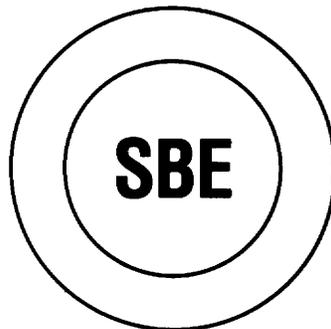


**Reply Comments of the
Society of Broadcast Engineers, Inc.**

**ET Docket 01-75
Revisions to the Part 74
BAS Rules**



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SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Revisions to the Broadcast Auxiliary Service (Part 74) Rules)	ET Docket No. 01-75
)	
Digital modulation for all TV BAS bands)	RM-9418
)	
Low-power video assist devices)	RM-9856
)	

To: The Commission

Reply Comments of the Society of Broadcast Engineers, Inc.

The Society of Broadcast Engineers, Incorporated (“SBE”), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members world wide, hereby respectfully submits its reply comments in the above-captioned notice of proposed rulemaking relating to revision of the Broadcast Auxiliary Service (“BAS”) rules, digital modulation for TV BAS signals, and low-power video assist devices.

I. Reply to Globalstar

1. Globalstar expresses concern that its planned Mobile Satellite Service (“MSS”) feeder downlinks, which would share the 7 GHz TV BAS band with broadcasters, not receive interference from mobile TV Pickup stations operating on Channels B1 through B8 (*i.e.*, 6,875 MHz through 7,075 MHz). Globalstar claims that a downlink station is at risk of interference from co-channel terrestrial stations, but is not an interference threat to such stations. Globalstar cautions that 7 GHz TV Pickup operations should be sure to properly frequency coordinate their mobile operations to preclude interference to its newcomer feeder downlinks. Globalstar urges the Commission to adopt rules to this effect in this instant proceeding.

2. SBE agrees that all parties sharing the same spectrum should frequency coordinate. However, it is premature to adopt rules in this proceeding because a Report & Order (“R&O”) to ET Docket 98-142, which proposes to adopt rules allowing MSS feeder downlinks at 6,875–7,055 MHz (*i.e.*, all of TV BAS Channels B1 through B7, and a portion of Channel B8), has yet to be issued. To adopt a rule now, protecting an as yet non-existent

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service and for which a rule making is still pending, would be wildly prejudicial to SBE and other parties that commented in good faith to ET Docket 98-142.

3. Globalstar is mistaken in its claim that MSS service downlinks are not an interference threat to BAS. In its September 28, 1998, comments to ET Docket 98-142, the Fixed Point-to-Point Communications Section of the Wireless Telecommunications Division of the Telecommunications Industry Association (“Fixed TIA”) pointed out that the power flux density proposed for space-to-earth MSS feeder link transmitters would be sufficient to cause harmful interference to digitally-modulated 7 GHz TV BAS links. SBE reviewed the Fixed TIA calculations and concurred with the Fixed TIA warning in its October 26, 1998, ET Docket 98-142 reply comments. Now that digital modulation is about to be permitted in all of the TV BAS bands, this interference threat will become an interference reality if Globalstar has its way. Therefore, and as urged by both Fixed TIA and SBE, the Commission must first study in much greater detail the wisdom of allowing MSS downlink operation in an already heavily used band. While SBE will always look at band sharing proposals with an open mind, there is a requirement that proposed uses and users be compatible. As SBE has pointed out in numerous filings, mobile operations make sharing with other services challenging, to say the least. Indeed, Globalstar has not guaranteed to protect existing patterns of usage in considering coordination. Special event and unusual requirements for BAS are “shoe horned” into existing BAS usage patterns, often by time sharing and cooperative efforts. Globalstar would like to simply block off an area forever from certain types of BAS mobile operations, regardless of whether the preclusion zone is a likely site for BAS operations, such as a parade route, a racetrack, or a potential Olympic venue.

4. The instant Globalstar comments also suggest that protection rights for the entire MSS downlink spectrum be adopted on a blanket basis. SBE points out that both the Fixed TIA and SBE are on record in the ET Docket 98-142 rulemaking that the Commission must not allow “warehousing” of downlink frequencies. The Commission has traditionally required terrestrial microwave stations to justify their use of spectrum, and to only license bandwidth that will actually be placed into service. The Commission must only authorize MSS downlink spectrum actually needed at the time of the application. If Globalstar finds it needs more downlink channels at a future date, as (or if) its subscriber base increases, Globalstar can apply for additional channels as it can justify. Further, Globalstar must be bound to frequency coordinate based on the current TV BAS licensee base, if the proposal to allow MSS downlinking in the 7 GHz band is ultimately adopted. SBE respectfully reminds the

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Commission and Globalstar that this instant proceeding is one where broadcasters really hope for a “fairness doctrine.”

