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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

NOTICE OF PROPOSED RULE MAKING

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I. INTRODUCTION

1. The Broadcast Auxiliary Services (BAS) under Part 74 of the Commission's rules are an integral part of today's mass media industry. These BAS stations make it possible for television (TV) and radio stations and networks to transmit program material from the site of a breaking news story or a major event to the studio for inclusion in a broadcast program. Because studios often are not located in the same place as the broadcast transmitter, BAS stations also transmit programming material from the studio to the broadcasting transmitter for delivery to televisions and radios. At the forefront of changes occurring within the broadcast industry is the transition from analog to digital TV. As these changes take place, BAS stations must also change to take advantage of new technologies and be compatible with the rest of the broadcast industry. In this *Notice of Proposed Rulemaking (NPRM)*, we conduct an extensive review of the BAS rules and propose changes to create a more efficient BAS that can readily adapt to regulatory and technological changes.

2. In this *NPRM*, we also examine the relationships between the BAS and the radio services that share frequency bands with the BAS. In many cases the BAS, the Cable Television Relay Service (CARS) (Part 78),[1] and Fixed Microwave Services (FS) (Part 101) authorize technically and operationally similar stations (*i.e.*, they use the same equipment, channelization, bandwidth, etc.) in shared frequency bands.[2] The technical rules for these services are not always consistent, which, at times, has led to confusion regarding compliance and difficulties when licensees in different services have tried to operate in common geographic areas.[3] Because we believe that this issue must be addressed to ensure that shared bands are used as efficiently as possible, we initiate this proceeding and again seek comment on the best way to conform the technical rules for these services.

3. One of our main goals is to ensure that licensees can operate in an environment in which the potential for interference is minimized. Interference protections are essential to spectrum usage rights to prevent licensees from unduly affecting other licensees in terms of system operation or cost. Nonetheless, we attempt to establish rules that are no more restrictive than necessary to achieve our goals in order to provide maximum flexibility to our licensees. Therefore, we seek comment on the extent that commenters believe our proposals or other portions of the rules relevant to this proceeding are more restrictive than necessary to achieve our goals.

4. The significant proposals made by this *NPRM* concerning BAS, as well as CARS and FS operations that share frequency bands with BAS, are as follows:

- We propose to permit TV and aural BAS stations to use any available digital modulation techniques in all BAS frequency bands. This proposal would allow BAS stations to take advantage of the latest developments in technology and to smooth the transition to digital TV and radio.
- We propose to update the BAS emission masks to facilitate the introduction of digital equipment and to provide consistency with those used in Part 101.
- We propose to modify the equation used by BAS and CARS for determining the maximum effective isotropic radiated power (EIRP) for short path lengths. This proposal would eliminate the steep reduction in EIRP for path lengths shorter than the minimum for which we permit the use of full power.

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[1] CARS stations are point-to-point or point-to-multipoint microwave systems used by cable and MMDS (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.

[2] For example, the 12,700-13,250 MHz band is shared by common carrier point-to-point, local television transmission service (LTTS), and private point-to-point operations 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 25 MHz. *See* 47 C.F.R. §§ 74.637, 78.103, and 101.109.

[3] The Commission recognized this situation when it previously asked for comment on how best to conform the technical rules among these services. *See* Amendment of Part 101 of the Commission's Rules to Streamline Processing of Microwave Applications in the Wireless Telecommunications Services, *Memorandum Opinion and Order and Notice of Proposed Rule Making,* WT Docket No. 00-19, 15 FCC Rcd 3129, 3151 (2000) (*Part 101 MO&O* or *Part 101 NPRM*). At that time, however, the Commission did not receive any comments regarding this particular issue.

- We propose to allow BAS and CARS stations to use automatic transmit power control (ATPC) in order to facilitate more efficient spectrum use.
- We propose to update the transmitter power rules for BAS and CARS to provide EIRP limits for all frequency bands.
- We propose to require TV BAS and CARS services to prior coordinate their frequency use when using shared frequency bands. This proposal would serve to minimize instances of harmful interference that occur when a new station begins transmitting.

5. In addition, we make a variety of proposals designed to update the BAS rules. Our initiatives include instituting temporary conditional authority for all BAS stations, updating 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), updating the short-term operation rules, and updating the BAS application rules to make them consistent with the Universal Licensing System (ULS). We also propose, without discussion, many minor rule changes intended to clarify or fix typographical errors in existing rules.

6. Finally, we propose to allow wireless assist video devices 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 cost effective manner and should result in a greater use of a finite spectrum resource. All proposed rule changes are in Appendix C.

II. BACKGROUND

7. On March 5, 1998, the Telecommunications Industry Association (TIA) filed a Petition for Rulemaking asking for rule changes for the 23 GHz band in the Fixed Microwave Services authorized under Part 101 of the Commission's rules and for rule changes to permit digital modulation schemes in all of the bands used by the TV BAS (TIA Petition). The proposals for the fixed microwave service under Part 101 are being addressed in a separate proceeding.[4] Only two commenters to the TIA Petition, the Society of Broadcast Engineers (SBE) and Alcatel, addressed the Part 74 issues; both were supportive of TIA's proposals.[5] The *Part 101 NPRM* addressed TIA's petition relative to the 23 GHz band in the Fixed Microwave Services. The *Part 101 NPRM* also asked questions regarding the broadcast auxiliary services and their similarity to operations in the Fixed Microwave Services and the Cable Television Relay Service (CARS).[6] Commenters on the *Part 101 NPRM* reiterated the need for the Commission to address the TV BAS rules regarding digital operations.

8. On November 15, 1999, the Alliance of Motion Picture and Television Producers (AMPTP) filed a Petition for Rulemaking (AMPTP Petition) that seeks to allow the use of low power wireless video assist devices on unused TV channels in the upper portion of the VHF-TV band and in the UHF-TV band.[7] All four commenters who responded opposed the Petition, either in its entirety or in

[4] *See Part 101 NPRM, supra.*

[5] A list of commenters is provided in Appendix A.

[6] *See Part 101 NPRM* at 3161.

[7] The original petition misstated the upper portion of the VHF-TV band (channels 7-13) as 174-300 MHz and was amended to 174-216 MHz. *See* Letter form Laura L. Smith, Esq. to Magalie R. Salas, March 14, 2000.

part. In general, the opposing parities were concerned about potential interference to TV reception, land mobile operations, and devices that are used by persons with disabilities. Only AMPTP filed reply comments, in which it makes changes to its proposals to address the commenters' concerns.

III. DISCUSSION

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

1. Digital Modulation in the 2 GHz, 7 GHz, and 13 GHz Bands

9. Section 74.637 of the Commission's rules provides emission limitation requirements (emission masks) for TV BAS. Digital modulation is specifically addressed only in paragraph (c), which provides an emission mask for analog or digital modulation in the 6425-6525 MHz, 17,700–19,700 MHz, and 31.0–31.3 GHz bands.[8] Although the rules do not specifically prohibit digital modulation in other TV BAS bands (*i.e.*, 2025-2110 MHz, 2450-2483.5 MHz, 6875-7125 MHz, and 12,700–13,250 MHz), the Commission policy relative to BAS has been to allow digital modulation only in bands where it is specifically authorized. Further, 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.[9]

10. TIA notes that digital modulation is not addressed in the most heavily used TV BAS frequency bands, which support electronic news gathering (ENG) operations and studio-to-transmitter links (STLs).[10] Currently, most TV BAS stations transmit frequency modulated analog NTSC video signals.[11] With the current transition of television from analog to digital, broadcasters will need to transmit digital television (DTV) digital signals along with their existing NTSC analog signal.[12] TIA states that the limitation on digital modulation will hamper the ability of broadcasters to transition smoothly from analog TV stations to digital TV stations. Accordingly, they request that the rules be amended to permit digital modulation in all TV BAS bands.[13] This would provide broadcasters with flexibility to use any available technology and make the transition to digital TV easier as well as promote more efficient use of the spectrum. SBE and Alcatel both support this proposal.[14] Alcatel adds that broadcasters will not be able to provide digital television service if they cannot get digital television signals from the studio to the transmitter.[15]

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[8] *See* para. 43 for proposals regarding removal of the entries for the 31.0-31.3 GHz band from the BAS rules.

[9] Currently, there are over 300 pending waiver requests for use of digital modulation in the 2 GHz, 7 GHz, and 13 GHz bands on file at the Commission. For example, *see* Application of Eastern New Mexico University Application File Number 0000219234, (filed September 14, 2000).

[10] ENG operations consist of the transmission of video signals from mobile news vans and helicopter to local studios either directly or through a Television Relay Station. STLs are used to send signals from the studio to the transmitter for broadcast to the public.

[11] "NTSC" stands for National Television System Committee, which devised the standard protocol for television broadcast transmission and reception in the United States (*i.e.*, the NTSC standard).

[12] *See TIA Petition* at A.27.

[13] *See TIA Petition* at 26.

[14] *See* SBE comments at 2; Alcatel comments at 8-9.

[15] *See* Alcatel comments at 9.

