixed links. SBE opposes lower EIRP limits for digitally modulated systems than for analog modulated systems because they may operate in interference-limited markets where a lower maximum EIRP could result in more susceptibility to interference from higher EIRP analog paths.<sup>46</sup> SBE also opposes Globalstar's recommendation that only the 2450-2483.5 MHz band be

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<sup>41</sup> *Notice* at ¶¶ 18-24.

<sup>42</sup> See APTS/PBS Comments at 3; MSTV/NAB Comments at 6; MRC Comments at 8; TIA Reply Comments at 3.

<sup>43</sup> Comsearch Comments at 3-4. Comsearch explains that multichannel video systems typically use much lower EIRP levels than single channel transmission systems because of linearity issues within the transmission system.

<sup>44</sup> MRC Comments at 8.

<sup>45</sup> Globalstar Comments at 3.

<sup>46</sup> SBE Comments at 5-6.

specified as available for BAS operations. SBE notes that BAS stations at 2483.5-2500 MHz band were grandfathered by the *Report and Order* in Gen. Docket 84-690.<sup>47</sup>

30. *Discussion.* We find that the proposals to harmonize power limits among Parts 74, 78, and 101, and to express those limits as maximum EIRPs will provide consistency and promote greater efficiency in our rules. Accordingly, we are adopting our proposals and are specifying the following EIRP limits: (a) for aural BAS operations in the 944-952 MHz band, 40 dBW; (b) for fixed operations for TV BAS in the 1990-2110 MHz and 2450-2483.5 MHz bands, 45 dBW; and (c) for mobile operations for TV BAS in the 1990-2110 MHz and 2450-2483.5 MHz bands and CARS operations in the 1990-2110 MHz band, 35 dBW. We are also deleting output power limitations for fixed systems as it will permit flexibility in designing systems. However, we will maintain output power limitations in the rules for mobile systems. Maintaining these limits will reduce the potential for interference from mobile systems because they limit EIRP for omnidirectional mobile systems and reduce off-axis EIRP for directional mobile systems.

31. As noted above, Comsearch asks that the Part 101 EIRP limit for the 12,200-13,250 MHz band be amended from 50 dBW to conform to the Parts 74 and 78 limit of 55 dBW. We generally agree. As stated throughout this proceeding, we believe that providing common technical standards for similar stations simplifies the manufacturing and licensing process. We note however, that except for LTTS, fixed stations under Part 101 have not been eligible for new licenses in the 12,700-13,200 MHz portion of the band since 1983.<sup>48</sup> These stations were designed and have been operating for the last 19 years or more with the 50 dBW limit. Thus, we see no reason to modify that limit for these stations. We will increase the EIRP limit to 55 dBW for all FS stations in the 13,200-13,250 MHz portion of the band. Further, we note that the rules for common carriers in the LTTS specify that they are subject to the technical rules of Parts 74 and 78<sup>49</sup> in certain frequency bands shared with BAS and CARS. Therefore, they also will be subject to the higher 55 dBW limit we are adopting for fixed stations. To avoid confusion in the rules, we will amend Section 101.807 to clearly state that LTTS stations in certain bands shared with BAS and CARS should follow the power rules of Parts 74 and 78.<sup>50</sup>

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<sup>47</sup> SBE Reply Comments at 4. *See also* In the Matter of Amendment of the Commission's Rules to Allocate Spectrum for, and to Establish other Rules and Policies Pertaining to, a Radiodetermination Satellite Service, FCC 85-388, Gen. Docket No. 84-689, RM-4426; Policies and Procedures for Licensing of Space and Earth Stations in the Radiodetermination Satellite Service, Gen. Docket No. 84-690; Application of Geostar Corporation For Authority to Construct, Launch and Operate Space Stations in the Radiodetermination Satellite Service, File Nos. 2191-DSS-P/L-83, 2192-DSS-P/L-83, 2193-DSS-P/L-83, 2194-DSS-P/L-83; a Request to Allocate the 1606.8-1613.8 MHz band on a Primary Basis to the Radio Astronomy Service, RM-4839; *Report and Order*, 50 FR 39101 (Sep. 27, 1985), at ¶¶ 18-19.

<sup>48</sup> *See* 47 C.F.R. § 101.147(a), note 22 which prohibits new permanent fixed point-to-point facilities in the 12.7-13.2 GHz band.

<sup>49</sup> 47 C.F.R. 101.803(b).

<sup>50</sup> We will also update the references in Section 101.803(b) to Sections 78.18(a)(7) and (a)(8), to conform with their redesignation as Sections 78.18(a)(6) and (a)(7). *See* In the Matter of Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services, *Second Report and Order, Order or Reconsideration, and Fifth Notice of Proposed Rulemaking*, CC Docket No. 92-297, 12 FCC Rcd 12545 (FCC 97-82) (1997), at ¶ 104 and Appendix A, Final Rules.

32. We further find that maintaining the same EIRP limits for digital and analog systems is appropriate because, although digital systems would normally require less EIRP to operate, lowering their maximum EIRP could render them more susceptible to interference from higher powered analog systems. Finally, regarding BAS station operations at 2483.5-2500 MHz, we agree with Globalstar that the new EIRP limits should not apply to grandfathered systems. Accordingly, in the final rules set forth in Appendix A, we are specifying that only the 2450-2483.5 MHz band is available for BAS stations. We note, however, that this action in no way affects the continued rights of grandfathered BAS stations in the 2483.5-2500 MHz band, as described in footnote NG147 of the Table of Frequency Allocations.<sup>51</sup>

#### 4. Emission Masks

33. Emission masks serve to maximize spectrum efficiency by permitting reasonable and practical information transfer within a channel and at the same time limiting out-of-band emissions to minimize adjacent channel interference. Our rules contain a number of emission masks tailored to specific operations and channel sizes. For example, different emission masks are authorized under Parts 74, 78, and 101.<sup>52</sup> Although the same equipment is often certified and used by licensees in different services, our rules, in some cases, allow each service to use a different emission mask for the same type of emission (*e.g.*, FM, AM, *etc.*) in the same frequency band.<sup>53</sup> The Commission in the *Notice* proposed to make the FM and digital modulation emission mask requirements for BAS consistent with the requirements for FS in Part 101 and proposed to adopt standard measurement procedures to measure emissions. Additionally, the Commission proposed to grandfather existing equipment authorized pursuant to current emission masks. Specifically, the *Notice* proposed the following:

##### TV BAS

- For FM modulation in all TV BAS frequency bands, to eliminate the FM emission mask of Section 74.637(a) and to apply the FM emission mask of Section 74.637(c)(1) (same as Section 101.111(a)(1)).<sup>54</sup> The emission mask in paragraph (c)(1) would provide equipment manufacturers more flexibility in the design of equipment because it permits the out-of-band emissions to be attenuated at a slightly slower rate. Such flexibility can be gained without compromising the interference potential of these transmitters because we believe that the specified attenuation is sufficient to protect adjacent channel operations;
- For digital modulation in TV BAS frequency bands above 15 GHz, to apply the emission mask for digital modulation in Section 74.637(c)(2) (same as Section 101.111(a)(2)(ii)) (no change from current rules);

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<sup>51</sup> 47 C.F.R. § 2.106.

<sup>52</sup> 47 C.F.R. §§ 74.462, 74.535, 74.637, 78.103, and 101.111.

<sup>53</sup> We note that it is common for a single transmitter to be certificated for use in Parts 74, 78, and 101.

<sup>54</sup> The FM emission mask specified in Sections 74.637(a) and 74.637(c)(1) differs slightly in the attenuation schedules they specify. The emission mask of paragraph (a) specifies attenuations of 25 dB, 35 dB, and 43+10 Log(Power) dB on frequencies removed from the assigned frequency by more than 50% and up to 100%, by more than 100% and up to 150%, and by more than 150%, respectively. The emission mask of paragraph (c)(1) specifies the same attenuations, but the corresponding frequencies on which they apply are those removed from the assigned frequency by more than 50% and up to 100%, by more than 100% and up to 250%, and by more than 250%, respectively. Also, the emission mask of paragraph (c)(1) specifies that attenuations of greater than 80 dB are not required.

- For digital modulation in all TV BAS frequency bands below 15 GHz, to apply the emission mask for digital modulation in Section 101.111(a)(2)(i);
- For vestigial sideband amplitude modulation in all TV BAS frequency bands, to apply the emission mask for vestigial sideband amplitude modulation in Section 74.637(c)(3) (no change from current rules); and
- For all other types of modulation in all TV BAS frequency bands, to apply the emission mask of Section 74.637(b) (no change from current rules).

#### Aural BAS

- For FM modulation in all aural BAS frequency bands, to eliminate the FM emission mask of Section 74.535(a) and to apply the FM emission mask of Section 74.535(e)(1) (same as Section 101.111(a)(1)). As with the choice of emission mask for TV BAS, the emission mask of paragraph (e)(1) would provide equipment manufactures more flexibility in equipment design than the emission mask of paragraph (a);
- For digital modulation in aural BAS frequency bands above 15 GHz, to apply the emission mask for digital modulation in Section 74.535(e)(2) (same as Section 101.111(a)(2)(ii)) (no change from current rules);
- For digital modulation in aural BAS frequency bands below 15 GHz, to apply the emission mask for digital modulation in Section 101.111(a)(2)(i); and
- For all other types of modulation in all aural BAS frequency bands, to apply the emission mask of Section 74.535(b) (no change from current rules).<sup>55</sup>

34. We also sought comment on the proper emission mask to apply to equipment that multiplexes both analog and digital signals for transmission over a single channel.<sup>56</sup> Such operation complicates the equipment certification process because the emission masks are referenced to either analog or digital modulation techniques, but not both. We proposed to adopt for BAS, the same rule used under Part 101,<sup>57</sup> that is a transmitter is considered to be using digital modulation techniques, and must meet those emission requirements, when digital modulation occupies 50% or more of the total peak frequency deviation of a transmitted radio frequency carrier.<sup>58</sup> Another issue we sought comment on involved the characterization of analog/digital multiplexed transmitters with respect to the assignment of emission designators. We proposed that hybrid radios that multiplex analog and digital signals continue to use a single emission designator.<sup>59</sup> In making this proposal, we acknowledged that when using hybrid equipment, digital and analog emissions may exist side-by-side within a channel. However, we also stated that the ULS is not designed to capture multiple emissions within a channel when those emissions only partially occupy the channel. However, we also stated that the information was indirectly available because ULS collects transmitter manufacturer and model number – interested parties could use this information to determine the emissions within a channel.

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<sup>55</sup> Notice at ¶¶ 27-32.

<sup>56</sup> For example, as TV stations transition to DTV, they generally will maintain their existing analog station until such time that the DTV transition is complete. During the transition, these stations may transmit both analog and digital signals from remote locations back to the studio and over STLs, and these two signals may be multiplexed and transmitted over a common channel simultaneously.

<sup>57</sup> 47 C.F.R. § 101.141(b).

<sup>58</sup> Notice at ¶ 31.

<sup>59</sup> *Id.* at ¶ 32.

35. APTS/PBS support the proposals standardizing emission masks.<sup>60</sup> MSTV/NAB support the goal of conforming BAS emission mask with Part 101, but urge input from broadcasters and equipment manufacturers before finalizing rules for BAS FM emission masks with slower attenuation rates. MSTV/NAB further recommend that the Commission not adopt digital emission masks for the 2 GHz band until the industry has settled on a specific digital technology.<sup>61</sup> Red River Broadcast Co. LLC and KQDS Acquisition Corp. (Red River) support the rule revisions proposed for emission masks for BAS, but emphasize that existing equipment must be grandfathered indefinitely to avert a substantial economic impact on their operations.<sup>62</sup> SBE states that Part 74 and Part 101 emission masks should be consistent, but defers to equipment manufacturers regarding the specific emission masks that should be used.

36. One commenter, MRC, which manufactures a dual carrier digital/FM analog transmitter, provides extensive comment on emission masks for composite systems, such as its TwinStream radio.<sup>63</sup> MRC argues that its composite system is analogous to an analog/digital multiplexed system and as such should be treated similarly. It supports our proposal to require compliance with the digital emission mask when the digital modulation occupies 50% or more of the total peak deviation of a system carrying analog FM and digital signals multiplexed together and suggest that the same rule should apply to composite systems. Therefore, because the analog portion of the signal transmitted by the TwinStream radio occupies 60% of the channel,<sup>64</sup> they propose that only the FM emission mask of Section 74.637(c)(1) or Section 74.637(a) should apply.<sup>65</sup> Likewise, MRC also requests that ENG systems below 15 GHz that are selectable for either analog or digital modulation only meet the requirements of the FM emission mask of Section 74.637(a).<sup>66</sup>

37. MRC also comments on the appropriate emission mask to apply to ENG radios using Coded Orthogonal Frequency Division Multiplexing (COFDM).<sup>67</sup> They argue that the more flexible FM emission mask of Section 74.637(a) rather than the digital emission mask of Section 101.111(a)(2) should

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<sup>60</sup> APTS/PBS Comments at 4.

<sup>61</sup> MSTV/NAB Comments at 7.

<sup>62</sup> Red River Comments at 1-1.

<sup>63</sup> MRC's composite radio is sold as the TwinStream radio. This radio uses two separate carriers – one to transmit an analog NTSC signal (approximately 15 megahertz bandwidth) and one to transmit a digital ATSC signal (approximately 7.5 megahertz bandwidth). These carriers are offset from the center frequency of the channel and the analog and digital signals are transmitted side-by-side. See MRC Comments at 4-5; MRC Reply Comments at 3-4; MRC *Ex Parte* filing of April 3, 2002, at 2-5; and MRC *Ex Parte* filing of April 18, 2002, at 2.

<sup>64</sup> The analog signal is approximately 15 megahertz wide and the channel is 25 megahertz wide;  $15/25 = 0.6$ .

<sup>65</sup> MRC contends, however, that the analog and digital portions of the TwinStream composite signal individually meet the existing FM (Section 74.637(a)) and digital (Section 101.111(a)(2)) emission masks. See MRC *Ex Parte* filing of April 3, 2002, at 2; MRC *Ex Parte* filing of April 18, 2002, at 2.

<sup>66</sup> MRC *Ex Parte* filing of April 3, 2002, at 5.

<sup>67</sup> Coded Orthogonal Frequency Division Multiplexing (COFDM) is a modulation scheme that divides a single digital signal across 1,000 or more signal carriers simultaneously (FDM). The signals are coded to take advantage of forward error correction techniques and are spaced at precise frequencies which prevents the demodulators from seeing frequencies other than their own (hence, orthogonal) so they do not interfere with each other.



apply. They claim that the more stringent digital mask would require COFDM ENG transmitters when using complex modulation methods for the individual carriers to operate at lower power levels to avoid intermodulation<sup>68</sup> products that exceed the mask.<sup>69</sup> Thus, they state that they must reduce power, which reduces range, to operate in the linear region of the amplifier to meet the digital emission mask.<sup>70</sup> MRC also claims that the same relief is needed for single-carrier digital systems at 2 GHz to accommodate the 12-17 megahertz bandwidth reductions required due to the reallocation of the 1990-2025 MHz band to MSS.

38. Many commenters also addressed the issue of the proper emission designator to apply to hybrid analog/digital systems. APTS/PBS assert that a dual emission designator should be used to characterize a hybrid analog/digital system.<sup>71</sup> SBE agrees and observes that hybrid FM and digital video links clearly exhibit dual emissions. Therefore, they should be required to exhibit separate frequencies and emission designators for each emission, rather than using a single emission designator such as F9W.<sup>72</sup> In contrast, MRC supports the continued use of a single emission designator for multiplexed analog and digital signals because such a system multiplexes two baseband systems and transmits them using a single transmitter. Thus, MRC contends that a single emission designator is proper.<sup>73</sup> SBE also asks the Commission to clarify the correct emission designator to apply to COFDM modulation.<sup>74</sup> Finally, MRC asks the Commission to consider eliminating the collection of emission types for digital systems because

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<sup>68</sup> Intermodulation is the production of frequencies corresponding to the sum and difference frequencies of the fundamentals and/or harmonics which occurs when the frequencies are mixed in a nonlinear element of a system. Intermodulation products are characterized by their order, where the  $n$ th order products are generated by  $n$  iterations of frequencies. For example, for frequencies  $f_1$  and  $f_2$ , the 2<sup>nd</sup> order products are:  $f_2 + f_1$  and  $f_2 - f_1$ ; and the 3<sup>rd</sup> order products are:  $2f_2 + f_1$ ,  $2f_2 - f_1$ ,  $2f_1 + f_2$ , and  $2f_1 - f_2$ . In the case of COFDM, these intermodulation products could be generated due to interactions between any of the many carrier (fundamental) frequencies being used. Because each carrier must be located within the limits of the emission mask, 3<sup>rd</sup> order products may fall either within the emission mask or just outside of it. For example, if  $f_2$  is a frequency near the upper end of the emission mask, a 3<sup>rd</sup> order product of  $2f_2 - f_1$  is a higher frequency than  $f_2$  and may be outside of the emission mask.

<sup>69</sup> MRC *Ex Parte* filing of April 18, 2002, at 3.

<sup>70</sup> *Id.*

<sup>71</sup> APTS/PBS Comments at 4.

<sup>72</sup> See 47 C.F.R. § 2.201. Emissions are designated according to their classification and necessary bandwidth. A minimum of three symbols are used to describe the basic characteristics of the radio emission. The first symbol designates the type of modulation. For example, "F" is used for frequency modulation. The second symbol designates the nature of the signal modulating the main carrier. For example, "7" is used for two or more channels containing quantized or digital information. The third symbol designates the type of information to be transmitted. For example, "F" is used for television (video) information. In the case above, the emission type F9W refers to modulation where the main carrier is frequency modulated, indicated by "F" as the first symbol; the signal modulating the main carrier is a composite of one or more channels containing quantized or digital modulation, together with one or more channels containing analog information, indicated by "9" as the second symbol; and the type of information being transmitted is a combination of data, telephony (including sound broadcasting), and/or television (video), indicated by "W" in the third symbol.

<sup>73</sup> MRC Reply Comments at 2-3.

<sup>74</sup> SBE Comments at 6-7.

their emission type no longer serves a useful purpose as all digital signals exhibit similar emission spectra.<sup>75</sup>

39. *Discussion.* Commenters generally did not address our proposals to standardize the emission masks between Part 74 and Part 101. Most comments addressed nuances of the rules, such as how they apply to composite systems. On the specific emission masks proposed, the comments received were supportive. Only MSTV/NAB caution against adopting a digital emission mask for the 2 GHz band at this time due to the lack of standards among manufacturers. We are mindful of MSTV/NAB's concerns. However, we believe that maintaining the status quo in the 2 GHz band would harm the industry more than help it. By providing certainty to manufactures and users regarding equipment, we believe that the industry will be able to move forward and begin making wide scale use of digital equipment to increase spectral efficiency and to ensure that equipment is available for broadcasters as they transition to DTV. Accordingly, we adopt our proposals to amend the Part 74 aural and TV BAS emission masks to make them consistent with the emission masks of Part 101. As stated in the *Notice*, imposing a single set of standards across shared frequency bands will simplify the manufacturing and equipment authorization processes. Additionally, consistent rules will provide a level of certainty to licensees regarding the expected RF environment, minimize the potential of harmful interference and simplify the frequency coordination process. In addition, we adopt our proposal to grandfather existing equipment, and will do so for existing equipment and equipment of current production lines authorized, via certification or verification pursuant to the current emission standards, up to two years after the adoption of this *Report and Order*, and for stations authorized to use such equipment pursuant to an application filed up to two years after the adoption of this *Report and Order*.<sup>76</sup> However, any such non-conforming equipment replaced on or after two years after the adoption of this *Report and Order* must be replaced by conforming equipment.

40. MRC also asks that we allow COFDM ENG systems to use the analog FM emission mask rather than the more stringent digital mask. The basis of this request is MRC's claim that FCC rules limit the power amplifier's rated capacity, causing operation to occur in the non-linear region of the amplifier. They state that this produces intermodulation products that exceed the digital emission mask. We note that our rules limit the output power of mobile ENG systems. However there is no rule that restricts the ability of a manufacturer to design an amplifier that is linear up to the maximum output power. Further, the use of the analog emission mask would provide less adjacent channel protection than the digital emission mask and harm the ability of licensees to operate in a spectrally efficient manner. Accordingly, we deny MRC's request and will require COFDM systems to meet the emission limitations of the digital mask. We will grandfather existing equipment and equipment of current production lines for two years consistent with our decision above. Finally, we clarify that the correct emission type for COFDM is W7D.

41. MRC, the only commenter to address the issue of hybrid digital/analog systems, supports our proposal to apply the digital mask to such systems if the digital traffic is 50% or more of the total

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<sup>75</sup> MRC Comments at 4-5.

<sup>76</sup> This is consistent with the grandfather provisions adopted in WT Docket No. 00-19 where the digital emission mask was modified. See Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, Telecommunications Industry Association Petition for Rulemaking, *Report and Order*, WT Docket No. 00-19 and RM-9418, (FCC 02-218) (rel. July 31, 2002) at ¶ 48.

peak deviation.<sup>77</sup> We will adopt this proposal. In addition, MRC raises questions regarding the treatment of composite digital/analog systems. Similar to hybrid systems, we will apply the appropriate analog or digital emission mask based on the percentage of the channel that carries a digital signal. Specifically, this percentage will be calculated as the system's digital necessary bandwidth divided by the aggregate necessary bandwidth.<sup>78</sup> For purposes of equipment authorization and licensing, the output power and EIRP of a composite system will be its aggregate output power and EIRP.<sup>79</sup> Both composite and hybrid systems will ease the transition to DTV as they provide a migration path for licensees to transition from an analog NTSC signal to a dual analog/digital (NTSC/ATSC) signal, and eventually to only a digital signal. We believe that the procedures we are adopting will simplify and advance the transition to DTV while protecting the ability of coordinators to engineer systems.

42. Similar to their request for COFDM systems, MRC asks that we require selectable digital/analog ENG systems to meet only the analog emission mask. We decline this request. Because only one signal is being transmitted at a time, this system is neither a hybrid nor a composite. Thus, each emission must be assessed individually – analog emissions must meet the analog mask and digital emissions must meet the digital mask. We will grandfather existing equipment and equipment of current production lines consistent with our decision above.

43. Several commenters address the issue of appropriate emission designators for a hybrid analog/digital multiplexed signal. APTS/PBS and SBE ask that a hybrid system be characterized by a dual emission designator. MRC supports the continued use of a single emission designator for such systems. We agree. As MRC observes, a hybrid system multiplexes an analog and digital signal and transmits a single signal containing the two. Thus, in this case, because a single signal is being transmitted, we believe it to be appropriate that a single emission designator be used. We similarly believe that a single emission designator is appropriate for composite systems. This will conform the emission mask for hybrid and composite systems which will simplify manufacturing processes, equipment authorization, and licensing for these spectrally efficient systems. We are mindful of SBE and APTS/PBS's concerns that a single emission designator for these systems will complicate frequency coordination because coordinators will not know the exact operating parameters. However, we disagree. The ULS captures transmitter manufacturer and model number for BAS transmitters. Thus coordinators can use this information to determine the frequency offset, power, bandwidth, and other technical and operational details of the individual analog or digital channels of a particular system. Moreover, interference protection criteria for specific composite systems may be obtained from manufacturers, as they are for other systems.<sup>80</sup>

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<sup>77</sup> For purposes of this discussion, we will refer to a system that frequency modulates a single RF carrier with digital and analog signals frequency-division-multiplexed in its baseband, resulting in a single distinct, symmetrical FM emission, as a "hybrid" analog/digital (or digital/analog) system. We will refer to a system that modulates two separate RF carriers with analog and digital signals resulting in two distinct emissions, one analog and the other digital, as a "composite" dual channel analog/digital (or digital/analog) system.

<sup>78</sup> This method is suggested by MRC's calculation that their composite signal as 68% analog. *See* MRC Comments at 4; MRC *Ex Parte* Filing of April 3, 2002, at 2-5.

<sup>79</sup> For example, a composite dual channel system comprising an analog channel of output power 27 dBm and a digital channel of output power 33 dBm would specify its aggregate output power as 34 dBm, representing the sum of the two powers.

<sup>80</sup> *See, e.g.*, MRC Reply Comments at 2-3. MRC provides C/I ratios required to protect MRC's composite dual channel analog/digital system from like systems and analog FM systems.

44. To determine the emission designator for a composite system, we will use the aggregate necessary bandwidth of the system, which is comprised of the analog necessary bandwidth, any band between the analog and digital signals, and the digital necessary bandwidth.<sup>81</sup> The emission designator will also use the appropriate emission type, such as F9F or F9W,<sup>82</sup> indicating that the system accommodates at least one analog and at least one digital signal. We note that licensees who modify their equipment from an analog system to a composite analog/digital system, must also modify their station authorization to show the new emission type using ULS.<sup>83</sup> Under the rules, such a change would be considered major and require a new frequency coordination.<sup>84</sup>

45. We did not receive any comments with regard to our proposals for standardized measurement procedures. We continue to believe that our procedures should ensure that all equipment is measured consistently. Therefore, for measuring compliance with the emission mask, for emissions removed from the center frequency by 250% of the emission bandwidth or less, we will permit a reduction of the measurement reference bandwidth below the mask reference bandwidth to a value not less than 1% of the emission bandwidth, or the next higher measurement bandwidth available.<sup>85</sup> This will allow for more accurate emissions measurements just outside the edge of the emission bandwidth, which might otherwise be blurred by the contribution of much greater emissions within the emission bandwidth. For measurements outside this range, we will use the International Telecommunication Union (ITU) guidelines of a 100 kHz resolution bandwidth for systems operating on frequencies below 1 GHz and a 1

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<sup>81</sup> For example, a composite dual channel system comprising an analog channel of necessary bandwidth 17 MHz and a digital channel of necessary bandwidth 7 MHz, with a 1 MHz band separating the two channels, would specify its aggregate necessary bandwidth as 25 MHz, representing the sum of the bandwidths, *i.e.*, the bandwidth from the outer edge of the analog necessary bandwidth to the outer edge of the digital necessary bandwidth. The digital percentage of such a system would be calculated as the ratio of the system's digital necessary bandwidth, 7 MHz, divided by its aggregate necessary bandwidth, 25 MHz, or  $7/25 * 100\% = 28\%$ . Since this system would be less than 50% digital, it would be subject to the FM emission mask, not the digital emission mask.

<sup>82</sup> The appropriate emission type will always contain a "9" as the second symbol.

<sup>83</sup> For example, to modify from an analog FM video operation to a composite dual channel analog/digital video operation, an existing analog FM video authorization, bearing an emission type of F3F representing a single FM video channel, would have to be modified to show an emission designator such as F9F, representing accommodation of one or more analog channels and one or more digital channels (indicated by a "9" as the second symbol) transmitting video information (indicated by an "F" as the third symbol), or F9W, representing accommodation of one or more analog channels and one or more digital channels transmitting a combination of video, data, or telephony information (indicated by a "W" as the third symbol). *See* 47 C.F.R. § 2.201. Whether the composite system were determined by the method described above to require adherence to the analog emission mask or to the digital emission mask, its emission type would nonetheless continue to represent its accommodation of both analog and digital channels (indicated by a "9" as the second symbol), not the accommodation of analog-only channels (which could be indicated by a "3" or an "8" as the second symbol), or digital-only channels (which could be indicated by a "1", "2", or "7" as the second symbol).

<sup>84</sup> In the above example, the change in emission type from F3F to F9F or to F9W would, as any change in emission type, be classified as a major change under 47 C.F.R. § 1.929(d).

<sup>85</sup> This option may be especially useful where the mask reference bandwidth is less than or slightly greater than the necessary bandwidth of the transmitter. For example, in a case where the system is analog, and the mask reference bandwidth is thus 100 kHz, but the necessary bandwidth of the system is 80 kHz, the measurement bandwidth may be adjusted down to 1 kHz, which is the next higher measurement bandwidth above 1% of 80 kHz, or 0.80 kHz.

MHz resolution bandwidth for systems operating on frequencies above 1 GHz.<sup>86</sup> We realize that this may create a situation where the emissions mask reference bandwidth stated in the rule is less than the measurement resolution bandwidth.<sup>87</sup> If this occurs, there could be some blurring of spectral spikes that might otherwise be detected. We believe that the benefits of simplification and standardization outweigh the potential for such effects to result in interference to adjacent channels. Further, to protect adjacent channel operations, we will require that the emission mask attenuation requirement be corrected to decrease with the ratio of measurement resolution bandwidth to mask reference bandwidth, *i.e.*, by a factor of  $10 \log_{10}(B_{\text{res}}/B_{\text{ref}})$ , where  $B_{\text{res}}$  is the measurement resolution bandwidth and  $B_{\text{ref}}$  is the emissions mask reference bandwidth in the rule.<sup>88</sup> Finally, we note that the analog FM emission mask does not specify a mask reference bandwidth, which, in conjunction with the measurement resolution bandwidth, could be used to calculate the correction. However, it is the policy of the Commission's Laboratory Division, which approves equipment authorizations, to require the use of a mask reference bandwidth of 100 kHz for this mask. Accordingly, we are therefore amending the analog FM emission mask for Part 74 TV and aural BAS to reflect a 100 kHz emission mask reference bandwidth.

## 5. Automatic Transmit Power Control

46. Automatic transmit power control (ATPC), is a function that provides for more efficient spectrum use by ensuring that the transmitter only uses the power necessary to maintain reliable communications. Radios that use ATPC operate with certain power levels during normal propagation conditions. When the receiver detects a drop in received signal level, due to multipath<sup>89</sup> or a rain fade, for example, the receiver sends a signal to the transmitter to gradually increase power. When the received signal level begins to rise, the receiver sends a signal to the transmitter to reduce power. By operating in this manner, interference levels into nearby microwave paths are reduced and more frequencies can be coordinated and used in any given geographic area. Additionally, by keeping signal levels low, ATPC reduces power consumption of the radio, which lowers operating costs and increases equipment reliability. The Commission proposed in the *Notice* that TV BAS, aural BAS, and CARS licensees be permitted to use ATPC.

47. Commenting parties strongly support the ATPC proposal set forth in the *Notice*.<sup>90</sup> Comsearch states that ATPC should be allowed for digital BAS and CARS microwave systems because it is commonly used and simplifies frequency coordination. It recommends that ATPC use be coordinated

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<sup>86</sup> See International Telecommunication Union (ITU) Radio Regulations, Appendix 3, Table of Maximum Permitted Spurious Emission Power Levels, at 10; ITU Recommendation ITU-R SM.329-9, Spurious Emissions, at 4.1 and at Annex 2, 1.1.2.

<sup>87</sup> For example, for a digital system operating below 15 GHz, the emissions mask reference bandwidth stated in the rule is 4 kHz, less than the measurement resolution bandwidths of 1 MHz for frequencies above 1 GHz and 100 kHz for frequencies below 1 GHz.

<sup>88</sup> Using a wider resolution bandwidth allows more energy to enter the measurement device. Thus, the displayed signal will generally appear at a higher level than it otherwise would.

<sup>89</sup> Multipath is a propagation phenomenon that results in radio signals reaching the receiving antenna by two or more paths. Causes of multipath include reflection from terrestrial objects, such as mountains and buildings.

<sup>90</sup> See APTS/PBS Comments at 5; MSTV/NAB Comments at 8; Comsearch Comments at 4; MRC Comments at 8; TIA Reply Comments at 3.

in accordance with the procedures of TIA TSB 10-F,<sup>91</sup> “Interference Criteria for Microwave Systems.”<sup>92</sup> TIA supports this recommendation.<sup>93</sup>

48. *Discussion.* As proposed in the *Notice*, we will permit TV BAS, aural BAS, and CARS licensees to use ATPC and, as suggested by commenters, we encourage using TIA TSB 10-F guidelines. While the benefits of using ATPC for BAS may not be as great in other services because BAS generally uses one-way, rather than two-way, communications, the benefits can still be significant. For those stations using two-way communications, ATPC will permit more systems to be frequency coordinated, thus promoting the maximum utilization of spectrum. With respect to TIA TSB 10-F, we recognize the value of standardized, industry-wide frequency coordination guidelines, and address this issue in Section III.A.7 below.

## 6. Interference to Geostationary Satellites

49. In 1987, the Commission adopted rules to implement Article 27 of the ITU Radio Regulations,<sup>94</sup> which specifies EIRP limits and antenna pointing parameters for fixed terrestrial stations that share frequency bands with fixed satellite uplink (Earth-to-space) stations.<sup>95</sup> These limits are designed to protect geostationary satellites from interference by limiting the amount of RF radiation that a terrestrial system can transmit directly towards a satellite. Since adoption of these rules, additional frequency bands have been allocated for satellite use and the Radio Regulations have been updated accordingly.

50. Because these rules are subject to international agreement, maintaining them in multiple rule parts is cumbersome and has led to varying requirements in Parts 74, 78, and 101. To remedy this situation, the Commission proposed to simplify the organization of the geostationary satellite protection rules by eliminating duplicative rule sections. Therefore, the *Notice* proposed that the technical rules for protecting geostationary satellites from interference from terrestrial systems be maintained in Part 101, and that Parts 74 and 78 merely state that licensees must comply with the geostationary satellites protection rules contained in Part 101.

51. All parties commenting on this issue strongly support the Commission’s proposals to consolidate and reference in Part 101 existing Parts 74 and 78 rules limiting RF radiation directed toward geostationary satellites.<sup>96</sup> Comsearch also recommends the deletion of Section 78.105(a)(4), which it

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<sup>91</sup> *Interference Criteria for Microwave Systems*, Telecommunications Industry Association (TIA) Telecommunications Systems Bulletin TSB 10-F, dated June 1, 1994, available on line from the TIA at [www.tiaonline.org](http://www.tiaonline.org).

<sup>92</sup> Comsearch Comments at 4.

<sup>93</sup> TIA Reply Comments at 3.

<sup>94</sup> Under the revised numbering scheme for the Radio Regulations, these regulations are now contained in Article 21.

<sup>95</sup> See Establishment of a Spectrum Utilization Policy for the Fixed and Mobile Services Use of Certain Bands Between 947 MHz and 40 GHz, Gen. Docket No. 82-334, *Third Report And Order*, 2 FCC Rcd 1050 (1987).