5. Globalstar attached a February 16, 2000, Comsearch technical report to its comments, which questions the need for a 100-kilometer preclusion zone around the top-100 TV markets for the siting of MSS Gateway downlinks. Although SBE proposed such a siting restriction for newcomer Gateways in its ET Docket 98-142 comments so as not to unduly preclude the operations of 7 GHz TV Pickup stations, especially those operating airborne from blimps, helicopters or other aircraft, that proposal was changed to a no MSS Gateways within 300-kilometer of all Standard Metropolitan Statistical Area (“SMSA”) in the SBE reply comments to ET Docket 98-142. This revised proposal was based on the comments of the MSS proponents to ET Docket 98-142, which consistently stated that only a very small number of Gateways in “rural areas far from commercial airports” would be needed.

6. The study shows that a separation distance of 100 kilometers would generally be adequate to ensure no interference from TV Pickup stations to a MSS downlink, even for airborne TV Pickup operations. SBE has reviewed the year and a half old Comsearch study and finds it to be flawed in at least the following respects:

6A. It is based on a May 1, 1988, 13-year old Washington Executive Broadcast Engineers (“W.E.B.E.”) frequency coordination listing.

6B. The study assumes that the center of operation will be at the center of the metro area.

6C. The study assumes that usage patterns will not be forced to change by the conversion to HDTV.

6D. The study assumes that the usage patterns for TV Pickup stations can be predicted from where licenses are held, without considering network itinerant operations. For such operations, the relay helicopter and the camera blimp tend to be over the event site, be it a racetrack, parade route, or stadium, and the camera aircraft goes where the news shot goes. Considering that the event requiring mobile coverage is often not at metro center, and that aircraft must often hover around a mile up, the 100-kilometer preclusion area around a MSS Gateway downlink that Globalstar suggests would be adequate to ensure that its Gateways do not receive interference from co-channel TV Pickup stations means that the 300-kilometer preclusion distance around all SMSAs proposed by SBE, within which no newcomer Gateway downlinks would be permitted, is still reasonable, since allowing the placement of downlink Gateways any closer to metro areas could create substantial zones within which live

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coverage of special events, or even breaking news stories, could be precluded (*i.e.*, areas of approximately 31,000 square kilometers). For example, the Chicago area frequency coordinator reports that he regularly gets requests for events which have airborne shots well beyond 100 kilometers from the city center. The new Chicago Motor Raceway in Joliet is about 90 kilometers from downtown, and NFL games will be played in Champaign next year, some 200 kilometers from Chicago; significant airborne operations are either currently used, or are planned, for these venues.

7. Therefore, if the Commission ultimately decides that MSS downlinks can protect digitally-modulated 7 GHz TV BAS microwave links, SBE reiterates its position that Gateway downlinks should be not allowed to create preclusions within 300 kilometers of any SMSA. However, this is an issue for the still incomplete ET Docket 98-142 rulemaking, which deals with Part 25 satellite communications, and not ET Docket 01-75, which deals with Part 74 BAS. For this reason SBE is simultaneously filing its ET Docket 01-75 reply comments as *ex parte* comments to ET Docket 98-142.

8. Globalstar wants grandfathered BAS links operating on former Channel A10 (2,483.5–2,500 MHz) to suspend operations. SBE vigorously opposes this. Those stations were given grandfather rights in the September 13, 1985, R&O to General Docket 84-690, at Paragraphs 18 and 19, and the availability of Channel A10 to a limited number of grandfathered TV Pickup stations (*i.e.*, licensees authorized for Channel A10 as of July 25, 1985) is an important “safety valve” to an ever more crowded 2.5 GHz band. Globalstar is simply mistaken when it argues that because of “technology changes” broadcasters eligible to use Channel A10 fail to do so. Without licensees so grandfathered, BAS real-time coordination using the so-called “Home Channel Plans” would be dealt a mortal blow.