11. We note that the conversion of TV stations is not the only reason for allowing digital modulation schemes 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, require the TV BAS to narrow their channel bandwidth in the 2025-2110 MHz band to accommodate new Mobile Satellite Services (MSS).[16] 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.[17] To facilitate the transition to digital TV and to accommodate narrower channels in the 2 GHz band, we propose to modify the rules in Section 74.637 to permit digital modulation in all TV BAS bands.[18]

12. The rules for aural BAS in Section 74.535 create a situation similar to that described above for TV BAS.[19] Specifically, Section 74.535 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. We believe that aural BAS licensees could benefit from the ability to use digital modulation techniques in all bands.[20] Such flexibility would allow aural BAS licensees to take advantage of the spectral efficiency that digital modulation offers. Therefore, we propose to modify Section 74.535 to permit the use of any digital modulation in all aural BAS bands.

2. Maximum Effective Isotropic Radiated Power (EIRP) for Short Paths

13. There are several rule sections used for TV BAS that work in tandem to regulate the amount of power that can be used at a specific station. Specifically, Section 74.636 of the Commission's

[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, ET Docket No. 95-18, *Second Report And Order and Second Memorandum Opinion and Order*, FCC 00-233 (rel. Jul. 3, 2000) at ¶ 30 (*MSS Second R&O*).

[17] The 2 GHz band will first be narrowed to one 15 megahertz channel and six 14.5 megahertz channels (Phase I). This will be initiated by the first Mobile Satellite Service (MSS) licensee beginning to clear needed spectrum between 1990 and 2008 MHz. Phase II further narrows the seven TV BAS channels to one 12.25 megahertz channel and six 12.1 megahertz channels. This phase will be initiated when 18 megahertz is no longer sufficient to accommodate the MSS service. At the onset of phase II, MSS licensees will begin clearing the spectrum between 2008 and 2025 MHz. *See Id.* at ¶ 29.

[18] In the *First Report and Order* in ET Docket No. 95-18, the Commission reallocated TV BAS from the 1990-2110 MHz band to the 2025 – 2130 MHz band. *See* Amendment Of Section 2.106 Of The Commission's rules To Allocate Spectrum At 2 GHz For Use By The Mobile-Satellite Service, ET Docket No. 95-18, *First Report And Order and Further Notice of Proposed Rule Making*, 12 FCC Rcd. 7388 (1997). Based on this decision, TIA, in their petition points out that the Commission neglected to adopt technical standards for the portion of the band from 2110-2130 MHz. To remedy this situation, TIA asks the Commission to adopt technical standards for this band. *See TIA Petition* at A.27. In the *MSS Second R&O*, the Commission amended its earlier decision and again reallocated TV BAS to only the 2025 – 2110 MHz band. *See MSS Second R&O* at ¶ 13. Because the TV BAS is no longer authorized to use the 2110 – 2130 MHz band, this issue is moot and we decline to propose technical standards for this band.

[19] 47 C.F.R. § 74.535.

[20] We note that the Commission has begun a proceeding to investigate the feasibility of authorizing Digital Audio Broadcast (DAB) technology. *See* Digital Audio Broadcasting Systems and Their Impact on the Terrestrial Radio Broadcast Service, MM Docket No. 99-325, *Notice of Proposed Rule Making*, 15 FCC Rcd 1722 (2000). Regardless of the outcome of that proceeding, we believe that aural BAS licensees would benefit from allowing digital modulation in all bands available for aural BAS.

rules limits, for some frequency bands, the maximum EIRP[21] for which a TV BAS station can be licensed,[22] and Section 74.644 specifies the minimum path length for which the maximum EIRP will be authorized for fixed links.[23] Applicants proposing path lengths shorter than those specified in Section 74.644 are required to reduce power in accordance with the equation provided in rule section 74.644.[24]

14. In its petition, TIA points out that the current equation requires a steep reduction in EIRP for paths slightly shorter than the specified minimum.[25] 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 kilometers. Based on the current equation, an applicant proposing a path length of 16 kilometers would have to reduce its EIRP to 29.5 dBW, which is a drop of over 25 dB. TIA states that such a reduction in EIRP makes it difficult to achieve high reliability for the path.

15. The equation in Part 74 for determining maximum EIRP for short paths was previously used for FS operations in Part 101 as well. 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.[26] Using the equation now codified at Section 101.143,[27] 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. TIA recommends that we modify the rules in Part 74 to use the same equation now codified at Section 101.143. SBE and Alcatel support TIA's proposal.[28]

16. We are inclined to agree with TIA's recommendation to enhance reliability of fixed links for the BAS. Further, we note that the Part 78 rules for the CARS also use the same equation as used for BAS for determining the minimum path length.[29] We believe that the CARS also would benefit from modifying the equation for determining maximum power for short path lengths. In addition, adopting the same equation for fixed operations in each of these rule parts would treat similar stations in a comparable manner, simplify station coordination in shared frequency bands, and reduce instances of harmful interference among stations authorized under different rule parts. Accordingly, we propose to modify our rules to implement in Sections 74.644 and 78.108 the same equation codified at Section

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[21] 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.

[22] 47 C.F.R. § 74.636.

[23] 47 C.F.R. § 74.644.

[24] 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.

[25] *See TIA Petition* at A.28.

[26] *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 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.

[27] 47 C.F.R. § 101.143.

[28] *See* SBE comments at 2; Alcatel comments at 8-9.

[29] 47 C.F.R. § 78.108(b).

101.143 for determining the maximum EIRP for path lengths shorter than the specified minimum. We seek comment on this proposal.

17. We note that Section 74.644 of the Commission's rules does not specify a minimum path length for fixed BAS links in the 2450–2483.5 MHz band. However, Part 101 does specify a minimum path length of 17 kilometers for the FS in all bands between 1850 and 7150 MHz.[30] To promote spectrum efficiency by preventing the use of overpowered systems over short paths, we believe it would be beneficial to specify a minimum path length for BAS in the 2450-2483.5 MHz band. As noted above, many operations in Parts 74 and 101 are similar in nature and coordination of these operations would benefit from consistent policy. Thus, we propose to adopt a minimum path length of 17 kilometers for the BAS in the 2450–2483.5 MHz band. We request comment on whether this proposal would unnecessarily constrain Part 74 operations. Additionally, we propose to grandfather any existing fixed links that may be less than 17 kilometers at their current power.

3. Transmitter Power

18. Currently, rule Sections 74.636 and 74.534 specify the power limitations for TV and aural BAS, respectively.[31] For some frequency bands only transmitter output power is specified, and for some frequency bands both transmitter output power and EIRP, which describes the amount of energy that is actually being radiated by the transmitting antenna, are specified.[32] For the reasons discussed below, we propose to modify the BAS rules to specify maximum EIRP values for all aural and TV BAS frequency bands.

19. Because EIRP describes the amount of energy that is actually being radiated,[33] it is the parameter that is pertinent to understanding the RF environment for coordinating stations and mitigating interference. Further, the use of the equation for maximum EIRP for short path lengths proposed above is contingent on the rules specifying a maximum EIRP value in each frequency band in which the equation applies.[34] In addition, specification of EIRP values for BAS is consistent with the Commission's implementation of the Universal Licensing System (ULS), which is used to process BAS applications.[35] In the ULS proceeding, the Commission adopted the FCC Form 601 and its associated

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[30] 47 C.F.R § 101.143.

[31] 47 C.F.R. §§ 74.462, 74.535, 74.637, 78.103, and 101.111.

[31] We note that it is common for a single transmitter to be certificated for use in Parts 74, 78, and 101.74.534 and 74.636.

[32] 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.

[33] *See* note 26, *supra.*

[34] *See* para. 13, *supra.*

[35] In 1998, the Commission adopted the *Report and Order* in WT Docket No. 98-20 which implemented the Universal Licensing System (ULS) for all wireless telecommunications services, which includes BAS. *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*). In 1993, the Commission transferred broadcast auxiliary service license processing functions from the (continued....)

schedules as the single form to be used for most application purposes.[36] Thus, aural and TV BAS applicants provide technical information regarding their systems using FCC Form 601, Schedule I, which requires that the applicant specify the maximum EIRP of the transmitting station. Because the rules should be complete with respect to maximum EIRP values for BAS frequency bands, we propose to align the Part 74 rules with those in Part 101. We thus propose to specify maximum EIRP values, as described below.

20. We note that the rules in Part 101 for FS microwave licensees specify EIRP values. Where EIRP values exist in the Part 101 rules for fixed operations in frequency bands shared with fixed BAS, we propose to adopt the Part 101 value for fixed BAS in the same band.[37] Because many BAS and Part 101 services are similar in nature, it appears reasonable for the same values to be used in both rule parts. We believe that such action promotes an environment for simplifying station coordination, which in turn reduces instances of harmful interference among stations. Specifically, we propose that fixed operations for TV BAS in the 1990-2110 MHz and 2450-2500 MHz bands have EIRP limits of 45 dBW.[38] For aural BAS in the 944-952 MHz band, we propose to limit EIRP to 40 dBW, which is identical to the limit specified in Part 101 for FS in the 941.5-944 MHz and 952-960 MHz bands.

21. For the same reasons, EIRP values also are necessary for mobile TV BAS operations in the 1990-2110 MHz and 2450-2500 MHz.[39] The EIRP limits for mobile BAS can be generated using the maximum allowable transmitter power currently specified in the Part 74 rules in conjunction with the gain of commonly available antennas.[40] Our research suggests that typical maximum antenna gain is approximately 25 dBi in the 1990-2110 MHz and 2450-2500 MHz bands, and the maximum transmitter power is 12 watts (10.8 dBW) in these bands; this equates to an EIRP of 35.8 dBW. Accounting for some line loss, we propose to allow mobile operations to transmit at a maximum EIRP of 35 dBW in the 1990-2110 MHz and 2450-2500 MHz bands.

