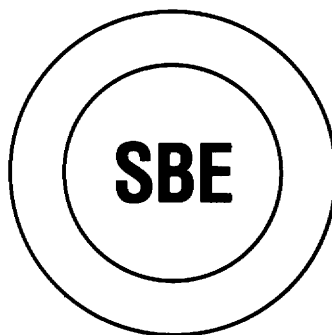


**Comments of the
Society of Broadcast Engineers, Inc.**

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



July 9, 2001

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SOCIETY OF BROADCAST ENGINEERS, INC.
Indianapolis, Indiana

SBE Comments: ET Docket 01-75, Revisions to the Part 74 BAS Rules

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Figures 1A and 1B showing example of critical relative geometries between TV BAS links at the same site.

Figure 2: Copy of SBE's February 2, 2001, letter to OET regarding a prior coordination clause for experimentals authorizing operation on broadcast or BAS frequencies.

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EXECUTIVE SUMMARY

These comments represent approximately three months of work by the Society of Broadcast Engineers, Inc., and address all Part 74 Broadcast Auxiliary Service rules that SBE believes need attention. In addition to what is now the most pressing BAS issue, that of immediately allowing digital modulation in all of the TV BAS bands, these SBE comments address all of the other issues raised in the NPRM, plus several additional issues that SBE believes are a logical outgrowth of an NPRM intended to deal with a comprehensive updating of the Part 74 Rules. SBE therefore submits that all of these comments are within the scope of the rulemaking. However, in regard to automatic identification for digitally modulated TV Pickup stations, SBE believes that matter warrants a dedicated Further Notice of Proposed Rulemaking. So as not to delay resolution of the other issues addressed in these comments, SBE urges the Commission to issue a combined Report & Order and FNPRM.

Due to the 14-day slippage of the comment deadline announced in the Commission's June 21, 2001, *Order Granting Extension of Time*, SBE notes that these comments are timely filed on July 9, 2001, the new comment deadline.

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

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

To: The Commission

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 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. SBE Favors and Supports Virtually All Aspects of the NPRM

1. Rarely has the SBE found itself in such widespread agreement with almost all aspects of a FCC notice of proposed rulemaking (“NPRM”); however, that is the case with the changes proposed by this rulemaking, including the revised version of low-power wireless assist video devices (“WAVDs”). The SBE applauds virtually all of the proposals made in this NPRM.

II. Digital Modulation in All BAS Bands

2. SBE of course supports this long-awaited proposal to allow digital modulation in all TV and aural microwave bands. The only issue should be whether digital rather than FM modulation properly frequency coordinates; this is because a digitally-modulated signal tends to more fully occupy the available channel bandwidth than does a frequency-modulated signal, which tends to concentrate its energy in the middle of the band and to have relatively little energy at the band edges. Because of this a link that has been operating without causing interference to adjacent-channel receivers using FM modulation cannot be automatically assumed to also frequency coordinate if converted to digital modulation; the upper and lower

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adjacent-channel desired-to-undesired (“D/U”) ratios need to be checked. SBE believes that adjacent-channel D/U ratios of 10 dB or better, that is, 10 dB more stringent than that normally used for adjacent-channel analog signals, will ensure that the additional energy near the band edge will not cause interference to existing adjacent-channel receivers. Where the adjacent-channel D/U ratio for a digitally-modulated link is less than 10 dB, SBE recommends that “equipment tests” be required¹ of the newcomer digitally-modulated link (and it makes no difference whether the path is “new” because it is being converting from analog to digital, or “new” because it is a completely new path, digitally-modulated from the start) to existing adjacent-channel links, to ensure that harmful interference is not caused.