<sup>96</sup> See APTS/PBS Comments at 5; MSTV/NAB Comments at 9; Comsearch Comments at 4; NSMA Comments at 2; TIA Reply Comments at 3.

contends, is redundant with Section 78.106 because both sections address antenna restrictions regarding the geostationary satellite orbit (GSO).

52. *Discussion.* We are adopting our proposal to consolidate in Part 101 any Parts 74 and 78 technical rules that pertain to protecting geostationary satellites from interference from terrestrial systems. This action will decrease redundancy in our rules and ensure that future changes to GSO protection requirements are consistent across affected services. In this connection, we will update the frequencies listed in Section 101.145(b) and (c) to encompass the BAS and CARS bands subject to RF radiation limits directed towards satellites. We note that this will result in the addition of the frequency band 6875-7075 MHz to Section 101.145(b) and the frequency band 12.75-13.25 GHz to Section 101.145(c). Additionally, as suggested by Comsearch, we are deleting Section 78.105(a)(4), which restricts CARS antenna orientation to prevent interference to GSO satellites in the 12.70-12.75 GHz band, as these protections are redundant with those afforded by Section 78.106(b) for the larger 12.70-13.25 GHz band.

## 7. Frequency Coordination

53. Currently, Parts 74 and 78 of the Commission's rules for TV BAS and CARS require that the frequency coordination procedures of Part 101 be used for assignments in the 6425-6525 MHz and 17.7-19.7 GHz bands.<sup>97</sup> The Part 101 procedures generally require parties to coordinate their planned spectrum use with potentially affected parties prior to filing a license application. Additionally, the TV BAS and CARS rules specify identical interference protection criteria for the 12,700-13,250 MHz band. Such rules are necessary to promote spectrum efficiency and to minimize the potential for any system to cause harmful interference to other systems in the same frequency band. In the *Part 101 Order*, the Commission amended its rules to conform the frequency coordination procedures for microwave systems to TIA industry standards and to apply these standards to all microwave bands.<sup>98</sup>

54. In the *Notice*, the Commission proposed to require that all prospective applicants in frequency bands above 1990 MHz for TV BAS and CARS coordinate their planned spectrum use prior to filing applications, using the procedures of Section 101.103(d). Further, in order that applicants and licensees can easily locate the coordination rules, the *Notice* proposed to amend Section 78.36 to mirror the Part 101 coordination rules. The *Notice* requested that commenters address whether a frequency coordination requirement should be imposed uniformly across the United States or only applied to the most heavily congested markets. Additionally, the *Notice* requested comment on whether aural BAS stations operating above 944 MHz should also adhere to the procedures of Section 101.103(d).<sup>99</sup>

55. Comments were mixed on the proposals set forth in the *Notice*. A number of parties support using Section 101.103(d) procedures,<sup>100</sup> while SBE and Viacom oppose using those procedures.<sup>101</sup> APTS/PBS support these procedures and assert that prior coordination should be required uniformly

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<sup>97</sup> 47 C.F.R. §§ 74.638 and 78.36.

<sup>98</sup> See *Part 101 Order*, *supra*, at 13,486.

<sup>99</sup> *Notice* at ¶¶ 38-40.

<sup>100</sup> See APTS/PBS Comments at 5-6; MSTV/NAB Comments at 7; Comsearch Comments at 5; MRC Comments at 3-4; NSMA Comments at 2; TIA Reply Comments at 3.

<sup>101</sup> See SBE Comments at 8-9; Viacom Reply Comments at 2.

across the U.S.<sup>102</sup> MSTV/NAB support Section 101.103(d) procedures for fixed operations, but contend that TV pick-up for ENG should follow existing ad-hoc, local frequency coordination procedures, which permit frequency coordination on a near real time basis.<sup>103</sup> NSMA supports Section 101.103(d) coordination as proposed, arguing that that it works well to protect both terrestrial and satellite communications. NSMA urges that the 12.7-13.25 GHz band be included in these requirements.<sup>104</sup>

56. SBE opposes the adoption of Section 101.103(d) coordination procedures for BAS in the 950 MHz, 2 GHz, 2.5 GHz, 7 GHz, and 13 GHz bands, asserting that the Part 101 process would be unnecessarily complex and burdensome. It favors rules that keep the existing less formal BAS frequency coordination procedures, but would add a requirement that applicants provide evidence of frequency coordination for fixed point-to-point systems.<sup>105</sup> In this connection, SBE recommends interference ratios and criteria for use in frequency coordination.<sup>106</sup> SBE expresses particular concern that frequency coordinators will not take into account patterns of mobile use, with the result that mobile use may be disrupted by new fixed facilities. Further, SBE asserts that because ENG operations are generally coordinated in real time or near real time, formal Section 101.103(d) procedures would not work.<sup>107</sup> Viacom agrees with SBE in opposing the adoption of Part 101 prior coordination procedures for BAS.<sup>108</sup>

57. KNME-TV (KNME) supports the proposed adoption of Part 101 prior coordination procedures for all TV BAS stations to prevent interference and abuse. It contends that a lack of frequency coordination has resulted in widespread abuse and a general disregard of the voluntary process. KNME recommends that frequency coordination be imposed uniformly across the country, including rural areas.<sup>109</sup>

58. MRC supports prior coordination for fixed links, but argues that non-fixed links should be exempted in favor of the existing local frequency coordination process, which it contends is working well. MRC also supports the adoption, for BAS, of criteria in Section 101.105(c) and consequently TIA TSB 10-F, which provide guidelines for applying and developing interference protection criteria, because they are consistent with the existing Section 74.638 in establishing a minimum adjacent channel interference C/I ratio of 56 dB. MRC states that this ratio exceeds the ratio required by MRC's

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<sup>102</sup> APTS/PBS Comments at 5-6.

<sup>103</sup> MSTV/NAB Comments at 7-8.

<sup>104</sup> NSMA Comments at 2-3.

<sup>105</sup> SBE Comments at 8-9.

<sup>106</sup> SBE Comments at 1-2. SBE suggests a co-channel D/U ratio of 60 dB, or, alternatively, an undesired signal strength 10 dB below the noise threshold of the receiver, for any type of modulation, and adjacent channel D/U ratios of 10 dB or, alternatively, equipment tests, for digital into analog systems, and 0 dB for analog into analog systems.

<sup>107</sup> SBE Reply Comments at 5-7.

<sup>108</sup> Viacom Reply Comments at 2-3.

<sup>109</sup> KNME Reply Comments at 1.



TwinStream radio.<sup>110</sup>

59. Globalstar urges the adoption of rules requiring coordination of BAS and CARS with non-geostationary satellite orbit (NGSO) MSS user uplinks allocated in the 2 GHz band and feeder downlinks proposed to be allocated under ET 98-142 in the 7 GHz band.<sup>111</sup> SBE calls Globalstar's proposals to protect NGSO MSS feeder downlinks from TV Pickup operation in the 7 GHz band premature because MSS feeder downlinks have not yet been allowed under ET Docket 98-142.<sup>112</sup>

60. *Discussion.* Based on the comments, we are adopting frequency coordination procedures for all TV and aural BAS and CARS frequency bands. The rules being adopted herein will require all fixed stations, except for those in the 1990-2110 MHz band, to use the frequency coordination procedures of Section 101.103(d). For mobile BAS and CARS, we will maintain the use of Section 101.103(d) procedures in those bands where it is currently required (*i.e.*, 6425-6525 MHz and 17.7-19.7 GHz)<sup>113</sup> and flexibly permit use of Section 101.103(d) or local coordination procedures for the 2450-2483.5 MHz, 6875-7125 MHz, and 12,700-13,250 MHz bands. For all other mobile BAS and CARS stations, we will continue to allow mobile stations to coordinate locally. In the 1990-2110 MHz band, we will maintain the current system which allows for local coordination of all stations. The rules will be applied uniformly across the United States for both urban and rural environments.<sup>114</sup>

61. We find that Section 101.103(d) prior coordination procedures are appropriate for fixed BAS and CARS applications, except as explained below for the 1990-2110 MHz band. Uniform procedures for bands shared among these services, are necessary to ensure as much protection as possible to stations while minimizing the possibility of stations to cause or receive harmful interference. SBE is concerned that fixed station coordinators will not take into account mobile station use, but we do not share this concern. To properly coordinate a station, frequency coordinators must incorporate and plan for mobile stations as well as other fixed stations. To do otherwise would ignore the operating environment and do a disservice to the coordinator's client, who could be at risk if mobile use patterns are

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<sup>110</sup> MRC Comments at 3-4. *See also* MRC Reply Comments at 2-3. MRC also notes that TIA TSB 10-F provides for the consideration of interference thresholds unique to the equipment and interference configuration, and, in this connection, provides detailed interference ratios needed to protect its TwinStream radio.

<sup>111</sup> Globalstar Comments at 3-7. *See* Amendment of Parts 2, 25 and 27 of the Commission's Rules with Regard to the Mobile-Satellite Service Above 1 GHz, *Notice of Proposed Rule Making*, ET Docket No. 98-142, 13 FCC Rcd 17107 (1998) (*MSS Notice*). *See also* Amendment of Parts 2, 25 and 27 of the Commission's Rules with Regard to the Mobile-Satellite Service Above 1 GHz, *Report and Order*, ET Docket No. 98-142, 17 FCC Rcd 2658 (2002) (*MSS Order*). The *MSS Order* recently allocated the band 6700-7025 MHz for non-Federal Government FSS downlinks on a co-primary basis, limiting the use of this spectrum to NGSO MSS feeder downlinks. It also established limits on the power flux density produced by the NGSO MSS satellite at the surface of the earth, to protect terrestrial services; established frequency coordination procedures for the band 6700-6875 MHz using existing Part 25 and 101 rules; and deferred coordination requirements between combined fixed and mobile terrestrial operations and satellite operations in the band 6875-7025 MHz band to a future proceeding. *See MSS Order* at ¶¶ 4, 39-60.

<sup>112</sup> SBE Reply Comments at 1-2. We note that the *MSS Order* has recently allocated the band 6700-7025 MHz, as proposed in the *MSS Notice*, for non-Federal Government FSS downlinks on a co-primary basis, limiting the use of this spectrum to NGSO MSS feeder downlinks. *See MSS Order* at ¶ 39.

<sup>113</sup> 47 C.F.R. § 74.638(b).

<sup>114</sup> We note that we will reproduce the frequency coordination rules in Part 78 for CARS applicants and licensees.

not taken into account. We believe that the collective needs of the local BAS licensing community to deploy mobile as well as fixed operations in their community will ensure that mobile patterns of use are fully respected in the selection of fixed frequencies by frequency coordinators under contract to provide service to any prospective BAS licensee in that community. In this connection, we acknowledge the role local frequency coordinating bodies have played in maintaining order within the BAS bands and encourage licensees to continue consulting with these bodies as they pursue future licensing. SBE asks that if we implement the Part 101 procedures for BAS, that we require notification of applications to the national SBE Frequency Coordination Director. We decline to require this. We find that such a procedure could be overly burdensome to applicants and coordinators. Moreover, it is unnecessary, given the involvement of local frequency coordinating bodies in fixed frequency selection, and especially given that all applications accepted for filing are publicly available through the ULS. The public availability of filing information has worked well in informing FS frequency coordinators of current filings and we believe it will satisfy the needs of the national SBE Frequency Coordination Director without increasing the filing burden on applicants or coordinators.

62. With respect to mobile TV BAS/CARS applications, we find that Section 101.103(d) coordination procedures would be unnecessarily burdensome. Given the urgency of ENG operations, and the long history of successful real time frequency coordination provided by local coordinators, we find that there is little potential that interference would result from its continued function without imposing the formality of Section 101.103(d) procedures. We therefore decline to adopt rules requiring Section 101.103(d) coordination procedures for mobile TV BAS/CARS stations for the 2 GHz, 2.5 GHz, 7 GHz, and 13 GHz bands. Licensees in these bands, except the 2 GHz band discussed below, will have the flexibility to exercise either Section 101.103(d) procedures or local coordination procedures, as appropriate to the situation. In the 6425-6525 MHz and 17,700-19,700 MHz bands, we maintain the existing rules requiring Section 101.103(d) coordination procedures for mobile TV BAS/CARS, as these bands are used heavily by FS services as well as BAS/CARS and subject to the same procedures. We believe that the use of the expeditious verbal notification and response procedures available in Section 101.103(d) has worked well in accommodating mobile users of all services in these shared bands, and to permit different or less formal procedures for BAS/CARS applicants would be inequitable and could lead to inconsistency and confusion in frequency coordination. A table summarizing the coordination requirements is provided below.

63. For the 1990-2110 MHz band, we will continue to maintain procedures which allow for local frequency coordination for all stations – fixed and mobile. In this band, we deviate from the policy articulated above for fixed stations based on unique circumstances of this band. Specifically, it is used predominantly by mobile TV pickup stations, but also supports some fixed links and it is currently transitioning to accommodate MSS in the 1990-2025 MHz portion of the band. Because each area of the United States may transition to MSS at different times, local frequency coordinators may be in the best position to accommodate requests to local operating conditions. We note that the use of a local coordinator is not mandated and licensees are free to coordinate stations themselves or by going to the coordinator of choice. SBE asks that under such a scheme, we require evidence of frequency coordination, similar to that required by the procedures of Section 101.103(d).<sup>115</sup> We agree with SBE that a method of verification is necessary. The rules of Section 101.103(d) have worked well in the past and we adopt a similar requirement here. Thus, we are adopting changes to Sections 74.638 and 78.36 which supplement local frequency coordination procedures for fixed systems to require the submission of a certification attesting that all co-channel and adjacent-channel licensees and applicants potentially

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<sup>115</sup> See SBE Comments at 9.

affected by the proposed fixed use of the frequencies have been notified and are in agreement that the proposed facilities can be installed without causing harmful interference to other users. Finally, we do not find it necessary to require the submission of detailed engineering calculations, as suggested by SBE.<sup>116</sup> The accomplishment of such calculations is inherent to the frequency coordination process. In this regard, we rely on coordinators to use good engineering judgment when coordinating systems and give deference to their recommendations. Requiring a detailed engineering submission such as that described is therefore unnecessary.

BAS/CARS Frequency Band	Frequency Coordination Procedures		
	Existing Requirements	New Requirements	
	Fixed and Mobile	Fixed	Mobile
2 GHz	Local	Local (no change)	Local (no change)
2.5 GHz	Local	Prior	Local or Prior
6.5 GHz	Prior	Prior (no change)	Prior (no change)
7 GHz	Local	Prior	Local or Prior
13 GHz	Interference Criteria	Prior	Local or Prior
18 GHz	Prior	Prior (no change)	Prior (no change)

64. An additional issue related to frequency coordination involves protection standards for stations. MRC asks that we adopt interference criteria for BAS coordination that is similar to the FS procedures in Sections 101.105(c) and 101.103(d). These criteria incorporate TIA TSB 10-F, or, alternatively, the exercise of good engineering practices or conservative default criteria. SBE, while not commenting directly on Section 101.105, recommends that coordinators be given flexibility regarding frequency coordination.<sup>117</sup> We note that the *Notice* discussed the importance of uniform frequency coordination procedures and standards to simplify coordination in shared bands and minimize the potential of stations causing interference.<sup>118</sup> In this regard, the procedures in Part 101 have served the FS well in the past, providing a firm and uniform, yet adaptable, basis for engineering systems without harmful interference, while maximizing frequency re-use. Thus, we believe that these same procedures will similarly benefit BAS and CARS. We note that these criteria are consistent with those already in effect for all BAS and CARS operations in the 12.7-13.25 GHz band.<sup>119</sup> We are therefore adopting Section 101.105 interference criteria for use where Section 101.103(d) frequency coordination procedures apply to BAS and CARS.

65. Finally, we decline to consider in this proceeding sharing issues and frequency coordination requirements between BAS/CARS and MSS. We acknowledge that new coordination procedures need to be developed for sharing between NGSO MSS user uplinks in the 2 GHz band and downlinks in the 7 GHz band, and BAS and CARS operations. However, those issues will be addressed in a future proceeding.<sup>120</sup>

<sup>116</sup> *Id.* at 8.

<sup>117</sup> See MRC Comments at 3-4; SBE Comments at 8.

<sup>118</sup> See *Notice* at ¶¶ 37-39.

<sup>119</sup> Sections 74.638, 78.36. 47 C.F.R. §§ 74.638, 78.36.

<sup>120</sup> See *MSS Order* at ¶¶ 4, 48-60.

## 8. Frequency Tolerance

66. The *Notice* proposed to amend the frequency tolerance rules for TV BAS.<sup>121</sup> Specifically, consistent with the proposal made in the *Part 101 NPRM*,<sup>122</sup> the *Notice* proposed to eliminate separate frequency tolerance requirements for base and mobile operations. Additionally, the *Notice* proposed to adopt a frequency tolerance of 0.001% for TV BAS equipment operating in the 2450-2483.5 MHz band, which does not have a limit under the current rules. Finally, the *Notice* proposed to grandfather existing authorized BAS systems in the 2483.5-2500 MHz band at their current frequency tolerance.<sup>123</sup>

67. Commenting parties support the proposals set forth in the *Notice*.<sup>124</sup> However, MRC notes that it currently manufactures TV BAS equipment with tolerances of 0.005% for fixed analog radios and 0.002% for portable analog radios, and states that all radios in the field or currently under production for existing product lines should be grandfathered.<sup>125</sup> Red River agrees that grandfathering is necessary, arguing that, if their existing equipment had to be replaced before its cost was fully amortized, and they would incur a substantial adverse economic impact.<sup>126</sup>

68. *Discussion.* As proposed in the *Notice*, we are eliminating separate frequency tolerance requirements for base and mobile operations, and are adopting a frequency tolerance of 0.001% for fixed and mobile TV BAS equipment operating in the 2450-2483.5 MHz band.<sup>127</sup> We find that having consistent frequency tolerance requirements for both fixed and mobile transmitters will simplify frequency coordination and improve spectrum efficiency. Similarly, by adopting a frequency tolerance requirement, we will ensure that spectrally efficient equipment is used and, for example, in the 2450-2483.5 MHz band, that the potential for adjacent channel interference is reduced. In that regard, to accommodate existing product lines in the 2450-2483.5 MHz band such as those of MRC, we will delay the effective date of the 0.001% tolerance in that band for two years. We find that this will accommodate MRC's existing product line, and strikes a balance between the benefits of spectrum efficiency afforded by a tighter tolerance and the indefinite accommodation sought by MRC for non-compliant product lines. Thus, we will grandfather existing equipment and equipment of current production lines exceeding the new 0.001% tolerance in the 2450-2483.5 MHz band and authorized, via certification or verification,<sup>128</sup>

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<sup>121</sup> Frequency tolerance is the maximum permissible deviation of the center frequency of an emission from its assigned frequency.

<sup>122</sup> See *Part 101 NPRM*, *supra*, at Appendix D, Section 101.107.

<sup>123</sup> *Notice* at ¶ 41.

<sup>124</sup> See APTS/PBS Comments at 6; MSTV/NAB Comments at 8; MRC Comments at 6; TIA Reply Comments at 4.

<sup>125</sup> MRC Comments at 6.

<sup>126</sup> Red River Comments at 1-2.

<sup>127</sup> See Appendix A, *infra*, at § 74.661.

<sup>128</sup> We remind manufacturers that, although their equipment may meet new tolerance or emission mask requirements, their existing equipment verification may not demonstrate, or their existing equipment certification may not reflect, such compliance. To remedy this situation, manufacturers must, in the case of verification, verify via retesting, or, in the case of certification, refile certification under the permissive change provisions of Section 2.1043 or file for certification under a new identification number, depending on the modifications needed to meet the new requirements. 47 C.F.R. §§ 2.1043.

up to two years after the adoption of this *Report and Order*, and stations authorized to use such equipment pursuant to an application filed up to two years after the adoption of this *Report and Order*. However, any such non-conforming equipment replaced on or after two years after the adoption of this *Report and Order* must be replaced by conforming equipment.

### 9. Use of the 13.150-13.2125 GHz Band by BAS and CARS Pickup Stations

69. In ET Docket No. 98-206, the Commission allocated the band 12.75-13.25 GHz for Non-Geostationary Fixed Satellite Service (NGSO FSS) uplinks on a co-primary basis.<sup>129</sup> The 13.15-13.20 GHz portion of that band is currently used by TV BAS and CARS Pickup Stations within 50 km of the top 100 television markets and by fixed TV auxiliary stations in all other areas.<sup>130</sup> To protect these operations, the NGSO FSS systems were excluded from operating in the 13.15-13.2125 GHz band (channels A19, A20, B19 and B20).<sup>131</sup> In the *NGSO Order*, the Commission expanded these exclusions in favor of TV BAS and CARS to include frequencies up to 13.2125 GHz and to extend to the entire United States. This action was predicated on the expectation that BAS and CARS mobile operations will be concentrated on those four channels.<sup>132</sup> Based on that action, the Commission proposed to update Section 74.602(a), Note 2 to reflect these changes. Further, the *Notice* proposed to grandfather all fixed stations that were licensed in the 13.15-13.2125 GHz band prior to the effective date of the rules in the *NGSO Order*.<sup>133</sup>

70. Both MSTV/NAB and SBE support our proposals.<sup>134</sup> SBE notes that, in light of the *NGSO Order*, it makes sense to extend the reservation and grandfather existing fixed BAS and CARS.<sup>135</sup>

71. *Discussion.* As proposed in the *Notice*, we are updating Section 74.602(a) Note 2 to implement, in accordance with the *NGSO Order*, expansions in mobile TV BAS and CARS pickup stations' use of the 13.15-13.2125 GHz band and the exclusion of NGSO FSS from that band.<sup>136</sup> We note that the recent *Optel Order* has rendered BAS pickup stations primary, and CARS stations, secondary to

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<sup>129</sup> See Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range, *First Report and Order and Further Notice of Proposed Rule Making*, ET Docket No. 98-206, 16 FCC Rcd 4096 (2001) (*NGSO Order*), at ¶ 122.

<sup>130</sup> 47 C.F.R. § 74.602(a) Note 2.

<sup>131</sup> *Id.* We note that Note 2 currently specifies protection for the 13.15-13.20 GHz band. However, channel B20, which was provided protection in the *NGSO Order*, extends to 13.2125 GHz.

<sup>132</sup> See *NGSO Order* at ¶ 126.

<sup>133</sup> *Notice* at ¶ 42.

<sup>134</sup> See MSTV/NAB Comments at 9; SBE Comments at 11.

<sup>135</sup> SBE Comments at 11.

<sup>136</sup> We note that Skybridge L.L.C. has filed a Petition for Reconsideration of the Commission's decision in the *NGSO Order* to exclude NGSO FSS from the band 13.15-13.2125 GHz. That Petition is being addressed in ET Docket No. 98-206.

BAS pickup stations, in the 13.20-13.25 GHz band,<sup>137</sup> and we are updating Section 74.602(a), Note 2, accordingly, to reflect this status in the 13.20-13.2125 sub-band. Consistent with these actions, we are also updating Section 78.18(1) with respect to CARS, and footnote NG53 to the Table of Frequency Allocations in Section 2.106. Further, we are grandfathering at their current status all fixed stations licensed in the 13.15-13.2125 GHz band prior to the effective date of the rules in this *Report and Order*.

#### 10. Use of the 31.0-31.3 GHz and 38.6-40.0 GHz Bands by the BAS and CARS

72. In 1997, the Commission redesignated the 31.0-31.3 GHz band for the Local Multipoint Distribution Service (LMDS) and deleted the designations for BAS and CARS.<sup>138</sup> Consequently, BAS and CARS are no longer authorized to operate in this band. However, many of the technical rules continue to mention this band. Therefore, the Commission proposed in the *Notice* to eliminate references to the 31.0-31.3 GHz band in the aural BAS, TV BAS and CARS rules.<sup>139</sup>

73. Similarly, the Commission, in 1997, adopted rules and procedures to assign the 38.6-40.0 GHz band by competitive bidding.<sup>140</sup> That band had been available for assignment to mobile BAS and CARS licenses without bandwidth limitation and on a secondary basis to fixed stations.<sup>141</sup> In addition to the new assignment procedures, the Wireless Telecommunications Bureau, pursuant to delegated authority, adopted an *Order (Freeze Order)* announcing that the Commission would no longer accept for filing any new applications for 39 GHz licenses in the Common Carrier or Private Operational Fixed Point-to-Point Radio Services.<sup>142</sup> In addition, consistent with the policy of the *Freeze Order* and the assignment of new licenses by auction, no new assignments are being made for BAS or CARS licenses in the 38.6-40.0 GHz band.<sup>143</sup> Accordingly, the Commission proposed in the *Notice* to remove all references to the 38.6-40.0 GHz bands from the BAS and CARS rules. As a final matter, the Commission noted that there are 15 incumbent Television Pickup BAS stations operating in this band. In

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<sup>137</sup> See Amendment of Eligibility Requirements in Part 78 Regarding 12 GHz Cable Television Relay Service, CS Docket No. 99-250, *Report and Order*, 17 FCC Rcd 9930 (2002) (FCC 02-149) (*Optel Order*), at ¶¶ 21-24. See also Section 78.18 (m), added by the *Optel Order*, which states that CARS stations may be authorized use of the band from 13.20 to 13.25 GHz on a secondary basis to Television Broadcast Auxiliary Stations. 47 C.F.R. § 78.18(m).

<sup>138</sup> See Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission's Rules to Redesignate the 27.5-29.5 GHz Frequency Band, To Reallocate the 29.5-30.0 GHz Frequency Band, To Establish Rules and Policies for Local Multipoint Distribution Service and For Fixed Satellite Services, CC Docket No. 92-297, *Second Report and Order, Order on Reconsideration, and Fifth Notice of Proposed Rulemaking*, 12 FCC Rcd 12545 (1997).

<sup>139</sup> *Notice* at ¶ 43.

<sup>140</sup> See Amendment of the Commission's Rules Regarding The 37.0-38.6 GHz and 38.6-40.0 GHz Bands, ET Docket No. 95-183, *Report and Order and Further Notice of Proposed Rule Making*, 12 FCC Rcd 18600 (1997). In May 2000, the Commission assigned more than 2,000 licenses in 175 Economic Areas by competitive bidding in the 39 GHz band. See 39 GHz Band Auction Closes, Report Auc-30-E (Auction No. 30), DA 00-1035, rel. May 10, 2000.

<sup>141</sup> 47 C.F.R. § 74.602.

<sup>142</sup> See Petition For Amendment Of The Commission's Rules Regarding The 37.0-38.6 GHz And 38.6-40 GHz Bands, DA 95-2341, *Order*, 11 FCC Rcd 1156 (1996) (*Freeze Order*).

<sup>143</sup> No new BAS licenses have been issued in the 38.6-40.0 GHz band since the adoption of the *Freeze Order*.

the *Notice*, the Commission stated that these BAS licensees may continue to operate under the parameters of their current licenses and renew those licenses in the future.<sup>144</sup>

74. Commenting parties generally support the proposals set forth in the *Notice*.<sup>145</sup> SBE states that it agrees with the proposed elimination of references to the 31.0-31.3 GHz and 38.6-40.0 GHz bands from BAS and CARS technical rules, since those bands are no longer available to BAS, and concurs with the grandfathering of incumbents in the 38.6-40.0 GHz band. SBE also requests that the Commission provide guidance on how to identify, contact, and coordinate with the primary occupants of the band.<sup>146</sup>

75. Winstar states that it strongly supports the proposed elimination of references to the 31.0-31.3 GHz band from all BAS and CARS technical rules, as that band is currently designated for primary use by LMDS and there are no currently active BAS or CARS authorizations in the band.<sup>147</sup> Winstar states that it also supports the proposed elimination of references to the 38.6-40.0 GHz band from BAS and CARS frequency assignment rules, but suggests that the references to that band in certain BAS technical rules be maintained because those rules set technical limitations on incumbent operations in the band. Winstar also expresses concern with the *Notice*'s proposal to allow incumbent BAS licensees in the 38.6-40 GHz band to continue operating. It notes that, according to the ULS, the locations of the 16 active BAS licenses are in nine of the largest major metropolitan areas in the country.<sup>148</sup> Winstar strongly urges the Commission to clarify that all BAS operations in the 38.6-40.0 GHz band, which are secondary, must coordinate with primary fixed wireless licensees prior to each operation, with no exceptions for unanticipated need for immediate operation. Alternatively, Winstar recommends that the Commission eliminate secondary BAS licenses from the band, in order to avoid adversely impacting Winstar's service availability. Finally, Winstar urges the Commission to publicize the fact that information on all fixed wireless licenses in the band is available on the ULS to all incumbent BAS operators.<sup>149</sup>

76. *Discussion.* We are adopting the proposals in the *Notice* to eliminate references to the 31.0-31.3 GHz and 38.6-40.0 GHz bands from BAS and CARS technical rules, and to grandfather BAS incumbents in the 38.6-40.0 GHz band. No party opposes the first proposal, and only Winstar expresses concern regarding the second proposal. With respect to Winstar's concern, we note that the incumbent BAS licensees remain bound by the operational parameters specified on their current authorizations. We also clarify that, as stated in footnote US291 to the Table of Frequency Allocations, mobile BAS facilities

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<sup>144</sup> *Notice* at ¶ 44. Since the adoption of the *Notice*, one station, call sign KC23139, cancelled its license.

<sup>145</sup> See SBE Comments at 11; MSTV/NAB Comments at 9; Winstar Comments at 2.

<sup>146</sup> SBE Comments at 11.

<sup>147</sup> Winstar Comments at 2.

<sup>148</sup> *Id.* at 3. With respect to Winstar's concern, in its Comments at 3-4, that certain BAS licenses listed as active are also listed as expired on the ULS, we clarify that, as noted by SBE in its Reply Comments at 8, the expiration dates on BAS licenses may not be updated from the broadcast station renewal, so that validity of a license must be determined by whether it is active on the ULS. Modifications to enable the ULS to update expiration dates from broadcast station renewals are planned. Meanwhile, active status may be determined through the ULS using the frequency search function, or, if the call sign is known, observing its active status on the license record. Questions about specific licenses should be directed to the Licensing Branch of the Public Safety and Private Wireless Division of the Wireless Telecommunications Bureau in Gettysburg, Pennsylvania.

<sup>149</sup> *Id.* at 4-5.

in the 38.6-40.0 GHz band operate on a secondary basis with respect to stations operating in accordance with the Table of Frequency Allocations, which include Winstar's operations under Part 101. In this connection, consistent with our actions removing references to the 38.6-40.0 GHz band from Part 74, we are deleting Auxiliary Broadcasting from that band in the Table of Frequency Allocations. We are also deleting footnote US291 from the Federal Government and Non-Federal Government columns of the table and replacing it with footnote NG175 in the Non-Federal Government column only, revised to show that the band is no longer available for BAS, and that incumbent mobile BAS operations licensed as of the effective date of the rules in this *Report and Order* are grandfathered and may continue to operate indefinitely on a secondary basis with respect to Part 101 licensees. We are revising Section 2.106, Table of Frequency Allocations, and Part 74 of our rules, accordingly.<sup>150</sup>

## 11. Antennas

77. In addition to the specific proposals made in the *Notice*, we asked commenters to identify other rule changes that would benefit the BAS. In this regard, MRC requests that periscope antenna systems<sup>151</sup> be prohibited from BAS, as they are in other services,<sup>152</sup> because periscope antenna sidelobe rejection is poor and unpredictable, and can cause interference to both satellite and terrestrial systems.<sup>153</sup>

78. *Discussion.* The existing provisions that accommodate new periscope antennas in Section 74.641 and 78.105 do so only on the condition that applicants make a persuasive showing that no frequency conflicts exist in the area of intended operation.<sup>154</sup> This constraint ensures that new periscope antennas will not cause unacceptable interference to terrestrial or satellite users. We therefore decline to limit flexibility in BAS antenna selection at this time.

### B. BAS Service Rules (Part 74)

#### 1. Temporary Conditional Authority

79. In the *Notice*, the Commission proposed to allow BAS applicants who apply for new or modified stations to operate under temporary conditional authority after an application has been properly filed with the Commission.<sup>155</sup> This type of operating authority is permitted in other coordinated services, such as those authorized under Parts 90 and 101 and Remote Pickup BAS.<sup>156</sup> The Commission proposed to make such temporary conditional authority subject to the following conditions:

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<sup>150</sup> See Appendix A, *infra*, at § 2.106, footnote NG175; Part 74.

<sup>151</sup> A periscope antenna configuration uses a transmitting antenna oriented to produce a vertical radiation pattern, with a flat or off-axis parabolic reflector, mounted above the transmitting antenna, which directs the beam in a horizontal path toward the receiving antenna. This type of antenna facilitates increased terrain clearance without long transmission lines, while permitting the active equipment to be located at or near ground level for ease of maintenance.

<sup>152</sup> See, e.g., 47 C.F.R. § 101.115(d).

<sup>153</sup> MRC Comments at 8.

<sup>154</sup> See 47 C.F.R. § 74.641(c).

<sup>155</sup> *Notice* at ¶ 46.

<sup>156</sup> 47 C.F.R. §§ 90.159(b), 101.31, and 74.431(g).



- The applicant must be eligible to operate the particular class of broadcast auxiliary station.
- The station must be operating in conformance with the rules for that particular class of station and in accordance with the terms of the frequency coordination.
- The application does not propose operation in an area that requires international coordination.
- The application does not request a waiver of the Commission's rules.
- The proposed station will not significantly affect the environment as defined in Part 1, Subpart I of the Commission's rules.<sup>157</sup>
- The antenna structure either has a FCC Registration Number or is determined to not need one.
- The proposed station affords protection to radio "quiet" zones and monitoring stations.<sup>158</sup>

The Commission also proposed to allow temporary conditional authority for low power auxiliary stations authorized under Part 74, Subpart H.<sup>159</sup> To effectuate these changes, the Commission proposed to delete Section 74.431(g) and to adopt new Section 74.25 to allow temporary conditional authorizations for all broadcast auxiliary services.<sup>160</sup>

80. Commenting parties generally support the proposals set forth in the *Notice*.<sup>161</sup> MSTV/NAB support allowing temporary conditional authority for BAS stations, provided that the BAS facility has been appropriately coordinated.<sup>162</sup> Comsearch states that temporary conditional authority has been extremely useful to Part 101 users in allowing rapid deployment and should be available to BAS and CARS users.<sup>163</sup> SBE concurs with the proposal, provided that there is evidence of local frequency coordination and the conditions proposed in the *Notice* are met.<sup>164</sup> However, Comsearch opposes temporary conditional authority based on local frequency coordination, which it contends is a unilateral frequency coordination process. Comsearch argues that the licensees and applicants who are affected by a temporary conditional authority proposal must be given an opportunity to review and, if necessary, oppose that proposal prior to operation of the proposed facilities.<sup>165</sup>

81. *Discussion.* We find that providing BAS applicants with the ability to operate under temporary conditional authority is appropriate. As suggested by the commenting parties, such an approach will permit the provision of service in a timelier manner without causing harmful interference

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<sup>157</sup> 47 C.F.R. § Part 1, Subpart I.