22. We also propose to adopt similar EIRP limits for CARS in frequency bands shared with Part 74 and 101 operations to ensure that the anticipated benefits of these proposals can be enjoyed by all licensees in these bands. Specifically, we propose to adopt an EIRP limit of 35 dBW for mobile CARS operations in the 1990-2110 MHz band, identical to the proposal for TV BAS above, and maintain the 55 dBW EIRP (fixed) and 45 dBW EIRP (mobile) limits for TV BAS and CARS operations in the

(Continued from previous page)
Mass Media Bureau to the Private Radio Bureau (subsequently the Wireless Telecommunications Bureau). *See* Amendments To Parts 0, 1, 21, and 74 Of The Commission's Rules, FCC 93-110, *Order*, 8 FCC Rcd. 2076 (1993). Since that time, all BAS licenses have been processed in Gettysburg, Pennsylvania. Currently this task is the responsibility of the Wireless Telecommunications Bureau, Public Safety and Private Wireless Division, Licensing and Technical Analysis Branch. *See* Section C, *infra.* for additional discussion of the ULS and its use by BAS.

[36] *ULS Report and Order* at 21036. The FCC Form 601 is used to apply for new licenses, modify existing licenses, apply for license renewals, cancel licenses, etc. In addition to the FCC Form 601, the Commission adopted the FCC Form 603 for applications for license assignments and transfers.

[37] 47 C.F.R. § 101.113.

[38] EIRP limits are not being specified for the 31.0-31.3 GHz band in accordance with our proposal in paragraph 43, *infra.*

[39] *See* 74 C.F.R. § 74.636.

[40] Values of typical antenna gains were gathered from publicly available literature from the web sites of several antenna manufacturers. *See, e.g.,* Andrew Corporation at www.andrew.com; RSI Wireless Communications at www.csawrls.com.

12,700-13,250 MHz band. We note that the Part 101 rules for FS stations operating in the 12,700-13,250 MHz band only allow a maximum EIRP of 50 dBW.[41] However, because BAS and CARS stations transmit multichannel video signals and FS stations do not, we believe the additional power is warranted to ensure reliable service. Finally, we propose to grandfather at their current power levels, existing stations that may be transmitting at EIRP levels above those proposed.

23. We seek comment on all aspects of these proposals. In particular, we ask commenters to address whether the proposed EIRP values are appropriate for BAS and CARS operations, and whether they provide adequate power for BAS and CARS stations to transmit over typical distances for various types of applications. Are the power levels too high as to cause difficulty in coordinating operations in certain areas? Would these proposals negatively impact the flexibility of BAS and CARS operations? Because digital signals generally require less power than analog signals, should we consider adopting different power standards for digital and analog equipment? If so, what should those values be? Also, commenters should address whether the EIRP for Part 101 users operating in the 12,700-13,250 MHz band should be raised to 55 dBW.

24. Finally, we note that the transmitter power rules in Part 101 specify only EIRP values and do not specify values for transmitter output power. Should we similarly amend the BAS rules to remove the specifications for transmitter output power from the rules? When considering this, commenters should keep in mind that FCC Form 601 does not collect output power for TV and aural BAS applications. Furthermore, for the purpose of frequency coordination only the EIRP is needed because it is a measure of station presence and transmitter output power is not. Commenters should also address what effect such action may have on the equipment authorization process and what changes to those processes may need to be made.

4. Emission Masks

25. 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.[42] Although the same equipment is often certified and used by licensees in different services,[43] our rules, in some cases, allow each service to use a different emission masks for the same type of emission (*e.g.*, FM, AM, etc.) in the same frequency band.

26. An example of the current inconsistencies in the rules can be seen in the context of our proposal to permit digital modulation in all TV and aural BAS frequency bands.[44] The TV BAS rule Section 74.637 contains a general emission mask for frequency modulation (FM) in paragraph (a) and a slightly different emission mask applicable only to operations in the 6425-6525 MHz and 17,700-19,700 MHz bands in paragraph (c). Furthermore, we note that a single emission mask for TV BAS digital modulation is specified for emissions in the 6425-6525 MHz and 17,700-19,700 MHz bands; whereas the emission mask rules in Part 101, which shares use of these bands, provides two different emission masks for digital modulation -- one for operations above 15 GHz and one for operations below

[41] 47 C.F.R. § 101.113.

[42] 47 C.F.R. §§ 74.462, 74.535, 74.637, 78.103, and 101.111.

[43] We note that it is common for a single transmitter to be certificated for use in Parts 74, 78, and 101.

[44] *See* para. 9, *supra*.

15 GHz.[45] Similarly, the aural BAS rules in Section 74.535 specify one emission mask for FM BAS operations in the 17,700-19,700 MHz band and a slightly different emission mask for all other aural BAS bands; and the rules specify an emission mask for digital operations only for the 17,700-19,700 MHz band.

27. We propose to make the emission mask requirements for BAS consistent with the emission mask requirements for FS microwave services in Part 101, as described below. We believe that the Part 101 emission masks have proven effective for this type of service and that 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. Additionally, we propose to grandfather existing equipment authorized pursuant to current emission masks. We seek comment on these proposals.

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).[46] 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);
- 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); and
- For all other types of modulation in all TV BAS frequency bands, to apply the emission mask of Section 74.637(b).

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). 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);

[45] 47 C.F.R. § 101.111(a)(2).

[46] The FM emission mask specified in Sections 74.637(a) and 74.637(c)(1) differ 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 is not required.

- 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).

28. In trying to provide consistency among the various rule parts, we are also mindful of certain differences between them, such as the type of multiplexing employed, the type and amount of data or program material transmitted, and the method of transmission. For example, BAS and CARS are beginning to deploy digital multichannel video systems which are not used by FS users. Additionally, these stations may use various modulation schemes, such as OFDM or COFDM and others. In light of these developments, we seek comment on the validity of our proposals to adopt the Part 101 digital emission masks for BAS. We note that Part 101 has separate digital emission masks for operation above and below 15 GHz. This rule has been in place since 1974. At that time, most FS service equipment was analog and operated below 15 GHz. The below 15 GHz digital emission mask was designed to protect adjacent channel analog equipment as well as digital equipment. In contrast, the industry view at that time was that all of the new equipment for the bands above 15 GHz would be digital. Therefore, the above 15 GHz digital emission mask was designed only to protect adjacent channel digital equipment and is less restrictive.[47]

29. One of the main objectives of this *NPRM* is to provide the necessary regulatory framework to ensure that digital equipment can be used in all BAS frequency bands. It is likely that for the foreseeable future many BAS operations both above and below 15 GHz will continue to be analog. However, as users upgrade equipment and the transition to DTV continues, more digital equipment will be deployed. Given this situation, we ask commenters to address whether the BAS and FS should continue to have different digital emission masks above and below 15 GHz. We note that analog BAS operations in shared bands above 15 GHz, *e.g.*, the 17.7-19.7 GHz band, are currently operating adjacent channel to digital Part 101 equipment. Additionally, we ask commenters to address whether the current Part 101 emission masks are applicable to BAS operation. Commenters that believe a different emission mask should be adopted should provide details on an appropriate emission masks for digital operation. What parameters need to be considered? What type of roll-off is appropriate to ensure sufficient information transfer while providing adequate protection to adjacent channels? Also, we seek comment of whether the same or different emission masks should be applied to CARS and FS stations.

30. We also propose to adopt a standard measurement procedure for the above proposed emission masks to measure the emission's interference potential and ensure that the instrumentation does not detrimentally affect the measurement. Therefore, we propose that the measuring instrumentation for complying with the emission masks use a minimum resolution bandwidth of 100 kilohertz for bands below 1 GHz and a resolution bandwidth of 1 megahertz for bands above 1 GHz. This proposal is consistent with available measurement instrumentation. Additionally, we note that the current industry trend for measuring digital emissions just outside the channel is to use measuring instrumentation having a minimum resolution capability of 1% of the bandwidth of the carrier emission. This is evidenced by measurement procedures and interpretations in our rules for the licensed Personal Communications Services (PCS) and unlicensed PCS devices.[48] Should a similar measurement procedure for emissions

[47] *See* Establishment of Policies Procedures for the use of digital modulation techniques in microwave radio and proposed amendments to Parts 2 and 24, Gen. Docket No. 19311, *Report and Order*, FCC 74-985, 39 FR 35658 (October 10, 1974).

[48] 47 C.F.R. §§ 15.321(d), 15.323(d) and 24.238(b). *See also,* Amendment of the Commission's Rules to Establish New Personal Communicating Services, GEN Docket No. 90-314, *Third Memorandum and Order*, 9 FCC Rcd. 6908 (1994).

adjacent to the channel be used for BAS? We seek comment on our proposal, including what procedures should be used. To ensure consistency across frequency bands shared with the FS microwave service, should a similar measurement requirement be adopted for Part 101 emission masks? If we adopt similar emission masks for the CARS, should a similar measurement requirement be adopted for Part 78 emission masks?

31. With respect to compliance with the emission mask requirements, an additional issue that must be addressed is equipment that multiplexes both analog and digital signals for transmission over a single channel. 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. Such operation complicates the equipment certification process because the emission masks are referenced to either analog or digital modulation techniques, but not both. In the FS, 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.[49] We believe this rule has worked well for equipment in use under Part 101, and we propose to adopt a similar requirement for the emission masks for TV and aural BAS. We seek comment on whether this is the best method for ensuring compliance with our emission mask rules when analog and digital signals are multiplexed.