3. SBE does not believe that similar equipment tests are needed for co-channel links, because the commonly used frequency re-use D/U ratio of 60 dB or better, or, alternatively, having the Undesired signal 10 or more dB below the noise threshold of the receiver being protected, makes it irrelevant what type of modulation the co-channel link is using. Therefore, while SBE has been a long-time supporter of RM-9418, the TIA/EIA Petition for Rulemaking proposing to allow digital modulation in any of the TV BAS bands (and, as a corollary case, in the 950 MHz aural BAS band), SBE wants to make it clear that while in most cases an analog link that is operating without causing interference can be converted to digital modulation, the conversion should not be simply assumed to also frequency coordinate; in this regard, the NPRM’s proposal to make evidence of frequency coordination mandatory will ensure that the adjacent-channel stations are checked.²

4. Although SBE would not oppose a further rulemaking to establish a minimum capacity and loading standard for digitally-modulated point-to-point BAS links, it would be inappropriate to apply at this time any minimum throughput requirements for digitally-modulated TV Pickup stations (*i.e.*, electronic news gathering, or “ENG” applications). Unlike fixed, point-to-point paths which are engineered paths typically with large fade margins and free from interference, TV Pickup operations must battle the full gauntlet of radio wave propagation and spectrum congestion difficulties. Lower level but more robust digital modulation types and higher levels of forward error correction are necessary, both of which

¹ For new digitally-modulated links only; for digitally-modulated links already on the air pursuant to an STA, and where no evidence of adjacent-channel interference has been detected, after the fact equipment tests would, of course, be unnecessary.

² Again, this would only apply to new applications for point-to-point links employing digital modulation. For existing digitally-modulated links operating under Special Temporary Authority, no new frequency coordination exhibit should be required, as such links will have presumably already demonstrated no interference to their adjacent-channel neighbors.

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reduce the net throughput. Therefore, no minimum capacity or loading standards for TV Pickup operations should be considered at this time. Indeed, it should also be noted that the bit rates required to carry various levels of contribution quality in digital TV fixed links (*i.e.*, ICRs) are unknown as the technology is still being developed.

5. Because of the inordinate time delay since TIA/EIA first filed its Petition for Rulemaking in March 1998, SBE urges that the Commission issue a public notice granting a "blanket waiver" to allow the approximately three hundred pending BAS applications asking for digital authority to be immediately granted, and thus to eliminate the present requirement of filing for Special Temporary Authority ("STA") every six months; the time required to process repeated STA filings is hardly an efficient use of the Commission's limited resources.

III. Station Identification for Digitally Modulated TV Pickups

6. As TV & CARS Pickup stations, and LTTS, begin to employ digital modulation, a station identification problem will be created. Unlike fixed, point-to-point links using digital modulation, which typically operate continuously, and, by definition, are not moving targets, TV Pickup stations are a) mobile, b) not on the air continuously, and c) often visit other broadcast markets on an itinerant basis. Therefore, the potential for inadvertent interference is much higher than for a point-to-point link; this makes the quick and easy identification of digitally modulated TV Pickup signals important.

7. SBE therefore believes that the FCC needs to investigate the feasibility of adopting rules that require TV Pickup stations employing digital modulation to have two levels of identification: first, a manufacturer identification and serial number "burned" into the firmware by the manufacturer, and second, station identification programmed into the MPEG encoder feeding the TV Pickup station so that the "service information" portion of the encoded signal contains, as a minimum, the a) the FCC call letters; b) the unit number or similar in-house identifier; and c) a contact telephone number. Such a two-level identification scheme would ensure that rental/temporary use digitally modulated TV Pickup transmitters that might not have the service information portion of the MPEG bit stream properly programmed would always have a last-recourse manufacturer's identification, which could be used to track down an offending operator. If eventually written into the Part 74 BAS rules and also into the Part 101, Subpart J, Local Television Transmission Service ("LTTS") rules, such a transmitter identification system should be inexpensive and the payback would be immense. Low power, size and weight critical applications such as helmet cams, Indy 500 race cars, toboggan sled cams, *et cetera*, should not be impacted because at present they

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can't tolerate the size/weight/power draw necessary for digital encoding. And when digital encoding technology gets good enough to fit into a match box and only draw a few milliAmperes of current, building in firmware-level identification circuitry, and programming the “service information” portion of the MPEG bit stream, should not be a burden.³

8. SBE fully appreciates, however, that the addition of a universal transmitter ID to a digitally modulated TV Pickup signal may not be a simple undertaking, because proper decryption depends on the modulation scheme, format (480I, 720P, 1080I, *etc.*), amount of forward error correction (“FEC”), and other settings, all of which could constitute a “digitally modulated” signal. It is for this reason that SBE suggests that automatic and mandatory identification for digitally modulated TV Pickup signals be the subject of a Further Notice of Proposed Rulemaking (“FNPRM”). Such a FNPRM will need to strike a balance between the need to be able to have a practical method of identifying noise-like digital TV Pickup signals that cause unintended and accidental interference, and not prematurely freezing technology to a given modulation type, bit rate, FEC, or format. SBE believes that the time to start this task is now, as the Commission authorizes digital modulation in the TV BAS bands where TV Pickup stations operate (*i.e.*, 2, 2.5, 6.5, 7 and 13 GHz).