<sup>158</sup> *Notice* at ¶ 47.

<sup>159</sup> *Id.* at ¶ 48. Low power auxiliary stations are intended to transmit over distances of approximately 100 meters for uses such as wireless microphones, cue and control communications, and synchronization of TV camera signals. These stations are typically used in conjunction with a BAS station.

<sup>160</sup> *Id.* at ¶¶ 48-49.

<sup>161</sup> See APTS/PBS Comments at 6; MSTV/NAB Comments at 8; Comsearch Comments at 5; TIA Reply Comments at 3.

<sup>162</sup> MSTV/NAB Comments at 9.

<sup>163</sup> Comsearch Comments at 4.

<sup>164</sup> SBE points out that the word "not" was omitted from proposed Section 74.25(c)(ii), which reads, "The station site does lie within an area requiring international coordination." See SBE Comments at 12.

<sup>165</sup> Comsearch Reply Comments at 3.

to existing licensees, so long as frequency coordination is successfully performed. Accordingly, we are deleting Section 74.431(g) and adopting a new Section 74.25 to allow temporary conditional authorizations for all broadcast auxiliary services.<sup>166</sup>

## 2. Short-Term Operation

82. Section 74.24 provides broadcast licensees regulated under Part 73 of our rules (*i.e.*, AM, FM, and TV broadcast stations, including Class A stations) with the authority to operate a broadcast auxiliary station on a short-term secondary basis, for up to 720 hours per year, without prior authorization from the Commission, subject to providing notification to the local frequency coordinator, and to co-channel and adjacent channel CARS licensees.<sup>167</sup> This rule section provides broadcasters with flexibility to respond to short term situations that occur outside of a station's normal operating area without coming to the Commission with requests for STA. However, the same flexibility is not afforded to broadcast network entities, cable network entities, or LPTV stations, even though these entities are eligible to hold BAS licenses. Thus, the current rules allow one class of BAS licensees - broadcasters - to operate under the short-term operation rule, but exclude all other BAS licensees even though each of these entities may operate their own news services and originate programming. Because we believe that broadcast and cable network entities and LPTV stations would benefit from the short-term operation rule and such use would provide equity under our rules for all entities eligible for a BAS license, the Commission proposed in the *Notice* to expand the eligibility of this rule.<sup>168</sup> The Commission also proposed to clarify that entities may not invoke the notification exception for scheduled events.<sup>169</sup> The Commission further proposed to codify the procedures for designating a coordinator as the single point of contact for advance coordination of auxiliary broadcast frequency usage of major national and international level scheduled news events. In the *Notice* the Commission pointed out that it has accomplished this in the past by issuing a Public Notice, but that such procedures should be contained in the rules.<sup>170</sup> The Commission also sought comment on whether the current Rule which limits short-term operation for a licensee to 720 hours per year per frequency should be modified, and whether stations should be required to keep a log of their short term use in their station records.<sup>171</sup>

83. Commenting parties generally support the proposals set forth in the *Notice*.<sup>172</sup> APTS/PBS state that they support the proposals to extend short-term operation to broadcast network entities, cable entities, and low power television stations; to relax the notification requirement only in cases of unanticipated need for immediate short-term mobile operation, specifically excluding scheduled events;

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<sup>166</sup> We also correct the error in Section 74.25(c)(ii) pointed out by SBE and modify that provision to read, "The station site does not lie within an area requiring international coordination."

<sup>167</sup> 47 C.F.R. § 74.24. There is an exception to the local coordinator notification requirement when "... an unanticipated need for immediate short-term mobile station operation would render compliance with the provisions of this paragraph impractical." See 47 C.F.R. § 74.24(g).

<sup>168</sup> *Notice* at ¶ 51.

<sup>169</sup> *Id.* at ¶ 52.

<sup>170</sup> *Id.* at ¶ 53.

<sup>171</sup> *Id.* at ¶ 54.

<sup>172</sup> See APTS/PBS Comments at 7; MSTV/NAB Comments at 9; Globalstar Comments at 7; SBE Comments at 12.

and to establish a procedure for designating a frequency coordinator for short-term BAS operations covering major national and international scheduled news events.<sup>173</sup> MSTV/NAB state that they generally support the proposal to extend short-term operation to broadcast networks, cable, networks, and LPTV stations, but contend that it is vitally important to require that all such operations be prior coordinated. MSTV/NAB also contend that there is no clear definition of a scheduled event, for which the licensee would be excluded from invoking the notification exception in proposed Section 74.24(g). MSTV/NAB further support the proposed procedures to designate a frequency coordinator for short-term operations at special events, if such designation is granted following a formal request. Finally, MSTV/NAB oppose changing the current 720 hour limit on short-term operation or requiring stations to log and track their short-term use.<sup>174</sup>

84. SBE also concurs with the proposal to extend short-term operation to broadcast network entities, cable network entities. However, SBE recommends that because these entities do not have call signs, they identify themselves using the network or cable base entity name and city of operation.<sup>175</sup> SBE would disallow short-term operation for links operated intermittently on permanently installed antennas, as it believes such operation should be frequency coordinated and licensed. SBE also recommends that the existing requirement to always provide advance notice to co-channel and adjacent channel CARS licensees is unnecessary and redundant, given the current frequency coordination tools and the experience and knowledge of local coordinators.<sup>176</sup> In addition, SBE asserts that the 720 hour limit has proven to be unenforceable and should be changed to a 30 calendar day period per year per market. It contends that this would be simpler to follow and enforce because broadcasters would not have to count hours or skipped days and a FCC field engineer would only need to determine the date of first operation to ascertain compliance. As an exception, SBE would allow itinerant operators to halt and restart the 30-day clock each time it leaves and returns to a market.

85. Globalstar states that it does not object to extending short term operation to broadcast network entities, cable network entities and LPTV stations, but asserts that because such use has been increasing, it is essential that coordination be conducted prior to commencing operation, particularly for mobile operations in spectrum shared with satellite services. Globalstar urges that in addition to notification, coordination should be accomplished with the frequency coordinating committee or co-channel licensee prior to commencement of operations to avert interference to an NGSO MSS feeder downlink. For the same reasons, Globalstar urges that the proposed exception to notification in cases of unanticipated need not be allowed for spectrum shared with NGSO MSS spectrum in the 2 GHz and 7 GHz bands. Finally, Globalstar recommends that the Commission list in its rules a telephone number and website address for contacting local coordinating committees and special event coordinators, similar to the outdated reference in current Section 74.24(g) that refers applicants to the Commission's Auxiliary Services Branch for information on active frequency coordination committees.<sup>177</sup>

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<sup>173</sup> APTS/PBS Comments at 7.

<sup>174</sup> MSTV/NAB Comments at 9-10.

<sup>175</sup> SBE Comments at 12.

<sup>176</sup> SBE Comments at 13.

<sup>177</sup> Globalstar Comments at 7-9. The Auxiliary Services Branch no longer exists and the Commission no longer maintains information on active frequency coordination committees. Thus, reference to it has been omitted from the proposed revision of Section 74.24(g).

86. In reply comments, SBE notes that all short term authority operation is secondary. Therefore it is not necessary to prohibit uncoordinated short-term use under the notification exception in the 2 GHz and 7 GHz bands, as requested by Globalstar.<sup>178</sup>

87. *Discussion.* To promote consistent treatment of licensees with similar operations, we adopt our proposal to extend the short-term operation rules to broadcast network entities, cable network entities, and LPTV stations. This action, which is not opposed by any commenter, will simplify the process for these entities when it is necessary to provide coverage of events outside of its normal coverage area. In addition, our proposal to codify rules and procedures for designating a coordinator for major special events was supported by commenters and is adopted as proposed with one clarification; we will specify in Section 74.24(g)(2)(i) that the initial request for such designation be made in writing. Such designations will be made by public notice which will include all necessary contact information. Thus Globalstar's request that contact information be placed in the rules is denied.<sup>179</sup>

88. Extending this rule to cover additional entities raises questions regarding compliance with the various station identification rules. Therefore, because broadcast network and cable network entities do not have individual station call signs for identification purpose, we will require them to use their network or cable entity name along with their base of operations city for compliance with the station identification rules, as suggested by SBE. Using such a scheme will make it easy to identify the proper point of contact should a problem arise.

89. With respect to SBE's concern regarding intermittent operation on permanently installed antennas, we note that the rule does not prohibit such operation, and thus it is permitted, under Section 74.24, without formal coordination and licensing.

90. With respect to adding a requirement that full frequency coordination be accomplished prior to operation under the short-term operation rule, we disagree with Globalstar that such a requirement is necessary. First, we note that all operation under this rule is secondary. Second, we believe that the current requirement to notify the local coordinating committee or co-channel licensees, and co-channel and adjacent channel CARS licensees is sufficient. These conditions assure that operations under the short-term operation rule have a minimal chance of causing harmful interference while providing broadcasters the ability to cover a newsworthy event without delay.

91. As detailed above, SBE requests that the requirement that co-channel and adjacent channel CARS be notified when a broadcaster operates under the short-term operation rule be deleted. We are not inclined to do so. We disagree with SBE's position that this requirement is unnecessary and redundant. CARS stations generally transmit large blocks of contiguous video channels with no filtering. The notification requirement is necessary to ensure that CARS licensees, particularly those operating on adjacent channels without receiver filtering, are afforded an opportunity to have prior knowledge of the RF operating environment. This is especially important in areas where local coordinators are not available or provide limited assistance.

92. Finally, we will maintain the current limitation of 720 hours per year per frequency for short-term operation. We agree with the MSTV/NAB that the existing limit has worked well and that

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<sup>178</sup> SBE Reply Comments at 5.

<sup>179</sup> We note that the current information on local frequency coordinators is maintained by SBE on their website at <http://www.sbe.org>.

there does not appear to be a demonstrable need to make changes at this time. We do not believe that changing this limit to a 30 calendar day limit, as suggested by SBE, would significantly increase the enforceability of the rule, absent the imposition of a logging requirement. This is especially true for the stop/start provisions which SBE also proposes to permit, as an exception to the 30 consecutive day limit, for network entities with no regular presence in the market.

### 3. Use of UHF-TV Channels for TV STLs and TV Relay Stations

93. Under Section 74.602(h) of the Commission's rules, TV STLs and TV relay stations may be authorized, on a secondary basis, to operate fixed point-to-point service on spectrum allocated for UHF-TV stations.<sup>180</sup> In addition to being secondary to full power UHF-TV and Class A TV stations, these stations are also secondary to LPTV stations and translator stations, and to land mobile stations authorized under Parts 22 and 90 in areas where land mobile sharing is permitted.<sup>181</sup> The rules, however, do not contain any guidelines regarding acceptable power limits or antenna specifications for these stations.<sup>182</sup> Instead, the Commission has developed policies to determine how to authorize these stations. Specifically, TV STL and TV relay station applicants that request output power greater than 20 watts or a transmitting antenna with a 3 dB beamwidth greater than 25 degrees are asked to submit an engineering analysis to demonstrate why the higher output power or wider beamwidth is necessary.<sup>183</sup> Because the Commission is increasingly relying on automated processing, as evidenced by the ULS, it stated in the *Notice* that codifying operational parameters for these stations would be beneficial so that prospective applicants have as much information as possible to assist them. The Commission further stated that this change would shorten the application process by minimizing the number of applications that need to be returned due to failure to submit an engineering analysis if the stated specifications are exceeded.<sup>184</sup>

94. To implement this policy in the rules, the Commission proposed to modify Section 74.602(h) to permit applicants for TV STL and TV relay stations up to 35 dBW EIRP, a 3 dB beamwidth of 25 degrees or less, and use of vertical polarization<sup>185</sup> without submitting an engineering analysis.<sup>186</sup> In

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<sup>180</sup> 47 C.F.R. § 74.602(h). The UHF-TV spectrum may be used only if a licensee cannot find spectrum available in any other frequency band allocated for these stations.

<sup>181</sup> 47 C.F.R. Parts 22 and 90 provide for the use of land mobile stations in the 470-512 MHz band (TV channels 14-21). *See, e.g.*, 47 C.F.R. §§ 22.621 and 90.303. Additionally, we note that the Commission adopted an *Order* in 1995 granting a conditional waiver for public safety land mobile use of Channel 16 in New York City. *See* In the Matter of Waiver of Parts 2 and 90 of the Commission's Rules to Permit New York Metropolitan Area Public Safety Agencies to Use Frequencies at 482-488 MHz on a Conditional Basis, *Order*, 10 FCC Rcd 4466 (1995). Under terms adopted in the *Report and Order* in MM Docket No. 00-10, the New York Police, operating under authority of the cited waiver, and LPTV station WEBR-LP will continue their current practice of cooperating to ensure that neither party interferes with the other's transmission on Channel 16. *See* In The Matter Of Establishment Of A Class A Television Service, MM Docket No. 00-10, *Report and Order*, 15 FCC Rcd 6355 (2000) at ¶ 84.

<sup>182</sup> *See* 47 C.F.R. § 74.636 (power limits), 47 C.F.R. § 74.641 (antenna requirements).

<sup>183</sup> This policy was articulated for applicants in RM-7586. *See* TV Auxiliary Use of Vacant UHF-TV Channels, RM-7586, *Memorandum Opinion and Order*, 10 FCC Rcd 4896 (1995) (*UHF-TV Order*) at ¶¶ 9-11.

<sup>184</sup> *Notice* at ¶ 55.

<sup>185</sup> Vertical polarization, rather than the more commonly transmitted horizontal polarization is required as an added safeguard to prevent reception of these signals by the public.

<sup>186</sup> *Id.* at ¶ 57.

addition, because the Commission also regularly licenses TV translator relay stations on UHF-TV channels, it proposed that they also be subject to these rules.<sup>187</sup> Finally, the Commission proposed to limit future assignments on UHF-TV stations to channels 14-51 and to grandfather existing operations on channels 52-69. This proposal was made based on the Commission's recent reallocation of channels 52-59 (698-746 MHz)<sup>188</sup> and channels 60-69 (746-806 MHz) from broadcasting to fixed, mobile, and broadcasting with most licenses to be assigned by competitive bidding.<sup>189</sup>

95. Commenting parties generally support the proposals set forth in the *Notice*.<sup>190</sup> In supporting the proposal MSTV/NAB additionally ask the Commission to require that such links be encoded to prevent reception by consumers. They contend that the vertical polarization restriction is insufficient in this regard.<sup>191</sup> SBE, while supportive of placing the current policy requirements in the rules, objects to allowing these links to be established without an engineering analysis. It points out that the current rules which require point-to-point links to meet the same technical requirements of new TV translator or LPTV stations, protects existing broadcast stations, especially if the new station is intended to be located at a high elevation. In addition, SBE recommends providing an incentive to use vertical polarization, but not requiring its use. SBE would accomplish this by applying a 10 dB polarization factor to stations using vertical polarization during their analysis. SBE is supportive of restricting future links to channels 14-51 and our proposal to grandfather existing stations operating on channels 52-69.<sup>192</sup>

96. The National Translator Association (NTA) opposes our proposal to cease licensing translator relay stations on UHF-TV channels 52-69. It asks that authorizations for new translator relay stations be permitted on these channels on a secondary, non-interference basis until such time as the Commission's Media Bureau stops accepting applications for new translator stations on these channels. It states that translator relay stations are an economical method of transporting a station's signals to TV translator station and that most translator relays are in relatively remote areas where new spectrum users will be slow to use the spectrum. It also notes that during the transition to DTV, stations will be using both analog and digital channels, making it difficult to find available channels for new translator relay

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<sup>187</sup> *Id.* at ¶ 58.

<sup>188</sup> See In the Matter of Reallocation and Service Rules for the 698-746 MHz Spectrum Band (Television Channels 52-59), *Report and Order*, GN Docket No. 01-74, 17 FCC Rcd 1022 (2002) (*Channel 52-59 Reallocation Order*), at ¶¶ 2, 13.

<sup>189</sup> See generally In the Matter of Reallocation of Television Channels 60-69, The 746-806 MHz Band, ET Docket No. 97-157, *Report and Order*, 12 FCC Rcd. 22953 (1998). In that proceeding the 764-776 MHz and 794-806 MHz bands were designated for use by public safety. The 746-747 MHz, 762-764 MHz, 776-777 MHz, and 792-794 MHz bands have already been auctioned and assigned to guard band managers. That auction was completed on February 21, 2001. See 700 MHz Guard Bands Auction Closes, DA 01-478, *Public Notice*, Feb. 22, 2001. The auction for the 698-746 MHz band began June 19, 2002 and the auction for the 747-762 MHz and 777-792 MHz bands is scheduled to begin January 14, 2003. See In the matter of Auction of Licenses in the 747-762 and 777-792 MHz Bands (Auction No. 31); Auction of Licenses in the 698-746 MHz Band (Auction No. 44); Cellular Telecommunications & Internet Association, Paxson Communications Corporation and the Spectrum Clearing Alliance Applications for Review of Wireless Telecommunications Bureau Letter, April 10, 2002, DA 02-857, WT Docket No. 99-168, GN Docket No. 01-74, *Order*, rel. May 24, 2002.

<sup>190</sup> See APTS/PBS Comments at 7-8; MSTV/NAB Comments at 11.

<sup>191</sup> MST/NAB Comments at 11.

<sup>192</sup> SBE Comments at 14-15.

operations.<sup>193</sup>

97. *Discussion.* Based on the comments, we adopt, with some modification, our proposals with respect to the future use of UHF-TV channels by TV STLs, TV relay stations, and TV translator relay stations. We will permit these stations to obtain authorizations without submitting an engineering analysis so long as they meet the specified technical parameters – maximum EIRP of 35 dBW, maximum transmitting antenna beamwidth of 25 degrees, and use of vertical polarization. In addition, we will limit future licensing, beginning as of the effective date of the rules of this *Report and Order*, of TV STLs and TV relay stations to channels 14-51; current stations on channels 52-69 will be grandfathered under the terms of their current authorization until the end of the DTV transition or until new primary licensees require the removal of such operations. Finally, for the reasons given by NTA, we will permit future licensing of TV translator relay stations on all UHF-TV channels 52-69 through the end of the DTV transition as long as harmful interference is not caused to new primary services.

98. We disagree with MSTV/NAB and SBE that additional measures must be taken to protect UHF-TV broadcast operations from TV STLs, TV relay stations, and TV translator relay stations. The Commission articulated in the *UHF-TV Order* that, given the power and antenna restrictions and absent any evidence of TV BAS stations being used to provide direct service to the public, a coding requirement would present an unwarranted additional cost burden on these stations.<sup>194</sup> We believe this still to be the case and decline to add this additional requirement as a condition of licensing. In the *UHF-TV Order*, the Commission eliminated certain engineering showings and streamlined the licensing process. In doing so, we are unaware of any stations that have encountered interference due to these policies. Therefore, we decline to adopt any additional restrictions or review procedures which would unnecessarily burden licensees or the licensing process. We will however make a slight wording change to Section 74.602(h)(1) to clarify that if any of the specified parameters are exceeded, an engineering analysis must accompany the application.<sup>195</sup> We also point out that stations licensed under 74.602(h) are secondary and regardless of their operating parameters, must protect all primary stations using the UHF-TV spectrum, including land mobile stations.<sup>196</sup>

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<sup>193</sup> NTA *Ex Parte* presentation of March 21, 2002, ET Docket No. 01-75, filed May 10, 2002, at 1-2. NTA also asks that we allow the transmission of multiple contiguous standard 8-Level Vestigial Side-Band (8VSB) digital modulation signals from multiple primary stations, as defined in Section 74.701(b), on one set of microwave equipment operating on a channel for which a TV translator relay station is already authorized. We clarify here that Section 74.631(d) already allows such a station to multiplex signals to provide additional communication channels in the manner requested by the NTA. 47 C.F.R. §§ 74.701(b), 74.631(d). In addition, we note that because NTA states that the proposed operation would adhere to the current emission mask, allowing multiple signals within a channel will not increase the interference potential of transmissions within the channel.

<sup>194</sup> See *UHF-TV Order* at ¶¶ 12-13.

<sup>195</sup> We are modifying the language of proposed Section 74.602(h)(1) to, “Applications for authorization in accordance with this paragraph must comply with the following technical limits or be accompanied by an engineering analysis demonstrating why these limits must be exceeded.”

<sup>196</sup> Stations licensed under 47 C.F.R. § 74.602(h) are subject to provisions of Part 74, Subpart G, which contains protection criteria for many types of stations. See, for example, Sections 74.705, 74.707, and 74.709 for interference protection criteria for TV broadcast stations; low power TV and TV translator stations; and land mobile stations, respectively. 47 C.F.R. §§ 74.705, 74.707, and 74.709.

99. Commenters, recognizing that the frequency bands encompassing UHF-TV channels 52-69 have been reallocated, generally support our proposal to cease licensing BAS stations on this spectrum. Accordingly, for applications filed on or after the effective date of these rules, we will no longer accept applications for TV STLs or TV relay stations for operations on TV channels 52-69. Existing stations will be grandfathered on a continued secondary basis under the terms of their current authorizations until the end of the DTV transition or until the band is needed for new primary status licensed services.<sup>197</sup> This action will minimize encumbrance of the spectrum and ease the introduction of new services. We take a slightly different approach, however, to future licensing of TV translator relay stations. We will allow new authorizations for these stations to operate on UHF-TV channels 52-69 until the end of the DTV transition as long as there are no interference conflicts with new licensed services. We find that this action should not affect new uses of this spectrum as TV translator relay stations operate on a secondary basis to new primary services on UHF-TV channels 52-69 and TV translator relay stations are typically in remote areas. In addition, this is consistent with the Commission's decision in the *Channel 52-59 Reallocation Order*, which allows the continued filing and operation of new low power TV and TV translator stations, on a secondary basis, on Channels 52-69 through the end of the DTV transition.<sup>198</sup> We observe that TV translator relay stations are typically used to carry TV signals to translator stations<sup>199</sup> to serve communities that are far from TV broadcast stations. Such transmission is often more economically accommodated at UHF-TV frequencies than in the higher microwave frequency bands available to TV BAS. Given the value of TV translator relay stations to rural areas that may not see new primary services for years to come, and the fact that new TV translators may be authorized only on a secondary basis on UHF-TV Channels 52-69 through the end of the DTV transition, we find that the continued authorization and operation of TV translator relay stations is desirable and will not impact new primary services. Consistent with the *Channel 52-59 Reallocation Order*, we also will permit translator relay stations in operation on channels 52-59 at the end of the DTV transition to continue operating on a secondary basis to new services after the end of the transition.<sup>200</sup>

100. Finally, we remind all TV BAS licensees and prospective applicants for operation on UHF-TV channels 52-69 (698-806 MHz) that operations by new primary services in that band will be permitted anywhere within the licensed geographic areas as soon as they are licensed, and need not wait till the end of DTV transition, on December 31, 2006, or later,<sup>201</sup> provided they do not interfere with full-power TV. For example, a new primary service licensee may be able to deploy in areas without TV service or make arrangement for spectrum access prior to the completion of DTV transition. TV BAS operations, because of their secondary status both during and after DTV transition, are not permitted to cause harmful interference to stations of primary services - including new licensees in the band as a result

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<sup>197</sup> 47 U.S.C. § 309(j)(14)(A)-(B). This statute requires analog TV broadcasters to cease operation in the recovered spectrum by the end of 2006 unless the Commission extends the end of the transition, which it is required to do at the request of individual broadcast licensees on a market-by-market basis, if: (1) one or more of the four largest network stations or affiliates is not broadcasting in digital format; (2) digital-to-analog converter technology is not generally available; or, (3) 15 percent or more of television households are not receiving a digital signal. *See also Channel 52-59 Reallocation Order* at ¶ 3.

<sup>198</sup> *Channel 52-59 Reallocation Order* at ¶¶ 46-49. *See also* footnote NG159 to the Table of Frequency Allocations in Section 2.106, 47 C.F.R. § 2.106.

<sup>199</sup> *See* 47 C.F.R. §§ 74.631(g) and 74.632(e).

<sup>200</sup> *Channel 52-59 Reallocation Order* at ¶ 48.

<sup>201</sup> 47 U.S.C. § 309(j)(14)(A)-(B).



of the upcoming auctions. This means that if TV BAS operations cause harmful interference to these primary services, they must cease operation immediately, regardless of whether this occurs before or after the end of DTV transition. Secondary TV BAS operations are also required to accept any interference caused by these primary services.

#### 4. TV BAS Sound Channels

101. Section 74.603(b) of the Commission's rules provides authority for TV BAS stations to use an aural broadcast STL or relay station licensed under the aural BAS rules to transmit the aural portion of a television broadcast program. This use is on a secondary, non-interference basis to programming of aural broadcast stations.<sup>202</sup> In the *Notice*, the Commission stated that its understanding of current industry practice is for broadcasters to use multiplexing techniques, rather than separate sound channels, to transmit the aural portion and video portion of their programming over a single TV BAS channel. Therefore, the Commission proposed to eliminate Section 74.603(b). Additionally, the Commission proposed to eliminate the corresponding provision of Section 74.502(b) that provides TV BAS licensees' authorization to use the aural BAS channels. The Commission also sought comment on whether it should delete Section 74.603(c), which provides grandfathering rights so that TV BAS stations could continue operating aural STL or relay stations that were in service prior to July 10, 1970.<sup>203</sup>

102. *Discussion.* SBE, the only commenter on this issue, confirms our understanding of current industry practice and concurs with our proposals.<sup>204</sup> Accordingly, we adopt our proposals to eliminate Sections 74.603(b), 74.502(b), 74.603(c).

#### 5. Remote Pickup Broadcast Auxiliary Frequency Assignment

103. In 1984, the Commission adopted a comprehensive revision of the rules for Remote Pickup station frequency assignments.<sup>205</sup> That *Report and Order* split the Remote Pickup channels in the 150 MHz, 160 MHz and 450 MHz bands into 5 kilohertz channels that could be "stacked" to create channels of various sizes. Thus, licensees could continue operating their equipment under existing licenses and existing and new licensees seeking to update their systems could make use of newer narrowband technology. The *Report and Order*, however, stated that an effective date for these rules would be specified in a future Order. To date, the Commission has not taken such action.

104. The rules written in 1984 for the Remote Pickup Broadcast Service were intended to provide licensees more freedom to choose and implement new technologies in their effort to make the most efficient use of the spectrum. Because many technical and regulatory changes have occurred since 1984, the Commission proposed in the *Notice* to amend the rules adopted in 1984, as discussed below, to ensure that this objective will be achieved.<sup>206</sup>

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<sup>202</sup> 47 C.F.R. § 74.603(b).

<sup>203</sup> *Notice* at ¶¶ 60-61.

<sup>204</sup> SBE Comments at 15.

<sup>205</sup> See Amendment of Frequency Assignment Procedures in the Broadcast Remote Pickup Service to Facilitate More Efficient Use of the Available Spectrum, MM Docket No. 84-280, *Report and Order*, 49 FR 45155 (Nov. 15, 1984). See also Section 74.402. 47 C.F.R. § 74.402.

<sup>206</sup> *Notice* at ¶ 63.

105. Since 1984, significant advances have been achieved in the development of narrowband radios, such as the maturation of digital modulation techniques, improved coding processes, and development of more stable oscillators. In 1995, based on advances such as these, the Commission adopted a narrowband channel plan for the 150–174 MHz and 450–512 MHz bands used by Part 90 Private Land Mobile Radio Service (PLMRS) licensees.<sup>207</sup> In that decision, the Commission adopted a channel plan in which channels were spaced every 7.5 kilohertz in the 150 MHz band and every 6.25 kilohertz in the 450 MHz band. Under certain circumstances, these channels could be stacked to allow the use of 6.25, 12.5 or 25 kilohertz equipment.

106. The Commission stated in the *Notice* that it believed that this same band plan is suitable for Remote Pickup BAS operations. Moreover, because many of the 150 MHz and 160 MHz Remote Pickup channels are shared with the Part 90 Industrial/Business Pool, the Commission stated that both services might benefit from a common channel plan, with the benefits including more predictable adjacent channel performance, easier coordination procedures, and economies of scale for equipment. The Commission noted, however, that under the 1984 rules, these benefits would not be realized if Remote Pickup licensees modify their operating frequencies to correspond to channel centers based on 5 kilohertz spacing. A shift to 5 kilohertz spacing for BAS would create an operating environment in which Part 74 and Part 90 licensees are operating co-channel, offset by 2.5 kilohertz or offset by 5 kilohertz.<sup>208</sup> In many cases there would be significant overlap of RF energy between adjacent channels which could degrade the performance of user's systems as other nearby users attempt to transmit on closely spaced adjacent channels. In addition to the increase in potential interference, these conflicting channel plans would complicate the frequency coordination process because coordinators would need to account for many closely spaced adjacent channels. Consequently, the Commission proposed to amend the frequency assignment rules for the 150 MHz and 160 MHz bands in Section 74.402 to be consistent with the channel plan in effect in Part 90 (*i.e.*, 7.5 kilohertz channel spacing). Additionally, the Commission proposed to allow licensees to stack up to 4 channels to operate on channels as wide as 30 kilohertz. The Commission stated that implementing this channel plan could suit both Remote Pickup BAS operators and PLMRS providers, and would benefit users by allowing for common equipment to be used for both Part 74 and Part 90 licensees.<sup>209</sup>

107. In the *Notice*, the Commission also stated that the vast majority of licensees in the 150 MHz and 160 MHz bands can be accommodated by the proposed channel plan without having to change their equipment. The proposed channel plan includes all of the channels used by the majority of licensees under the pre-1984 plan. Compliance with the 1984 channel plan, on the other hand, because it is based on 5 kHz channel spacing would require licensees to modify their operating frequency, either by retuning or replacing their equipment. The Commission stated that a search of its licensing database reveals that

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<sup>207</sup> See Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency assignment Policies of the Private Land Mobile Radio Services, PR Docket No. 92-235, *Report and Order and Further Notice of Proposed Rule Making*, 10 FCC Rcd 10076 (1995) (*Refarming R&O*).

<sup>208</sup> For example, under the rules adopted in 1984 for the Remote Pickup Broadcast Service, valid frequencies for use include 152.8625 and 152.8675 MHz. See 47 C.F.R. § 74.402. Valid Industrial/Business Pool frequencies under Part 90 include 152.8625 and 152.870 MHz. See 47 C.F.R. § 90.35. From these frequencies, it is clear that valid frequency separations include 0, 2.5, and 5 kilohertz (*e.g.*, 152.8675 MHz – 152.8625 MHz = 5 kilohertz and 152.870 MHz – 152.8675 MHz = 2.5 kilohertz.)

<sup>209</sup> *Notice* at ¶ 66.

most licensees continue to operate on the Remote Pickup channels under the pre-1984 channel plan, and that there are only 7 Remote Pickup licensees in the 150 MHz band and 25 in the 160 MHz band that have begun operating using the 1984 channel plan.<sup>210</sup>

108. In the *Notice*, the Commission also proposed to modify the 1984 channel plan for the 50 kilohertz wide Group N<sub>1</sub> and 25 kilohertz wide N<sub>2</sub> 450 MHz Remote Pickup channels. Specifically, the Commission proposed to standardize the Remote Pickup channel plan with the Part 90 channel plan by listing channels 6.25 kilohertz apart and allowing licensees to stack up to 8 channels (50 kilohertz). The Commission stated that, although Part 74 licensees do not share this band with Part 90 licensees, by aligning to the Part 90 channel plan BAS licensees in this band will reap the same benefits as those expected for the VHF band. The Commission also observed that, similar to the VHF band, its database shows that most licensees continue to operate on the pre-1984 channel plan, although some licensees have begun migrating to the 1984 channel plan.<sup>211</sup>

109. To accommodate all licensees who are operating in compliance with the 1984 channel plan, the Commission proposed in the *Notice* to give them three years from the date a new channel plan is adopted to modify their equipment and comply with the new plan. The Commission stated that this would provide licensees adequate time to either retune or replace equipment. However, because the number of licensees affected by our proposals is small, the Commission proposed to provide them the option to continue operating using the 1984 channel plan after the three year transition period ends, but only on a secondary, non-interference basis. The Commission stated that this course of action will minimize disruption to existing Remote Pickup BAS systems. Finally, the Commission noted that this proposal is consistent with the treatment of Part 90 licensees that were operating on 5 kilohertz channels in the VHF band prior to the *Refarming* proceeding.<sup>212</sup>

110. In the *Notice*, the Commission also noted that the 10 megahertz wide Group P channels are limited to operational communications, including tones for signaling and for remote control and automatic transmission system control and telemetry.<sup>213</sup> Because there are only eight Group P channels (four at each end of the band) and they are limited to this specialized use, the Commission stated that it was not inclined to alter them, but noted that, in light of the technological advances in radio, it was not convinced that the 50 kilohertz wide Group R and 100 kilohertz wide Group S channels are still needed. The Commission declined to make specific proposals for these three groups of channels, but sought comment on the extent to which these channels are being used and asked whether their current bandwidth designations should be maintained or aligned with the 6.25 kilohertz channel plan.<sup>214</sup>

111. Finally, the Commission stated in the *Notice* that, because Remote Pickup Service licensees will benefit most by having the capability to choose from a wide variety of radios, and in

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<sup>210</sup> *Id.* at ¶ 67.

<sup>211</sup> *Id.* at ¶ 68.

<sup>212</sup> *Id.* at ¶ 69. See Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Radio Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency assignment Policies of the Private Land Mobile Radio Services, PR Docket No. 92-235, *Memorandum Opinion and Order*, 11 FCC Rcd 17676 (1996).

<sup>213</sup> 47 C.F.R. § 74.402, Note 6.