32. Finally, an issue related to the characterization of analog/digital multiplexed transmitters involves the assignment of emission designators. In many cases, this hybrid equipment uses frequency division multiplexing and transmits the analog and digital signals side-by-side. When this technique is used, the analog and digital signals are transmitted on frequencies offset from the assigned frequency. For example, a hybrid transmitter with a 25 megahertz bandwidth may have a 15 megahertz analog signal centered on a frequency 5 megahertz above the assigned frequency and a digital signal centered on a frequency 7.5 megahertz below the assigned frequency. In their comments, SBE asks that these transmitters be licensed using a dual emission designator such as 15M0F9W/10M0D7W,[50] rather than the single designator, 25M0F9W, used for conventional FM video analog STLs.[51] We note that the ULS is not designed to recognize a dual emission designator; it assumes that the designated emission emanates from the center of the channel Thus, the ULS is unable to capture the information SBE requests. ULS does, however, enable licensees to obtain authorizations for both analog and digital emissions by allowing multiple emission designators to be associated with an authorized frequency.[52] In this instance, though, the emission designator would need to depict the entire 25 megahertz bandwidth for each type of emission. We further note that the information sought by SBE can be determined using the transmitter manufacturer and model number which ULS does collect.[53] For these reasons, we propose that hybrid

[49] 47 C.F.R. § 101.141(b).

[50] 47 C.F.R. §§ 2.201 and 2.202 describe the symbols used to describe emission designators. For example, the emission designator 15M0F9W describes an emission with a 15 megahertz necessary bandwidth (15M0) using a frequency modulated composite system with one or more channels containing digital information and one or more channels containing analog information transmitting multiple types of information, such as telephony and television (F9W).

[51] *See* SBE Comments at 3.

[52] *See* FCC Form 601, Schedule I, Supplement 4.

[53] *See Id.*

radios that multiplex analog and digital signals continue to use a single emission designator. We seek comment on this proposal.

5. Automatic Transmit Power Control

33. Automatic Transmit Power Control (ATPC) is a function that provides for more efficient spectrum use. Radios that use ATPC operate with reduced power levels during normal propagation conditions. When the receiver detects a drop in received signal level, due to multipath[54] or a rain fade for example, it 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, ATPC, by keeping signal levels low, reduces power consumption of the radio, which lowers operating costs and increases equipment reliability. Finally, ATPC protects digital receivers from experiencing outages due to an excessively strong signal.[55]

34. Since 1996 when the Commission amended its Part 101 rules,[56] ATPC has been used successfully in the FS microwave bands. In its petition, TIA states that it is not clear whether ATPC is permitted under the rules in Part 74 for TV BAS.[57] Because ATPC has been beneficial to efficient spectrum use in FS operations under Part 101, we propose to amend the Part 74 rules to state that TV BAS licensees may also use ATPC.[58] We see no reason why the benefits of using ATPC should be limited to the TV BAS, and thus we also propose to modify sections 74.534 and 78.101 of our rules to allow licensees of aural BAS and CARS stations to use ATPC as well.

6. Interference to Geostationary Satellites

35. In 1987, the Commission adopted rules to implement Article 27 of the International Telecommunication Union (ITU) Radio Regulations,[59] which specifies EIRP limits and antenna pointing parameters for fixed terrestrial stations that share frequency bands with fixed satellite uplink (earth to space) stations.[60] 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 the adoption of these rules, additional frequency bands have been allocated for satellite use and the Radio Regulations have been updated accordingly.

36. Because these rules are subject to international agreement, maintaining them in multiple rule Parts is cumbersome and has led to varying requirements among the rules in Parts 74, 78, and 101

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[54] 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.

[55] *See TIA Petition* at A.29.

[56] *See Part 101 Order* at 13479. See 47 C.F.R. § 101.113.

[57] *See TIA Petition* at A.29.

[58] Alcatel supports this change. *See* Alcatel comments at 9.

[59] Under the revised numbering scheme for the Radio Regulations, these regulations are now contained in Article S21.

[60] *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, 77 (1987).

because they are not always updated at the same time. To remedy this situation, we propose to simplify the organization of the geostationary satellite protection rules by eliminating duplicative rule sections and having them appear only once. Therefore, we propose 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. This proposal will have the effect of simplifying and streamlining our rules by keeping the rules regarding a common subject in one place, which ensures consistent treatment of all our licensees. Additionally, should these rules need future updating due to changes in the Radio Regulations or changes in service allocations, only one rule section will need to be amended. We seek comment on this proposal.

7. Frequency Coordination

37. 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.[61] The Part 101 procedures generally require parties to coordinate their planned spectrum use with 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 the TIA industry standards and to apply these standards to all bands.[62]

38. As stated in the *Part 101 Order*, common procedures and standards will simplify the rules and lead to economies of scale in microwave equipment.[63] Those same benefits can also be enjoyed by BAS and CARS. SBE supports such a frequency coordination requirement for the TV BAS.[64] Thus, we propose 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, we propose to amend Section 78.36 to mirror the Part 101coordination rules. We seek comment on this proposal and ask if we should reference the Part 101 rule within Part 78 rather than reproducing it.

39. In addition to the efficiency benefits stated above, uniform frequency coordination requirements will simplify the coordination of stations operating in shared frequency bands and minimize the potential of stations causing harmful interference. We seek comment on our proposal to require TV BAS and CARS operations to prior coordinate their stations using the Part 101 procedures. In considering this proposal, commenters should address whether a frequency coordination requirement should be imposed uniformly across the United States or should it only apply to the most heavily congested markets. If frequency coordination should only apply in certain markets, commenters should state which markets are appropriate and the factors used in making that determination.

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[61] 47 C.F.R. §§ 74.638 and 78.36.

[62] *See Part 101 Order, supra.*, at 13,486.

[63] *See Id.*

[64] *See* Letter from Dane E. Ericksen, P.E., CSRTE, Chairman, SBE FCC Liaison Committee to Steve Linn, Deputy Chief, Licensing and Technical Analysis Branch, Public Safety & Private Wireless Division, Wireless Telecommunications Bureau (May 2, 2000) at 5 (*SBE Letter*).

40. Additionally, we note that coordination rules are not specified for aural BAS stations. Recognizing that thousands of aural BAS stations are in use serving AM and FM radio stations across the United States, we seek comment on whether the lack of coordination requirements for this service has led to interference situations. Should the Commission require aural BAS stations operating above 944 MHz to also adhere to the procedures of Section 101.103(d)?

8. Frequency Tolerance

41. Frequency tolerance is the maximum permissible deviation of the center frequency of an emission from its assigned frequency. To streamline our rules further and to offer manufacturers common technical standards for equipment, we propose to amend the frequency tolerance rules for TV BAS.[65] Specifically, consistent with the proposal made in the *Part 101 NPRM*,[66] we propose to eliminate separate frequency tolerance requirements for base and mobile operations. Additionally, we note that the current TV BAS frequency tolerance rules do not specify a limit for the 2450-2483.5 MHz band. To remedy this situation, we propose to adopt a frequency tolerance of 0.001% for fixed and mobile TV BAS equipment operating in the 2450-2483.5 MHz band. This proposal is consistent with the frequency tolerance allowed in Part 101 for FS this band. and as explained elsewhere, the operations are sufficiently technically similar that we believe the same frequency tolerance is appropriate for TV BAS.[67] Finally, we propose to grandfather existing authorized equipment at their current frequency tolerance. We seek comment on this proposal.

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

42. Recently, in ET Docket No. 98-206, the Commission allocated Non-Geostationary Fixed Satellite Service (NGSO FSS) uplinks on a co-primary basis in the 12.75-13.25 GHz band.[68] However, the NGSO FSS systems were excluded from operating in the 13.15-13.2125 GHz band (channels A19, A20, B19 and B20).[69] The 13.15-13.20 GHz portion of that band is currently used by TV BAS and CARS Pickup Stations within 50 kilometers of the top 100 television markets and by fixed TV auxiliary stations in all other areas.[70] 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. The Commission took this action with the expectation that BAS and CARS mobile operations will concentrate their mobile use on those four channels.[71] Based on the action taken in the *NGSO Order*, we propose to update Section 74.602(a) Note 2 to reflect these changes. Further, we propose to grandfather all fixed stations that were licensed in the 13.15-13.2125 MHz band prior to the effective date of the rules in the *NGSO Order*. We seek comment on this proposal.

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[65] 47 C.F.R. § 74.661.

[66] *See Part 101 NPRM, supra.*, at Appendix D, (proposed) Section 101.107.

[67] 47 C.F.R. § 101.107.

[68] *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, ET Docket No. 98-206, *First Report and Order and Further Notice of Proposed Rule Making*, FCC 00-418 (rel. Dec. 8, 2000) at para. 122. (*NGSO Order*)

[69] *See Id.*

[70] 47 C.F.R. § 74.602(a) Note 2.

[71] *See NGSO Order* at para. 126.