IV. Minimum Path Length EIRP Derating Formula

9. SBE supports the proposed change in the formula for derating a point-to-point path not meeting the minimum path length requirement for the band in question. Substitution of the formula $EIRP_{allowable} = 55 \text{ dBW} - 40 \times \log(\text{minimum path length/actual path length})$ for the current formula, $EIRP_{allowable} = 30 \text{ dBW} - 20 \times \log(\text{minimum path length/actual path length})$, will avoid the current “step function” penalty that is created when a path length is only slightly shorter than the minimum path length.

10. BAS links that were authorized prior to April 1, 1987, are “grandfathered,” and are not required to comply with the minimum length EIRP restriction. SBE believes that a grandfathered BAS link that converts from analog to hybrid analog-digital modulation, or to all digital modulation, but does not change its transmitter or receiver locations, or its transmitting or receiving antennas or heights, should not lose its minimum path length grandfather rights. The reason for this position is that in the larger markets STLs are

³ SBE notes that new Emergency Location Transmitters (“ELTs”), Emergency Position Indicating Radio Beacons (“EPIRBs”), and Personal Locator Beacons (“PLBs”), all operating on 406 MHz, are required to broadcast a digital identification signal containing the manufacturer’s identification, model number, and a unique identifier number of up to 15 characters. All users of ELTs, EPIRBs, and PLBs must register this information with NOAA. See <http://www.sarsat.noaa.gov/>.

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typically interference-limited, not noise-limited. Therefore, if converting to digital modulation were to cause STLs to lose their minimum path length grandfather rights, and be forced to reduce the link's EIRP, that link would be at risk of then receiving interference from other co-channel and adjacent-channel stations in the market because those stations' EIRPs would not have changed; that is, if a grandfathered link is forced to reduce its EIRP by X dB, then the D/U ratios from all potentially interfering stations that have not changed their power will degrade by X dB as well.

11. SBE agrees that there is no reason not to have a minimum path length requirement for fixed, point-to-point links in the 2.5 GHz TV BAS band, and agrees that it would make sense to apply the same criteria as used in Part 101, which the NPRM notes applies a 17-kilometer minimum path length requirement for fixed links between 1,850 MHz and 7,150 MHz. Therefore, SBE supports the proposal to adopt a 17-kilometer minimum path length requirement for fixed TV BAS links in the 2.5 GHz band. SBE also agrees with the proposal to "grandfather" any 2.5 GHz band fixed links shorter than 17 kilometers.

V. EIRP Limits and TPO Limits

12. SBE agrees with the proposal to eliminate all limits on transmitter power output in favor of limits on a station's equivalent isotropic radiated power ("EIRP"), *but only for fixed links*. SBE completely agrees that for fixed links, *which are subject to minimum antenna performance standards*, it is a station's EIRP, and not its TPO, that counts. The elimination of a TPO limit in favor of an EIRP limit will give licensees needing to install microwave stations on tall towers the option of using a higher-power microwave transmitter at ground level and a long but less efficient transmission line run instead of the current options of either a periscope antenna system or mounting active electronics at height. Periscope antenna systems tend not to be as spectrum efficient as direct parabolic dish systems because the at-height reflector tends to have higher undesired side lobe radiation than a parabolic dish mounted at height. The alternative of mounting active electronic equipment at height in order to obtain short waveguide runs always makes servicing more difficult, sometimes severely so. Therefore eliminating TPO limits for *fixed link* microwave transmitters will give licensees the option of installing an unusually high power microwave transmitter to offset what would normally be a prohibitively lossy waveguide run. Because the minimum antenna performance requirements do not (and cannot) apply to TV Pickup stations, elimination of a TPO limit would pose an interference threat and should not be adopted. This need not impact the

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application form, because TV Pickups are generally licensed knowing that different antennas may be used in different circumstances (such as in a helicopter).