<sup>214</sup> *Notice* at ¶ 70.

accordance with the Commission's proposal to standardize the Remote Pickup channels with those listed in Part 90, it believed that this service should adhere to the technical standards of Part 90. In this way, Part 74 licensees could choose from among the wide variety of radios available for PLMRS licensees. Accordingly, for equipment designed to operate on channels with bandwidths of 30 kilohertz or less in the VHF and UHF Remote Pickup Service bands, the Commission proposed that the equipment comply with the Part 90 technical rules for the emission mask<sup>215</sup> and frequency stability.<sup>216</sup> Additionally, the Commission asked commenters to address whether the transient frequency behavior<sup>217</sup> rules in Section 90.214 would be appropriate to impose on Remote Pickup service transmitters.<sup>218</sup>

112. Only SBE commented on this issue. SBE endorses the proposals to modify the channel plan consistent with the current Part 90 channel plan (*i.e.*, stackable 7.5 kilohertz channels in the 150/160 MHz band and stackable 6.25 kilohertz channels in the 450 MHz band). Because licensees will have the option of using narrowband Part 90 radios, SBE believes that this change will benefit licensees through significantly lower Remote Pickup equipment costs, especially with respect to dispatch and operational traffic.<sup>219</sup> To minimize the impact on current licensees, SBE recommends that no new restrictions be imposed on allowable types of modulation on these channels. In addition, it supports the proposal to provide a three year transition period for licensees to migrate to the new channel plan, including the option to remain on current channels on a secondary basis after three years.

113. With respect to technical parameters, SBE concurs with our proposal to apply the Part 90 emission masks and frequency stability requirements to narrow band Remote Pickup stations. It urges, however, that we maintain the current requirements for 25 kilohertz or wider channels in Groups N<sub>1</sub> and N<sub>2</sub> and wideband channels in Groups R and S. It states that coordinators have already implemented plans, including adjacent channel offsets, to accommodate these wide channels. SBE also recommends that we harmonize the Group P channels with the plan proposed for the Group N<sub>1</sub> and N<sub>2</sub> channels by rechannelizing them to 6.25 kilohertz stackable to 12.5 kilohertz. Finally, SBE recommends grandfathering existing licensees using 10 kilohertz Group P channels.<sup>220</sup>

114. *Discussion.* As described above, the only commenter on this issue, SBE, supports our proposals with some modification. We agree with their suggestions and adopt our proposals as modified by those suggestions. Therefore, we will amend the channel plan for 150 MHz and 160 MHz Remote Pickup stations to list channels every 7.5 kilohertz and allow licensees to stack up to four channels for a total of 30 megahertz. In addition, we will modify the Group N1 and N2 450 MHz channels to list channels every 6.25 kilohertz and allow licensees to stack up to eight channels for a total of 50 megahertz. As suggested by SBE, we will also modify the Group P channels to list them every 6.25 kHz

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<sup>215</sup> 47 C.F.R. § 90.210.

<sup>216</sup> 47 C.F.R. § 90.213.

<sup>217</sup> Transient frequencies are short-term variations of a transmitter's operating frequency that occurs when a transmitter is keyed on or off. During this period of off-frequency operation noise chirps are transmitted that could interfere with adjacent channel operations.

<sup>218</sup> 47 C.F.R. § 90.214. *Notice* at ¶ 71.

<sup>219</sup> SBE Comments at 15-16. SBE additionally states that Part 90 narrowband radios may not suit audio program feeds requiring high fidelity and no real-time delay.

<sup>220</sup> *Id.* at 16-17.

and allow licensees to stack up to two channels.<sup>221</sup> Further, we will require new Remote Pickup station equipment designed to operate on channels 30 kilohertz wide or less to comply with the Part 90 technical standards, including emission mask, frequency tolerance, and transient frequency behavior. By harmonizing all RPU channels and equipment with the Part 90 PLMR channel plan, licensees will benefit from economies of scale resulting from the use of equipment consistent with Part 90 operations. Additionally, this will simplify station coordination and reduce the potential for harmful interference.

115. To ease the transition to this new channel plan, we adopt our proposal to provide a three-year period for licensees operating on the channels adopted in 1984 to modify their licenses to the new channels. After three years, they may remain on their current channel assignments, but on a secondary, non-interference basis. Consistent with our action for the N<sub>1</sub> and N<sub>2</sub> channels we will also provide three years to licensees operating on the 10 kilohertz P channels to modify their licenses to the new channel plan. After that time they may remain on their current channel assignment but on a secondary basis. This will provide for a smooth transition to the new channels where incumbent operations will not inhibit the growth of systems on the new frequency plan.

## 6. Federal Narrowbanding of 162-174 MHz Band Land Mobile Frequencies

116. The Interdepartment Radio Advisory Committee<sup>222</sup> (IRAC) has been working to reduce the bandwidth of Federal Government land mobile operations in a number of frequency bands, including the 162-174 MHz band. Based on the work of the IRAC, the National Telecommunications and Information Administration (NTIA) adopted a policy which requires all new Federal Government systems after January 1, 1995, and all Federal Government systems after January 1, 2005, in the 162-174 MHz band to be capable of operating within a 12.5 kilohertz channel.<sup>223</sup> Under our rules, Remote Pickup BAS may, with certain geographic restrictions, use the frequencies 166.25 MHz and 170.15 MHz on a secondary basis to Federal Government use.<sup>224</sup> The rules currently allow licensees on these channels to operate on 25 kilohertz channels<sup>225</sup> and do not provide any procedures for transitioning to narrower 12.5 kilohertz channels. In addition, these two frequencies are used in the Emergency Alert System (EAS)<sup>226</sup>

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<sup>221</sup> The new channel centers resulting from modifying the Group P channels are: 450.00625 MHz, 450.0125 MHz, 450.01875 MHz, 450.025 MHz, 450.98125 MHz, 450.9875 MHz, 450.99375 MHz, 455.00625 MHz, 455.0125 MHz, 455.01875 MHz, 455.025 MHz, 455.98125 MHz, 455.9875 MHz, and 455.99375 MHz.

<sup>222</sup> The IRAC is chaired by the Department of Commerce/NTIA and consists of representatives from a number of Federal Agencies and assists the Assistant Secretary of Commerce for Communications and Information in assigning frequencies to U.S. Government radio stations and in developing and executing policies, programs, procedures, and technical criteria pertaining to the allocation, management, and use of the spectrum. *See* NTIA Manual of Regulations and Procedures for Federal Frequency Management (NTIA Manual), Section 1.3.

<sup>223</sup> *See* NTIA Manual, Section 4.3.7A. The bands subject to Federal Government narrowbanding are 162.0125-173.2 MHz and 173.4-174 MHz.

<sup>224</sup> 47 C.F.R. § 74.402. The exceptions are within 150 miles of New York City, where these frequencies are reserved for use by public safety users; in Alaska; or in the Tennessee Valley Authority area. The Tennessee Valley Authority Area is described in detail in Footnote US11. This area encompasses Tennessee, the southern portion of Kentucky, southwest Virginia, most of Mississippi and Alabama, Northern Georgia, the northwest corner of South Carolina, and western North Carolina.

<sup>225</sup> 47 C.F.R. § 74.462.

<sup>226</sup> 47 C.F.R. Part 11.

in some areas to relay information to local stations for dissemination to the public.<sup>227</sup> Despite this secondary status, it has been the policy of NTIA and the FCC to protect stations used for EAS from harmful interference.

117. To ensure continued successful sharing of the spectrum with Federal Government users, we proposed to conform Remote Pickup BAS use of the 166.25 MHz and 170.15 MHz frequencies to the 12.5 kilohertz channel size, and to meet the January 1, 2005 implementation schedule applicable for all Federal Government users. We sought comment on the advantages and disadvantages of implementing this proposal for BAS licensees, notwithstanding the need for new equipment. We asked if migrating to the narrow channels would degrade the quality of the information being transmitted. Additionally, we proposed to formally acknowledge the protected status of non-Federal Government stations operating on these frequencies that are used as an integral part of the EAS. We sought comment on these proposals as well as proposed amendments to Section 2.106, footnote US11, and Section 74.462 of our rules to implement these proposals.<sup>228</sup>

118. SBE and NTIA were the only parties commenting on this issue. SBE supports our proposals to mandate the conversion of Remote Pickup BAS to 12.5 kilohertz channels on 166.25 MHz and 170.15 MHz by January 1, 2005. SBE also suggests that Remote Pickup BAS base station use of 166.25 MHz and 170.15 MHz for EAS be upgraded to co-primary status with Federal Government use. It states that this would be consistent with the National Aeronautics and Space Administration's (NASA) use of 2 GHz BAS band, which was upgraded to primary status in the *Second Report and Order and Second Memorandum Opinion and Order* in ET Docket No. 95-18.<sup>229</sup> NTIA supports a different approach. It asks that Remote Pickup BAS base stations operating on these frequencies be given only "protected" status, which would give them the same protection that currently is accorded them.<sup>230</sup>

119. *Discussion:* Conforming the technical standards for BAS operations at 166.25 MHz and 170.15 MHz to those of the Federal Government would protect Federal Government operations and

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<sup>227</sup> Notice at ¶¶ 72-73.

<sup>228</sup> *Id.* at ¶ 73.

<sup>229</sup> SBE Comments at 16. See Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile-Satellite Service, *Second Report and Order and Second Memorandum Opinion and Order*, ET Docket No. 95-18, 15 FCC Rcd 12315 (2000). In this proceeding, NTIA asked the Commission to provide primary status to Government space operations, earth exploration satellites, and space research in the 2025-2110 MHz band. NASA stated that it had been using this band for almost thirty years for satellites which support such major programs as the Space Shuttle, the Hubble Space Telescope, the Tracking and Data Relay Satellite System and will use this spectrum to support the International Space Station. The Commission concluded that in view of the successful sharing between BAS and Government satellite operations in the past, Government satellite operations could be elevated to co-primary status. It stated that this change would provide increased certainty and clarity to the U.S. Table of Frequency Allocations. The Commission, however, did express concern about the impact of this change on the future deployment of BAS and adopted measures to minimize such impact.

<sup>230</sup> Letter to Mr. Bruce Franca, Acting Chief, Office of Engineering and Technology, Federal Communications Commission, from William T. Hatch, Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, United States Department of Commerce, Aug. 7, 2001.

provide benefits to Remote Pickup BAS users.<sup>231</sup> For example, it would simplify coordination and improve adjacent channel performance. Therefore, in accordance with the comments of SBE and our proposal, we are amending the rules to require that existing and applied for Remote Pickup BAS facilities on 166.25 MHz and 170.15 MHz use no more than 12.5 kilohertz channel bandwidth by January 1, 2005.

This will apply to all stations on these frequencies that obtained licenses or applied for licenses on or before the effective date of the rules in this *Report and Order*.<sup>232</sup> This approach will ensure that existing licensed stations and applicants who are planning stations on these frequencies have adequate time to transition to narrowband equipment. To further ease this transition, we will not require licensees to modify their licenses. Instead, the Commission will automatically issue a superseded license, effective January 1, 2005, showing the reduction in authorized bandwidth.<sup>233</sup> Additionally, in the event that the January 1, 2005 deadline for Federal Government systems is extended, we will consider amending the Rules to implement the extension for Non-Government systems on the 166.25 MHz and 170.15 MHz frequencies as well. Stations applied for after the effective date of the rules in this *Report and Order* must comply with the 12.5 kilohertz channel bandwidth requirement. Rather than placing these requirements in footnote US11 as proposed, we will instead amend Section 74.462.<sup>234</sup> This action is appropriate as it consolidates all Remote Pickup BAS service rules in one place.

120. With respect to Remote Pickup BAS base stations operating as an integral part of the EAS, we are adopting a procedure recommended by NTIA to ensure that such stations will be protected.<sup>235</sup> Under this procedure NTIA will place a notation in the Government Master Frequency (GMF) database licensing record of these stations which will require Government stations to protect them from harmful interference.<sup>236</sup> Thus, there is no need to amend footnote US11.<sup>237</sup>

## 7. 950 MHz Aural BAS Channel Splits

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<sup>231</sup> Our action here does not amend the rules for public safety stations operating on 166.25 MHz or 170.15 MHz under the rules in 47 C.F.R. § 90.20. The Commission will address service rules for those stations in a future proceeding.

<sup>232</sup> We note that as of August 29, 2002, there is only one application pending for new Remote Pickup BAS use of 166.25 MHz or 170.15 MHz.

<sup>233</sup> We cannot predict the exact date on which the Commission will issue the superseded license at this time. However, the effective date of the license will be January 1, 2005 regardless of whether the license is issued prior to or subsequent to that date. Thus, on January 1, 2005 all licensees on 166.25 MHz and 170.15 MHz will be required to operate on 12.5 kilohertz channels.

<sup>234</sup> 47 C.F.R. § 74.462.

<sup>235</sup> Originally, NTIA recommended that these BAS stations be given “protected” status. However, such a status is not defined in our rules.

<sup>236</sup> See Letter to Mr. Edmond J. Thomas, Chief, Office of Engineering and Technology, Federal Communications Commission, from Fredrick R. Wentland, Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, United States Department of Commerce, Aug. 6, 2002.

<sup>237</sup> We are, however, making editorial changes to footnote US11 to improve its readability.

121. *950 MHz Aural BAS Channel Splits*. The *Report and Order* in MM Docket 85-36<sup>238</sup> specified that the 950 MHz Aural BAS Channel Plan listed in Section 74.502(b) would become effective upon a future Order from the Commission to be issued when the licensing system was capable of accommodating this channel plan. With the implementation of ULS for licensing, we are implementing that rule section with this *Report and Order*.

### C. Universal Licensing System and BAS

122. The ULS is an automated licensing system and integrated database designed to provide greater efficiency in the licensing process by using a consolidated set of application forms, automating many license review processes, and facilitating electronic application filing and data retrieval. The Commission's WTB, which is responsible for licensing BAS, began using ULS for Aural and TV BAS licensing in August, 1999<sup>239</sup> and for Remote Pickup BAS in September, 2000.<sup>240</sup> As a result, several BAS service rules require updating to reflect new ULS application processing procedures. Many of these changes, such as updating application form numbers, are ministerial in nature and are being adopted without discussion.<sup>241</sup> In other cases, more substantive rule changes are necessary and are discussed below.

#### 1. Application Procedures and Construction Periods

123. The *ULS Report and Order* consolidated the application and processing rules for all wireless services into Subpart F of Part 1,<sup>242</sup> now the only rule section that wireless applicants and licensees, including BAS applicants and licensees, must consult regarding application procedures, such those as for amendments, modifications, and STAs.<sup>243</sup> In the *Notice*, the Commission proposed to amend Sections 1.901 and 1.902 to add the appropriate references to Part 74 and to add a new section, Section 74.6, to reference the application and processing rules in Part 1, Subpart F. Under this proposed licensing scheme, aural and TV BAS stations would be licensed using identical forms and procedures as used for

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<sup>238</sup> See Review of Technical and Operational Requirements: Part 74-E Aural Broadcast STL and ICR Stations; and Part 74-F TV Auxiliary Broadcast Stations, *Report and Order*, MM Docket No. 85-36, 102 F.C.C.2d 940 (FCC 85-588) (1985) (*950 MHz Rechannalization Order*). The *950 MHz Rechannalization Order* at ¶ 29 amended these rules to be effective on the date specified in a future order by the Chief, Mass Media Bureau, indicating computer programs are available for implementing the new rules.

<sup>239</sup> See Wireless Telecommunications Bureau To Begin Use Of Universal Licensing System (ULS) For Microwave Services On August 30, 1999, DA 99-1543, *Public Notice*, rel. Aug. 6, 1999.

<sup>240</sup> See Wireless Telecommunications Bureau Implements Phase I Of a Three-Phased Deployment of the Universal Licensing System for Land Mobile Radio Services on September 19, 2000, DA 00-1992, *Public Notice*, rel. Sep. 1, 2000.

<sup>241</sup> These changes were included in proposed rules. See *Notice* at Appendix C.

<sup>242</sup> See Biennial Regulatory Review – Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, WT Docket No. 98-20, *Report and Order*, 13 FCC Rcd. 21027 (1998) (*ULS Report and Order*), at 21055.

<sup>243</sup> 47 C.F.R. §§ 1.929 and 1.931.



Part 101 microwave applicants. Remote Pickup BAS stations would be licensed using the same forms and procedures that are used for Part 90 PLMRS applicants.<sup>244</sup>

124. In the *ULS Report and Order*, the Commission adopted rules that eliminate letter requests for all purposes where a form can be used,<sup>245</sup> stating that this will, “reduce applicant and licensee burdens, increase efficiency and better serve the public interest.”<sup>246</sup> In keeping with this policy and the stated benefits, the Commission proposed in the *Notice* to amend the Part 74 rules for BAS to eliminate the informal application for STA<sup>247</sup> and require that STA requests follow the procedures outlined in Section 1.931.<sup>248</sup>

125. Under the Part 1, Subpart F rules, the Commission issues a license which specifies the construction period set forth in the rule part governing the specific service. Licensees are to notify the Commission when operations commence, and licensees that fail to commence operations within the required construction period automatically forfeit their license.<sup>249</sup> In order to align BAS construction rules with these requirements, and with current practices regarding construction periods for BAS, the Commission also proposed in the *Notice* to amend certain rules in Part 73 and create a new Section 74.34. This new section references the construction requirements in Subpart F of Part 1; a construction period of 12 months – the period allowed for PLMRS stations authorized under Part 90 - for Remote Pickup BAS; and a construction period of 18 months for TV and aural BAS stations.<sup>250</sup>

126. Commenting parties generally support the proposals set forth in the *Notice* regarding BAS applications procedures.<sup>251</sup> SBE, however, asks that ULS be modified to allow both transmit and receive locations to be specified on Form 601 for remote pick-up stations used as point-to-point telemetry return links, to more accurately reflect how such stations are used.<sup>252</sup> SBE and MSTV/NAB support the proposals regarding STA procedures for BAS.<sup>253</sup> SBE points out, however, that requiring BAS STAs to follow Section 1.931 procedures would require electronic filing.<sup>254</sup>

127. Commenting parties also support the proposals regarding BAS construction

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<sup>244</sup> *Notice* at ¶ 75.

<sup>245</sup> See *ULS Report and Order* at 21052.

<sup>246</sup> *Id.*

<sup>247</sup> 47 C.F.R. §§ 74.433(b), 74.537(b), and 74.633(b). An informal application has generally been interpreted to mean a letter request.

<sup>248</sup> *Notice* at ¶ 78.

<sup>249</sup> 47 C.F.R. § 1.946.

<sup>250</sup> *Notice* at ¶¶ 76-77.

<sup>251</sup> See, e.g., MSTV/NAB Comments at 11; SBE Comments at 17; Viacom Reply Comments at 3. Viacom states that it supports the comments of MSTV/NAB and SBE.

<sup>252</sup> SBE Comments at 17, 25.

<sup>253</sup> SBE Comments at 17; MSTV/NAB Comments at 12.

<sup>254</sup> SBE Comments at 17.

requirements.<sup>255</sup> KNME states that the construction periods proposed in the *Notice* would discourage hoarding by speculative applicants. KNME also urges that we require a licensee to file a certification of completion of construction via the ULS, to track false construction claims.<sup>256</sup> Similarly, SBE states that the proposed periods are more than adequate for any applicant who truly intends to build, and not just “warehouse” frequencies.<sup>257</sup>

128. *Discussion.* We are adopting our proposals from the *Notice* regarding applications and STA filing procedures. We are amending Sections 1.901 and 1.902 to reference Part 74 and are adding a new Section 74.6<sup>258</sup> to reference BAS applicants and licensees to the application and processing rules in Part 1, Subpart F. These changes will simplify our rules and result in processing efficiencies for BAS licensing. We observe that specific changes to the ULS system, including forms, affect multiple services. Thus, we lack adequate notice to all potentially affected services and we therefore decline to adopt changes to Form 601 as requested by SBE.<sup>259</sup> We note that no commenter opposes our proposal with respect to STAs. Therefore, we are also adopting the proposals amending Part 74 to require that BAS STA requests follow the procedures outlined in Section 1.931. We clarify that electronic filing is not required for STAs; they may be filed either electronically or manually.<sup>260</sup>

129. We are also adopting the proposed rule amendments to remove the construction requirements for BAS stations from Part 73 and place them in a new Section 74.34. This approach will promote timely construction of facilities, ensure consistent construction requirements among the services, and prevent warehousing of spectrum. As for the concern of KNME that licensees be required to file a certification of completion of construction, we note that the rules already require licensees to file a notification of completion of construction. Failure to file such a notification results in the termination of the license by the Commission.<sup>261</sup>

## 2. Classification of Filings as Major or Minor

130. In the *ULS Report and Order*, the Commission adopted rules to define certain actions as major changes for all wireless services. Additionally, the Commission adopted rules which define major changes for each service category. Minor changes are defined as all changes that are not major.<sup>262</sup> These

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<sup>255</sup> SBE Comments at 17; MSTV/NAB Comments at 12; KNME Reply Comments at 1.

<sup>256</sup> KNME Reply Comments at 1.

<sup>257</sup> SBE Comments at 17.

<sup>258</sup> We are revising the text of the proposed Section 74.6 to clarify that applicants for Remote Pickup, aural BAS, TV BAS, and low power auxiliary stations under Subparts D, E, F, and H of Part 74 may file manually or electronically under Part 1 procedures.

<sup>259</sup> Commenters also requested several other changes to the ULS processing and search capabilities. *See* SBE Comments at 24-26; SBE Reply Comments at 8; Viacom Reply Comments at 4. We note that these functions of the licensing system are not subject to rulemaking and are not addressed herein. Comments and concerns regarding upgrades and enhancements of the ULS should be addressed to the Wireless Telecommunications Bureau.

<sup>260</sup> *See* Appendix A, *infra*, at § 74.6.

<sup>261</sup> 47 C.F.R. § 1.946(d).

<sup>262</sup> *See ULS Report and Order* at 21058.

designations when used in conjunction with other adopted rule amendments assist the Commission in streamlining the licensing process. As an example, Section 1.947(b) allows applicants to make minor modifications to their stations without prior Commission approval so long as they file an application form within thirty days of making such a modification.<sup>263</sup> ULS can automatically determine if an application for modification is major or minor, and can then process these applications without the need for intervention by Commission staff.<sup>264</sup>

131. Accordingly, the Commission proposed to amend the Part 74 rules to adhere to the procedures adopted in the ULS proceeding for major and minor amendments and modifications; *i.e.*, amendments to aural and TV BAS applications and modifications to aural and TV BAS licenses would be evaluated based on the rules defining a major change in Sections 1.929(a) and 1.929(d), and Remote Pickup BAS applications would follow the rules set forth in Sections 1.929(a) and 1.929(c)(4). In many cases, the rules adopted in the *ULS Report and Order* provide more flexibility than is afforded BAS licensees under Part 74. For example, Sections 74.551 and 74.651 require aural and TV BAS licensees to file an application and obtain Commission approval for any change in which the location of the transmitting antenna changes, but Section 1.929(d)(1)(i) classifies changes in transmitting antenna location that are 5 seconds or less in latitude and/or longitude as minor.<sup>265</sup> The proposal made in the *Notice* would implement rule changes that treat BAS applicants in a consistent manner with the treatment given other wireless services.<sup>266</sup>

132. Although commenting parties generally support the proposals set forth in the *Notice*,<sup>267</sup> several express some concern. MSTV/NAB urge that full coordination be required for all station modifications, whether major or minor.<sup>268</sup> For example, they state that a 5 second change in latitude and/or longitude by a BAS transmitting antenna (a minor change under the ULS rules) could create interference to other licensees in congested areas if not fully coordinated. SBE agrees and also requests that frequency coordination be required for all changes from analog to digital modulation because digitally modulated signals which tend to more fully occupy the channel bandwidth than analog signals, increase the possibility of interference from BAS stations into adjacent channel FM receivers.<sup>269</sup> MRC recommends that if a BAS licensee coordinates with a local coordinating body, conversion from analog to multiplexed digital/analog operation should be treated as a minor amendment.<sup>270</sup>

133. *Discussion.* We are adopting our proposals to amend the Part 74 rules so that BAS applicants and licensees are subject to the same rules as specified for the land mobile and microwave services for determining major and minor application and license changes. This action will align Remote

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<sup>263</sup> 47 C.F.R. § 1.947(b).

<sup>264</sup> *Notice* at ¶ 79.

<sup>265</sup> 47 C.F.R. § 1.929(d)(1)(i).

<sup>266</sup> *Notice* at ¶ 80.

<sup>267</sup> SBE Comments at 17-18; MSTV/NAB Comments at 12; MRC Comments at 7.

<sup>268</sup> MSTV/NAB Comments at 12, 15.

<sup>269</sup> SBE Comments at 1-2, 17.

<sup>270</sup> MRC Comments at 7.

Pickup BAS processing rules with those for similar services under Part 90 and align the rules for TV and aural BAS with the rules for Part 101. Thus, similar stations will be treated in a consistent manner.

134. With regard to the concerns of MSTV/NAB, SBE, and MRC, we note that changes in emissions, such as a conversion from analog to digital modulation or to composite analog/digital modulation, are already classified as major changes under the rules in Sections 1.929(c)(4)(ii) and (d)(1)(iv),<sup>271</sup> and frequency coordination would be required when a major change is requested.<sup>272</sup> With regard to location changes of less than 5 seconds in latitude and/or longitude,<sup>273</sup> we note that the Commission in the *ULS Reconsideration Order*<sup>274</sup> clarified that such minor changes are not exempt from the coordination requirement. The Commission explained that an applicant requesting a minor change must still coordinate as required by Section 101.103(d)(2)(ix) prior to implementing the change and that this process is sufficient to ensure that minor changes are properly coordinated to avoid harmful interference, without imposing an unnecessary filing burden on applicants.<sup>275</sup> We find that this procedure will work equally well for Part 74 services.

### 3. Emission Designators

135. Section 74.462 of the Commission's rules specifies authorized emissions for Remote Pickup BAS frequencies and frequency bands.<sup>276</sup> In the *Notice*, the Commission observed that this section contains emission designators that no longer conform to current ITU specifications or to those contained in Subpart C of Part 2 of the Commission's rules.<sup>277</sup> For example, F3Y, which was the original emission designator for digitized voice modulation, is specified for most of the Remote Pickup BAS frequency bands. This emission designator should now be updated to F1E (frequency modulated single-channel digital telephony) or G1E (phase modulated single-channel digital telephony) emission. Accordingly, in the *Notice* the Commission proposed to update Section 74.462 to replace all outdated emission designators with emission designators that conform to ITU specifications and Part 2 rules.<sup>278</sup>

136. SBE and MSTV/NAB both support the proposal set forth in the *Notice* to update emission designators to conform to ITU specifications and Part 2 rules.

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<sup>271</sup> 47 C.F.R. § 1.929.

<sup>272</sup> 47 C.F.R. § 101.103(d)(1).

<sup>273</sup> A change of 5 seconds in latitude corresponds to a distance of approximately 150 meters (500 feet).

<sup>274</sup> Biennial Regulatory Review – Amendment of Parts 0, 1, 13, 22, 24, 26, 27, 80, 87, 90, 95, 97, and 101 of the Commission's Rules to Facilitate the Development and Use of the Universal Licensing System in the Wireless Telecommunications Services, *Memorandum Opinion and Order on Reconsideration*, WT Docket No. 98-20, 14 FCC Rcd 11476 (1999) (*ULS Reconsideration Order*).

<sup>275</sup> *ULS Reconsideration Order* at ¶¶ 15-16; 47 C.F.R. § 101.103.

<sup>276</sup> 47 C.F.R. § 74.462. Footnote 4 of this rule section states that the emission designators will be modified after necessary modifications are made to BAS application processing programs are completed.

<sup>277</sup> See ITU Radio Regulations, Appendix 1, Classification of Emissions and Necessary Bandwidths; 47 C.F.R. § 2.201.

<sup>278</sup> *Notice* at ¶ 81.

137. *Discussion:* This proposal was supported by SBE and MSTV/NAB and was not opposed by any commenter.<sup>279</sup> Thus, we are adopting our proposal and updating the emission designators of Section 74.462.<sup>280</sup>

#### D. Additional BAS Issues

138. In addition to our proposals, several commenters request that the Commission address additional issues. These include narrowband channel plans for digital BAS operations,<sup>281</sup> reallocation of the 1.7 GHz band for public safety,<sup>282</sup> eligibility and permissibility of wireless microphones for game communications,<sup>283</sup> codification of co-equal status of BAS and public safety licensees at 2450-2483.5 MHz,<sup>284</sup> addition of special conditions for experimental authorizations on broadcast or BAS frequencies,<sup>285</sup> and elimination of priority of use exemptions for Remote Pickup BAS I and R channels.<sup>286</sup> These issues were not raised in the *Notice* and thus lack adequate notice to all potentially affected parties. We therefore decline to address them here.<sup>287</sup>

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<sup>279</sup> SBE Comments at 19; MSTV/NAB Comments at 12.

<sup>280</sup> The updated list of emission designators in Section 74.462(b) have been expanded from those proposed to include non-voice digital traffic. Their omission in the *Notice*, was an oversight as telegraphy, telemetry, and data are currently permitted.

<sup>281</sup> Comsearch Comments at 2; MRC Comments at 9; TIA Reply Comments at 2.

<sup>282</sup> See MRC Comments at 10.

<sup>283</sup> See SBE Comments at 22-24.

<sup>284</sup> See SBE Comments at 24.

<sup>285</sup> See SBE Comments at 26-27.

<sup>286</sup> See SBE Comments at 27. Priority of use in Section 74.403(b) provides a ranking of Remote Pickup BAS transmissions to be observed when more than one licensee attempts to use the same frequency in the same area. 47 C.F.R. § 74.403. The priorities, from highest to lowest, are: 1) emergency communications, 2) program material for broadcast, 3) cues and orders necessary to a broadcast, 4) operational communications, and 5) tests or drills. Currently certain channels are exempted from the priority of use rules. SBE suggests that we amend the rules for a subset (I- and R- channels) of the currently exempted channels so that they are subject to the priority of use rules. The I-channels are 20 kHz channels on 26.07 MHz, 26.11 MHz, and 26.45 MHz. The R-channels are 25 kHz channels, stackable to 50 kHz, in the 450.625-450.875 MHz and 455.625-455.875 MHz bands. We did not propose to change this rule and no party resounded to SBE's suggestion. Without sufficient comment, we are concerned that interested parties have not had sufficient notice to comment on this issue, and that a change to these channels could disrupt a licensee's operations.

<sup>287</sup> Commenters may always file a petition for rulemaking to the Commission regarding their specific concerns. In many cases, there is an on-going Commission proceeding where these concerns can be addressed. For example, in ET Docket No. 00-258, the Commission recently reallocated the 1.7 GHz band for Advanced Wireless Services. 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*, FCC 02-304 (adopted November 7, 2002). In addition, we note that the Commission has recently clarified that public safety and BAS share the 2450-2483.5 MHz band on a co-equal basis and therefore current rules are sufficient. See County of Los Angeles, City of Los Angeles, City of Long Beach, and City of Burbank, California, Request for Declaratory Ruling Regarding Use of (continued....)

## E. AMPTP Petition

139. Video assist devices produce low resolution images that can be used by a production crew to make decisions with respect to content, lighting, and image framing.<sup>288</sup> Often, these video assist devices are connected via cable. However, cable is not always practical due to the distance from the camera to the video monitor or because the camera needs to be mobile to follow the action.<sup>289</sup> Also, when cables are used, a staff person must tend to them to ensure the safety of the actors and the crew.<sup>290</sup> To improve their utility and increase safety, the Commission, based on a petition filed by AMPTP,<sup>291</sup> proposed to allow the use of wireless assist video devices (WAVDs) on a secondary, non-interference basis on unused TV channels in the upper VHF and the UHF bands.

### 1. Authorization of WAVDs

140. The *Notice* proposed that WAVDs be authorized as low power auxiliary stations on a non-interference basis to any existing or future allocated services operating in accordance with the Table of Allocations in Part 2 of our rules.<sup>292</sup> Further, the *Notice* proposed that WAVD users be responsible for correcting any instance of harmful interference using any means necessary, up to and including shutting down the transmitter. Consistent with the treatment of wireless microphones in this spectrum, the *Notice* did not propose to change the existing broadcasting service allocation.<sup>293</sup>

141. AMPTP and SBE support the *Notice's* proposal to authorize WAVDs. SBE asks, however, that the secondary status of WAVDs be clarified by defining their transmissions as "operational communications" under Section 74.403(b).<sup>294</sup> In its reply, AMPTP opposes SBE's proposal to classify WAVDs as "operational communications." AMTP states that it would support an effort to place WAVDs in the priority of communications list, but only after it has an opportunity to monitor the efficiency of, and the demand for WAVDs. Otherwise, AMPTP argues their development and transition into the

(Continued from previous page) \_\_\_\_\_  
the 2450-2483.5 MHz Band for Airborne Video Public Safety Communications, *Order*, 16 FCC Rcd 2227 (2001) at ¶¶ 4-5.

<sup>288</sup> See *AMPTP Petition* at 2-3.

<sup>289</sup> *Id.* at 3.

<sup>290</sup> *Id.*

<sup>291</sup> AMPTP Petition, RM-9856, filed November 15, 1999.

<sup>292</sup> 47 C.F.R. § 2.106.

<sup>293</sup> *Notice* at ¶ 94. The 470-512 MHz band is also allocated to land mobile radio services.

<sup>294</sup> SBE Comments at 19. 47 C.F.R. § 74.403(b) establishes a priority for remote pickup transmissions: (1) Communications during an emergency or pending emergency directly related to the safety of life and property; (2) Program material to be broadcast; (3) Cues, orders, and other related communications immediately necessary to the accomplishment of a broadcast; (4) Operational communications; and (5) Tests or drills to check the performance of stand-by or emergency circuits.

marketplace could be hindered<sup>295</sup>

142. *Discussion.* For the reasons stated in the *Notice* and based on the comments, we are adopting our proposal to allow the use of WAVDs on a secondary, non-interference basis on vacant upper VHF-TV and UHF-TV channels. Specific details regarding the operation of these devices are discussed in detail below. With respect to SBE's request to classify WAVD transmissions as "operational communications," we note that those rules pertain to Remote Pickup BAS stations. In the *Notice*, we proposed to authorize WAVDs as low power auxiliary stations under Part 74, Subpart H. We continue to believe that this is the appropriate subpart in which to place WAVDs due to their similarity to existing low power auxiliary devices, rather than the Remote Pickup BAS rules. If after gaining experience with WAVDs, we determine that communications on television channels needs to be prioritized, we can revisit this issue.