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

43. In 1997, the Commission reallocated the 31.0-31.3 GHz band to the Local Multipoint Distribution Service.[72] Consequently, BAS and CARS are no longer authorized to obtain new assignments in that band, and a search of our database reveals that there are not any currently active authorizations for BAS or CARS in that band. In this connection, we note that the frequency assignment rules in Sections 74.502 for aural BAS, 74.602 for TV BAS, and 78.18 for CARS no longer reference the 31.0-31.3 GHz band. However, many of the technical rules continue to mention this band. Therefore, we propose to eliminate references to technical parameters for the 31.0-31.3 GHz band that currently exist in the aural BAS, TV BAS and CARS rules.

44. Similar to the 31.0-31.3 GHz band, the Commission, in 1997, adopted rules and procedures to assign the 38.6-40.0 GHz band by competitive bidding.[73] This band had been available for assignment to mobile BAS and CARS licenses without bandwidth limitation and on a secondary basis to fixed stations.[74] In addition to the new assignment procedures, the Wireless Telecommunications Bureau (WTB), pursuant to delegated authority, adopted an *Order* announcing that the Commission would no longer accept for filing any new applications for 39 GHz licenses in the Common Carrier or Operational Fixed Point-to-Point Radio Services.[75] In May, 2000, the Commission assigned 2,173 licenses in 175 Economic Areas by competitive bidding in this band.[76] Because the band has been auctioned and consistent with the *Freeze Order*, no new assignments can be made for BAS or CARS licenses in the 38.6-40.0 GHz band. Accordingly, we propose to remove all references to the 38.6-40.0 GHz bands from the BAS and CARS rules. As a final matter we note that there are 16 incumbent Television Pickup BAS and no CARS licensees operating in this band. The BAS licensees may continue to operate under the parameters of their current licenses and to renew them in the future. We seek comment on this proposal.

11. Additional Rule Consolidation

45. In the sections above, we make various proposals which conform rules among Parts 74, 78, and 101. In general, for service specific rules, such as maximum EIRP for short path lengths and transmitter power, we keep those rules with each rule part. However, for rules that affect each of the services sharing spectrum, our preference is to list that rule only in one location and cross reference the other rule parts to that single listing. For example, we propose that the rules regarding interference to geostationary satellites be listed only in Part 101 and cross referenced from Parts 74 and 78.[77] When several services are subject to the same requirements, having that requirement in only one location

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[72] *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).

[73] *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. 18,600 (1997).

[74] 47 C.F.R. § 74.602.

[75] *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*).

[76] *See* 39 GHz Band Auction Closes, Report Auc-30-E (Auction No. 30), DA 00-1035, rel. May 10, 2000.

[77] *See* para. 36, *supra*.

ensures consistent treatment of all our licensees and simplifies the update process if any of these procedures should change. We seek comment on whether there are additional instances in which the rules can be consolidated and cross referenced.

B. BAS Service Rules (Part 74)

1. Temporary Conditional Authority

46. To complement the above proposal that aural and TV BAS stations coordinate their applications prior to filing,[78] we propose to allow applicants who apply for new or modified stations to operate under temporary conditional authority after an application has been properly filed with the Commission. This type of operating authority is permitted in other coordinated services, such as those authorized under Parts 90 and 101 of the Commission's rules and remote pickup BAS under Section 74.431(g).[79] Our experience regarding temporary conditional operation in Parts 90 and 101 has shown it to be a useful tool which enables applicants to begin providing service in a timely manner without having to wait for the Commission to finish processing their applications. This proposal, however, is contingent on our proposal to require prior frequency coordination of the requested operations. By relying on the coordination process, the Commission can be assured that BAS operations will not cause harmful interference to existing stations.

47. In addition to requiring prior coordination, we propose to make temporary conditional authority subject to the following conditions:

- 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.[80]
- 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.

48. We also propose to allow temporary conditional authority for low power auxiliary stations authorized under Part 74, Subpart H.[81] Although these stations do not require prior coordination and we are not proposing to add such a requirement, we believe that they can operate under this authority

[78] *See* para. 37, *supra*.

[79] 47 C.F.R. §§ 90.159(b), 101.31, and 74.431(g).

[80] 47 C.F.R. § Part 1, Subpart I.

[81] 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.

without harming existing operations due to the restriction that they limit their power to 1 watt output power.[82]

49. In accordance with the above, we propose to delete rule section 74.431(g) and adopt new rule section 74.25 to allow temporary conditional authorizations for all broadcast auxiliary services. We seek comment on these proposals.

2. Short-Term Operation

50. 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 basis, for up to 720 hours per year, without prior authorization from the Commission.[83] This rule provides broadcasters with flexibility to respond to short term situations such as a newsworthy event outside of a station's normal operating area, without coming to the Commission with requests for special temporary authority (STA). This rule has served both the broadcasters and the Commission well.

51. We note that this rule does not afford the same flexibility to broadcast network entities, cable network entities, or Low Power Television Stations (LPTV), 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 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, we propose to expand the eligibility of this rule. We believe that expanding the eligibility of this rule can be accomplished without any detrimental effect on licensed stations because short-term operation is on a secondary, non-interference basis and co-channel licensees in the intended operating area must be notified of such operation.[84]

52. As noted, there is a notification requirement with which licensees must comply prior to operating under the short-term operation rule. This notification requirement, however, does not apply when "... an unanticipated need for immediate short-term mobile station operation would render compliance with the provisions of this paragraph impractical."[85] For example, a station may wish to send a news crew to report on a natural disaster that occurs outside of its service area, which by its nature is not a planned event. On the other hand, stations may wish to report from a convention or sporting event or other planned events. In these instances, it is not acceptable to bypass the notification requirement. Because these are scheduled events, stations should have ample time to provide the necessary notification prior to the event. Accordingly, we propose to clarify that entities may not invoke the notification exception for scheduled events.

53. The Commission often designates a coordinator as the single point of contact for advance coordination of auxiliary broadcast frequency usage for major national and international level

[82] 47 C.F.R. § 74.861(d)(1).

[83] 47 C.F.R. § 74.24.

[84] 47 C.F.R. §§ 74.24(c) and (g).

[85] 47 C.F.R. § 74.24(g).

scheduled news events.[86] In the past, groups would petition the Commission prior to a major event and volunteer to act as the special event coordinator.[87] The Commission has taken this action based on concern that uncoordinated use of auxiliary broadcast stations on a temporary basis might result in spectrum congestion and excessive interference causing less complete broadcast coverage. Currently, the rules do not contain a procedure for designating a coordinator for short-term operations. To remedy this deficiency, we propose that procedures to designate a coordinator for short-term operations be placed in the rules. Specifically, the Commission will not, on its own, designate a special events coordinator. Such designation will continue to be bestowed on an entity only after the Commission receives a request to designate a coordinator. The Commission will issue a Public Notice to inform the broadcast industry that such a designation has been made. Typically, these Public Notices have been issued at least three months prior to an event, with many occurring up to a year prior. Once an organization receives such designation, coordination must be done on a non-discriminatory basis. Entities must abide by the decision of the coordinator. However, if a disagreement arises, the Commission will be the final arbiter of any dispute. We seek comment on this proposal.

54. We also seek comment on the current limitation of 720 hours per year per frequency for short-term operations. Based on the way event coverage has changed over time, is this limit still appropriate? Should it be increased or decreased? Additionally, we note that there is no requirement for stations to log or report their short-term use under this section, and thus there is no way to track operation under this rule and verify compliance. Should we require stations to keep a log of their short term use in their station records, or alternatively, should we eliminate the 720 hour limit? We seek comment on this and all aspects of our proposals regarding the short-term operation rule.[88]

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

55. 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 on spectrum allocated for UHF-TV stations.[89] 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 of the rules in areas where land mobile sharing is currently permitted.[90] Also, because transmissions by TV

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[86] In the past the Commission has designated auxiliary broadcast frequency coordinators for National Political Conventions, the 1996 Summer Olympic Games, and the visit of Pope John Paul II to the United States. *See, e.g.*, Auxiliary Broadcast Frequency Coordinator Designated for the 2000 Democratic Convention in Los Angeles, CA, DA 00-1878(Corrected), *Public Notice*, July 21, 2000.

[87] Usually, a consolidated group representing many broadcasters, rather than a single entity acting on its own, will seek this designation.

[88] SBE supports the proposals advanced above. *See SBE Letter* at 6.

[89] 47 C.F.R. § 74.602(h). The UHF-TV spectrum is used only if the licensee cannot find spectrum available in any other frequency band allocated for these stations.

[90] 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 (continued....)

STL and relay stations are not necessarily used by licensees to transmit information for broadcast over the air, their signals are not intended for reception by the general public. To meet these obligations, licensees generally employ a narrow-beam point-to-point signal. The rules, however, do not contain any guidelines regarding acceptable power limits or antenna specifications for these stations.[91] Instead, the Commission has developed policies to determine compliance of these stations with the rules in Section 74.602(h). Specifically, 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.[92] Because the Commission is increasingly relying on automated processing, as evidenced by the ULS, we believe that it would be beneficial to codify operational parameters for these stations so that prospective applicants have as much information as possible to assist them. We believe that this will 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.

56. To implement this policy in the rules, we must stipulate the maximum EIRP that an applicant may use before an engineering analysis is necessary. We believe that an appropriate trigger for requiring an engineering analysis is an EIRP for the proposed system of 35 dBW. This figure was determined by first noting that the currently used 20 watts output power is 13 dBW (*i.e.*, $10 \text{ Log}_{10} 20 = 13$) and then looking at typical gain values for antennas used for these stations. Our licensing database reveals that most antennas used by systems already authorized in the UHF-TV band have a gain in the 15-20 dBi range (with some as high as 26 or 27 dBi) and that the EIRP of these systems typically range up to 31 dBW.[93] We expect that allowing licensees to use EIRPs up to 35 dBW without submitting an engineering analysis will provide licensees with flexibility to choose optimal power and antennas for their systems while meeting the requirements of transmitting on a non-interference basis and propose to adopt this limit in our rules.