13. SBE concurs with the proposals to adopt a 40 dBW EIRP limit for 950 MHz Aural BAS fixed links, a 35 dBW EIRP limit for 2 and 2.5 GHz fixed links, and to maintain the 13 GHz TV BAS and CARS band EIRP limit for fixed links at 55 dBW.

14. SBE recommends against adopting lower EIRP limits for digitally-modulated links. While it is true that digitally-modulated links can typically tolerate lower signal levels than their analog counterparts, in many markets links become interference-limited long before they ever become noise-limited. Therefore, applying a lower EIRP limit to digitally-modulated links may result in those links being more susceptible to interference because they will have to compete against higher EIRP analog paths.

VI. Emission Masks

15. SBE believes that it makes sense to make the Part 74 emission masks consistent with the emission masks for Part 101 microwave links in the equivalent bands, but will defer to the recommendations of the major manufacturers of BAS microwave transmitters (Alcatel, Harris, Microwave Radio Corporation (“MRC”), and NuComm) on this issue. SBE will similarly defer to the manufacturers of microwave BAS radios regarding emission mask measurements.

VII. Emission Designator for Hybrid Analog/Digital Microwave Links

16. At least two manufacturers, MRC and NuComm, currently offer hybrid STLs, where a conventional FM video transmitter is duplexed with a digital video transmitter. The hybrid signal is then routed up a single waveguide to the transmitting dish, and at the receive end a signal splitter is used to feed the hybrid signal to an analog receiver (which rejects the digitally-modulated signal) and to a digital receiver (which rejects the FM video analog signal). Thus, the combined signal clearly needs to have a dual emission designator, such as 15M0F9W/10M0D7W. Indeed, just such a dual modulation designator is used for NTSC TV transmitters, which often use a separate visual transmitter and aural transmitter: namely, 5M75C3F/250KF3E. The fact that the Universal Licensing System (“ULS”) reportedly has difficulty with a dual emission designator is a poor excuse for not using the appropriate dual emission designators. SBE respectfully submits that the proper solution is to modify the ULS to accept dual emission designators, if such modification is truly necessary, rather than to mis-characterize a hybrid analog/digital radio as 25M0F9W emission, which it is clearly not.

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17. SBE fails to see the difference between a POFS or CARS link with multiple channels, each with their own emission designator, and a hybrid analog/digital TV STL; simply enter a hybrid analog/digital STL as two parallel paths, each with their respective center frequency and emission designator. This would NOT constitute a violation of Section 74.602(c), which states that fixed link stations will be authorized to operate on one channel only, because the two signals are confined entirely to a standard 25-MHz wide TV BAS channel.

18. This rulemaking needs to resolve the proper emission designator for digitally modulated BAS links. SBE has seen emission designators of D7W, J2E⁴, and W7W⁵ all claiming to represent coded orthogonal frequency division multiplexing (“COFDM”) modulation. SBE believes that the proper emission designator is D7W, but the important issue is for this rulemaking to authoritatively decide what emission designator will be considered to apply to COFDM modulation.

VIII. Automatic Transmitter Power Control

19. SBE has no objection to modifying the Part 74 BAS rules to allow automatic transmitter power control (“ATPC”), but believes that ATPC will be of less benefit than for POFS because unlike POFS links which tend to be mostly duplex, a large portion of TV BAS links are simplex. Of course, an inherent requirement for ATPC is the ability of a return path from the receiver to the transmitter, to let the transmitter know when it temporarily needs to increase its power to overcome rain attenuation or propagation fades. Duplex (two-way) links can easily provide this feedback, simplex (one-way) links cannot. Nevertheless, for those TV BAS links that are duplex (*e.g.*, STL/TSL⁶), it makes sense to allow ATPC.

IX. Geostationary Satellite Protection and Streamlined Rules

20. SBE supports the Commission proposal to streamline the BAS and CARS rules by maintaining the geostationary satellite protection requirements only in Part 101, and having Parts 74 and 78 refer back to those Part 101 rules.

⁴ See “Practical HF Digital Voice” by Charles Brain, G4GUO and Andy Talbot, G4JNT, May/June 2000 issue of QEX magazine.