## 2. Eligibility, Permitted Use, and Licensing

143. The *Notice* proposed that all entities eligible to hold a Part 74 license, including motion picture and television producers as defined in Section 74.801, be eligible to operate WAVDs.<sup>296</sup> The *Notice* proposed to limit WAVD use to production facilities or locations used to produce material being filmed or taped for later showing on television broadcast stations. Under this proposal, WAVDs could not be used for ENG operations or to assist with the production of live events. Additionally, the *Notice* proposed that WAVDs be excluded from operating under the short-term operation rules used by other Part 74 licensees.<sup>297</sup> These proposed restrictions are intended to minimize the possibility for interference.<sup>298</sup>

144. The *Notice* also proposed that WAVD users obtain an FCC station license using FCC Form 601, Main Form and Schedule H,<sup>299</sup> prior to operating. We proposed that the license term for a WAVD license be concurrent with the normal licensing period for TV broadcast stations located in the same area of operation. This is consistent with the licensing term for other BAS stations.<sup>300</sup> The *Notice* further proposed that a WAVD licensee not be geographically limited, but be subject only to channel separation and notification rules. Additionally, because of the proposed limited eligibility for WAVDs and the nature of their use, the *Notice* proposed that WAVD licenses be non-assignable and non-transferable.<sup>301</sup>

145. AMPTP agrees with the proposal to restrict WAVD use from ENG and the production of live events.<sup>302</sup> It also agrees with the restriction on assignment and transfer of WAVD licenses.<sup>303</sup>

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<sup>295</sup> *Id.* at 6-7.

<sup>296</sup> 47 C.F.R. § 74.801. These definitions refer to persons or organizations engaged in the production of motion pictures or television programs.

<sup>297</sup> The short-term operation rule allows eligible entities to operate using BAS frequencies for up to 720 hours per year without an authorization from the Commission. *See* 47 C.F.R. § 74.24.

<sup>298</sup> *Notice* at ¶ 95.

<sup>299</sup> FCC Form 601, Schedule H is used to provide technical data for certain BAS stations, including remote pickup stations and wireless microphones.

<sup>300</sup> 47 C.F.R. § 74.15.

<sup>301</sup> *Notice* at ¶¶ 90-91.

<sup>302</sup> AMPTP Comments at 4.

However, it requests that WAVD use be expanded to allow the use of WAVDs in the production of cable, satellite, and motion picture events.<sup>304</sup> Further, AMPTP anticipating that independent contractors may desire to operate WAVDs and rent them to production studios, asks that the Commission specifically permit third party rental. It states that such rentals could be restricted, if needed, to only those directly involved in authorized television and motion picture programming to avert unauthorized or frivolous use.<sup>305</sup>

146. SBE expresses caution regarding third party contractors. SBE urges that the FCC not allow WAVD licenses to be assignable to independent contractors. It states that the necessary responsibility and accountability borne by a WAVD licensee would be diluted if third-party contractors were allowed to operate WAVDs under the license obtained by a production studio. Instead, SBE recommends that an independent contractor obtain its own license for a WAVD to ensure proper WAVD use.<sup>306</sup> AMPTP, in reply comments states that licensees can be held accountable for full compliance with the Commission's rules by end users and that third party rental should be allowed.<sup>307</sup>

147. *Discussion.* We are adopting our proposal to permit all entities eligible to hold Part 74 licenses to use WAVDs. As stated above, this includes television and motion picture producers. We are also adopting our proposal to restrict the use of WAVDs from use at live events or for ENG operations. We clarify that WAVDs may be used to produce cable, satellite, and motion picture events for later showing on television (through free over the air TV, cable TV systems, and satellite TV systems) or in theaters, but may not be used in the production of live events. Similarly, we are adopting our proposal that WAVDs be excluded from operating under the short-term operation rule. This will ensure that WAVDs are properly coordinated and television stations, notified, to ensure that the potential of these devices to interfere with television broadcasts is minimized.

148. We are also adopting our proposal to require that WAVD stations be licensed prior to operating. Such licenses will be obtained through the ULS using FCC Form 601. In addition, consistent with our licensing of other low power auxiliary devices, WAVD licenses will normally be issued for a period of eight years and, for those held by a broadcast station, run concurrently with the license term of that station.<sup>308</sup> For other license holders, the expiration date will be determined by the area of the country in which the station operates.<sup>309</sup> These proposals were unopposed by commenters.

149. Finally, we address the request of AMPTP to allow third party contractors to obtain WAVD licenses. AMPTP states that third party contractors may wish to operate and/or rent WAVDs to studios. We are leery about expanding the eligibility of WAVDs beyond the entities already discussed. As stated in the *Notice*, the production industry and the broadcast industry rely on each other – one to produce

(Continued from previous page) \_\_\_\_\_

<sup>303</sup> AMPTP Reply Comments at 5.

<sup>304</sup> AMPTP Comments at 4.

<sup>305</sup> *Id.* at 5.

<sup>306</sup> SBE Comments at 21.

<sup>307</sup> AMPTP Reply Comments at 5-6.

<sup>308</sup> 47 C.F.R. § 74.15(b).

<sup>309</sup> 47 C.F.R. § 73.1020.



content and the other to distribute content – and have a vested interest to operate in a manner that is mutually agreeable.<sup>310</sup> Therefore, we will not expand the eligibility for WAVD licenses to entities beyond those proposed. We stress that this does not preclude the operation of WAVDs by third party contractors. A party under contract to a television or motion picture producer may rent equipment and even operate it for the producer. However, such operation would be under the authority of the producer's license. This arrangement is consistent with rules in other services where entities are able to operate equipment under the authority of another entity's license.<sup>311</sup> Based on our experience, we believe that this arrangement best promotes accountability and compliance with our rules.

### 3. Authorized Frequencies

150. The *Notice* proposed to allow WAVDs to operate on unused television broadcast frequencies in the 180-210 MHz band (corresponding to VHF-TV channels 8-12) and the 470-608 MHz and 614-698 MHz bands (corresponding to UHF-TV channels 14-36 and 38-51). The *Notice* also proposed to define areas in which WAVD co-channel operation would be excluded in the 470-512 MHz band (TV channels 14-20) to protect land mobile operations in designated cities. Similarly, the *Notice* proposed to exclude WAVDs from operating within 52 km of the Gulf of Mexico in the 476-494 MHz band to protect the Offshore Radiotelephone Service (ORS) and PLMRS operations in the Gulf of Mexico. The *Notice* also proposed to exclude WAVDs from operating in the 608-614 MHz band (TV channel 37) to protect radio astronomy operations and within 52 km of Hawaii in the 488-494 MHz band to protect inter-island communications.<sup>312</sup>

151. No party specifically addressed the proposed frequencies, other than to express general support for using selected TV channels.<sup>313</sup> SBE, however, does reiterate comments it made in GN Docket No. 01-74 asking that guard band spectrum in the lower 700 MHz band can be used as a home for all low power auxiliary devices under Part 74, Subpart H.<sup>314</sup>

152. *Discussion.* As an initial matter, we note that SBE's comments regarding the use of a guard band in the 700 MHz band for low power auxiliary devices is beyond the scope of this proceeding and will not be addressed herein. In light of the lack of comments on this issue, we adopt our proposals regarding authorized frequencies as proposed. Accordingly, WAVDs may operate on unused television broadcast frequencies in the 180-210 MHz, 470-608 MHz and 614-698 MHz bands. As proposed, we will not allow WAVDs to operate in the 174-180 MHz and 210-216 MHz bands (TV channels 7 and 13), in order to protect the Low Power Radio Service (LPRS), which supports auditory assistance devices and health care aids that operate pursuant to Part 95 and other low power devices operating under 90.265 of our rules.<sup>315</sup> In addition, this channel restriction will protect from interference the Navy's SPASUR radar

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<sup>310</sup> *Notice* at ¶ 93.

<sup>311</sup> *See, e.g.*, 47 C.F.R. § 90.421. This rule allows mobile stations to be installed in vehicles operated by persons other than the licensee. The licensee is responsible for taking any necessary precaution to effectively eliminate the possibility of unauthorized operation of transmitters when not under the control of the licensee. The rule specifically allows contractors to operate mobile units.

<sup>312</sup> *Notice* at ¶¶ 96-99.

<sup>313</sup> *See, e.g.*, AMPTP Reply Comments at 3.

<sup>314</sup> SBE Comments at 20.

<sup>315</sup> 47 C.F.R. § 90.265 and Part 95, Subpart G.

system, which operates in the 216.88-217.08 MHz band.<sup>316</sup> We find that given the amount of spectrum we are authorizing for WAVDs, these restrictions will have minimal impact on their ability to identify spectrum on which to operate.

153. We adopt the proposal to exclude WAVDs from using land mobile radio channels<sup>317</sup> in the 470-512 MHz band (TV channels 14-20) in areas around the coordinates listed in Section 90.303 because nomadic WAVDs could not likely share spectrum with land mobile operations.<sup>318</sup> We also adopt the proposal to require WAVDs to maintain at least 6 megahertz frequency separation from such land mobile channels when operating within these areas. This frequency and geographic separation is necessary to protect public safety land mobile use, which in the 470-512 MHz private land mobile bands could occur on any of the channels allocated in a given area.<sup>319</sup> Therefore, all TV channels listed in Section 90.303 are excluded from WAVD use at the locations listed.<sup>320</sup> As discussed in the *Notice*, the band 482-488 MHz (TV channel 16) will also be excluded from WAVD use in the New York City area to protect New York City public safety entities which are using that spectrum under a waiver.<sup>321</sup> Similarly, the band 476-494 MHz (TV channels 15-17) will be excluded from WAVD in areas near the Gulf of Mexico to protect the PLMRS<sup>322</sup> and communication links in the ORS under Part 22 of our rules.<sup>323</sup> Communications with mobile stations under these rules are generally limited to stations within the Gulf (e.g., stations on boats or aircraft) or to stations on the shore. Finally, WAVDs will be excluded from the band 488-494 MHz (TV channel 17) in areas near Hawaii to protect common carrier control and repeater stations for point-to-point inter-island communications.<sup>324</sup>

154. The frequencies on which we will exclude WAVD use are summarized in the table

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<sup>316</sup> The SPASUR radar system is located in the southern United States and consists of three high power transmitters and six receiver locations. These operations are protected indefinitely for non-Government FS and mobile services by footnote US229. See 47 C.F.R. § 2.106 Note US229. Additionally, we note that pursuant to the Balanced Budget Act of 1997, the entire 216-220 MHz band was designated by NTIA for transfer to non-Government use and subject to licensing by competitive bidding. See Pub. L. 105-33, 111 Stat. 251 (1997). The use of the 216-220 MHz band is being examined in ET Docket No. 00-221. See In the Matter of Reallocation of the 216-220 MHz, 1390-1395 MHz, 1427-1429 MHz, 1429-1432 MHz, 1432-1435 MHz, 1670-1675 MHz, and 2385-2390 MHz Government Transfer Bands, ET Docket No. 00-221, *Notice of Proposed Rule Making*, rel. Nov. 20, 2000.

<sup>317</sup> 47 C.F.R. Part 90, Subpart L. See also, 47 C.F.R. §§ 22.591, 22.621, 22.651, and 22.1007.

<sup>318</sup> We address the separation requirements below.

<sup>319</sup> All channel assignments in the 470-512 MHz band are made out of a general access pool. See 47 C.F.R. § 90.303.

<sup>320</sup> 47 C.F.R. § 90.303.

<sup>321</sup> See In the Matter of Waiver of Parts 2 and 90 of the Commission's Rules to Permit New York Metropolitan Area Public Safety Agencies to Use Frequencies at 482-488 MHz on a Conditional Basis, *Order*, 10 FCC Rcd 4466 (1995).

<sup>322</sup> 47 C.F.R. § 90.315.

<sup>323</sup> 47 C.F.R. Part 22, Subpart I.

<sup>324</sup> 47 C.F.R. §§ 2.106, footnotes NG127 and 22.603.

below. We reiterate that these exclusions will not prevent WAVDs from operating on channels listed in the table when WAVDs are a sufficient distance from the cities listed below.

Area	Excluded Frequencies (MHz)	Excluded Channels
Boston, MA .....	470-494	14-17
Chicago, IL.....	470-488	14-16
Cleveland, OH (WAVDs may operate until further order from the Commission).....	470-494	14-17
Dallas/Fort Worth, TX .....	476-494	15-17
Detroit, MI (WAVDs may operate until further order from the Commission).....	470-494	14-17
Hawaii .....	488-494	17
Houston, TX.....	482-500	16-18
Los Angeles, CA .....	470-494 & 500-518	14-17 & 19-21
Miami, FL.....	470-482	14-15
New York/ N.E. New Jersey .....	470-494	14-17
Philadelphia, PA.....	494-518	18-21
Pittsburgh, PA .....	470-482 & 488-506	14-15 & 17-19
San Francisco/Oakland, CA .....	476-500	15-18
Washington D.C./MD/VA.....	482-506	16-19

155. Finally, as proposed in the *Notice*, we will exclude WAVDs from operating in the 608-614 MHz band (TV channel 37) to protect radio astronomy operations in that band. This exclusion is consistent with the Table of Allocations in Part 2 of our rules, which specifies that no stations will be authorized to transmit in that band.<sup>325</sup> We also note we have recently authorized the use of medical telemetry in the 608-614 MHz band,<sup>326</sup> and this exclusion will also protect those operations. Finally, WAVDs will not be allowed to use channels above 698 MHz (channel 51) in the UHF-TV band due to a recent spectrum reallocation of those channels to uses other than broadcasting. We find that these exclusions are justified to protect existing operations in these bands.

#### 4. Technical and Operational Requirements

156. The *Notice* proposed conservative technical and operational requirements to allow WAVDs to operate without harming other operations. Specifically, the *Notice* proposed: (1) to limit the ERP of WAVDs to 250 milliwatts (mW); (2) to require that the transmitting devices use a permanently attached antenna; (3) to allow WAVDs bandwidths of up to 6 megahertz, limited to transmitting on a

<sup>325</sup> 47 C.F.R. § 2.106, Note US246.

<sup>326</sup> See Amendment of Parts 2 and 95 of the Commission's Rules to Create a Wireless Medical Telemetry Service, ET Docket No. 99-255, *Report and Order*, 15 FCC Rcd 11206 (2000).

single TV channel (*i.e.*, WAVD transmissions may not overlap the TV channel edge); (4) to use the same emission limitations being proposed for other TV BAS transmitters in this proceeding; (5) to authorize WAVD transmitters under the certification procedures of Part 2 of our rules; (6) to require WAVDs to maintain a 129 km separation distance from TV broadcasting stations operating on the same frequency and a 200 km separation distance from cities where land mobile operations are authorized;<sup>327</sup> (7) to require WAVD operators to achieve prior notification, rather than coordination, with the local broadcast coordinator or any adjacent channel TV station within 161 km of each intended WAVD operation at least 10 business days in advance of operation;<sup>328</sup> (8) that WAVD licensees be subject to the station identification requirements of Section 74.882; and (9) that manufacturers include certain information in the product literature that is included with WAVDs to indicate the requirements for using these devices.<sup>329</sup>

157. AMPTP endorses all of the proposed technical and operational requirements proposed with the exception of the requirement that WAVDs use a permanently attached antenna. They contend that such antennas are fragile and suffer frequent damage. AMPTP therefore recommends that WAVD antennas be removable to facilitate repair and maintenance, as is the case with land mobile radios.<sup>330</sup> SBE disagrees with AMPTP and maintains that permanently attached antennas can be manufactured sufficiently robust to withstand day-to-day use. SBE asserts that this requirement is an important safeguard against uninformed parties using external, high gain antennas to illegally boost the WAVD EIRP.<sup>331</sup> AMPTP argues that potential problems from detachable antenna usage should be addressed and solved through the notification and response procedures with the frequency coordinator.<sup>332</sup>

158. MSTV/NAB requests that WAVDs be required to conduct full frequency coordination through the local frequency coordinator, rather than a notification 10 days in advance of operation. They also oppose the proposal to allow a non-response from a local frequency coordinator to be considered approval for WAVD operations because they contend that a WAVD operator could simply leave a message with a coordinator and go forward with operations without any knowledge of the impact those operations would cause to low power BAS operations.<sup>333</sup> AMPTP opposes full frequency coordination. AMPTP argues that because WAVDs will operate with low EIRP over a limited range on a non-interference basis, 10 days is ample time to address any concerns that existing operators may have. Further, AMPTP states that the provision allowing WAVDs to operate in the absence of a coordinator response protects their use if a coordinator misplaces or accidentally discards a response. Also, they state

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<sup>327</sup> In addition, we proposed that WAVDs maintain a 52 km separation from the Gulf of Mexico in the 476-494 MHz band and from Hawaii in the 488-494 MHz band. *See* Notice at ¶ 105.

<sup>328</sup> We proposed that such notifications include: the proposed frequency or frequencies, location, maximum antenna height, type of emission, effective radiated power, intended dates of operation, and licensee contact information. In addition, we stated that the coordinator's recommendation regarding the operation of a particular WAVD must be followed by the WAVD licensee. Licensees could appeal to the Commission if they disagree with a coordinator's recommendation, but would bear the burden of proof in overturning the recommendation.

<sup>329</sup> Notice at ¶¶ 100-109.

<sup>330</sup> *Id.* at 5-6.

<sup>331</sup> SBE Comments at 21.

<sup>332</sup> AMPTP Reply Comments at 5.

<sup>333</sup> MSTV/NAB Comments at 13.

that the operating efficiency of producers must be considered as well as potential interference.<sup>334</sup>

159. *Discussion.* The various technical and operational requirement proposals for WAVDs set forth in the *Notice* were designed to protect other users of the TV bands without unnecessarily hindering WAVD operations. Most of these were unopposed, and we will adopt them as proposed. Specifically, we adopt the ERP limit of 250 mW, the bandwidth limit of 6 megahertz on a single TV channel, the requirement to meet the same emissions limitations as other Part 74 transmitters, Part 2 certification procedures for WAVD transmitters,<sup>335</sup> the proposed separation distances from TV and land mobile stations,<sup>336</sup> the requirement that WAVD licensees follow the station identification requirements of Section 74.882; and the requirement that manufacturers include certain information in their product literature.

160. With respect to the antenna issue raised by commenters, we agree with SBE that the use of unintended antennas should be avoided because they could increase the interference potential. We also agree with AMPTP that a permanently attached antenna may result in increased repair costs. We believe that a reasonable compromise between these positions exists. We note that our Part 15 rules contain a provision allowing either permanently attached antennas or devices with unique couplings to permit antennas to be more easily repaired.<sup>337</sup> This has worked well in the preventing unintended antennas from being attached to low power unlicensed devices and we believe a similar requirement would work here. Accordingly, we are adopting a requirement that WAVDs contain a permanently attached antenna or contain a unique connector that allows for easy antenna repair while preventing the use of unauthorized antennas.

161. After considering the comments of MSTV/NAB, we continue to believe that notification is more appropriate than full coordination for WAVDs. We take this position based on the low ERP, limited range, and non-interference status of WAVDs. In addition, because WAVDs may be used at multiple locations in support of a production, notification will be less burdensome than coordination for both the WAVD licensee and the coordinator while still providing adequate protection to broadcast transmissions. In this connection, will adopt our proposal to consider the absence of a response from a coordinator after ten business days have passed as an approval. Once the WAVD operator has made reasonable attempts to notify the BAS coordinator or appropriate TV stations, we find that failure of these entities to respond to the WAVD operator approval is an insufficient basis to delay use of WAVDs. We find that this approach strikes a reasonable balance between the requirements of producers and the needs of the coordinator to study notifications and respond to operators as necessary. In response to MSTV/NAB's concerns, however, we will require WAVD licensees to notify, for informational purposes only, nearby co-channel and adjacent channel TV stations (*i.e.*, those stations within 161 km of the

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<sup>334</sup> AMPTP Reply Comments at 4-5.

<sup>335</sup> We note that no commenter responded to our question regarding whether the declaration of conformity procedures would be more appropriate for WAVDs than the certification procedures.

<sup>336</sup> We will condition licenses to require licensees to comply with the frequency and distance limitations set forth in new Section 74.870(c), and with the notification procedures set forth in new Section 74.870(g), for each operation. In addition, we note that, given the low 250 mW ERP and secondary status of WAVD operations, international frequency coordination is not required for operations close to Canadian or Mexican borders. However, such operations are secondary to primary Canadian or Mexican systems as they are to primary domestic systems, and they must not cause harmful interference to, and must accept interference from, primary Canadian and Mexican systems.

<sup>337</sup> *See* 47 C.F.R. §15.203.

WAVD location).<sup>338</sup> As stated, this will be informational only and television stations will not be able to prevent a WAVD from operating. However, this informational notification may help identify the source of interference if any is experienced after a WAVD begins operating. We adopt all other aspects of the notification proposal as proposed.

#### IV. CONCLUSION

162. In making the rule amendments adopted herein, we are updating the Broadcast Auxiliary Service rules in Part 74 and permitting increased compatibility between Broadcast Auxiliary Services, the Cable Television Relay Service, and Fixed Service Microwave systems operating on shared spectrum. Moreover, licensees and equipment manufacturers will gain greater technical flexibility and more efficiency in the licensing process by these changes and the broadcast industry will find it easier to transition to digital TV. Additionally, we are permitting wireless assist video devices to operate on certain VHF and UHF TV spectrum, thereby increasing spectrum efficiency and promoting equipment which will increase safety at production sites as well as lower film and television production costs.

#### V. PROCEDURAL MATTERS

163. Final Regulatory Flexibility Analysis. The Final Regulatory Flexibility Analysis, required by Section 603 of the Regulatory Flexibility Act, as amended by the Contract with America Advancement Act of 1996, Pub. L. No. 104-121, 110 Stat. 847 (1996), is contained in Appendix B.

164. Paperwork Reduction Act Analysis. This Report and Order contains modified information collection(s) subject to the PRA of 1995, Public Law 104-13.

#### VI. ORDERING CLAUSES

165. Accordingly, **IT IS ORDERED** that, pursuant to Sections 1, 4(i), 302, 303(f) and (r), 332, and 337 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 1, 4(i), 154(i), 302, 303(f) and (r), 332, 337, this *Report and Order* and the rules specified in Appendix A **ARE ADOPTED**.

166. **IT IS FURTHER ORDERED** that the rules specified in Appendix A, except for those specified below, will become effective 30 days after their publication in the Federal Register.

167. **IT IS FURTHER ORDERED** that, pursuant to Pursuant to 5 U.S.C. §§ 553(d)(1) and 553(d)(3), the rules implementing digital modulation of BAS stations specified in Appendix A, specifically Sections 74.535 and 74.637 of the Commission's Rules, 47 C.F.R. §§ 74.535 and 74.637, will become effective as of the adoption date of this *Report and Order*.

168. **IT IS FURTHER ORDERED** that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, **SHALL SEND** a copy of this *Report and Order*, ET Docket No. 01-75, including the Final Regulatory Flexibility Analysis, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION

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<sup>338</sup> Under the rules adopted herein, WAVDs must be separated from co-channel TV operations by at least 129 km.

Marlene H. Dortch  
Secretary

**APPENDIX A: FINAL RULES**

Parts 1, 2, 73, 74, 78 and 101 of Chapter I of Title 47 of the Code of Federal Regulations are amended as follows:

**PART 1 – PRACTICE AND PROCEDURE**

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

**AUTHORITY: 47 U.S.C. 151, 154, 207, 303, and 309(j).**

2. Section 1.901 is revised to read as follows:

**§ 1.901 Basis and purpose.**

These rules are issued pursuant to the Communications Act of 1934, as amended, 47 U.S.C 151 *et seq.* The purpose of these rules is to establish the requirements and conditions under which entities may be licensed in the Wireless Radio Services as described in this part and in parts 13, 20, 22, 24, 26, 27, 74, 80, 87, 90, 95, 97 and 101 of this chapter.

3. Section 1.902 is revised to read as follows:

**§ 1.902 Scope.**

In case of any conflict between the rules set forth in this subpart and the rules set forth in Parts 13, 20, 22, 24, 26, 27, 74, 80, 87, 90, 95, 97, and 101 of Title 47, Chapter I of the Code of Federal Regulations, the rules in Part 1 shall govern.

4. Section 1.929 is amended by revising the introductory text of paragraphs (c)(4) and (d) to read as follows:

**§ 1.929 Classification of filings as major or minor.**

\* \* \* \* \*

(c) \* \* \*

(4) In the Private Land Mobile Radio Services (PLMRS), the remote pickup broadcast auxiliary service, and GMRS systems licensed to non-individuals:

\* \* \* \* \*

(d) In the microwave, aural broadcast auxiliary, and television broadcast auxiliary services:

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

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

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

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

(a) Revise pages 25, 26, 37, 38, and 76.

(b) In the list of United States Footnotes, revise footnote US11 and delete footnote US291.

(c) In the list of Non-Federal Government Footnotes, revise footnotes NG53 and NG115 and add footnote NG175.

The revisions read as follows:

**§ 2.106 Table of Frequency Allocations.**

\* \* \* \* \*

International Table			United States Table		FCC Rule Part(s)
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government	
See previous page for 47-68 MHz	50-54 AMATEUR  5.162A 5.166 5.167 5.168 5.170		50-73	50-54 AMATEUR	Amateur (97)
	54-68 BROADCASTING Fixed Mobile  5.172	54-68 FIXED MOBILE BROADCASTING  5.162A		54-72 BROADCASTING    NG115 NG128 NG149	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
68-74.8 FIXED MOBILE except aeronautical mobile	68-72 BROADCASTING Fixed Mobile  5.173	68-74.8 FIXED MOBILE		72-73 FIXED MOBILE  NG3 NG49 NG56	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
	72-73 FIXED MOBILE				
	73-74.6 RADIO ASTRONOMY  5.178		73-74.6 RADIO ASTRONOMY US74		
	74.6-74.8 FIXED MOBILE  5.149 5.174 5.175 5.177 5.179	5.149 5.176 5.179	74.6-74.8 FIXED MOBILE  US273		Private Land Mobile (90)
74.8-75.2 AERONAUTICAL RADIONAVIGATION  5.180 5.181			74.8-75.2 AERONAUTICAL RADIONAVIGATION  5.180		Aviation (87)
75.2-87.5 FIXED MOBILE except aeronautical mobile	75.2-75.4 FIXED MOBILE  5.179		75.2-75.4 FIXED MOBILE  US273		Private Land Mobile (90)

	75.4-76 FIXED MOBILE	75.4-87 FIXED MOBILE	75.4-88	75.4-76 FIXED MOBILE NG3 NG49 NG56	Public Mobile (22) Private Land Mobile (90) Personal Radio (95)
5.175 5.179 5.184 5.187	76-88 BROADCASTING Fixed Mobile	5.182 5.183 5.188		76-88 BROADCASTING	Broadcast Radio (TV) (73) Auxiliary Broadcasting (74)
87.5-100 BROADCASTING	5.185	87-100 FIXED MOBILE BROADCASTING		NG115 NG128 NG129 NG149	
5.190	88-100 BROADCASTING		88-108	88-108 BROADCASTING	Broadcast Radio (FM) (73) Auxiliary Broadcasting (74)
100-108 BROADCASTING			US93	US93 NG2 NG128 NG129	
5.192 5.194					
108-117.975 AERONAUTICAL RADIONAVIGATION			108-117.975 AERONAUTICAL RADIONAVIGATION		Note: The NTIA Manual (footnote G126) states that differential GPS stations may be authorized in the 108-117.975 MHz band, but the FCC has not yet addressed this footnote.
5.197			US93		
117.975-137 AERONAUTICAL MOBILE (R)			117.975-121.9375 AERONAUTICAL MOBILE (R)		Aviation (87)
			5.111 5.199 5.200 591 US26 US28		
			121.9375-123.0875	121.9375-123.0875 AERONAUTICAL MOBILE	
			591 US30 US31 US33 US80 US102 US213	591 US30 US31 US33 US80 US102 US213	
			123.0875-123.5875 AERONAUTICAL MOBILE		
			5.200 591 US32 US33 US112		
5.111 5.198 5.199 5.200 5.201 5.202 5.203 5.203A 5.203B			See next page for 123.5875-137 MHz		See next page for 123.5875-137 MHz

International Table			United States Table		FCC Rule Part(s)	
Region 1	Region 2	Region 3	Federal Government	Non-Federal Government		
470-790 BROADCASTING	470-512 BROADCASTING Fixed Mobile  5.292 5.293	470-585 FIXED MOBILE BROADCASTING  5.291 5.298	470-608	470-512 BROADCASTING NG128 NG149 FIXED NG127 LAND MOBILE NG66 NG114	Public Mobile (22) Broadcast Radio (TV) (73) Auxiliary Broadcasting (74) Private Land Mobile (90)	
	512-608 BROADCASTING  5.297					585-610 FIXED MOBILE BROADCASTING RADIONAVIGATION
	608-614 RADIO ASTRONOMY Mobile-satellite except aeronautical mobile-satellite (Earth-to-space)	5.149 5.305 5.306 5.307		608-614 RADIO ASTRONOMY US74 LAND MOBILE US350	614-698 BROADCASTING NG128 NG149 NG115	Personal (95)
	614-806 BROADCASTING Fixed Mobile	610-890 FIXED MOBILE 5.317A BROADCASTING		614-890		
						698-746 BROADCASTING NG128 FIXED MOBILE  NG115 NG159

<p>5.149 5.291A 5.294 5.296 5.300 5.302 5.304 5.306 5.311 5.312</p>			<p>746-764 BROADCASTING NG128 FIXED MOBILE  NG115 NG159</p>	<p>Wireless Communications (27) Broadcast Radio (TV) (73) Auxiliary Broadcast. (74) Private Land Mobile (90)</p>
<p>790-862 FIXED BROADCASTING</p>	<p>5.293 5.309 5.311</p>		<p>764-776 FIXED MOBILE  NG115 NG128 NG158 NG159</p>	<p>Auxiliary Broadcasting (74) Private Land Mobile (90)</p>
	<p>806-890 FIXED MOBILE5.317A BROADCASTING</p>		<p>776-794 BROADCASTING NG128 FIXED MOBILE  NG115 NG159</p>	<p>Wireless Communications (27) Broadcast Radio (TV) (73) Auxiliary Broadcast. (74) Private Land Mobile (90)</p>
<p>5.312 5.314 5.315 5.316 5.319 5.321</p>			<p>794-806 FIXED MOBILE  NG115 NG128 NG158 NG159</p>	<p>Auxiliary Broadcasting (74) Private Land Mobile (90)</p>
<p>See next page for 862-890 MHz</p>	<p>5.317 5.318</p>	<p>5.149 5.305 5.306 5.307 5.311 5.320</p>	<p>806-821 FIXED LAND MOBILE  NG30 NG31 NG43 NG63</p>	<p>Public Mobile (22) Private Land Mobile (90)</p>
			<p>821-824 LAND MOBILE  NG30 NG43 NG63</p>	<p>Private Land Mobile (90)</p>
			<p>824-849 FIXED LAND MOBILE  NG30 NG43 NG63 NG151</p>	<p>Public Mobile (22)</p>
			<p>See next page for 849-894 MHz</p>	<p>See next page for 866-896 MHz</p>

36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)	36-37 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE SPACE RESEARCH (passive)		
5.149	US263 US342		
37-37.5 FIXED MOBILE SPACE RESEARCH (space-to-Earth)	37-38 FIXED MOBILE SPACE RESEARCH (space-to-Earth)	37-37.6 FIXED MOBILE	
5.547			
37.5-38 FIXED FIXED-SATELLITE (space-to-Earth) 5.551AA MOBILE SPACE RESEARCH (space-to-Earth) Earth exploration-satellite (space-to-Earth)		37.6-38.6 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE	Satellite Communications (25)
5.547			
38-39.5 FIXED FIXED-SATELLITE (space-to-Earth) 5.551AA MOBILE Earth exploration-satellite (space-to-Earth)	38-38.6 FIXED MOBILE		
5.547	38.6-39.5	38.6-39.5 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE NG175	Fixed Microwave (101)
39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) 5.551AA MOBILE MOBILE-SATELLITE (space-to-Earth) Earth exploration-satellite (space-to-Earth)	39.5-40 FIXED-SATELLITE (space-to-Earth) MOBILE-SATELLITE (space-to-Earth)	39.5-40 FIXED FIXED-SATELLITE (space-to-Earth) MOBILE NG175 MOBILE-SATELLITE (space-to-Earth)	
5.547	G117		

\* \* \* \* \*

#### UNITED STATES (US) FOOTNOTES

\* \* \* \* \*

US11 The use of the frequencies 166.25 and 170.15 MHz may be authorized to non-Federal Government remote pickup broadcast base and land mobile stations and to non-Federal Government base, fixed and land mobile stations in the public safety radio services on the condition that harmful interference shall not be caused to present or future Federal Government stations in the band 162-174 MHz. Authorization on these frequencies shall be in the lower 48 contiguous States only, except within the area bounded on the west by the Mississippi River, on the north by the parallel of latitude 37° 30' N., and on the east and south by that arc of the circle with center at Springfield, Illinois, and radius equal to the airline distance between Springfield, Illinois, and Montgomery, Alabama, subtended between the foregoing west and north boundaries. The use of these frequencies by remote pickup broadcast stations shall not be authorized for locations within 150 miles (241.4 km) of New York City; and use of these frequencies by the public safety radio services shall not be authorized except for locations within 150 miles of New York City.

\* \* \* \* \*

#### NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

\* \* \* \* \*

NG53 In the band 12.7-13.15 GHz, television pickup stations and CARS pickup stations shall be assigned channels on a co-equal basis and shall operate on a secondary basis to fixed stations operating in accordance with the Table of Frequency Allocations. In the band 13.15-13.20 GHz, television pickup stations and CARS pickup stations shall be assigned channels on a primary co-equal basis within 50 kilometers of the television markets defined in 47 C.F.R § 76.53. In the band 13.20-13.2125 GHz, television pickup stations shall be assigned channels on a primary basis, and CARS fixed and pickup stations shall operate on a secondary basis to television broadcast auxiliary stations.