57. We believe that our current policy, which limits the antenna to a 3 dB beamwidth of 25 degrees or less has served both users and those they are required to protect. The Commission also has generally requested operators of these stations to transmit using vertical polarization, rather than the standard horizontal polarization that is employed for TV transmissions.[94] The Commission implemented this policy to safeguard STL and relay station transmission from reception by the public. We believe that these criteria also should be codified in the rules. Accordingly, we propose to modify Section 74.602(h) of the rules to require applicants for TV STLs or TV relay stations to comply with the three technical parameters described above or to submit an engineering analysis explaining why higher power, a wider antenna, or a different polarization is needed.

58. In addition, we note that the Commission regularly licenses TV translator relay stations on UHF-TV channels. Therefore, to make the rules consistent with current licensing policy, we propose to explicitly state in Section 74.602(h) that these stations may be authorized to operate on UHF-TV

(Continued from previous page)
Establishment Of A Class A Television Service, MM Docket No. 00-10, *Report and Order*, 15 FCC Rcd. 6355 (2000) at ¶ 84.

[91] *See* 47 C.F.R. § 74.636 (power limits), 47 C.F.R. § 74.641 (antenna requirements).

[92] 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).

[93] We note that the licensing database specifies EIRP in terms of dBm, not dBW. The conversion factor between dBm and dBW is 30 dB (*i.e.*, 0 dBW = 30 dBm).

[94] 47 C.F.R. § 73.682(a)(14).

channels on a secondary basis, subject to the same guidelines described above. We seek comment on this proposal.

59. Finally, the current rules in Section 74.602(h) authorize the secondary point-to-point use of TV STL and TV relay stations on UHF-TV channels 14-69. We note that the Balanced Budget Act of 1997 directed the Commission to auction recaptured television broadcast spectrum and to allocate spectrum in the 746-806 MHz band (UHF TV channels 60-69) for public safety services and for commercial use.[95] The Commission has already implemented the reallocation of the 746-806 MHz band[96] and intends to reallocate the 698-746 MHz band (UHF-TV channels 52-59) in the future.[97] In light of the reallocation of the UHF-TV channels above channel 51, we propose to limit future secondary point-to-point use of TV STL and TV relay stations to UHF-TV channels 14-51. We further propose to grandfather existing stations that operate on the UHF-TV channels above channel 51. We seek comment on this proposal.

4. TV BAS Sound Channels

60. Section 74.603 of the Commission's rules provides authority for TV BAS stations to use an aural broadcast STL or intercity 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.[98] It is our understanding that the current practice within the industry is to use multiplexing techniques, rather than separate sound channels, to transmit the aural portion of their programming along with the video portion over a single TV BAS channel. Therefore, we believe that rule section 74.603 is no longer necessary, and we propose to eliminate it. Additionally, we propose to eliminate the corresponding provision of Section 74.502(b) that provides TV BAS licensees' authorization to use the aural BAS channels.[99] If we eliminate these provisions as proposed, we seek comment on whether the aural BAS rules need to be modified to specify that aural BAS stations are for the transmission of aural program material of an aural broadcast station in all places where the rules simply refer to a broadcast station.

61. We seek comment on whether we should delete rule section 74.603(c), which provides grandfathering rights so that TV BAS stations could continue operating aural STL or intercity relay stations that were in service prior to July 10, 1970. That rule states that such grandfathering could continue until the Commission makes a decision on their disposition through a rule making proceeding.[100]

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[95] *See* Pub. L. No. 105-33, Title III, 111 Stat. 251 (1997) §§ 3003, 3004.

[96] *See* 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.22,953 (1997).

[97] *See* In The Matter of Principles for Reallocation of Spectrum to Encourage the Development of Telecommunications Technologies for the New Millennium, *Policy Statement*, 14 FCC Rcd. 19,868 (1999).

[98] 47 C.F.R. § 74.603(b).

[99] 47 C.F.R. § 74.502(b).

[100] The Commission sought comment on this issue in a *Further Notice of Proposed Rule Making* in Docket No. 19130, however final rules were never issued. *See* Amendment of Parts 2 and 74 of the Commission's Rules To Permit Aural Broadcast STL Operations in the Band 2150-2160 MHz and To Accommodate STL, Intercity Relay Stations and Certain Low-Power Broadcast Auxiliary Stations Within the Frequency Band 947-952 MHz and Amendment of Parts 2 and 74 of the Commission's Rules To Permit Aural Broadcast STL Operations in the Band 2110-2113 MHz, Docket No. 19130, Further Notice of Proposed Rule Making, FCC 72-361 (rel. Apr. 26, 1972).

In particular, we seek comment on whether any stations continue to maintain and operate separate stations for aural and video content and where such use occurs . This proposal might particularly affect stations in smaller markets where there are fewer AM or FM radio stations.

5. Remote Pickup Broadcast Auxiliary Frequency Assignment

62. In 1984, the Commission wrote a comprehensive revision of the rules for remote pickup frequency assignments.[101] 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 new licensees, and existing 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.

63. 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, we propose to amend the rules adopted in 1984, as discussed below, to ensure that this objective will be achieved.

64. The channel plan in place prior to the 1984 revision provided 60 kHz channel spacing in the 150 MHz (Group K_1 channels) and 160 MHz (Group K_2 channels) VHF bands and various channel spacings (from 10 kHz to 100 kHz) in the 450 MHz UHF band. For example, the 450-451 MHz and 455-456 MHz bands have channels with 10 kilohertz, (Group P channels), 25 kilohertz (Group N_2 channels), 50 kilohertz (Group R and Group N_1 channels) and 100 kilohertz (Group S channels) bandwidths.[102] In addition to modifying the channel spacing, the rules adopted in 1984 reduced the bandwidth that transmitters in these bands could use: from 60 kHz to 30 kHz in the VHF band and generally to 25 kHz in the UHF band. We note that although the rules adopted in 1984 provide many additional operating frequencies, they envisioned users stacking 5 kilohertz channels to use up to 30 kilohertz bandwidth in the 150 MHz and 160 MHz bands. Similarly, the rules generally permitted users to stack 5 kilohertz channels in the 450 MHz band to create 25 kilohertz channels.

65. 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.[103] 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.

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[101] *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).

[102] *See* 47 C.F.R. § 74.402.

[103] *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*).

66. We believe the 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, we believe that it would be beneficial for both services to share a common channel plan. These benefits include more predictable adjacent channel performance, easier coordination procedures, and economies of scale for equipment. Under the 1984 rules, however, 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 kHz 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 by 5 kilohertz.[104] 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, we propose 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, we propose to allow licensees to stack up to 4 channels to operate on channels as wide as 30 kilohertz. We believe that implementing this channel plan suits Remote Pickup BAS operators as it does PLMRS providers, and it will benefit users by allowing for common equipment to be used for both Part 74 and Part 90 licensees. Remote Pickup Service licensees would be able to take advantage of further advancements in land mobile radio technology as it is developed and brought to market.

67. We believe 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. A search of our licensing database reveals that most licensees continue to operate on the remote pickup channels under the pre-1984 channel plan. 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. Only these licensees would need to transition to the proposed plan.

68. We also propose to modify the 1984 channel plan for the Group N_1 and N_2 450 MHz Remote Pickup channels. In this case, we propose 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). 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. Similar to the VHF band, our 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. Also, as with the VHF band, the proposed channel plan incorporates all of the pre-1984 channels. Under our proposal, a transition to the proposed plan would be needed only for those licensees who implemented the 1984 plan.

69. To accommodate all licensees who are operating in compliance with the 1984 channel plan, we propose to give them three years from the date a new channel plan is adopted by the

[104] 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.)

Commission to modify their equipment and comply with the new plan. We believe that this provides licensees adequate time to either retune or replace equipment. However, because the number of licensees affected by our proposals is small, we propose 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. We believe that this course of action will minimize disruption to existing remote pickup BAS systems. Finally, we note that this proposal is consistent with the treatment of Part 90 licensees that were operating on 5 kHz channels in the VHF band prior to the *Refarming* proceeding.[105]

70. The Group P channels are limited to operational communications, including tones for signaling and for remote control and automatic transmission system control and telemetry.[106] Because there are only eight Group P channels (four at each end of the band) and they are limited to this specialized use, we are not inclined, at this point, to alter them. However, in light of the technological advances in radio cited above, we are not convinced that the Group R and Group S wide bandwidth channels are still needed. Although we are not making specific proposals for these three groups of channels, we seek comment on the extent to which these channels are being used. Should their current bandwidth designations be maintained or should they also be aligned with the 6.25 kilohertz channel plan?

71. Because Remote Pickup Service licensees will benefit most by having the capability to choose from a wide variety of radios, and in accordance with our proposal to standardize the Remote Pickup channels with those listed in Part 90, we believe 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, we propose that the equipment comply with the Part 90 technical rules for the emission mask[107] and frequency stability.[108] Additionally, we ask commenters to address whether the transient frequency behavior[109] rules in Section 90.214 would be appropriate to impose on remote pickup service transmitters.[110]

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

72. The Interdepartment Radio Advisory Committee[111] (IRAC) has been working for the last several years on narrowbanding Federal Government operations in a number of frequency bands. Based

[105] *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).