⁵ See the March 19, 2001, e-mail from Mr. Raymond Laforge, FCC Laboratory Division, in response to a March 15 e-e-mail from Mr. Dane E. Ericksen, asking if there was a recognized emission designator for COFDM modulation.

⁶ “TSL” = transmitter-to-studio link, an industry term for an Inter-City Relay (“ICR”) from a station's transmitter to its studio.

X. Mandatory Frequency Coordination for Fixed Links

21. SBE supports the proposal to make evidence of frequency coordination for fixed, point-to-point links mandatory; however, frequency coordination for mobile links, that is, TV Pickup stations used for ENG operations, should be exempt from this requirement, as such mobile/itinerant operations are too dynamic to be subject to a requirement for a written frequency coordination exhibit. What makes Part 74 TV BAS frequency coordination different from Part 101 frequency coordination where an entity hires a coordinator that works with other entities, most Part 74 microwave is done by SBE-affiliated, local, volunteer frequency coordinators, people that not only know each other but generally work together to fit in "just one more path." Broadcasters have demonstrated their ability to frequency coordinate ENG operations in real time or near-real time, so as to allow the maximum number of TV Pickup stations to share a limited number of channels. Bottom line: SBE agrees that the frequency coordination procedure for fixed, point-to-point BAS links needs to be tightened up somewhat, but using a different model than Part 101.

22. Section 74.604(a) of the FCC Rules currently states

Because the Commission does not undertake frequency coordination, applicants for new TV Broadcast Auxiliary authorizations are responsible for selecting the frequency assignments that are least likely to result in mutual interference with other licensees in the same area. Applicants may consult local coordination committees, where they exist, for information on frequencies available in the area. In selecting frequencies, consideration should be given to the relative locations of receiving points, normal transmission paths, and the nature of the contemplated operation.

23. Unfortunately, this rule stops short of requiring a dedicated exhibit demonstrating the basis for selecting a particular frequency. SBE therefore proposes that the Commission add Section 74.604(a)(1), to require such a showing. The proposed new section would read as follows:

Section 74.604(a)(1). For fixed, point-to-point links in the 950 MHz Aural BAS band, and for fixed, point-to-point stations in the 2, 2.5, 7 and 13 GHz TV BAS bands, the application shall include a Frequency Coordination Exhibit. Considerable discretion is given as to the content and detail of the Exhibit, which might range from a one-page letter from a local BAS frequency coordinating committee to a detailed listing of all studied stations with derivations of the predicted desired-to-undesired ("D/U") ratios that the proposed facility would provide to existing links. Note: Fixed link TV BAS stations operating in the 18 GHz TV BAS are subject to a different set of rules, generally

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referred to as the Prior Coordination Notice, or PCN, method; see Section 74.692(g) of the FCC Rules.

24. SBE believes that the more formalized, and time-consuming, prior coordination notice ("PCN") methodology specified in Section 101.103(d) of the FCC Rules would be unnecessarily complex and burdensome. A less formal methodology is appropriate for point-to-point links in the 950 MHz Aural BAS band and for the 2, 2.5, 7 and 13 GHz TV BAS bands. While the majority of broadcasters first frequency coordinate their new or modified links, SBE has seen enough point-to-point TV BAS applications with no frequency coordination exhibit or showing of any kind, and believes that the spectrum has become too crowded to allow the processing of applications that do not contain evidence of frequency coordination. SBE believes that this rulemaking can also be used to ensure that non-BAS entities that share spectrum with BAS, such as Private Operational Fixed Service ("POFS") licensees and Community Antenna Relay Service ("CARS") licensees, can be reasonably included.

25. Although SBE notes that several years ago Question 16 was added to FCC Form 313, asking if there is a local Broadcast Auxiliary Coordinating Committee in the area of operation and, if yes, asks whether the Committee had been contacted and the name and telephone number of that contact, Question 16 fell short of asking if the proposed frequency and path had, in fact, been properly coordinated. Proper coordination, of course, consists of agreement that the facility can be installed without causing prohibitive interference and not, as some would have it, mere notification to the coordinator of intent by the user. FCC Form 313 has now been superseded by FCC Form 601, but Page 1 of Schedule I of the November 2000 edition of this form still does not require that a Frequency Coordination Exhibit be submitted. By requiring a Frequency Coordination Exhibit as a part of the application for a new or modified point-to-point link in the specified bands this Schedule I "loophole" can be eliminated.