9. Further, when network entities utilize all three channels at 2.5 GHz simultaneously as relay downlinks, as happens frequently (generally at least weekly), loss of one channel would immediately and directly impact service to the public by reducing the ability to monitor and record several views simultaneously. It is generally not known something is going to happen until it does, and it cannot be predicted in advance which camera will have the view for something that hasn't yet happened. This is what makes “instant reply” so valuable: recorders monitor cameras which are not on air “live,” and frequently catch excellent views of surprise events, available within minutes or seconds after the surprise. This is part of the art of live event coverage as it can be done today. Much of the mystery surrounding the assassination of President John F. Kennedy appears due to there being only one record of the

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actual event-- a single film from a home movie camera. SBE wonders what wouldn't we all give to have had multiple camera angles feed quality video recorders then.

10. Globalstar wants the current exemption from having to frequency coordinate short-term authority operations in advance when unanticipated need for such operation would make it "impractical" removed from the FCC Rules; *i.e.*, Globalstar wants Section 74.24(g) of the FCC Rules deleted. SBE opposes this. However, and as stated in its initial ET Docket 01-75 comments, SBE would support a rule clarification that it will never be deemed "impractical" to prior coordinate short-term authority operations for any scheduled in advance event. SBE further notes that all short-term authority operation is secondary to the operations of licensed stations, and may not cause interference to licensed stations.

II. Reply to Comsearch

11. Comsearch supports requiring the formalized frequency coordination protocols of Section 101.103(d) for all BAS applications. SBE disagrees. Because of the network of volunteer BAS frequency coordinators that already exist, and because of the widespread use of mobile operations, a more flexible form of frequency coordination, as described in the SBE comments, is more appropriate for BAS. The very nature of spot news coverage has led broadcasters to devise special means to handle real time coordination. As SBE has shown many times, broadcasters agree to and abide by strict technical and operational rules out of the need to survive in a world with limited spectrum. Only volunteer BAS frequency coordinators have the knowledge necessary to allow the coordination of both fixed and mobile users in their respective markets. SBE submits that this use of expert local coordinators has allowed impressive, indeed sometimes near heroic, spectrum efficiencies which would be lost if subjected to formalized, Part 101 frequency coordination protocols.

12. Further, requiring the formalized and slow coordination procedures of Section 101.103(d) would never work for the coordination of ENG operations, which require real-time or near real-time coordination among broadcasters; having to provide a written notice of proposed TV Pickup operations and then wait a minimum of 30 days for responses would never work. Even if SBE and the broadcast engineering community were to agree to such a preposterous stipulation, the viewing public would not. Further, for fixed link TV and aural BAS stations, a less formalized method is appropriate for BAS and CARS fixed links.

13. Several of the parties favoring formalized Section 101.103(d) frequency coordination for fixed BAS links have also agreed to the current SBE style coordination for mobiles. SBE fails

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to see any advantage to a bifurcated coordination process in bands where mobile operations occur and instead sees significant disadvantages, for three reasons:

13A. SBE advance coordination for fixed links is as valid as Part 101 where the number of users is limited and known, just less formal.

13B. Where mobile operations are permitted, it is necessary the mobile coordinator know where ALL the fixed links are. Some SBE coordinators have had difficulties in the past when not adequately notified of fixed coordinations performed by others, because the SBE coordinator is not always a licensee in the band he/she coordinates (which tends to promote evenhandedness).

13C. Long-standing patterns of mobile use may be disrupted by a “fixed only” coordinator, unaware or not caring about these patterns. Broadcasters no longer regard mobile as necessarily secondary to fixed because there are many more fixed bands than mobile, to say nothing of cable and fiber, and mobile affects all field production video. Disruption of mobile operating patterns by fixed facilities may well be the fastest way to guarantee an end to timely video of any occurrence anywhere in the U.S., which would be a severe loss to the public perception of news and sports, to say nothing of the many millions of dollars currently exchanged in the economy based on the availability of timely pictures, most of which dollars tend to pass among parties other than broadcasters.

III. Reply to Microwave Radio Corporation

14. At Page 4 of its comments, Microwave Radio Corporation (“MRC”) states that its Twin Stream product requires a desired-to-undesired (“D/U”) ratio of 50 to 51 dB from adjacent-channel microwave links. SBE believes this to be a wildly excessive protection ratio for adjacent-channel signals, but would not be unreasonable for co-channel signals (*i.e.*, frequency re-use). As stated in its initial comments, SBE believes that D/U ratios of 60 dB or better for co-channel signals, and 0 dB or better for adjacent-channel signals, are adequate to ensure no harmful interference between analog links (*i.e.*, FM video). When the interfering signal is digitally modulated and the protected signal is analog, SBE believes than a more rigorous +10 dB D/U ratio is needed to ensure that an existing analog receiver is not subjected to interference. But SBE must go on record that a 50 to 51 dBu D/U ratio for adjacent-channel signals is grossly excessive.