[106] 47 C.F.R. § 74.402, Note 6.

[107] 47 C.F.R. § 90.210.

[108] 47 C.F.R. § 90.213.

[109] 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.

[110] 47 C.F.R. § 90.214.

[111] The IRAC consists of representatives from a number of Federal Agencies and assists the Assistant Secretary of Commerce, 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.

on the work of the IRAC, the National Telecommunications and Information Administration (NTIA) has published the final policy in the Manual of Regulations and Procedures for Federal Frequency Management. We note that one of the frequency bands subject to narrowbanding is the 162-174 MHz band,[112] and that the Remote Pickup BAS may share, on a secondary basis, two frequencies - 166.25 MHz and 170.15 MHz – in this band with Federal Government users.[113] Under our rules, remote pickup stations may use these frequencies except within 150 miles of New York City where they are reserved for use by public safety users, in Alaska, or in the Tennessee Valley Authority area.[114] We also note that these frequencies are used in some areas by fixed stations in the Emergency Alert System (EAS)[115] to relay information to local stations for dissemination to the public. It has been the policy of NTIA and the FCC to protect these EAS stations from potential harmful interference.

73. Under the narrowbanding policies adopted by NTIA, all new Federal Government systems after January 1, 1995, and all Federal Government systems after January 1, 2005, in the 162-174 MHz band must be capable of operating within a 12.5 kHz channel.[116] The current Commission rules provide for operations on channels up to 25 kilohertz wide.[117] In order to ensure continued successful sharing of the spectrum with Federal Government users, we propose to require that Remote Pickup BAS use of the 166.25 MHz and 170.15 MHz frequencies be in accordance with the same 12.5 kHz channel size and meet the January 1, 2005 implementation schedule applicable for all Federal Government users. Notwithstanding the need for new equipment, what are the advantages and/or disadvantages to implementing this proposal? For example, migrating to the narrow channels may improve adjacent channel performance, but will it harm the quality of the information being transmitted? Additionally, we propose 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. These proposals encompass a revision of Section 2.106, footnote US11 and a change in section 74.462 of our rules. We seek comment on these proposals.

C. Universal Licensing System and BAS

74. As noted above, the WTB, which is responsible for licensing BAS, has shifted its licensing functions to ULS.[118] ULS is an automated licensing system and integrated database designed to infuse greater efficiency into 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 Wireless Telecommunications Bureau began using ULS for Aural and TV BAS licensing

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[112] *See* NTIA Manual, Section 4.3.7A. The exact bands subject to Federal Government narrowbanding are 162.0125-173.2 MHz and 173.4-174 MHz.

[113] 47 C.F.R. § 74.402.

[114] 47 C.F.R. § 2.106, Note US11. 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.

[115] 47 C.F.R. Part 11.

[116] *See* NTIA Manual, Section 4.3.7A.

[117] 47 C.F.R. § 74.462.

[118] *See* note 35, *supra*.

on August 30, 1999[119] and for Remote Pickup BAS on September 19, 2000.[120] Due to this transition, many BAS service rules require updating to reflect ULS application processing procedures. Many of these changes are ministerial in nature, such as updating application form numbers; we include these proposed changes in Appendix C. In some cases, more substantive rule changes are necessary and merit additional discussion. These proposals are discussed below.

1. General Application Procedures

75. One of the main changes promulgated by the *ULS Report and Order* was to consolidate the application and processing rules for all wireless services into a single subpart in Part 1 of the Commission's rules.[121] Subpart F of Part 1 is now the sole section of rules that wireless applicants and licensees, including BAS applicants and licensees, consult regarding the handling of various application procedures, such as major or minor amendment and modifications (§ 1.929) and STAs (§ 1.931). To make clear that the BAS adheres to the rules laid out in Part 1, Subpart F, we propose amending Sections 1.901 and 1.902 to add the appropriate references to Part 74. Similarly, we propose to add a new section, Section 74.6, to reference BAS applicants and licensees to the application and processing rules in Part 1, Subpart F. Under this licensing scheme, aural and TV BAS stations would be licensed using identical forms and procedures as used for Part 101 microwave applicants. Remote pickup BAS stations would be licensed using the same forms and procedures as used for Part 90 private land mobile radio applicants.

2. Construction Period for BAS Stations

76. 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.[122] Stations operating under the broadcast auxiliary rules are subject to the construction requirements specified in Section 73.3598,[123] which provide three years to construct stations from the date a construction permit is issued.[124] However, a two step license mechanism of issuing a construction permit and a license subsequent to construction is not used for wireless services. Instead, the current practice is to issue a TV or aural BAS license with a requirement to construct a station within 18 months and a remote pickup BAS license with a requirement to construct a station within 12 months. We propose to amend Section 73.3598[125] and related rules in Part 73 to remove references to broadcast auxiliary stations and to create a new Section 74.34 to specify rules for the construction of BAS stations.

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[119] *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.

[120] *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.

[121] *See ULS Report and Order* at 21055.

[122] 47 C.F.R. §1.946.

[123] 47 C.F.R. § 73.3598.

[124] In most broadcasting services, applicants file separately for a construction permit and a license to operate a facility when construction is completed. *See, e.g.*, 47 C.F.R. §§ 73.3533, 73.3536.

[125] 47 C.F.R. § 73.3598.

77. Accordingly, we propose to modify the rules to codify current Commission practice. We propose to modify the construction period for remote pickup BAS to 12 months; the same period allowed for PLMR stations authorized under Part 90.[126] Because remote pickup stations are functionally similar to PLMR stations, we believe that this time period is appropriate for remote pickup BAS licensees. Also, we propose to modify the construction period for TV and aural BAS stations to 18 months. We believe that fixed aural and TV BAS stations are similar to fixed microwave stations, which are authorized under Part 101 and have an 18 month construction period. We seek comment on this proposal, including alternative time periods for constructing BAS stations.

3. Special Temporary Authority

78. Under the rules in Part 74, BAS licensees may apply for an STA by informal application,[127] which has generally been interpreted to mean by letter request. In the *ULS Report and Order*, the Commission adopted rules that eliminate letter requests for all purposes where a form can be used.[128] In implementing this policy, the Commission stated that this will, "reduce applicant and licensee burdens, increase efficiency and better serve the public interest."[129] In keeping with this policy and the stated benefits, we propose to amend the Part 74 rules for BAS to require that STA requests follow the procedures outlined in Section 1.931 of the Commission's rules. We note that when an immediate STA is needed during times of emergency or natural disaster, requests can be made via telephone or facsimile and such requests can be granted orally. In these situations, STA recipients are required under the rules to follow up with a formal application as soon as feasibly possible.[130] We seek comment on this proposal.

4. Classification of Filings as Major or Minor

79. 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.[131] These 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.[132] ULS, programmed with logic that can automatically determine if an application for modification is major or minor, can then process these applications without the need for prior intervention by Commission staff. Applicants get their applications processed faster, and Commission staff is freed up to concentrate on other tasks.

80. Accordingly, we propose to amend the Part 74 rules in accordance with the procedures already adopted in the ULS proceeding for major and minor amendments and modifications. Specifically, amendments to aural and TV BAS applications and modifications to aural and TV BAS

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[126] 47 C.F.R. § 90.167.

[127] 47 C.F.R. §§ 74.433(b), 74.537(b), and 74.633(b).

[128] *See ULS Report and Order* at 21052.

[129] *See Id.*

[130] 47 C.F.R. § 1.931(b)(5).

[131] *See ULS Report and Order* at 21058.

[132] 47 C.F.R. § 1.947(b).

licenses would be evaluated based on the rules defining a major change in Sections 1.929(a) and (d) and remote pickup BAS applications would adhere to the rules set forth in Sections 1.929(a) and (c)(4). In many cases, the rules adopted in the *ULS Report and Order* provide more flexibility than the current Part 74 rules afford BAS licensees. 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 1.931(d)(1)(i) classifies changes in transmitting antenna location that are less than 5 seconds in latitude or longitude as minor.[133] The proposal described herein would implement rule changes that treat BAS applicants in a consistent manner with the treatment given other wireless services. We seek comment on all aspects of this proposal.

5. Emission Designators

81. Section 74.462 of the Commission's rules specifies authorized emissions for remote pickup BAS frequencies and frequency bands.[134] We note that this section contains emission designators that no longer conform to current International Telecommunication Union (ITU) specifications or to those contained in Subpart C of Part 2 of the Commission's rules.[135] 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. Applications being processed by ULS use emission designators in accordance with ITU specifications and Section 2.201 of the Commission's rules. Accordingly, we propose to update Section 74.462 to replace all outdated emission designators with emission designators that conform to ITU specifications and Part 2 rules. We seek comment on this proposal.

D. AMPTP Petition

82. AMPTP has petitioned the Commission 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. Video assist devices produce low resolution images that can be used by members of a production crew to make decisions with respect to content, lighting, and image framing.[136] 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 cameras need to be mobile to follow the action.[137] Also, when cables are used, a staff person must tend to them to ensure the safety of the actors and the crew.[138] Thus, AMPTP claims that using WAVDs would create efficiency on production sets and lower film and television production costs.[139]

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[133] 47 C.F.R. § 1.931(d)(1)(i).

[134] 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.