\* \* \* \* \*

NG115 In the bands 54-72 MHz, 76-88 MHz, 174-216 MHz, 470-608 MHz, and 614-806 MHz, wireless microphones and wireless assist video devices may be authorized on a non-interference basis, subject to the terms and conditions set forth in 47 C.F.R. part 74, subpart H.

\* \* \* \* \*

NG175 Television pickup stations in the mobile services authorized to use frequencies in the band 38.6-40.0 GHz on or before **(insert date 30 days after publication in the Federal Register)**, may continue to operate on a secondary basis to stations operating in accordance with the Table of Frequency Allocations.

\* \* \* \* \*

**PART 73 – RADIO BROADCAST SERVICES**

7. The authority citation for Part 73 continues to read as follows:

**AUTHORITY: 47 U.S.C. 154, 303, 3334, and 336.**

8. Section 73.3500 is amended by removing the entries for Forms 313 and 313-R from the table in paragraph (a) and adding an entry for Forms 601 and 603 to read as follows:

**§ 73.3500 Application and report forms.**

(a) \* \* \*

Form number	Title
* * * * *	* * * * *
601 .....	FCC Application for Wireless Telecommunications Bureau Radio Service Authorization
603 .....	FCC Wireless Telecommunications Bureau Application for Assignments of Authorization and Transfers of Control

\* \* \* \* \*

9. Section 73.3533 is amended by removing and reserving paragraph (a)(3).

**§ 73.3533 Application for construction permit or modification of construction permit.**

(a) \* \* \*

(3) [Reserved]

\* \* \* \* \*

10. Section 73.3536 is amended by removing and reserving paragraph (b)(3).

**§ 73.3536 Application for license to cover construction permit.**

(b) \* \* \*

(3) [Reserved]

\* \* \* \* \*

11. Section 73.3598 is amended by revising paragraph (a) to read as follows:

**§ 73.3598 Period of construction.**

(a) Each original construction permit for the construction of a new TV, AM, FM or International Broadcast; low power TV; TV translator; TV booster; FM translator; or FM booster, or to make changes in such existing stations, shall specify a period of three years from the date of issuance of the original construction permit within which construction shall be completed and application for license filed.



\* \* \* \* \*

**PART 74 – EXPERIMENTAL RADIO, AUXILIARY, SPECIAL BROADCASTING AND OTHER PROGRAM DISTRIBUTIONAL SERVICES**

12. The authority citation for Part 74 continues to read as follows:

**AUTHORITY: 47 U.S.C. 154, 303, 307, 336(f), 336(h) and 554.**

13. Section 74.5 is amended by redesignating paragraphs (a)(4) through (a)(6) as paragraphs (a)(5) through (a)(7), adding a new paragraph (a)(4), and adding a new paragraph (f) to read as follows:

**§ 74.5 Cross reference to rules in other parts.**

\* \* \* \* \*

(a) \* \* \*

(4) Subpart F, “Wireless Telecommunications Services Applications and Proceedings”. (§§ 1.901 to 1.981).

\* \* \* \* \*

(f) Part 101, “Fixed Microwave Services”.

14. A new Section 74.6 is added to read as follows:

**§ 74.6 Licensing of broadcast auxiliary and low power auxiliary stations.**

Applicants for and licensees of remote pickup broadcast stations, aural broadcast auxiliary stations, television broadcast auxiliary stations, and low power auxiliary stations authorized under subparts D, E, F, and H of this part are subject to the application and procedural rules for wireless telecommunications services contained in part 1, subpart F of this chapter. Applicants for these stations may file either manually or electronically as specified in § 1.913(b) and (d) of this chapter.

15. Section 74.15 is amended by revising the second sentence and deleting the last sentence of paragraph (f) to read as follows:

**§ 74.15 Station license period.**

\* \* \* \* \*

(f) \* \* \* An application for renewal of license shall be filed in accordance with the provisions of § 1.949.

\* \* \* \* \*

16. Section 74.24 is amended by revising the introductory text and paragraphs (a), (d), (f), (g), and the last two sentences of paragraph (i), by adding a new sentence to the end of paragraph (h)(1), and by removing the Note after paragraph (g) to read as follows:

**§ 74.24 Short term operation.**

All classes of broadcast auxiliary stations provided for in subparts D, E, F and H of this part, except wireless video assist devices, may be operated on a short-term basis under the authority conveyed by a Part 73 license or a broadcast auxiliary license without prior authorization from the FCC, subject to the following conditions:

(a) Licensees operating under this provision must be eligible to operate the particular class of broadcast auxiliary station.

\* \* \* \* \*

(d) Short-term operation under this section shall not exceed 720 hours annually per frequency.

Note: Certain frequencies shared with other services which are normally available for permanent broadcast auxiliary station assignment may not be available for short-term operation. Refer to any note(s) which may be applicable to the use of a specific frequency prior to initiating operation.

\* \* \* \* \*

(f) Stations operated pursuant to this section shall be identified by the transmission of the call sign of the associated Part 73 broadcast station or broadcast auxiliary station, or, in the case of stations operated by broadcast network and cable network entities, by the network or cable entity's name and base of operations city.

(g) Prior to operating pursuant to the provisions of this section, licensees shall, for the intended location or area-of-operation, notify the appropriate frequency coordination committee or any licensee(s) assigned the use of the proposed operating frequency, concerning the particulars of the intended operation and shall provide the name and telephone number of a person who may be contacted in the event of interference. Except as provided below, this notification provision shall not apply where an unanticipated need for immediate short-term mobile station operation would render compliance with the provisions of this paragraph impractical.

(1) A CARS licensee shall always be given advance notification prior to the commencement of short-term operation on or adjacent to an assigned frequency.

(2) The Commission may designate a frequency coordinator as the single point of contact under this section for advance coordination of major national and international events. Once designated, all short-term auxiliary broadcast use under this section must be coordinated in advance through the designated coordinator.

(i) Coordinators under this provision will not be designated unless the Commission receives an initial request, in writing, to designate a coordinator.

(ii) The Commission will issue a Public Notice with information regarding the designation of such a coordinator.

(iii) All coordination must be done on a non-discriminatory basis.

(iv) All licensees must abide by the decision of the coordinator. The Commission will be the final arbiter of any disputes.

(3) An unanticipated need will never be deemed to exist for a scheduled event, such as a convention, sporting event, etc.

(h) \* \* \*

(1) \* \* \* See § 1.928(e) of this chapter for a definition of Line A and Line C.

\* \* \* \* \*

(i) \* \* \* It shall simply be necessary for the licensee to contact the potentially affected agency and obtain advance approval for the proposed short-term operation. Where protection to FCC monitoring stations is concerned, approval for short-term operation may be given by the District Director of a Commission field facility.

\* \* \* \* \*

17. A new Section 74.25 is added to read as follows:

**§ 74.25 Temporary conditional operating authority.**

An applicant for a new broadcast auxiliary radio service station or a modification of an existing station under subparts D, E, F, or H of this part may operate the proposed station during the pendency of its applications upon the filing of a properly completed formal application that complies with the rules for the particular class of station, provided that the conditions set forth below are satisfied.

(a) Conditions applicable to all broadcast auxiliary stations.

(i) Stations operated pursuant to this section shall be identified by the transmission of the call sign of the associated Part 73 broadcast station, if one exists, or the prefix “WT” followed by the applicant’s local business telephone number for broadcast or cable network entities.

(ii) The antenna structure(s) has been previously studied by the Federal Aviation Administration and determined to pose no hazard to aviation safety as required by subpart B of part 17 of this chapter; or the antenna or tower structure does not exceed 6.1 meters above ground level or above an existing man-made structure (other than an antenna structure), if the antenna or tower has not been previously studied by the Federal Aviation Administration and cleared by the FCC;

(iii) The grant of the application(s) does not require a waiver of the Commission's rules;

(iv) The applicant has determined that the facility(ies) will not significantly affect the environment as defined in § 1.1307 of this chapter;

(v) The station site does not lie, within a radio “Quiet Zone” identified in § 1.924 of this chapter.

(b) Conditions applicable to remote pickup broadcast auxiliary stations.

(i) The auxiliary station must be located within 80 km (50 mi) of the broadcast studio or broadcast transmitter.

(ii) The applicant must coordinate the operation with all affected co-channel and adjacent channel licensees in the area of operation. This requirement can be satisfied by coordination with the local frequency committee if one exists.

(iii) Operation under this provision is not permitted between 152.87 MHz and 153.35 MHz.

(c) Conditions applicable to aural and television broadcast auxiliary stations.

(i) The applicable frequency coordination procedures have been successfully completed and the filed application is consistent with that coordination.

(ii) The station site does not lie within an area requiring international coordination.

(iii) If operated on frequencies in the 17.8-19.7 GHz band, the station site does not lie within any of the areas identified in § 1.924 of this chapter.

(d) Operation under this section shall be suspended immediately upon notification from the Commission or by the District Director of a Commission field facility, and shall not be resumed until specific authority is given by the Commission or District Director. When authorized by the District Director, short test operations may be made.

(e) Conditional authority ceases immediately if the application(s) is returned by the Commission because it is not acceptable for filing.

(f) Conditional authorization does not prejudice any action the Commission may take on the subject application(s). Conditional authority is accepted with the express understanding that such authority may be modified or cancelled by the Commission at any time without hearing if, in the Commission's discretion, the need for such action arises. An applicant operating pursuant to this conditional authority assumes all risks associated with such operation, the termination or modification of the conditional authority, or the subsequent dismissal or denial of its application(s).

18. A new Section 74.34 is added to read as follows:

**§ 74.34 Period of construction; certification of completion of construction.**

(a) Each aural and television broadcast auxiliary station authorized under subparts E and F of this part must be in operation within 18 months from the initial date of grant.

(b) Each remote pickup broadcast auxiliary station authorized under subpart D of this part must be in operation within 12 months from the initial date of grant.

(c) Failure to timely begin operation means the authorization terminates automatically.

(d) Requests for extension of time may be granted upon a showing of good cause pursuant to § 1.946(e) of this chapter.

(e) Construction of any authorized facility or frequency must be completed by the date specified in the license and the Commission must be notified pursuant to § 1.946 of this chapter.

19. Section 74.402 is revised to read as follows:

**§ 74.402 Frequency assignment.**

Operation on all channels listed in this section (except: frequencies 26.07 MHz, 26.11 MHz, and 26.45 MHz, and frequencies listed in paragraphs (a)(4) and (c)(1) of this section) shall be in accordance with the "priority of use" provisions in § 74.403(b). The channel will be assigned by its center frequency,

channel bandwidth, and emission designator. In general, the frequencies listed in this section represent the center of the channel or channel segment. When an even number of channels are stacked in those sections stacking is permitted, channel assignments may be made for the frequency halfway between those listed.

(a) The following channels (except 1606, 1622, and 1646 kHz) may be assigned for use by broadcast remote pickup stations using any emission (other than single sideband or pulse) that will be in accordance with the provisions of § 74.462.

(1) MF Channels: 1606, 1622, and 1646 kHz. The channel 1606 kHz is subject to the condition listed in paragraph (e)(1) of this section.

(2) HF Channels: 25.87, 25.91, 25.95, 25.99, 26.03, 26.07, 26.09, 26.11, 26.13, 26.15, 26.17, 26.19, 26.21, 26.23, 26.25, 26.27, 26.29, 26.31, 26.33, 26.35, 26.37, 26.39, 26.41, 26.43, 26.45, and 26.47 MHz. The channels 25.87-26.09 MHz are subject to the condition listed in paragraph (e)(2) of this section.

(3) VHF Channels: 166.25 and 170.15 MHz. These channels are subject to the condition listed in paragraph (e)(8) of this section.

(4) UHF Channels: Up to two of the following 6.25 kHz segments may be stacked to form a channel which may be assigned for use by broadcast remote pickup stations using any emission contained within the resultant channel in accordance with the provisions of § 74.462: 450.00625 MHz, 450.0125 MHz, 450.01875 MHz, 450.025 MHz, 450.98125 MHz, 450.9875 MHz, 450.99375 MHz, 455.00625 MHz, 455.0125 MHz, 455.01875 MHz, 455.025 MHz, 455.98125 MHz, 455.9875 MHz, and 455.99375 MHz. These channels are subject to the condition listed in paragraph (e)(9) of this section.

(b) Up to four of the following 7.5 kHz VHF segments and up to eight of the following 6.25 kHz UHF segments may be stacked to form a channel which may be assigned for use by broadcast remote pickup stations using any emission contained within the resultant channel in accordance with the provisions of § 74.462.

(1) VHF segments: 152.8625, 152.870, 152.8775, 152.885, 152.8925, 152.900, 152.9075, 152.915, 152.9225, 152.930, 152.9375, 152.945, 152.9525, 152.960, 152.9675, 152.975, 152.9825, 152.990, 152.9975, 153.005, 153.0125, 153.020, 153.0275, 153.035, 153.0425, 153.050, 153.0575, 153.065, 153.0725, 153.080, 153.0875, 153.095, 153.1025, 153.110, 153.1175, 153.125, 153.1325, 153.140, 153.1475, 153.155, 153.1625, 153.170, 153.1775, 153.185, 153.1925, 153.200, 153.2075, 153.215, 153.2225, 153.230, 153.2375, 153.245, 153.2525, 153.260, 153.2675, 153.275, 153.2825, 153.290, 153.2975, 153.305, 153.3125, 153.320, 153.3275, 153.335, 153.3425, 153.350, and 153.3575. These channels are subject to the conditions listed in paragraphs (e) (3), (4), (5), and (10) of this section.

(2) VHF segments: 160.860, 160.8675, 160.875, 160.8825, 160.890, 160.8975, 160.905, 160.9125, 160.920, 160.9275, 160.935, 160.9425, 160.950, 160.9575, 160.965, 160.9725, 160.980, 160.9875, 160.995, 161.0025, 161.010, 161.0175, 161.025, 161.0325, 161.040, 161.0475, 161.055, 161.0625, 161.070, 161.0775, 161.085, 161.0925, 161.100, 161.1075, 161.115, 161.1225, 161.130, 161.1375, 161.145, 161.1525, 161.160, 161.1675, 161.175, 161.1825, 161.190, 161.1975, 161.205, 161.2125, 161.220, 161.2275, 161.235, 161.2425, 161.250, 161.2575, 161.265, 161.2725, 161.280, 161.2875, 161.295, 161.3025, 161.310, 161.3175, 161.325, 161.3325, 161.340, 161.3475, 161.355, 161.3625, 161.370, 161.3775, 161.385, 161.3925, 161.400. These channels are subject to the condition listed in paragraph (e)(6) and (10) of this section.

(3) VHF segments: 161.625, 161.6325, 161.640, 161.6475, 161.655, 161.6625, 161.670, 161.6775, 161.685, 161.6925, 161.700, 161.7075, 161.715, 161.7225, 161.730, 161.7375, 161.745, 161.7525, 161.760, 161.7675, 161.775. These channels are subject to the conditions listed in paragraphs (e)(4), (7), and (10) of this section.

(4) UHF segments: 450.03125, 450.0375, 450.04375, 450.050, 450.05625, 450.0625, 450.06875, 450.075, 450.08125, 450.0875, 450.09375, 450.100, 450.10625, 450.1125, 450.11875, 450.125, 450.13125, 450.1375, 450.14375, 450.150, 450.15625, 450.1625, 450.16875, 450.175, 450.18125, 450.1875, 450.19375, 450.200, 450.20625, 450.2125, 450.21875, 450.225, 450.23125, 450.2375, 450.24375, 450.250, 450.25625, 450.2625, 450.26875, 450.275, 450.28125, 450.2875, 450.29375, 450.300, 450.30625, 450.3125, 450.31875, 450.325, 450.33125, 450.3375, 450.34375, 450.350, 450.35625, 450.3625, 450.36875, 450.375, 450.38125, 450.3875, 450.39375, 450.400, 450.40625, 450.4125, 450.41875, 450.425, 450.43125, 450.4375, 450.44375, 450.450, 450.45625, 450.4625, 450.46875, 450.475, 450.48125, 450.4875, 450.49375, 450.500, 450.50625, 450.5125, 450.51875, 450.525, 450.53125, 450.5375, 450.54375, 450.550, 450.55625, 450.5625, 450.56875, 450.575, 450.58125, 450.5875, 450.59375, 450.600, 450.60625, 450.6125, 450.61875, 455.03125, 455.0375, 455.04375, 455.050, 455.05625, 455.0625, 455.06875, 455.075, 455.08125, 455.0875, 455.09375, 455.100, 455.10625, 455.1125, 455.11875, 455.125, 455.13125, 455.1375, 455.14375, 455.150, 455.15625, 455.1625, 455.16875, 455.175, 455.18125, 455.1875, 455.19375, 455.200, 455.20625, 455.2125, 455.21875, 455.225, 455.23125, 455.2375, 455.24375, 455.250, 455.25625, 455.2625, 455.26875, 455.275, 455.28125, 455.2875, 455.29375, 455.300, 455.30625, 455.3125, 455.31875, 455.325, 455.33125, 455.3375, 455.34375, 455.350, 455.35625, 455.3625, 455.36875, 455.375, 455.38125, 455.3875, 455.39375, 455.400, 455.40625, 455.4125, 455.41875, 455.425, 455.43125, 455.4375, 455.44375, 455.450, 455.45625, 455.4625, 455.46875, 455.475, 455.48125, 455.4875, 455.49375, 455.500, 455.50625, 455.5125, 455.51875, 455.525, 455.53125, 455.5375, 455.54375, 455.550, 455.55625, 455.5625, 455.56875, 455.575, 455.58125, 455.5875, 455.59375, 455.600, 455.60625, 455.6125, 455.61875.

(c) Up to two of the following 25 kHz segments may be stacked to form a channel which may be assigned for use by broadcast remote pickup stations using any emission contained within the resultant channel in accordance with the provisions of § 74.462. Users committed to 50 kHz bandwidths and transmitting program material will have primary use of these channels.

(1) UHF segments: 450.6375, 450.6625, 450.6875, 450.7125, 450.7375, 450.7625, 450.7875, 450.8125, 450.8375, 450.8625, 455.6375, 455.6625, 455.6875, 455.7125, 455.7375, 455.7625, 455.7875, 455.8125, 455.8375, 455.8625 MHz.

(2) [Reserved]

(d) Up to two of the following 50 kHz segments may be stacked to form a channel which may be assigned for use by broadcast remote pickup stations using any emission contained within the resultant channel in accordance with the provisions of § 74.462. Users committed to 100 kHz bandwidths and transmitting program material will have primary use of these channels.

(1) UHF segments: 450.900, 450.950, 455.900, and 455.950 MHz.

(2) [Reserved]

(e) Conditions on Broadcast Remote Pickup Service channel usage as referred to in paragraphs (a) through (d) of this section:

(1) Operation is subject to the condition that no harmful interference is caused to the reception of AM broadcast stations.

(2) Operation is subject to the condition that no harmful interference is caused to stations in the broadcast service.

(3) Operation is subject to the condition that no harmful interference is caused to stations operating in accordance with the Table of Frequency Allocations set forth in Part 2 of the Commission's Rules and Regulations. Applications for licenses to use frequencies in this band must include statements showing what procedures will be taken to ensure that interference will not be caused to stations in the Industrial/Business Pool (Part 90).

(4) These frequencies will not be licensed to network entities.

(5) These frequencies will not be authorized to new stations for use on board aircraft.

(6) These frequencies are allocated for assignment to broadcast remote pickup stations in Puerto Rico or the Virgin Islands only.

Note: These frequencies are shared with Public Safety and Industrial/Business Pools (Part 90).

(7) These frequencies may not be used by broadcast remote pickup stations in Puerto Rico or the Virgin Islands. In other areas, certain existing stations in the Public Safety and Industrial/Business Pools (Part 90) have been permitted to continue operation on these frequencies on the condition that no harmful interference is caused to broadcast remote pickup stations.

(8) Operation on frequencies 166.25 MHz and 170.15 MHz is subject to the condition that harmful interference shall not be caused to present or future Government stations in the band 162-174 MHz and is also subject to the bandwidth and tolerance limitations and compliance deadlines listed in § 74.462 of this part. Authorization on these frequencies shall be in the lower 48 contiguous States only, except within the area bounded on the west by the Mississippi River, on the north by the parallel of latitude 37° 30' N., and on the east and south by that arc of the circle with center at Springfield, Illinois, and radius equal to the airline distance between Springfield, Illinois, and Montgomery, Alabama, subtended between the foregoing west and north boundaries, or within 150 miles (241.4 km) of New York City.

(9) The use of these frequencies is limited to operational communications, including tones for signaling and for remote control and automatic transmission system control and telemetry. Stations licensed or applied for before **(insert date 30 days after publication in the Federal Register)**, must comply with the channel plan by **(insert date three years after publication in the Federal Register)**, or may continue to operate on a secondary, non-interference basis.

(10) Stations licensed or applied for before **(insert date 30 days after publication in the Federal Register)**, must comply with the channel plan by **(insert date three years after publication in the Federal Register)**, or may continue to operate on a secondary, non-interference basis.

(f) License applicants shall request assignment of only those channels, both in number and bandwidth, necessary for satisfactory operation and for which the system is equipped to operate. However, it is not necessary that each transmitter within a system be equipped to operate on all frequencies authorized to that licensee.

(g) Remote pickup stations or systems will not be granted exclusive channel assignments. The same channel or channels may be assigned to other licensees in the same area. When such sharing is necessary, the provisions of § 74.403 shall apply.

20. Section 74.403 is amended by revising the first sentence of paragraph (b) to read as follows:

**§ 74.403 Frequency selection to avoid interference.**

\* \* \* \* \*

(b) The following order of priority of transmissions shall be observed on all frequencies except frequencies 26.07 MHz, 26.11 MHz, and 26.45 MHz, and frequencies listed in § 74.402(a)(4) and (c)(1) of this part:

\* \* \* \* \*

21. Section 74.431 is amended by revising the first sentence of paragraph (i) and removing and reserving paragraph (g) to read as follows:

**§ 74.431 Special rules applicable to remote pickup stations.**

\* \* \* \* \*

(g) [Reserved]

\* \* \* \* \*

(i) Remote pickup mobile or base stations may be used for activities associated with the Emergency Alert System (EAS) and similar emergency survival communications systems. \* \* \*

22. Section 74.432 is amended revising paragraphs (b) and (g) and the first sentence of paragraph (k) to read as follows:

**§ 74.432 Licensing requirements and procedures.**

\* \* \* \* \*

(b) Base stations may operate as automatic relay stations on the frequencies listed in § 74.402(b)(4) and (c)(1) of this part under the provisions of § 74.436, however, one licensee may not operate such stations on more than two frequency pairs in a single area.

\* \* \* \* \*

(g) An application for a remote pickup broadcast station or system shall specify the broadcasting station with which the remote pickup broadcast facility is to be principally used and the licensed area of operation for a system which includes mobile stations shall be the area considered to be served by the associated broadcasting station. Mobile stations may be operated outside the licensed area of operation pursuant to § 74.24 of this part. Where the applicant for remote pickup broadcast facilities is the licensee of more than one class of broadcasting station (AM, FM, TV), all licensed to the same community, designation of one such station as the associated broadcasting station will not preclude use of the remote pickup broadcast facilities with those broadcasting stations not included in the designation and such additional use shall be at the discretion of the licensee.



\* \* \* \* \*

(k) In case of permanent discontinuance of operations of a station licensed under this subpart, the licensee shall cancel the station license using FCC Form 601. \* \* \*

23. Section 74.433 is amended by revising paragraphs (b) and (c) to read as follows:

**§ 74.433 Temporary authorizations.**

\* \* \* \* \*

(b) A request for special temporary authority for the operation of a remote pickup broadcast station must be made in accordance with the procedures of § 1.931(b) of this chapter.

(c) All requests for special temporary authority of a remote pickup broadcast station must include full particulars including: licensee's name and address, facility identification number of the associated broadcast station or stations, call letters of remote pickup station (if assigned), type and manufacturer of equipment, power output, emission, frequency or frequencies proposed to be used, commencement and termination date, location of operation and purpose for which request is made including any particular justification.

\* \* \* \* \*

24. Section 74.451 is amended by revising paragraph (a) to read as follows:

**§ 74.451 Certification of equipment.**

(a) Applications for new remote pickup broadcast stations or systems or for changing transmitting equipment of an existing station will not be accepted unless the transmitters to be used have been certificated by the FCC pursuant to the provisions of this subpart, or have been certificated for licensing under Part 90 of the FCC rules and do not exceed the output power limits specified in § 74.461(b).

\* \* \* \* \*

25. Section 74.452 is revised to read as follows:

**§ 74.452 Equipment changes.**

(a) Modifications may be made to an existing authorization in accordance with §§ 1.929 and 1.947 of this chapter.

(b) All transmitters initially installed after November 30, 1977, must be certificated for use in this service or other service as specified in § 74.451(a).

26. Section 74.462 is amended by revising paragraph (a), the table in paragraph (b), and the introduction to paragraph (c), and removing paragraphs (e), (f), and (g) to read as follows:

**§ 74.462 Authorized bandwidth and emissions.**

(a) Each authorization for a new remote pickup broadcast station or system shall require the use of certificated equipment and such equipment shall be operated in accordance with emission

specifications included in the grant of certification and as prescribed in paragraphs (b), (c), and (d) of this section.

(b) \* \* \*

Frequencies	Authorized bandwidth (kHz)	Maximum frequency deviation <sup>1</sup> (kHz)	Type of emission <sup>2</sup>
kHz 1606, 1622, and 1646 .....	10	N/A	A3E
MHz 25.87 to 26.03 .....	40	10	Frequencies 25.87 to 153.3575 MHz: A3E, F1E, F3E, F9E
26.07 to 26.47 .....	20	5	
152.8625 to 153.3575 <sup>3</sup> .....	30/60	5/10	Frequencies 160.860 to 455.950 MHz: A1A, A1B, A1D, A1E, A2A, A2B, A2D, A2E, A3E, F1A, F1B, F1D, F1E, F2A, F2B, F2D, F2E, F3E, F9E
160.860 to 161.400 .....	60	10	
161.625 to 161.775 .....	30	5	
166.25 and 170.15 <sup>4</sup> .....	12.5/25	5	
450.00625 to 450.025	Up to 12.5	1.5	
450.98125 to 450.99375			
455.00625 to 455.025	Up to 25	5	
455.98125 to 455.99375 .....			
450.03125 to 450.61875	25 - 50	10	
455.03125 to 455.61875 .....			
450.6375 to 450.8625	50 - 100	35	
455.6375 to 455.8625 .....			
450.900, 450.950			
455.900, 455.950 .....			

<sup>1</sup> Applies where F1A, F1B, F1D, F1E, F2A, F2B, F2D, F2E, F3E, or F9E emissions are used.

<sup>2</sup> Stations operating above 450 MHz shall show a need for employing A1A, A1B, A1D, A1E, A2A, A2B, A2D, A2E, F1A, F1B, F1D, F1E, F2A, F2B, F2D, or F2E emission.

<sup>3</sup> New or modified licenses for use of the frequencies will not be granted to utilize transmitters on board aircraft, or to use a bandwidth in excess of 30 kHz and maximum deviation exceeding 5 kHz

<sup>4</sup> For stations licensed or applied for before **(insert date 30 days after publication in the Federal Register)**, the sum of the bandwidth of emission and tolerance on frequencies 166.25 MHz or 170.15 MHz shall not exceed 25 kHz, and such operation may continue until January 1, 2005. For new stations licensed or applied for on or after **(insert date 30 days after publication in the Federal Register)**, the sum of the bandwidth of emission and tolerance on these frequencies shall not exceed 12.5 kHz. For all remote pickup broadcast stations, the sum of the bandwidth of emission and tolerance on these frequencies shall not exceed 12.5 kHz on or after January 1, 2005.

\* \* \* \* \*

(c) For emissions on frequencies above 25 MHz with authorized bandwidths up to 30 kHz, the emissions shall comply with the emission mask and transient frequency behavior requirements of §§ 90.210 and 90.214 of this chapter. For all other emissions, the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the following schedule:

\* \* \* \* \*

27. Section 74.464 is amended by revising the introductory text to the table to read as follows:

**§ 74.464 Frequency tolerance.**

For operations on frequencies above 25 MHz using authorized bandwidths up to 30 kHz, the licensee of a remote pickup broadcast station or system shall maintain the operating frequency of each station in compliance with the frequency tolerance requirements of § 90.213 of this chapter. For all other operations, the licensee of a remote pickup broadcast station or system shall maintain the operating frequency of each station in accordance with the following:

\* \* \* \* \*

28. Section 74.482 is amended by revising the second sentence of paragraph (a) and paragraph (e) to read as follows:

**§ 74.482 Station identification.**

(a) \* \* \* For systems, the licensee (including those operating pursuant to § 74.24 of this part) shall assign a unit designator to each station in the system. \* \* \*

\* \* \* \* \*

(e) For stations using F1E or G1E emissions, identification shall be transmitted in the unscrambled analog (F3E) mode or in International Morse Code pursuant to the provisions of paragraph (d) of this section at intervals not to exceed 15 minutes. For purposes of rule enforcement, all licensees using F1E or G1E emissions shall provide, upon request by the Commission, a full and complete description of the encoding methodology they currently use.

\* \* \* \* \*

29. Section 74.502 is amended by removing the second sentence of the introductory text of paragraph (b), revising the last sentence of the introductory text of paragraph (b), adding two new sentences to the end of the introductory text of paragraph (b), revising paragraph (c)(1)(ii), and revising paragraph (d) to read as follows:

**§ 74.502 Frequency assignment.**

(a) \* \* \* \* \*

(b) \* \* \* The frequencies listed below are the centers of individual segments. When stacking an even number of segments, the center frequency specified will deviate from the list below in that it should correspond to the actual center of stacked channels. When stacking an odd number of channels, the center frequency specified will correspond to one of the frequencies listed below.

\* \* \* \* \*

(c) \* \* \*

(1) \* \* \*

(ii) Licensees may use either a two-way link or one frequency of a frequency pair for a one-way link.

\* \* \* \* \*

(d) For the coordination of all frequency assignments for fixed stations above 944 MHz, for each frequency authorized under this part, the interference protection criteria in § 101.105(a), (b), and (c) of this chapter and the frequency usage coordination procedures of § 101.103(d) of this chapter will apply.

\* \* \* \* \*

**30.** Section 74.532 is amended by removing the Note following paragraph (d) and revising paragraph (f) to read as follows:

**§ 74.532 Licensing requirements.**

\* \* \* \* \*

(f) In case of permanent discontinuance of operations of a station licensed under this subpart, the licensee shall cancel the station license using FCC Form 601. For purposes of this section, a station which is not operated for a period of one year is considered to have been permanently discontinued.

**31.** Section 74.534 is revised to read as follows:

**§ 74.534 Power limitations.**

(a) Transmitter output power.

(1) Transmitter output power shall be limited to that necessary to accomplish the function of the system.

(2) In the 17,700 to 19,700 MHz band, transmitter output power shall not exceed 10 watts.

(b) In no event shall the average equivalent isotropically radiated power (EIRP), as referenced to an isotropic radiator, exceed the values specified below. In cases of harmful interference, the Commission may, after notice and opportunity for hearing, order a change in the equivalent isotropically radiated power of this station.

Frequency Band (MHz)	Maximum Allowable <sup>1</sup> EIRP (dBW)
944 to 952 .....	+40
17,700 to 18,600 .....	+55
18,600 to 19,700 .....	+35

<sup>1</sup> Stations licensed based on an application filed before **(insert date 30 days after publication in the Federal Register)**, for EIRP values exceeding those specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal.

(c) The EIRP of transmitters that use Automatic Transmitter Power Control (ATPC) shall not exceed the EIRP specified on the station authorization. The EIRP of non-ATPC transmitters shall be maintained as near as practicable to the EIRP specified on the station authorization.

**32.** Section 74.535 is amended by revising paragraphs (a), (b) and (d), removing existing paragraphs (e) and (f), and redesignating paragraph (g) as paragraph (e) to read as follows:

**§ 74.535 Emission and bandwidth.**

(a) The mean power of emissions shall be attenuated below the mean transmitter power ( $P_{\text{MEAN}}$ ) in accordance with the following schedule:

(1) When using frequency modulation:

(i) On any frequency removed from the assigned (center) frequency by more than 50% up to and including 100% of the authorized bandwidth: At least 25 dB in any 100 kHz reference bandwidth ( $B_{\text{REF}}$ );

(ii) On any frequency removed from the assigned (center) frequency by more than 100% up to and including 250% of the authorized bandwidth: At least 35 dB in any 100 kHz reference bandwidth;

(iii) On any frequency removed from the assigned (center) frequency by more than 250% of the authorized bandwidth: At least  $43 + 10 \log_{10} (P_{\text{MEAN}}$  in watts) dB, or 80 dB, whichever is the lesser attenuation, in any 100 kHz reference bandwidth.

(2) When using transmissions employing digital modulation techniques:

(i) For operating frequencies below 15 GHz, in any 4 kHz reference bandwidth ( $B_{\text{REF}}$ ), the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 50 decibels:

$$A = 35 + 0.8(G - 50) + 10 \log_{10} B.$$

(Attenuation greater than 80 decibels is not required.)

where:

A = Attenuation (in decibels) below the mean output power level.

G = Percent removed from the carrier frequency.

B = Authorized bandwidth in megahertz.

(ii) For operating frequencies above 15 GHz, in any 1 MHz reference bandwidth ( $B_{\text{REF}}$ ), the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 11 decibels:

$$A = 11 + 0.4(G - 50) + 10 \log_{10} B.$$

(Attenuation greater than 56 decibels is not required.)

(iii) In any 4 kHz reference bandwidth ( $B_{\text{REF}}$ ), the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least  $43 + 10 \log_{10} (P_{\text{MEAN}}$  in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(b) For all emissions not covered in paragraph (a) of this section, the peak power of emissions shall be attenuated below the peak envelope transmitter power ( $P_{PEAK}$ ) in accordance with the following schedule:

(1) On any frequency 500 Hz inside the channel edge up to and including 2500 Hz outside the same edge, the following formula will apply:

$$A = 29 \text{ Log}_{10} [(25/11)[(D + 2.5 - (W/2))]^2] \text{ dB}$$

(Attenuation greater than 50 decibels is not required.)

Where:

A = Attenuation (in dB) below the peak envelope transmitter power.