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15. SBE is pleased to read that MRC supports mandatory frequency coordination for fixed links, but disagrees that the Part 101 protocols are appropriate. A less ritualistic form of evidence of frequency coordination for fixed BAS links is more appropriate.

16. SBE disagrees with MRC that emission designators F9F or F9W are appropriate for the TwinStream radio. The TwinStream radio is, in fact, two separate transmitters in a single chassis. Dual emission designators of F9W/D7W is the technically correct approach, just as the dual emission designators of 5M75C3F/250KF3E have been used for years for NTSC television transmitters.

17. SBE submits that it is a little early to be considering overlays of narrower channels onto the existing microwave channels, as MRC suggests at Page 9 of its comments (and as Comsearch suggests at Page 2 of its comments). Broadcasters need time to gain experience for how much HDTV contribution quality production is possible or desirable, how far the required data rate can be reduced from 100–300 Mb/s, and how such high data rates can be reliably transmitted in the channel widths now available, before subdividing of channels is considered.

IV. Reply to MSTV/NAB

18. SBE is pleased to read that the Association for Maximum Service Television, Inc. (“MSTV”) and the National Association of Broadcasters (“NAB”) support making evidence of frequency coordination mandatory for fixed, point-to-point BAS links. However, as with the MRC comments, SBE believes that it would be inappropriate and a serious mistake to apply the “straight jacket” approach of formalized Part 101 frequency coordination to BAS, at least for the 950 MHz Aural BAS and for the 2, 2.5, 7 and 13 GHz TV BAS bands. Although SBE realizes that Part 101 style frequency coordination is already required for 18 GHz band fixed link BAS stations, that requirement is appropriate because those bands are heavily shared with Private Operational Fixed Service (“POFS”) stations; in contrast, the other TV BAS bands are used primarily by broadcasters and cable television systems. A less stylized, more flexible approach is needed for the 950 MHz, 2, 2.5, 7 and 13 GHz BAS bands, and this would allow making good use of the existing resource of more than 100 volunteer, SBE-affiliated frequency coordinators throughout the United States. SBE notes that local coordination entities commonly allow temporary but carefully coordinated 950 MHz STLs. SBE further notes that radio broadcasters in many markets have run out of technically viable high quality Remote Pickup (“RPU”) options in the 450–451 MHz band, the 455–456

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MHz band, and even the few narrow band and heavily congested VHF RPU channels left for Part 74 use.

V. Reply to Winstar

19. SBE finds it ironic that Winstar is concerned about the few remaining BAS incumbents on 39 GHz causing interference to its operations, since broadcasters were there FIRST. However, Winstar should be calmed to know that 39 GHz is a most unfavored band for TV Pickup operations because it works so badly, so it is used very seldom, usually as a link of last resort or inside buildings, where it is not likely to escape. As stated in its initial comments, at Section XIII, SBE believes that the Commission, and Winstar, need to address how to best coordinate these grandfathered 39 GHz BAS operations with the newcomer use. Further, where the license is based may have little relevance to where the equipment is used by itinerant networks, which is why a method of identifying newcomer fixed link 39 GHz users needs to be developed, so that secondary but still sometimes in use and itinerant 39 GHz TV Pickup stations can identify those areas to avoid.

20. In regard to Winstar's noting that some BAS licenses authorizing operation on 39 GHz "appear to have expired," this is unlikely because renewal of the authorizing broadcast station's license automatically also renews all affiliated BAS authorizations. Because of the failure to cross link broadcast station transfer of ownership or transfer of control filings with the ULS, licensee names shown the Commission's ULS records are often incorrect, and may not properly reflect that the BAS license has, in fact, been renewed.

VI. Summary

21. SBE strongly disagrees with the comments of Globalstar, which, we are compelled to note, got some of its facts wrong. SBE also disagrees with Comsearch on the issue of how evidence of frequency coordination should be required as well as any and all of the impractical and unworkable proposals for frequency coordination.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

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