[135] *See* International Radio Regulations, Appendix S1 and 47 C.F.R. § 2.201.

[136] *See AMPTP Petition* at 2-3.

[137] *Id.* at 3.

[138] *Id.*

[139] *Id.* at 2.

1. Requested Technical and Operational Parameters

83. In its petition, AMPTP proposes that WAVDs be frequency selectable, operate at power levels not to exceed 2 watts, with antenna height limited to 10 meters above ground, and with a bandwidth of 6 megahertz. Additionally, they propose that the operating area be limited to 300 meters and that the actual range dictate the allowable power level. Finally, AMPTP proposes that a vacant TV channel be defined as one on which there is no primary user within 120 kilometers of the proposed site and that the Commission adopt minimum co-channel separation requirements similar to those specified for low power auxiliary stations.[140] With respect to the latter point, AMPTP notes that the Commission has allowed certain entities to operate other devices, such as wireless microphones, on unused TV channels.[141]

84. *Opposition to Petition.* Each of the commenters responding to AMPTP's petition opposed it either entirely or in part. Parties were most concerned about interference to devices already allocated to use the TV spectrum or spectrum adjacent to TV spectrum. The lack of spectrum availability and the belief that these devices would proliferate to unauthorized uses also were cited by opponents.

85. The National Association of Broadcasters (NAB) claims that WAVDs would cause interference to existing public safety and wireless microphone use in the TV bands and would have the potential to interfere with TV broadcast signals.[142] SBE agrees and states that the proposed effective radiated power (ERP) for WAVDs is 6 to 13 dB higher than that used for FM wireless microphones and would be an interference threat to both NTSC and DTV reception.[143] Both NAB and SBE assert that because of the impending transition to DTV, new low power devices should not be allowed to operate in the TV spectrum.[144] SBE observes that the current occupancy of the TV bands, coupled with the migration of TV stations from channels 52-69 to other channels in the UHF-TV spectrum, renders the TV spectrum essentially full.[145] Commenters also point out that the AMPTP petition only proposes to protect TV signals and does not address protection of radio astronomy in the 608-614 MHz band, land mobile operations in the 470-512 MHz band,[146] or Part 74 users using this spectrum.[147] Phonic Ear, a manufacturer of auditory assistance devices, argues that the power and bandwidth requested by AMPTP is excessive and would cause harmful interference to adjacent channel auditory assistance devices in the

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[140] *Id.* at 4-6.

[141] Wireless microphones may operate with a maximum bandwidth of 200 kilohertz in the 174-216 MHz and 470-806 MHz bands provided that they adhere to certain separation distances from co-channel TV stations. These separation distances range from 97 kilometers to 129 kilometers depending on the frequency and location of operation. *See* 47 C.F.R. § 74.802.

[142] NAB comments at 1.

[143] SBE comments at 3.

[144] NAB comments at 2; SBE comments at 3.

[145] SBE comments at 2.

[146] TV channels 14-20 are used in certain cities by land mobile operations under Parts 22 and 90 of our rules. *See, e.g.*, 47 C.F.R. Part 22, Subpart E and Part 90, Subpart L.

[147] NAB comments at 2; SBE comments at 2-3. We note that 608-614 MHz corresponding to TV channel 37 is allocated for use by radio astronomy, *see* 47 C.F.R. § 2.106, and that the TV BAS rules authorize TV STL and TV relay stations to operate on UHF-TV channels, *see* 47 C.F.R. § 74.602(h).

216-217 MHz and 167-170 MHz bands.[148] Several commenters note that because WAVD operation would be itinerant, it would be extremely difficult to track the source of interference if it occurs.[149] Further, commenters argue that experience with wireless microphones in the TV spectrum has shown that devices of this type end up being used by all sorts of people in places where they are not authorized by the rules.[150]

86. Phonic Ear suggests that, if the Commission go forward with the requested allocation, transmitter output power be limited to one watt which should be sufficient to cover a television or motion picture production set; the unit include a mandatory permanently attached antenna to prevent the use of high gain antennas or antennas at high elevation; and the use of VHF-TV channels 7 and 13 be excluded, limiting operation in the high VHF-TV band to channels 8-12 to protect adjacent channel low power operations.[151]

87. *AMPTP's Modified Proposal.* In response to the opposition noted above, AMPTP in reply comments modified its proposals. Acknowledging the commenters' concerns with respect to the potential threat of interference to NTSC and DTV reception, AMPTP restates its request that signal propagation be limited to 300 meters to minimize the potential of harmful interference. In addition, they suggest that ERP be reduced to one watt maximum from the initially proposed two watt limit,[152] in accordance with the comments of Phonic Ear.

88. Additionally, AMPTP agrees with the suggestion of NAB and SBE that notification to local broadcast coordinating groups should occur prior to WAVDs being used on a specific channel in any given area. AMPTP suggests that the Commission adopt notification procedures similar to those adopted in WT Docket No. 99-168 to protect public safety licensees in the 764-776 MHz and 794-806 MHz bands from interference in adjacent bands.[153] AMPTP suggests that a notification include the location and anticipated shooting schedule so that the local coordinator can identify specific technical issues with respect to interference.[154] A notification procedure, AMPT argues, also should alleviate commenters concerns regarding the lack of available spectrum.[155] Finally, with respect to unauthorized

[148] Phonic Ear comments at 1. Under the Commission's rules for the Low Power Radio Service (LPRS), auditory assistance devices may operate in the 216-217 MHz band, which is adjacent to TV channel 13. *See* 47 C.F.R. Part 95, Subpart G. Also, auditory assistance devices operate at 169-170 MHz under 47 C.F.R. § 90.265(b).

[149] SBE comments at 2; Phonic Ear comments at 2.

[150] As evidence of this problem, SBE cites an example of parking attendants talking to limousine drivers at the Academy Awards using wireless microphones operating on TV channels. This equipment had to be confiscated so that it would not interfere with the show. SBE comments at 2. *See also* NAB comments at 3; Phonic Ear comments at 2.

[151] Phonic Ear comments at 3.

[152] AMPTP reply comments at 2.

[153] *Id.* In that proceeding, the Commission adopted rules that require Guard Band Managers to notify Commission-recognized public safety frequency coordinators in the 700 MHz public safety band and adjacent-area Guard Band Mangers of the technical parameters, including frequency, type of emission, ERP, and location, of any site constructed in the Guard Band Mangers service area. *See* In the Matter of Service Rules for the 746-764 and 776-794 MHz Bands, and Revisions to Part 27 of the Commission's Rules, WT Docket No. 99-168, *Second Report and Order*, 15 FCC Rcd. 5299, 5315-16 (2000).

[154] AMPTP reply comments at 3.

[155] *Id* at 4.

use, AMPTP asserts that most unauthorized use of wireless microphones occurs at live events. To alleviate these concerns as they relate to WAVDs, they request that the Commission limit WAVDs to a production location or facility and exclude them from use at live events and for news gathering.[156]

89. To address concerns regarding the possibility of interference to public safety systems, AMPTP requests that any channel that has been allocated for land mobile use in the 470-512 MHz band be excluded from WAVD usage.[157] AMPTP also suggests that the Commission require a 6 megahertz separation between any public safety channel and any channel selected for WAVD use.[158]

2. Proposals

90. We believe that the comments provide a sufficient basis for proposing rules to allow motion picture and TV producers to use WAVDs under certain conditions designed to minimize the interference risk to users of the band. This would be an appropriate expansion of the capabilities they are currently provided in Part 74 of our rules, and provides them with the same capabilities as other Part 74 licensees who can so operate under other existing rule sections.[159] However, we are concerned that expanding the use of WAVDs not increase the interference risk to current or future authorized spectrum users. As noted above, several commenters stated that the use of WAVDs would proliferate and be used by unauthorized users in a similar fashion to our experience with wireless microphones.[160] We believe that there are significant differences between the cost of wireless microphones and WAVDs that will limit the use of these devices. Further, we do not believe that WAVDs are widely available. We request specific comments regarding the costs of WAVDs and whether these costs will limit their use. We also seek comment on the availability of these devices. Are they widely available to the general public? Additionally, we request comments on how the FCC can restrict the use of WAVDs by authorized users. To enable such use, our proposal includes appropriate regulations such as limiting WAVDs to low power, establishing parameters for defining available channels, imposing a licensing and coordination requirement on users, and restricting eligibility. Moreover, we note that WAVD equipment currently exists and is used under the current rules by broadcasters. Our proposal, therefore, will expand the pool of eligible operators of these devices for the same uses they are used for today.

91. Further, it appears that WAVDs cannot be easily accommodated in or are not suitable to other bands. In addition, we believe that these devices would be beneficial in keeping film and TV production costs down and allowing needed mobility and increased safety during filming. Also, since WAVDs would be used on unoccupied spectrum where it is available, such use promotes spectrum efficiency. We also note that the Commission has allowed other types of users to use TV spectrum where available for their specific needs without compromising TV reception.[161] The rules we propose should adequately protect TV reception while providing a viable service.

92. Therefore, we propose to amend the Commission's rules in Part 74 to authorize motion picture and TV producers as well as TV BAS license holders to use VHF-TV and UHF-TV spectrum for

[156] *Id* at 5.

[157] *Id* at 3.

[158] *Id* at 4.

[159] *See, e.g.*, 47 C.F.R. § 74.602(h).

[160] *See* para. 85, *supra*.

[161] *See, e.g.*, para. 83, *supra*.