D = the displacement frequency (kHz) from the center of the authorized bandwidth.

W = the channel bandwidth (kHz).

(2) On any frequency removed from the channel edge by more than 2500 Hz: At least  $43 + 10 \text{ Log}_{10} (P_{PEAK} \text{ in watts}) \text{ dB}$ .

\* \* \* \* \*

(d) For purposes of compliance with the emission limitation requirements of this section:

(1) If the transmitter modulates a single carrier, digital modulation techniques are considered as being employed when digital modulation occupies 50 percent or more of the total peak frequency deviation of a transmitted radio frequency carrier. The total peak frequency deviation will be determined by adding the deviation produced by the digital modulation signal and the deviation produced by any frequency division multiplex (FDM) modulation used. The deviation (D) produced by the FDM signal must be determined in accordance with § 2.202(f) of this chapter.

(2) If the transmitter modulates two or more carriers, with at least one using digital modulation and one using frequency or other analog modulation, digital modulation techniques are considered as being employed when the necessary bandwidth of the digital signal(s) is 50 percent or more of the aggregate bandwidth of the system, comprising the digital necessary bandwidth(s), the analog necessary bandwidth(s), and any bandwidth(s) between the digital and analog necessary bandwidths. In this case, the aggregate bandwidth shall be used for the authorized bandwidth (B) in paragraph (a) of this section, and for purposes of compliance with the bandwidth limitations in § 74.502 of this subpart; and the sum of the powers of the analog and digital signals shall be used for mean transmitter power ( $P_{MEAN}$ ) in paragraph (a) or the peak envelope transmitter power ( $P_{PEAK}$ ) in paragraph (b) of this section, and for purposes of compliance with the power limitations in § 74.534 of this subpart.

(3) For demonstrating compliance with the attenuation requirements for frequency modulation and digital modulation in paragraph (a) of this section, the resolution bandwidth ( $B_{RES}$ ) of the measuring equipment used for measurements removed from the center frequency by more than 250 percent of the authorized bandwidth shall be 100 kHz for operating frequencies below 1 GHz, and 1 MHz for operating frequencies above 1 GHz. The resolution bandwidth for frequencies removed from the center frequency by less than 250 percent of the authorized bandwidth shall be the reference bandwidth ( $B_{REF}$ ) specified in the individual emission limitations, but may be reduced to not less than one percent of the authorized bandwidth (B), adjusted upward to the nearest greater resolution bandwidth available on the measuring equipment. In all cases, if  $B_{RES}$  and  $B_{REF}$  are not equal, then the attenuation requirement must be increased (or decreased) as determined by a factor of  $10 \text{ log}_{10} [(B_{REF} \text{ in megahertz}) / (B_{RES} \text{ in megahertz})]$

decibels, where a positive factor indicates an increase in the attenuation requirement and a negative factor indicates a decrease in the attenuation requirement.

(4) Stations licensed pursuant to an application filed before **(insert date two years after publication in the Federal Register)**, using equipment not conforming with the emission limitations specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal. Existing equipment and equipment of product lines in production before **(insert date 30 days after publication in the Federal Register)**, authorized via certification or verification before **(insert date two years after publication in the Federal Register)**, for equipment not conforming to the emission limitations requirements specified above, may continue to be manufactured and/or marketed, but may not be authorized for use under a station license except at stations licensed pursuant to an application filed before **(insert date two years after publication in the Federal Register)**. Any non-conforming equipment authorized under a station license, and replaced on or after **(insert date two years after publication in the Federal Register)**, must be replaced by conforming equipment.

\* \* \* \* \*

**33.** Section 74.536 is amended by removing the line for 31.0 to 31.3 and footnotes 2 and 3 from the table in paragraph (c).

**34.** Section 74.537 is amended by revising paragraphs (b) and (c) to read as follows:

**§ 74.537 Temporary authorizations.**

\* \* \* \* \*

(b) A request for special temporary authority for the operation of an aural broadcast STL or an intercity relay station must be made in accordance with the procedures of § 1.931(b) of this chapter.

(c) All requests for special temporary authority of an aural broadcast auxiliary stations must include full particulars including: licensee's name and address, facility identification number of the associated broadcast station(s), call letters of the aural broadcast STL or intercity relay station, if assigned, type and manufacturer of equipment, effective isotropic radiated power, emission, frequency or frequencies proposed for use, commencement and termination date and location of the proposed operation, and purpose for which request is made including any particular justification.

\* \* \* \* \*

**35.** Section 74.551 is amended by revising paragraph (a), removing paragraphs (b) and (c), and redesignating paragraph (d) as new paragraph (b) to read as follows:

**§ 74.551 Equipment changes.**

(a) Modifications may be made to an existing authorization in accordance with §§ 1.929 and 1.947 of this chapter.

\* \* \* \* \*

**36.** Section 74.561 is amended by removing the line for 31,000 to 31,300 from the table.

37. Section 74.602 is amended by removing the third sentence and revising the second to last sentence of the introductory text of paragraph (a); revising the channel boundaries for channel designation B03 to show 12.7625-12.7875 in the table of paragraph (a); revising footnote 2 to the table of paragraph (a); revising paragraph (d), the first sentence of paragraph (f), paragraph (h), and the second to last sentence of the introductory text of paragraph (i); and removing and reserving paragraph (a)(2), to read as follows:

**§ 74.602 Frequency assignment.**

(a) \* \* \* The band segment 6425-6525 MHz is available for broadcast auxiliary stations as described in paragraph (i) of this section. \* \* \*

Band A MHz	Band B MHz	Band D <sup>1</sup> GHz			
		Group A channels		Group B channels	
		Designation	Channel boundaries	Designation	Channel boundaries
* * * * *	* * * * *	* * * * *	* * * * *	* * * * *	* * * * *
* * * * *	* * * * *	* * * * *	* * * * *	B03 .....	12.7625- 12.7875
* * * * *	* * * * *	* * * * *	* * * * *	* * * * *	* * * * *

<sup>1</sup> For fixed stations using Band D Channels, applicants are encouraged to use alternate A and B channels such that adjacent R.F. carriers are spaced 12.5 MHz. As an example, a fixed station, relaying several channels, would use A01, B01, A02, B02, A03, etc.

<sup>2</sup> The band 13.15 - 13.20 GHz is reserved for the assignment of CARS Pickup and Television Pickup stations on a primary co-equal basis within 50 kilometers of the television markets defined in § 76.53 of this chapter. The band 13.20 - 13.2125 GHz is reserved exclusively for the assignment of Television Pickup stations on a primary basis. Fixed stations licensed prior to **(insert date 30 days after date of publication in the Federal Register)** may continue operation under their current status on channels in the 13.15 - 13.2125 GHz band, subject to periodic license renewals.

(1) \* \* \*

(2) [Reserved]

\* \* \* \* \*

(d) Cable Television Relay Service stations may be assigned channels in Band D between 12,700 and 13,200 MHz subject to the condition that no harmful interference is caused to TV STL and TV relay stations authorized at the time of such grants. Similarly, new TV STL and TV relay stations must not cause harmful interference to cable television relay stations authorized at the time of such grants. The use of channels between 12,700 and 13,200 MHz by TV pickup stations is subject to the condition that no harmful interference is caused to Cable Television Relay Service stations, TV STL and TV relay stations, except as provided for in § 74.602(a) Note 2. Band D channels are also shared with certain Private Operational Fixed Stations, see § 74.638.

\* \* \* \* \*



(f) TV auxiliary stations licensed to low power TV stations and translator relay stations will be assigned on a secondary basis, i.e., subject to the condition that no harmful interference is caused to other TV auxiliary stations assigned to TV broadcast stations, or to cable television relay service stations (CARS) operating between 12,700 and 13,200 MHz. \* \* \*

(g) \* \* \* \* \*

(h) TV STL, TV relay stations, and TV translator relay stations may be authorized to operate fixed point-to-point service on the UHF TV channels 14-69 on a secondary basis and subject to the provisions of subpart G of this part and those specified below:

(1) Applications for authorization in accordance with this paragraph must comply with the following technical limits or be accompanied by an engineering analysis demonstrating why these limits must be exceeded:

(i) Maximum EIRP is limited to 35 dBW;

(ii) Transmitting antenna beamwidth is limited to 25 degrees (measured at the 3 dB points); and

(iii) Vertical polarization is used.

(2) These stations must not interfere with and must accept interference from current and future full-power UHF-TV stations, LPTV stations, and translator stations. They will also be secondary to land mobile stations in areas where land mobile sharing is currently permitted.

(3) TV STL and TV relay stations licensed for operation on UHF TV channels 52-69 based on applications filed before **(insert date 30 days after publication in the Federal Register)** may continue to operate under the terms of their current authorizations until the end of transition to digital television in their market (DTV Transition), as set forth in §§ 73.622-73.625. Applications for TV STL and TV relay stations operating on UHF TV channels 52-69 will not be accepted for filing on or after **(insert date 30 days after publication in the Federal Register)**.

(4) TV translator relay stations licensed for operation on UHF TV channels 52-59 based on applications filed before the end of DTV transition may continue to operate under the terms of their current authorizations indefinitely. TV translator relay stations licensed for operation on UHF TV channels 60-69 based on applications filed before the end of DTV transition may continue to operate under the terms of their current authorizations until the end of DTV Transition. Applications for TV translator relay stations operating on UHF TV channels 52-69 will not be accepted for filing on or after the end of DTV Transition.

(i) \* \* \* This band is co-equally shared with mobile stations licensed pursuant to Parts 78 and 101 of the Commission's Rules. \* \* \*

\* \* \* \* \*

**38.** Section 74.603 is revised by removing and reserving paragraph (b).

**§ 74.603 Sound channels.**

\* \* \* \* \*

(b) [Reserved]

\* \* \* \* \*

39. Section 74.604 is amended by removing and reserving paragraph (a).

**§ 74.604 Interference avoidance.**

(a) [Reserved]

\* \* \* \* \*

40. Section 74.631 is amended by revising the first sentence of paragraph (a) to read as follows:

**§ 74.631 Permissible service.**

(a) The licensee of a television pickup station authorizes the transmission of program material, orders concerning such program material, and related communications necessary to the accomplishment of such transmissions, from the scenes of events occurring in places other than a television studio, to its associated television broadcast station, to an associated television relay station, to such other stations as are broadcasting the same program material, or to the network or networks with which the television broadcast station is affiliated.

\* \* \* \* \*

41. Section 74.632 is amended by removing the last two sentences of paragraph (a) and the Note following paragraph (f), and revising the first sentence of paragraph (c), and paragraphs (e) and (g).

**§ 74.632 Licensing requirements.**

\* \* \* \* \*

(c) An application for a new TV pickup station shall designate the TV broadcast station with which it is to be operated and specify the area in which the proposed operation is intended. \* \* \*

\* \* \* \* \*

(e) A license for a TV translator relay station will be issued only to licensees of low power TV and TV translator stations. *However*, a television translator relay station license may be issued to a cooperative enterprise wholly owned by licensees of television broadcast translators or licensees of television broadcast translators and cable television owners or operators upon a showing that the applicant is qualified under the Communication Act of 1934, as amended.

\* \* \* \* \*

(g) In case of permanent discontinuance of operations of a station licensed under this subpart, the licensee shall cancel the station license using FCC Form 601. For purposes of this section, a station which is not operated for a period of one year is considered to have been permanently discontinued.

42. Section 74.633 is amended by revising paragraphs (b) and (c) to read as follows:

**§ 74.633 Temporary authorizations.**

\* \* \* \* \*

(b) A request for special temporary authority for the operation of a television broadcast auxiliary station must be made in accordance with the procedures of § 1.931(b) of this chapter.

(c) All requests for special temporary authority of a television broadcast auxiliary station must include full particulars including: licensee's name and address, facility identification number of the associated broadcast station(s) (if any), call letters of the television broadcast STL or intercity relay station (if assigned), type and manufacturer of equipment, effective isotropic radiated power, emission, frequency or frequencies proposed for use, commencement and termination date and location of the proposed operation, and purpose for which request is made including any particular justification.

\* \* \* \* \*

43. Section 74.636 is revised as follows:

**§ 74.636 Power limitations.**

(a) On any authorized frequency, transmitter peak output power and the average power delivered to an antenna in this service must be the minimum amount of power necessary to carry out the communications desired and shall not exceed the values listed in the table below. Application of this principle includes, but is not to be limited to, requiring a licensee who replaces one or more of its antennas with larger antennas to reduce its antenna input power by an amount appropriate to compensate for the increased primary lobe gain of the replacement antenna(s). In no event shall the average equivalent isotropically radiated power (EIRP), as referenced to an isotropic radiator, exceed the values specified below. In cases of harmful interference, the Commission may, after notice and opportunity for hearing, order a change in the effective radiated power of this station. The table follows:

Frequency Band (MHz)	Maximum Allowable Transmitter Power		Maximum Allowable EIRP <sup>2</sup>	
	Mobile (W)	Fixed (dBW)	Mobile (dBW)	
2,025 to 2,110.....	12.0	+45	+35	
2,450 to 2,483.5.....	12.0	+45	+35	
6,425 to 6,525.....	12.0	.....	+35	
6,875 to 7,125.....	12.0	+55	+35	
12,700 to 13,250.....	1.5	+55	+45	
17,700 to 18,600.....	.....	+55	.....	
18,600 to 18,800 <sup>1</sup> .....	.....	+35	.....	
18,800 to 19,700.....	.....	+55	.....	

<sup>1</sup> The power delivered to the antenna is limited to -3 dBW.

<sup>2</sup> Stations licensed based on an application filed before **(insert date 30 days after publication in the Federal Register)**, for EIRP values exceeding those specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal.

(b) The EIRP of transmitters that use Automatic Transmitter Power Control (ATPC) shall not exceed the EIRP specified on the station authorization. The EIRP of non-ATPC transmitters shall be maintained as near as practicable to the EIRP specified on the station authorization.

44. Section 74.637 is amended by revising paragraphs (a), (b) and (c) and by removing the entries for 31,000 to 31,300 and 38,600-40,000 from the table in paragraph (g) to read as follows:

**§ 74.637 Emissions and emission limitations.**

(a) The mean power of emissions shall be attenuated below the mean transmitter power ( $P_{\text{MEAN}}$ ) in accordance with the following schedule:

(1) When using frequency modulation:

(i) On any frequency removed from the assigned (center) frequency by more than 50% up to and including 100% of the authorized bandwidth: At least 25 dB in any 100 kHz reference bandwidth ( $B_{\text{REF}}$ );

(ii) On any frequency removed from the assigned (center) frequency by more than 100% up to and including 250% of the authorized bandwidth: At least 35 dB in any 100 kHz reference bandwidth;

(iii) On any frequency removed from the assigned (center) frequency by more than 250% of the authorized bandwidth: At least  $43 + 10 \log_{10} (P_{\text{MEAN}}$  in watts) dB, or 80 dB, whichever is the lesser attenuation, in any 100 kHz reference bandwidth.

(2) When using transmissions employing digital modulation techniques:

(i) For operating frequencies below 15 GHz, in any 4 kHz reference bandwidth ( $B_{\text{REF}}$ ), the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 50 decibels:

$$A = 35 + 0.8(G - 50) + 10 \text{Log}_{10} B.$$

(Attenuation greater than 80 decibels is not required.)

where:

A = Attenuation (in decibels) below the mean output power level.  
 G = Percent removed from the carrier frequency.  
 B = Authorized bandwidth in megahertz.

(ii) For operating frequencies above 15 GHz, in any 1 MHz reference bandwidth ( $B_{\text{REF}}$ ), the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 250 percent of the authorized bandwidth: As specified by the following equation but in no event less than 11 decibels:

$$A = 11 + 0.4(G - 50) + 10 \text{Log}_{10} B.$$

(Attenuation greater than 56 decibels is not required.)

(iii) In any 4 kHz reference bandwidth ( $B_{\text{REF}}$ ), the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth: At least  $43 + 10 \text{Log}_{10} (P_{\text{MEAN}}$  in watts) decibels, or 80 decibels, whichever is the lesser attenuation.

(3) Amplitude Modulation. For vestigial sideband AM video: On any frequency removed from the center frequency of the authorized band by more than 50%: at least 50 dB below peak power of the emission.

(b) For all emissions not covered in paragraph (a) of this section, the peak power of emissions shall be attenuated below the peak envelope transmitter power ( $P_{PEAK}$ ) in accordance with the following schedule:

(1) On any frequency 500 Hz inside the channel edge up to and including 2500 Hz outside the same edge, the following formula will apply:

$$A = 29 \text{ Log}_{10} [(25/11)[(D + 2.5 - (W/2))]^2] \text{ dB}$$

(Attenuation greater than 50 decibels is not required.)

Where:

A = Attenuation (in dB) below the peak envelope transmitter power.

D = the displacement frequency (kHz) from the center of the authorized bandwidth.

W = the channel bandwidth (kHz).

(2) On any frequency removed from the channel edge by more than 2500 Hz: At least  $43 + 10 \text{ Log}_{10} (P_{PEAK} \text{ in watts})$  dB.

(c) For purposes of compliance with the emission limitation requirements of this section:

(1) If the transmitter modulates a single carrier, digital modulation techniques are considered as being employed when digital modulation occupies 50 percent or more of the total peak frequency deviation of a transmitted radio frequency carrier. The total peak frequency deviation will be determined by adding the deviation produced by the digital modulation signal and the deviation produced by any frequency division multiplex (FDM) modulation used. The deviation (D) produced by the FDM signal must be determined in accordance with § 2.202(f) of this chapter.

(2) If the transmitter modulates two or more carriers, with at least one using digital modulation and one using frequency or other analog modulation, digital modulation techniques are considered as being employed when the necessary bandwidth of the digital signal(s) is 50 percent or more of the aggregate bandwidth of the system, comprising the digital necessary bandwidth(s), the analog necessary bandwidth(s), and any bandwidth(s) between the digital and analog necessary bandwidths. In this case, the aggregate bandwidth shall be used for the authorized bandwidth (B) in paragraph (a) of this section, and for purposes of compliance with the bandwidth limitations in paragraph (g) of this section and in § 74.602 of this subpart; and the sum of the powers of the analog and digital signals shall be used for mean transmitter power ( $P_{MEAN}$ ) in paragraph (a) or the peak envelope transmitter power ( $P_{PEAK}$ ) in paragraph (b) of this section, and for purposes of compliance with the power limitations in § 74.636 of this subpart.

(3) For demonstrating compliance with the attenuation requirements for frequency modulation and digital modulation in paragraph (a) of this section, the resolution bandwidth ( $B_{RES}$ ) of the measuring equipment used for measurements removed from the center frequency by more than 250 percent of the authorized bandwidth shall be 100 kHz for operating frequencies below 1 GHz, and 1 MHz for operating frequencies above 1 GHz. The resolution bandwidth for frequencies removed from the center frequency by less than 250 percent of the authorized bandwidth shall be the reference bandwidth ( $B_{REF}$ ) specified in the individual emission limitations, but may be reduced to not less than one percent of the authorized bandwidth (B), adjusted upward to the nearest greater resolution bandwidth available on the measuring equipment. In all cases, if  $B_{RES}$  and  $B_{REF}$  are not equal, then the attenuation requirement must be increased (or decreased) as determined by a factor of  $10 \text{ log}_{10} [(B_{REF} \text{ in megahertz}) / (B_{RES} \text{ in megahertz})]$  decibels, where a positive factor indicates an increase in the attenuation requirement and a negative factor indicates a decrease in the attenuation requirement.

(4) Stations licensed pursuant to an application filed before **(insert date two years after publication in the Federal Register)**, using equipment not conforming with the emission limitations specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal. Existing equipment and equipment of product lines in production before **(insert date 30 days after publication in the Federal Register)**, authorized via certification or verification before **(insert date two years after publication in the Federal Register)**, for equipment not conforming to the emission limitations requirements specified above, may continue to be manufactured and/or marketed, but may not be authorized for use under a station license except at stations licensed pursuant to an application filed before **(insert date two years after publication in the Federal Register)**. Any non-conforming equipment authorized under a station license, and replaced on or after **(insert date two years after publication in the Federal Register)**, must be replaced by conforming equipment.

\* \* \* \* \*

45. Section 74.638 is revised to read as follows:

**§ 74.638 Frequency coordination.**

(a) Coordination of all frequency assignments for fixed stations in all bands above 2110 MHz, and for mobile (temporary fixed) stations in the bands 6425-6525 MHz and 17.7-19.7 GHz, will be in accordance with the procedure established in paragraph (b) of this section, except that the prior coordination process for mobile (temporary fixed) assignments may be completed orally and the period allowed for response to a coordination notification may be less than 30 days if the parties agree. Coordination of all frequency assignments for all mobile (temporary fixed) stations in all bands above 2110 MHz, except the bands 6425-6525 MHz and 17.7-19.7 GHz, will be conducted in accordance with the procedure established in paragraph (b) of this section or with the procedure in paragraph (d) of this section. Coordination of all frequency assignments for all fixed stations in the band 1990-2110 MHz will be in accordance with the procedure established in paragraph (c) of this section. Coordination of all frequency assignments for all mobile (temporary fixed) stations in the band 1990-2110 MHz will be conducted in accordance with the procedure in paragraph (d) of this section.

(b) Frequency coordination for all fixed stations in all bands above 2110 MHz, and for all mobile (temporary fixed) stations in the bands 6425-6525 MHz and 17.7-19.7 GHz. For each frequency authorized under this part, the interference protection criteria in § 101.105(a), (b), and (c) of this chapter and the frequency usage coordination procedures in § 101.103(d) of this chapter will apply, except that only stations in the bands 6425-6525 MHz and 17.7-19.7 GHz are subject to the provision in § 101.103(d) requiring compliance with § 101.21(f) of this chapter in coordinating frequency usage with stations in the fixed satellite service.

(c) Frequency coordination for all fixed stations in the band 1990-2110 MHz. For each frequency authorized under this part, the following frequency usage coordination procedures will apply:

(1) General requirements. Applicants are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local frequency coordination committees, where they exist, for information on frequencies available in the area. Proposed frequency usage must be coordinated with existing licensees and applicants in the area whose facilities could affect or be affected by the new proposal in terms of frequency interference on active channels, applied-for channels, or channels coordinated for future

growth. Coordination must be completed prior to filing an application for regular authorization, for major amendment to a pending application, or for major modification to a license.

(2) To be acceptable for filing, all applications for regular authorization, or major amendment to a pending application, or major modification to a license, must include a certification attesting that all co-channel and adjacent-channel licensees and applicants potentially affected by the proposed fixed use of the frequency(ies) have been notified and are in agreement that the proposed facilities can be installed without causing harmful interference to those other licensees and applicants.

(d) Frequency coordination for all mobile (temporary fixed) stations in all bands above 1990 MHz, except the bands 6425-6525 MHz and 17.7-19.7 GHz. For each frequency authorized under this part, applicants are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local frequency coordination committees, where they exist, for information on frequencies available in the area. In selecting frequencies, consideration should be given to the relative location of receive points, normal transmission paths, and the nature of the contemplated operation.

46. Section 74.641 is amended by revising the introductory text of paragraph (a), removing the line for 31.0 to 31.3 and footnotes 2 and 3 from the table in paragraph (a)(1), removing the second sentence of paragraph (a)(5), and revising the introductory text of paragraph (b) to read as follows:

**§ 74.641 Antenna systems.**

(a) For fixed stations operating above 2025 MHz, the following standards apply:

\* \* \* \* \*

(b) All fixed stations are to use antenna systems in conformance with the standards of this section. TV auxiliary broadcast stations are considered to be located in an area subject to frequency congestion and must employ a Category A antenna when:

\* \* \* \* \*

47. Section 74.643 is revised to read as follows:

**§ 74.643 Interference to geostationary-satellites.**

Applicants and licensees must comply with § 101.145 of this chapter to minimize the potential of interference to geostationary-satellites.

48. Section 74.644 is amended by revising the table in paragraph (a) and paragraph (b) to read as follows:

**§ 74.644 Minimum path lengths for fixed links.**

(a) \* \* \*

Frequency band (MHz)	Minimum path length (km)
Below 1,990 .....	n/a
1,990 – 7,125 .....	17
12,200 – 13,250 .....	5

Above 17,700 ..... | n/a

(b) For paths shorter than those specified in the Table, the EIRP shall not exceed the value derived from the following equation.

$$\text{EIRP} = \text{MAXEIRP} - 40 \log(\text{A/B}) \text{ dBW}$$

Where:

- EIRP = The new maximum EIRP (equivalent isotropically radiated power) in dBW.
- MAXEIRP = Maximum EIRP as set forth in the Table in § 74.636 of this part.
- A = Minimum path length from the Table above for the frequency band in kilometers.
- B = The actual path length in kilometers.

NOTES TO PARAGRAPH (b):

(1) For transmitters using Automatic Transmitter Power Control, EIRP corresponds to the maximum transmitter power available, not the coordinated transmit power or the nominal transmit power.

(2) Stations licensed based on an application filed before **(insert date 30 days after publication in the Federal Register)**, in the 2450-2483.5 MHz band, for EIRP values exceeding those specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal.

\* \* \* \* \*

49. Section 74.651 is amended by revising paragraphs (a) and (b), removing paragraphs (c) and (d), and redesignating paragraph (e) as new paragraph (c) to read as follows:

**§ 74.651 Equipment changes.**

(a) Modifications may be made to an existing authorization in accordance with §§ 1.929 and 1.947 of this chapter.

(b) Multiplexing equipment may be installed on any licensed TV broadcast STL, TV relay or translator relay station without authority from the Commission.

\* \* \* \* \*

50. Section 74.655 is amended by removing the last sentence of paragraph (a).

51. Section 74.661 is amended by revising the table to read as follows:

**§ 74.661 Frequency tolerance.**

\* \* \* \* \*

Frequency band (MHz)	Frequency tolerance (%)
2,025 to 2,110	0.005 <sup>1</sup>
2,450 to 2,483.5	0.001 <sup>2</sup>



6,425 to 6,525	0.005
6,875 to 7,125	0.005 <sup>1</sup>
12,700 to 13,250	0.005 <sup>1</sup>
17,700 to 18,820	0.003
18,920 to 19,700	0.003

- 1 Television translator relay stations shall maintain a frequency tolerance of 0.002%.
- 2 Stations licensed pursuant to an application filed before **(insert date two years after publication in the Federal Register)**, for tolerance values exceeding those specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal. Existing equipment and equipment of product lines in production before **(insert date 30 days after publication in the Federal Register)**, authorized via certification or verification before **(insert date two years after publication in the Federal Register)**, for tolerance values exceeding those specified above, may continue to be manufactured and/or marketed, but may not be authorized for use under station license except at stations licensed pursuant to an application filed before **(insert date two years after publication in the Federal Register)**. Any non-conforming equipment authorized under a station license, and replaced on or after **(insert date two years after publication in the Federal Register)**, must be replaced by conforming equipment.

52. Section 74.801 is amended by adding a definition for Wireless Assist Video Device in alphabetical order to read as follows:

**§ 74.801 Definitions.**

\* \* \* \* \*

*Wireless Assist Video Device.* An auxiliary station authorized and operated by motion picture and television program producers pursuant to the provisions of this subpart. These stations are intended to transmit over distances of approximately 300 meters for use as an aid in composing camera shots on motion picture and television sets.

53. Section 74.802 is amended by revising paragraph (b)(3) to read as follows:

**§ 74.802 Frequency assignment.**

\* \* \* \* \*

(b) \* \* \*

(3) 470.000-608.000 MHz and 614.000-806.000 MHz

All zones 113 km (70 miles)

\* \* \* \* \*

54. Section 74.832 is amended by revising paragraphs (e), (g), and (i) to read as follows:

**§ 74.832 Licensing requirements and procedures.**

\* \* \* \* \*

(e) An application for low power auxiliary stations or for a change in an existing authorization shall specify the broadcast station, or the network with which the low power broadcast auxiliary facilities are to be principally used as given in paragraph (h) of this section; or it shall specify the motion picture or television production company or the cable television operator with which the low power broadcast auxiliary facilities are to be solely used. A single application, filed on FCC Form 601 may be used in applying for the authority to operate one or more low power auxiliary units. The application must specify the frequency bands which will be used. Motion picture producers, television program producers, and cable television operators are required to attach a single sheet to their application form explaining in detail the manner in which the eligibility requirements given in paragraph (a) of this section are met.

\* \* \* \* \*

(g) Low power auxiliary licensees shall specify the maximum number of units that will be operated.

\* \* \* \* \*

(i) In case of permanent discontinuance of operations of a station licensed under this subpart, the licensee shall cancel the station license using FCC Form 601. For purposes of this section, a station which is not operated for a period of one year is considered to have been permanently discontinued.

\* \* \* \* \*

55. Section 74.833 is amended by revising paragraphs (b) and (c) to read as follows:

**§ 74.833 Temporary authorizations.**

\* \* \* \* \*

(b) A request for special temporary authority for the operation of a remote pickup broadcast station must be made in accordance with the procedures of § 1.931(b) of this chapter.

(c) All requests for special temporary authority of a low power auxiliary station must include full particulars including: licensee's name and address, statement of eligibility, facility identification number of the associated broadcast station (if any), type and manufacturer of equipment, power output, emission, frequency or frequencies proposed to be used, commencement and termination date, location of proposed operation, and purpose for which request is made including any particular justification.

\* \* \* \* \*

56. A new Section 74.870 is added to read as follows:

**§ 74.870 Wireless video assist devices.**

Television Broadcast Auxiliary licensees and motion picture and television producers, as defined in § 74.801 of this part, may operate wireless video assist devices on a non-interference basis on VHF and UHF television channels to assist with production activities.

(a) The use of wireless video assist devices must comply with all provisions of this subpart, except as indicated in paragraphs (b) through (i) of this section.

(b) Wireless video assist devices may only be used for scheduled productions. They may not be used to produce live events and may not be used for electronic news gathering purposes.

(c) Wireless video assist devices may operate with a bandwidth not to exceed 6 MHz on frequencies in the bands 180-210 MHz (TV channels 8-12) and 470-698 MHz (TV channels 14-51) subject to the following restrictions:

(1) The bandwidth may only occupy a single TV channel.

(2) Operation is prohibited within the 608-614 MHz (TV channel 37) band.

(3) Operation is prohibited within 129 km of a television broadcasting station, including Class A television stations, low power television stations and translator stations.

(4) For the area and frequency combinations listed in the table below, operation is prohibited within the distances indicated from the listed geographic coordinates.

Note: All coordinates are referenced to the North American Datum of 1983.

Area	North latitude	West longitude	Excluded frequencies (MHz)	Excluded channels		
				200 km	128 km	52 km
Boston, MA.....	42° 21' 24.4"	71° 03' 23.2"	470-476	14		
			476-482		15	
			482-488	16		
			488-494		17	
Chicago, IL .....	41° 52' 28.1"	87° 38' 22.2"	470-476	14		
			476-482	15		
			482-488		16	
Cleveland, OH <sup>1</sup> .....	41° 29' 51.2"	81° 41' 49.5"	470-476	14		
			476-482		15	
			482-488	16		
			488-494		17	
Dallas/Fort Worth, TX.....	32° 47' 09.5"	96° 47' 38.0"	476-482		15	
			482-488	16		
			488-494		17	
Detroit, MI <sup>1</sup> .....	42° 19' 48.1"	83° 02' 56.7"	470-476		14	
			476-482	15		
			482-488		16	
			488-494	17		
Gulf of Mexico			476-494			15, 16, 17
Hawaii			488-494			17
Houston, TX.....	29° 45' 26.8"	95° 21' 37.8"	482-488		16	
			488-494	17		
			494-500		18	
Los Angeles, CA.....	34° 03' 15.0"	118° 14' 31.3"	470-476	14		
			476-482		15	
			482-488	16		
			488-494		17	
			500-506		19	
			506-512	20		
Miami, FL.....	25° 46' 38.4"	80° 11' 31.2"	512-518		21	
			470-476	14		
			476-482		15	
New York/N.E. New Jersey..	40° 45' 06.4"	73° 59' 37.5"	470-476	14		
			476-482	15		
			482-488	16		
			488-494		17	
Philadelphia, PA .....	39° 56' 58.4"	75° 09' 19.6"	494-500		18	
			500-506	19		
			506-512	20		
			512-518		21	
Pittsburgh, PA.....	40° 26' 19.2"	79° 59' 59.2"	470-476	14		
			476-482		15	
			488-494		17	

Area	North latitude	West longitude	Excluded frequencies (MHz)	Excluded channels		
				200 km	128 km	52 km
San Francisco/Oakland, CA...	37° 46' 38.7"	122° 24' 43.9"	494-500	18		
			500-506		19	
			476-482		15	
			482-488	16		
			488-494	17		
Washington D.C./MD/VA ....	38° 53' 51.4"	77° 00' 31.9"	494-500		18	
			482-488		16	
			488-494	17		
			494-500	18		
			500-506		19	

<sup>1</sup> The distance separation requirements are not applicable in these cities until further order from the Commission.

(d) Wireless video assist devices are limited to a maximum of 250 milliwatts ERP and must limit power to that necessary to reliably receive a signal at a distance of 300 meters. Wireless video assist devices must comply with the emission limitations of § 74.637 of this part.

(e) The antenna of a wireless video assist device must be attached to the transmitter either permanently, or by means of a unique connector designed to allow replacement of authorized antennas but prevent the use of unauthorized antennas. When transmitting, the antenna must not be more than 10 meters above ground level.

(f)(1) A license for a wireless video assist device will authorize the license holder to use all frequencies available for wireless video assist devices, subject to the limitations specified in this section.

(2) Licensees may operate as many wireless video assist devices as necessary, subject to the notification procedures of this section.

(g) *Notification procedure.* Prior to the commencement of transmitting, licensees must notify the local broadcasting coordinator of their intent to transmit. If there is no local coordinator in the intended area of operation, licensees must notify all adjacent channel TV stations within 161 km (100 mi) of the proposed operating area.

(1) Notification must be made at least 10 working days prior to the date of intended transmission.

(2) Notifications must include:

(A) Frequency or frequencies.

(B) Location.

(C) Antenna height.

(D) Emission type(s).

(E) Effective radiated power.

(F) Intended dates of operation.

(G) Licensee contact information.

(3) (i) Failure of a local coordinator to respond to a notification request prior to the intended dates of operation indicated on the request will be considered as having the approval of the coordinator. In this case, licensees must in addition notify all co-channel and adjacent channel TV stations within 161 km (100 mi) of the proposed operating area. This notification is for information purposes only and will not enable TV stations to prevent a WAVD from operating, but is intended to help identify the source of interference if any is experienced after a WAVD begins operation.

(ii) If there is no local coordinator in the intended area of operation, failure of any adjacent channel TV station to respond to a notification request prior to the intended dates of operation indicated on the request will be considered as having the approval of the TV station.

(4) Licensees must operate in a manner consistent with the response of the local coordinator, or, if there is no local coordinator in the intended area of operation, the responses of the adjacent channel TV stations. Disagreements may be appealed to the Commission. However, in those instances, the licensee

will bear the burden of proof and proceeding to overturn the recommendation of the local coordinator or the co-channel or adjacent channel TV station.

(h) Licenses for wireless video assist devices may not be transferred or assigned.

(i) The product literature that manufacturers include with a wireless assist video device must contain information regarding the requirement for users to obtain an FCC license, the requirement that stations must locate at least 129 kilometers away from a co-channel TV station, the limited class of users that may operate these devices, the authorized uses, the need for users to obtain a license, and the requirement that a local coordinator (or adjacent channel TV stations, if there is no local coordinator) must be notified prior to operation.

57. Section 74.882 is revised to read as follows:

**§ 74.882 Station identification.**

(a) For transmitters used for voice transmissions and having a transmitter output power exceeding 50 mW, an announcement shall be made at the beginning and end of each period of operation at a single location, over the transmitting unit being operated, identifying the transmitting unit's call sign or designator, its location, and the call sign of the broadcasting station or name of the licensee with which it is being used. A period of operation may consist of a continuous transmission or intermittent transmissions pertaining to a single event.

(b) Each wireless video assist device, when transmitting, must transmit station identification at the beginning and end of each period of operation. Identification may be made by transmitting the station call sign by visual or aural means or by automatic transmission in international Morse telegraphy.

(1) A period of operation is defined as a single uninterrupted transmission or a series of intermittent transmissions from a single location.

(2) Station identification shall be performed in a manner conducive to prompt association of the signal source with the responsible licensee. In exercising the discretion provide by this rule, licensees are expected too act in a responsible manner to assure that result.

**PART 78 – CABLE TELEVISION RELAY SERVICE**

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

**AUTHORITY: Secs. 2, 3, 4, 301, 303, 307, 308, 309, 48 Stat., as amended, 1064, 1065, 1066, 1081, 1082, 1083, 1084, 1085; 47 U.S.C. 152, 153, 154, 301, 303, 307, 308, 309.**

59. Section 78.18 is amended by revising paragraph (l) to read as follows:

**§ 78.18 Frequency assignments.**

\* \* \* \* \*

(l) The band 13.15 - 13.20 GHz is reserved for the assignment of CARS Pickup and Television Pickup stations on a primary co-equal basis within 50 kilometers of the television markets defined in § 76.53 of this chapter. The band 13.20 - 13.2125 GHz is reserved exclusively for the assignment of Television Pickup stations on a primary basis. Fixed stations licensed prior to **(insert date 30 days after**

**date of publication in the Federal Register)** may continue operation under their current status on channels in the 13.15 - 13.2125 GHz band, subject to periodic license renewals.

60. Section 78.36 is revised to read as follows:

**§ 78.36 Frequency coordination.**

(a) Coordination of all frequency assignments for fixed stations in all bands above 2110 MHz, and for mobile (temporary fixed) stations in the bands 6425-6525 MHz and 17.7-19.7 GHz, will be in accordance with the procedure established in paragraph (b) of this section, except that the prior coordination process for mobile (temporary fixed) assignments may be completed orally and the period allowed for response to a coordination notification may be less than 30 days if the parties agree. Coordination of all frequency assignments for all mobile (temporary fixed) stations in all bands above 2110 MHz, except the bands 6425-6525 MHz and 17.7-19.7 GHz, will be conducted in accordance with the procedure established in paragraph (b) of this section or with the procedure in paragraph (d) of this section. Coordination of all frequency assignments for all fixed stations in the band 1990-2110 MHz will be in accordance with the procedure established in paragraph (c) of this section. Coordination of all frequency assignments for all mobile (temporary fixed) stations in the band 1990-2110 MHz will be conducted in accordance with the procedure in paragraph (d) of this section.

(b) Frequency coordination for all fixed stations in all bands above 2110 MHz, and for all mobile (temporary fixed) stations in the bands 6425-6525 MHz and 17.7-19.7 GHz. For each frequency authorized under this part, the interference protection criteria in § 101.105(a), (b), and (c) of this chapter and the following frequency usage coordination procedures will apply:

(1) General requirements. Proposed frequency usage must be prior coordinated with existing licensees, permittees, and applicants in the area, and other applicants with previously filed applications, whose facilities could affect or be affected by the new proposal in terms of frequency interference on active channels, applied-for channels, or channels coordinated for future growth. Coordination must be completed prior to filing an application for regular authorization, or a major amendment to a pending application, or any major modification to a license. In coordinating frequency usage with stations in the fixed satellite service, applicants for stations in the bands 6425-6525 MHz and 17.7-19.7 GHz must also comply with the requirements of § 101.21(f). In engineering a system or modification thereto, the applicant must, by appropriate studies and analyses, select sites, transmitters, antennas and frequencies that will avoid interference in excess of permissible levels to other users. All applicants and licensees must cooperate fully and make reasonable efforts to resolve technical problems and conflicts that may inhibit the most effective and efficient use of the radio spectrum; however, the party being coordinated with is not obligated to suggest changes or re-engineer a proposal in cases involving conflicts. Applicants should make every reasonable effort to avoid blocking the growth of systems as prior coordinated. The applicant must identify in the application all entities with which the technical proposal was coordinated. In the event that technical problems are not resolved, an explanation must be submitted with the application. Where technical problems are resolved by an agreement or operating arrangement between the parties that would require special procedures be taken to reduce the likelihood of interference in excess of permissible levels (such as the use of artificial site shielding) or would result in a reduction of quality or capacity of either system, the details thereof may be contained in the application.

(2) Coordination procedure guidelines are as follows:

(i) Coordination involves two separate elements: notification and response. Both or either may be oral or in written form. To be acceptable for filing, all applications and major technical amendments must certify that coordination, including response, has been completed. The names of the licensees, permittees



and applicants with which coordination was accomplished must be specified. If such notice and/or response is oral, the party providing such notice or response must supply written documentation of the communication upon request;

(ii) Notification must include relevant technical details of the proposal. At minimum, this should include, as applicable, the following:

Applicant's name and address.

Transmitting station name.

Transmitting station coordinates.

Frequencies and polarizations to be added, changed or deleted.

Transmitting equipment type, its stability, actual output power, emission designator, and type of modulation (loading).

Transmitting antenna type(s), model, gain and, if required, a radiation pattern provided or certified by the manufacturer.

Transmitting antenna center line height(s) above ground level and ground elevation above mean sea level.

Receiving station name.

Receiving station coordinates.

Receiving antenna type(s), model, gain, and, if required, a radiation pattern provided or certified by the manufacturer.

Receiving antenna center line height(s) above ground level and ground elevation above mean sea level.

Path azimuth and distance.

Estimated transmitter transmission line loss expressed in dB.

Estimated receiver transmission line loss expressed in dB.

For a system utilizing ATPC, maximum transmit power, coordinated transmit power, and nominal transmit power.

Note: The position location of antenna sites shall be determined to an accuracy of no less than +/- 1 second in the horizontal dimensions (latitude and longitude) and +/- 1 meter in the vertical dimension (ground elevation) with respect to the National Spatial Reference System.

(iii) For transmitters employing digital modulation techniques, the notification should clearly identify the type of modulation. Upon request, additional details of the operating characteristics of the equipment must also be furnished;

(iv) Response to notification should be made as quickly as possible, even if no technical problems are anticipated. Any response to notification indicating potential interference must specify the technical details and must be provided to the applicant, in writing, within the 30-day notification period. Every reasonable effort should be made by all applicants, permittees and licensees to eliminate all problems and conflicts. If no response to notification is received within 30 days, the applicant will be deemed to have made reasonable efforts to coordinate and may file its application without a response;

(v) The 30-day notification period is calculated from the date of receipt by the applicant, permittee, or licensee being notified. If notification is by mail, this date may be ascertained by:

(A) The return receipt on certified mail;

(B) The enclosure of a card to be dated and returned by the recipient; or

(C) A conservative estimate of the time required for the mail to reach its destination. In the last case, the estimated date when the 30-day period would expire should be stated in the notification.

(vi) An expedited prior coordination period (less than 30 days) may be requested when deemed necessary by a notifying party. The coordination notice should be identified as "expedited" and the requested response date should be clearly indicated. However, circumstances preventing a timely response from the receiving party should be accommodated accordingly. It is the responsibility of the notifying party to receive written concurrence (or verbal, with written to follow) from affected parties or their coordination representatives.

(vii) All technical problems that come to light during coordination must be resolved unless a statement is included with the application to the effect that the applicant is unable or unwilling to resolve the conflict and briefly the reason therefore;

(viii) Where a number of technical changes become necessary for a system during the course of coordination, an attempt should be made to minimize the number of separate notifications for these changes. Where the changes are incorporated into a completely revised notice, the items that were changed from the previous notice should be identified. When changes are not numerous or complex, the party receiving the changed notification should make an effort to respond in less than 30 days. When the notifying party believes a shorter response time is reasonable and appropriate, it may be helpful for that party to so indicate in the notice and perhaps suggest a response date;

(ix) If, after coordination is successfully completed, it is determined that a subsequent change could have no impact on some parties receiving the original notification, these parties must be notified of the change and of the coordinator's opinion that no response is required;

(x) Applicants, permittees and licensees should supply to all other applicants, permittees and licensees within their areas of operations, the name, address and telephone number of their coordination representatives. Upon request from coordinating applicants, permittees and licensees, data and information concerning existing or proposed facilities and future growth plans in the area of interest should be furnished unless such request is unreasonable or would impose a significant burden in compilation;

(xi) Parties should keep other parties with whom they are coordinating advised of changes in plans for facilities previously coordinated. If applications have not been filed 6 months after coordination was initiated, parties may assume that such frequency use is no longer desired unless a second notification has been received within 10 days of the end of the 6 month period. Renewal notifications are to be sent to all originally notified parties, even if coordination has not been successfully completed with those parties; and

(xii) Any frequency reserved by a licensee for future use in the bands subject to this part must be released for use by another licensee, permittee, or applicant upon a showing by the latter that it requires an additional frequency and cannot coordinate one that is not reserved for future use.

(c) Frequency coordination for all fixed stations in the band 1990-2110 MHz. For each frequency authorized under this part, the following frequency usage coordination procedures will apply:

(1) General requirements. Applicants are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local frequency coordination committees, where they exist, for information on frequencies available in the area. Proposed frequency usage must be coordinated with existing licensees and

applicants in the area whose facilities could affect or be affected by the new proposal in terms of frequency interference on active channels, applied-for channels, or channels coordinated for future growth. Coordination must be completed prior to filing an application for regular authorization, for major amendment to a pending application, or for major modification to a license.

(2) To be acceptable for filing, all applications for regular authorization, or major amendment to a pending application, or major modification to a license, must include a certification attesting that all co-channel and adjacent-channel licensees and applicants potentially affected by the proposed fixed use of the frequency(ies) have been notified and are in agreement that the proposed facilities can be installed without causing harmful interference to those other licensees and applicants.

(d) Frequency coordination for all mobile (temporary fixed) stations in all bands above 1990 MHz, except the bands 6425-6525 MHz and 17.7-19.7 GHz. For each frequency authorized under this part, applicants are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local frequency coordination committees, where they exist, for information on frequencies available in the area. In selecting frequencies, consideration should be given to the relative location of receive points, normal transmission paths, and the nature of the contemplated operation.

61. Section 78.101 is amended by revising the entry for 2,025-2,110 MHz in the table in paragraph (a) and adding a new paragraph (c) to read as follows:

**§ 78.101 Power limitations.**

(a) \* \* \*

Frequency band (MHz)	Maximum allowable transmitter power	Maximum allowable EIRP <sup>2</sup>	
	Mobile (W)	Fixed (dBW)	Mobile (dBW)
2,025 to 2,110 .....	20.0	.....	+35
6,425 to 6,525 .....	20.0	.....	+35
6,875 to 7,125 .....	20.0	.....	+35
12,700 to 13,250 ....	1.5	+55	+45
17,700 to 18,600 ....	.....	+55	.....
18,600 to 18,800 <sup>1</sup> ..	.....	+35	.....
18,800 to 19,700 ....	.....	+55	.....

<sup>1</sup> The power delivered to the antenna is limited to -3 dBW.

<sup>2</sup> Stations licensed based on an application filed before **(insert date 30 days after publication in the Federal Register)**, for EIRP values exceeding those specified above, may continue to operate indefinitely in accordance with the terms of their current authorizations, subject to periodic renewal.

\* \* \* \* \*

(c) The EIRP of transmitters that use Automatic Transmitter Power Control (ATPC) shall not exceed the EIRP specified on the station authorization. The EIRP of non-ATPC transmitters shall be maintained as near as practicable to the EIRP specified on the station authorization.

62. Section 78.103 is amended by removing the entry for 31,000 to 31,300 from the table in paragraph (e).

63. Section 78.105 is amended by revising the introductory sentence for paragraph (a); removing the entries for 31,000 to 31,300 and 38,600 to 40,000, and Footnotes 2 and 3 from the table in paragraph (a)(1); deleting paragraph (a)(4) and redesignating paragraph (a)(5) as paragraph (a)(4) to read as follows:

**§ 78.105 Antenna systems.**

(a) For fixed stations operating in the 12.7-13.2 GHz and 17.7-19.7 GHz bands, the following standards apply:

\* \* \* \* \*

64. Section 78.106 is revised to read as follows:

**§ 78.106 Interference to geostationary-satellites.**

Applicants and licensees must comply with § 101.145 of this chapter to minimize the potential of interference to geostationary-satellites.

65. Section 78.108 is amended by revising paragraph (b) to read as follows:

**§ 78.108 Minimum path lengths for fixed links.**

\* \* \* \* \*

(b) For paths shorter than those specified in the Table, the EIRP shall not exceed the value derived from the following equation.

$$EIRP = MAXEIRP - 40 \log(A/B) \text{ dBW}$$

Where:

- EIRP = The new maximum EIRP (equivalent isotropically radiated power) in dBW.
- MAXEIRP = Maximum EIRP as set forth in the Table in § 74.636 of this part.
- A = Minimum path length from the Table above for the frequency band in kilometers.
- B = The actual path length in kilometers.

NOTE TO PARAGRAPH (b): For transmitters using Automatic Transmitter Power Control, EIRP corresponds to the maximum transmitter power available, not the coordinated transmit power or the nominal transmit power.

\* \* \* \* \*

66. Section 78.111 is amended by removing the entry for 31,000 to 31,300 from the table.

**PART 101 - FIXED MICROWAVE SERVICES**

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

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

68. Section 101.113 is amended by revising the column headings and the entry for the 12,700-13,250 MHz frequency band in the table in paragraph (a) to read as follows:

**§ 101.113 Transmitter power limitations.**

(a) \* \* \*

Frequency band (MHz)	Maximum allowable EIRP <sup>1,2</sup>	
	Fixed (dBW)	Mobile (dBW)
* * * * *	* * * * *	* * * * *
12,700-13,200 <sup>4</sup> .....	+50	
13,200-13,250 <sup>4</sup> .....	+55	
* * * * *	* * * * *	* * * * *

<sup>1</sup> Per polarization.

<sup>2</sup> For multiples address operations, see § 101.147. Remote alarm units that are part of a multiple address central station protection system are authorized a maximum of 2 watts.

\* \* \* \* \*

<sup>3</sup> Also see § 101.145.

\* \* \* \* \*

69. Section 101.145 is amended by revising the introductory text to the paragraph, the first sentence in paragraph (b), and the first sentence in paragraph (c) to read as follows:

**§ 101.145 Interference to geostationary-satellites.**

These limitations are necessary to minimize the probability of harmful interference to reception in the bands 2655-2690 MHz, 5925-7075 MHz, and 12.7-13.25 GHz on board geostationary-space stations in the fixed-satellite service.

\* \* \* \* \*

(b) 2655 to 2690 MHz and 5925 to 7075 MHz. \* \* \*

(c) 12.7 to 13.25 GHz. \* \* \*

\* \* \* \* \*

70. Section 101.803 is amended by revising the first sentence in paragraph (b) to read as follows:

**§ 101.803 Frequencies.**

\* \* \* \* \*

(b) Communications common carriers in the Local Television Transmission Service may be assigned frequencies listed in §§ 74.602(a), 78.18(a)(6), and 78.18(a)(7) of this chapter to provide service to television broadcast stations, television broadcast network-entities, cable system operators, and cable network-entities. \* \* \*

\* \* \* \* \*

71. Section 101.807 is amended by adding a second sentence to read as follows:

**§ 101.807 Transmitter Power.**

\* \* \* As an exception, operations on frequencies listed in §§ 74.602(a), 78.18(a)(6), and 78.18(a)(7) of this chapter are subject to the power limitations of §§ 74.636 and 78.101(a).

**APPENDIX B: Final Regulatory Flexibility Analysis**

As required by the Regulatory Flexibility Act of 1980, as amended (RFA),<sup>1</sup> an Initial Regulatory Flexibility Analysis (IRFA) was incorporated in the *Notice of Proposed Rule Making, Revisions to Broadcast Auxiliary Service Rules in Part 74 and Conforming Technical Rules for Broadcast Auxiliary Service, Cable Television Relay Service and Fixed Services in Parts 74, 78 and 101 of the Commission's Rules.*<sup>2</sup> The Commission sought written public comment on the proposals in the *Notice*, including comment on the IRFA. The comments received are discussed below. This present Final Regulatory Flexibility Analysis (FRFA) conforms to the RFA.<sup>3</sup>

(A) *Need for and Objective of the Report and Order.*

The Report and Order updates the Broadcast Auxiliary Service (BAS) rules in Part 74 and will permit increased compatibility between Broadcast Auxiliary Services, the Cable Television Relay Service (CARS), and Fixed Service Microwave (FS) systems operating on shared spectrum. Specifically, we permit TV and aural BAS stations to use any available digital modulation technique in all BAS frequency bands so that BAS stations can take advantage of the latest developments in technology and make smooth the transition to digital TV and digital radio; update BAS emission masks to facilitate the introduction of digital equipment and to provide consistency with emission masks used in Part 101 of the rules; modify the equation used by BAS and CARS services for determining the maximum effective isotropic radiated power (EIRP) for short path lengths (this change eliminates the steep reduction in EIRP for BAS and CARS path lengths shorter than the minimum); allow BAS and CARS stations to use automatic transmit power control (ATPC) in order to facilitate more efficient spectrum use; update transmitter power rules for BAS and CARS services to provide EIRP limits for all frequency bands; require TV BAS and CARS services to prior coordinate their frequency use when using shared frequency bands to minimize the potential for harmful interference occurring when a new station begins transmitting. We also permit “wireless assist video devices” to operate on certain VHF and UHF TV spectrum, thereby increasing spectrum efficiency and promoting equipment, which will increase safety at production sites as well as lower film and television production costs. In addition, we update many other BAS rules and make minor rule changes to clarify or fix typographical errors in the existing rules.

(B) *Summary of Significant Issues Raised by Public Comments in Response to the IRFA.*

In the *Notice*, the Commission performed an IRFA and asked for comments that specifically addressed issues raised in the IRFA. No parties filed comments directly in response to the IRFA. However, commenters made recommendations regarding channel splitting, and the Commission, in response, is overlaying narrowband channels in various bands and is authorizing an effective date for channel splitting in the 950 MHz aural BAS band.

(C) *Description and Estimate of the Number of Entities Affected to Which Rules will Apply.*

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

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<sup>2</sup> See *Notice of Proposed Rule Making*, ET Docket No. 01-75, 16 FCC Rcd 10556, 10601 (2001).

<sup>3</sup> See 5 U.S.C. § 604.

small entities that may be affected by the action taken.<sup>4</sup> The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.”<sup>5</sup> In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act.<sup>6</sup> A small business concern is one that: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the Small Business Administration (SBA).<sup>7</sup> A small organization is generally “any not-for-profit enterprise which is independently owned and operated and is not dominant in its field.”<sup>8</sup> Nationwide, as of 1992, there were approximately 275,801 small organizations.<sup>9</sup> Finally, “small governmental jurisdiction” generally means “governments of cities, counties, towns, townships, villages, school districts, or special districts, with a population of less than 50,000.”<sup>10</sup> As of 1992, there were approximately 85,006 such jurisdictions in the United States.<sup>11</sup> This number includes 38,978 counties, cities, and towns; of these, 37,566, or 96 percent, have populations of fewer than 50,000.<sup>12</sup> The United States Bureau of the Census (Census Bureau) estimates that this ratio is approximately accurate for all governmental entities. Thus, of the 85,006 governmental entities, we estimate that 81,600 (91 percent) are small entities.

The rules adopted in this *R&O* affect licensees of BAS (Remote Pickup, aural, and television), CARS, and fixed microwave services. Additionally, they affect manufacturers of equipment that supports the BAS.

**Broadcast Auxiliary Service** (BAS) involves a variety of transmitters, generally used to relay broadcast programming to the public (through translator and booster stations) or within the program distribution chain (from a remote news gathering unit back to the stations). The Commission has not developed a definition of small entities specific to broadcast auxiliary licensees. The U.S. Small Business Administration (SBA) has developed small business size standards, as follows: 1) For TV BAS, we will use the size standard for Television Broadcasting, which consists of all such companies having annual receipts of no more than \$12.0 million;<sup>13</sup> 2) For Aural BAS, we will use the size standard for Radio

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<sup>4</sup> 5 U.S.C. § 603(b)(3).

<sup>5</sup> *Id.*, § 601(6).

<sup>6</sup> 5 U.S.C. § 601(3) (incorporating by reference the definition of “small business concern” in 15 U.S.C. § 632). Pursuant to the RFA, the statutory definition of a small business applies “unless an agency, after consultation with the Office of Advocacy of the Small Business Administration and after opportunity for public comment, establishes one or more definitions of such term which are appropriate to the activities of the agency and publishes such definition(s) in the Federal Register.” 5 U.S.C. § 601(3).

<sup>7</sup> Small Business Act, 15 U.S.C. § 632.

<sup>8</sup> 5 U.S.C. § 601(4).

<sup>9</sup> 1992 Economic Census, U.S. Bureau of the Census, Table 6 (special tabulation of data under contract to Office of Advocacy of the U.S. Small Business Administration).

<sup>10</sup> 5 U.S.C. § 601(5).

<sup>11</sup> U.S. Dept. of Commerce, Bureau of the Census, “1992 Census of Governments.”

<sup>12</sup> *Id.*

<sup>13</sup> 13 C.F.R. § 121.201, NAICS code 513120.



Stations, which consists of all such companies having annual receipts of no more than \$6 million;<sup>14</sup> 3) For Remote Pickup BAS we will use the small business size standard for Television Broadcasting when used by a TV station and that for Radio Stations when used by such a station.

According to Census Bureau data for 1997, there were 906 Television Broadcasting firms, total that operated for the entire year.<sup>15</sup> Of this total, 734 firms had annual receipts of \$9,999,999.00 or less and an additional 71 had receipts of \$10 million to \$24,999,999.00.<sup>16</sup> Thus, under this standard, the majority of firms can be considered small.

According to Census Bureau data for 1997, there were 4,476 Radio Stations (firms), total, that operated for the entire year.<sup>17</sup> Of this total 4,265 had annual receipts of \$4,999,999.00 or less, and an additional 103 firms had receipts of \$5 million to \$9,999,999.00.<sup>18</sup> Thus, under this standard, the great majority of firms can be considered small.

**Cable Antenna Relay Service (CARS)** includes transmitters generally used to relay cable programming within cable television system distribution systems. The SBA has developed a small business size standard for Cable and other Program Distribution, which consists of all such companies having annual receipts of no more than \$12.5 million.<sup>19</sup> According to Census Bureau data for 1997, there were 1,311 firms within the industry category Cable and Other Program Distribution, total, that operated for the entire year.<sup>20</sup> Of this total, 1,180 firms had annual receipts of \$9,999,999.00 or less, and an additional 52 firms had receipts of \$10 million to \$24,999,999.00.<sup>21</sup> Thus, under this standard, the majority of firms can be considered small.

**Fixed Microwave Services (FS)** includes common carrier, private-operational fixed, and broadcast auxiliary radio services. Presently there are approximately 22,015 common carrier fixed licensees and 61,670 private operational-fixed licensees and broadcast auxiliary radio licensees in the microwave services. The SBA has developed a small business size standard for Cellular and other Wireless Telecommunications, which consists of all such companies having 1,500 or fewer employees.<sup>22</sup> According to Census Bureau data for 1997, there were 977 firms in this category, total, that operated for the entire year.<sup>23</sup> Of this total, 965 firms had employment of 999 or fewer employees, and an additional

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<sup>14</sup> *Id.* at NAICS code 513112.

<sup>15</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Receipts Size of Firms Subject to Federal Income Tax: 1997," Table 4, NAICS code 513120 (issued Oct. 2000).

<sup>16</sup> *Id.* The census data do not provide a more precise estimate.

<sup>17</sup> *Id.* At NAICS code 513112.

<sup>18</sup> *Id.* The census data do not provide a more precise estimate.

<sup>19</sup> *Id.* at NAICS code 513220.

<sup>20</sup> *Id.* at NAICS code 513220.

<sup>21</sup> *Id.* The census data do not provide a more precise estimate.

<sup>22</sup> 13 CFR 121.201, NAICS code 513322.

<sup>23</sup> U.S. Census Bureau, 1997 Economic Census, Subject Series: Information, "Employment Size of Firms Subject to Federal Income Tax: 1997," Table 5, NAICS code 513310 (issued Oct. 2000).

12 had employment of 1,000 employees or more.<sup>24</sup> Thus, under this standard, virtually all firms can be considered small.

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

Under the rules adopted in this *R&O*, there are changes to reporting, recordkeeping, and other compliance requirements. In many cases, these changes streamline the existing licensing process or provide additional flexibility to licensees and applicants. Many of the proposed changes are related to the use of the Universal Licensing System (ULS) by BAS applicants and licensees. Applicants for BAS stations must apply through the Wireless Telecommunications Bureau using the ULS, which was adopted by *Report and Order* in 1998. To comply with this system, our decisions in this *R&O* are consistent with the decisions reached in that *Report and Order*. Accordingly, we have eliminated requests made by letter if there is a standard application form that can be used instead, modified the rules defining major and minor changes to those used for fixed microwave systems, and eliminated the need to report transmitter output power and requiring that all stations comply with limits on effective isotropic radiated power. We also have changed the period of construction for a BAS station from the currently used three years to eighteen months, consistent with the period used for fixed microwave stations.

Additionally, we have conformed some of the rules that affect frequency bands that are shared among BAS licensees (Part 74), CARS licensees (Part 78), and fixed microwave licensees (Part 101). Specifically, we have updated the rules that protect interference to geostationary satellites from receiving harmful interference from fixed stations to those currently listed in the ITU International Radio Regulations. The effect of this update is to expand the number of frequency bands to which these rules apply. We also have adopted for BAS equipment, emission limitations that are consistent with those already being used for fixed microwave stations. We also are generally requiring that all BAS applicants for fixed stations operating above 944 MHz comply with the same frequency coordination guidelines in place for fixed microwave stations.

Further changes entail providing technical guidelines for TV studio-to-transmitter links and TV relay stations that operate on UHF-TV channels. These guidelines have always been imposed, but never codified. Also, with respect to BAS Remote Pickup stations, we are altering their channel plan to be consistent with the same channel spacing requirements as are used for Private Land Mobile Radio stations in Part 90 of our rules. Finally, as noted, we have allowed a new type of device to operate on certain VHF and UHF TV channels, wireless assist video devices. These devices will follow the existing service rules for Low Power Auxiliary Stations, with minor exceptions.<sup>25</sup>

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

The RFA requires an agency to describe any significant alternatives that it has considered in reaching its proposed approach, which may include the following four alternatives (among others): (1) the establishment of differing compliance or reporting requirements or timetables that take into account the resources available to small entities; (2) the clarification, consolidation, or simplification of compliance or

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<sup>24</sup> *Id.* The census data do not provide a more precise estimate of the number of firms that have employment of 1,500 or fewer employees; the largest category provided is “Firms with 1,000 employees or more.”

<sup>25</sup> See *Report and Order*, paragraphs 153, 154 and 155, *supra*.

reporting requirements under the rule for small entities; (3) the use of performance, rather than design, standards; and (4) an exemption from coverage of the rule, or any part thereof, for small entities.<sup>26</sup>

We have reduced burdens wherever possible. Our rules regarding the BAS would reduce burdens on small entities. First, we have simplified and expanded the opportunity for aural and TV BAS licensees to use digital modulation techniques in all of their allocated frequency bands. Currently, they can use these techniques only in a few bands and must file waiver requests and requests for special temporary authority (STA) to transmit digital signals in other bands. Our rules eliminate the need for these waivers and STAs, thus saving businesses the time it takes to prepare these requests and their associated filing fees. Second, we have altered the equation used to determine the allowable EIRP for short path lengths. Under our new rules, there will no longer be a large drop-off in allowable EIRP when the path length of a fixed station is slightly shorter than the minimum necessary for maximum power. The effect of this is to provide more flexibility in the way small entities design their systems. Because they will be able to use fewer sites, this has the effect of a reduction in the cost of a system. Third, we have allowed automatic transmit power control (ATPC). ATPC benefits small entities by reducing outages to digital receivers and expanding battery life. Both of these effects benefit small businesses by making their systems more reliable.

Many of our rule amendments and their benefits stem from the use of the ULS for application filing. This system, by providing for electronic filing on standardized forms, benefits small entities in several ways. Applicants can submit applications to the Commission as soon as they have the necessary information on-hand, and they receive instant feedback as to the correctness of that application because ULS will not accept the application for filing unless it is correct. If there are errors, ULS provided error messages so that the application can be corrected and resubmitted. Also, the system makes extensive use of electronic processing, so that many of the tasks that were done by hand are now done by computer. The overall effect is that applications are processed faster and licenses are issued sooner, thus allowing small entities to begin providing service in a more timely manner.

We have also adopted rule amendments that conform rules for similar services that share spectrum. These are TV BAS, CARS, and the fixed microwave service. As a whole, these amendments reduce burdens to small entities because many of these entities have licenses in each of these rule parts, but must currently contend with different rules in each part. Thus, small entities will benefit because they will, in many instances, be able to comply with a common set of rules for their systems, which operate in any of the named services.

Additionally, we have adopted many other rule changes that will benefit small entities. We are requiring that fixed BAS systems prior coordinate their frequency use, which will ensure that systems operate in a manner that minimizes the potential of causing interference. This protects the new system from possibly being shut down due to causing interference and protects the existing system from suffering a service disruption from receiving interference. Both of these results will benefit small entities operating in the BAS service. Along with the frequency coordination requirement, we have extended the ability to operate under temporary conditional authority to all BAS frequency bands. This benefits small entities by allowing them to begin operating sooner. Further, we have extended the reach of the short-term operation rule to all entities eligible for a BAS license. This benefits small entities because many would not need to obtain additional licenses from the Commission to provide limited service a few times a year in areas in which they do not traditionally operate. Such a change saves small entities the time and money that they would otherwise expend obtaining a license. Another change entails the Commission establishing technical requirements for operating TV STLs or TV relay stations on UHF-TV channels. This change

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<sup>26</sup> 5 U.S.C. § 603(c).

permits applicants to know the requirements they must meet before applying for a license, thereby reducing the number of applications that must be returned by the Commission. Thus, small entities will benefit by having to respond to returned applications less often. We have also altered the channel plan for Remote Pickup BAS to conform to the channel plan adopted for PLMR services. Unless the same technical criteria are used for both services, different radios must be developed. Thus, our rules change will benefit small entities by lowering equipment costs. Finally, we have permitted motion picture and television producers to operate new wireless assist video devices on certain unused VHF and UHF TV channels. This will benefit small entities by providing a more cost effective means for producers to monitor multiple camera angles when producing program material.

The regulatory burdens we have retained, such as filing applications on appropriate forms, are necessary to ensure that the public receives the benefits of new and existing services in a prompt and efficient manner. We also considered revising the burden of frequency coordination for fixed BAS systems, but found that this alternative would unnecessarily increase the potential of harmful interference. However, under our frequency coordination procedures, entities may self coordinate rather than paying a frequency coordinator. We will continue to examine alternatives in the future with the objectives of eliminating unnecessary regulations and minimizing significant economic impact on small entities.

*F) Report to Congress.*

The Commission will send a copy of the Report and Order, including this FRFA, in a report to be sent to Congress pursuant to the Congressional Review Act.<sup>27</sup> In addition, the Commission will send a copy of the Report and Order, including this FRFA, to the Chief Counsel for Advocacy of the SBA. A copy of the Report and Order and FRFA (or summaries thereof) will be also be published in the Federal Register.<sup>28</sup>

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<sup>27</sup> See 5 U.S.C. § 801(a)(1)(A).

<sup>28</sup> See 5 U.S.C. § 604(b).

**APPENDIX C: COMMENTING PARTIES****Comments**

Alliance of Motion Picture and Television Producers  
Association for Maximum Service Television, Inc. and the National Association of Broadcasters  
Association of America's Public Television Stations and the Public Broadcasting Service  
Comsearch  
Globalstar USA, Inc. and Globalstar, L.P.  
Microwave Radio Communications, LLC  
National Spectrum Managers Association  
Society of Broadcast Engineers, Inc.  
Winstar Communications, Inc.

**Reply Comments**

Alliance of Motion Picture and Television Producers  
Comsearch  
KNME-TV  
Microwave Radio Communications, LLC  
National Spectrum Managers Association  
National Telecommunications and Information Administration  
Red River Broadcast Co. LLC and KQDS Acquisition Corp.  
Shure Incorporated  
Society of Broadcast Engineers, Inc.  
Telecommunications Industry Association  
Viacom, Inc.

**Ex Parte Presentations and Filings**

Microwave Radio Communications, LLC  
National Translator Association  
Society of Broadcast Engineers, Inc.