26. The requirement for a Frequency Coordination Exhibit would also clarify the role of a volunteer frequency coordinator as being one of a "clearing house" or "facilitator" among users of BAS spectrum, as opposed to a person who is expected to assign or even suggest a specific frequency. In cases where the local volunteer coordinator is unable to recommend a frequency that protects existing licensees from interference, the applicant may choose to have the path engineered by other means, and then provide the evidence of coordination attached to the application. Frequency Coordinators could then point to such a rule, provide contact

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information for existing BAS stations operating in the area and band of interest, and instruct applicants to do their “homework;” that is, the applicant can obtain necessary technical details for those existing paths (which will often require contacting licensees to obtain more detailed technical parameters) and performing calculations of the predicted desired-to-undesired (“D/U”) signal ratio the proposed new path would provide to existing receivers, this information would then be used to prepare the Frequency Coordination Exhibit.

27. SBE believes that this approach would strike the delicate balance needed for the current system that utilizes volunteer frequency coordinators. Because those coordinators are volunteers and unpaid, the FCC Rules should only encourage, but not require, effort on their part. Therefore, the proposed rule is crafted so as to allow an applicant to prepare its Frequency Coordination Exhibit independently of a volunteer frequency coordinator, if, for some reason, it so desires. However, in that event the applicant should be required to provide a copy of its Frequency Coordination Exhibit to the SBE Frequency Coordinator Director at the time the application is filed.⁷ This will ensure that no defective, “end run” Frequency Coordination Exhibits can slip by.

28. SBE feels that frequency coordination requirements should be applied uniformly for all markets, and not just to “frequency-congested” markets. The Commission attempted to define “frequency congested” TV BAS markets in MM Docket 90-500, but gave up without action because of difficulties in trying to decide where the break point should be made. SBE submits that by uniformly requiring a frequency coordination exhibit for all BAS fixed links (including aural BAS links) it will avoid disputes whether a given link originates, passes through, or terminates in a “frequency congested” area, and will avoid changes in frequency congestion that may occur over time. If a link is truly being established in a non-frequency congested area, then the frequency coordination study will be commensurably short. And even in a non frequency congested area it is still possible that two broadcasters could inadvertently select channels that would interfere with each other. Requiring evidence of frequency coordination is good spectrum policy and should be adopted for all fixed BAS links, both aural and TV.

⁷ The SBE Frequency Coordination Director is currently Mr. Galen Hassinger, 19551 US 41 SE, Ft. Meyers, FL 33908; e-mail is ghassinger@quixnet.net.

XI. Frequency Tolerance

29. SBE believes that a frequency tolerance of $\pm 0.001\%$ for 2.5 GHz TV BAS radios is reasonable, but will again defer to the recommendations of the major manufacturers of TV BAS microwave radios.

XII. Reservation of 13 GHz TV BAS Channels A19, A20, B19 and B20 for Mobile-Only Operations

30. SBE supports the proposal to expand the reservation of 13,150.0–13,212.5 MHz (TV BAS Channels A19, A20, B19 and B20) from reserved for mobile operations only within 50 kilometers of the top-100 TV markets to nation-wide. As noted in the NPRM, the Non-geostationary Satellite Orbit (“NGSO”) Order (ET Docket 98-206) recently allowed NGSO Fixed Satellite Service (“FSS”) Gateway Earth-to-space uplink stations to share the 13 GHz TV BAS/CARS band, but with the exclusion of 13,150.0–13,212.5 MHz, so as not to impact the operations of mobile TV Pickup stations operating on these frequencies. It therefore now makes sense to extend the reservation for mobile-only TV BAS and CARS operations nation-wide, with a grandfather clause for any existing fixed TV BAS or CARS links that may already be operating on these frequencies.

XIII. Elimination of References to 31 and 39 GHz TV BAS Operations

31. SBE agrees that references to TV BAS operations in the 31.0–31.3 GHz band and the 38.6–40.0 GHz band should be deleted from Part 74, since those bands are no longer available to TV BAS. SBE further concurs that the few TV BAS links licensed in the 39 GHz band should be grandfathered (no grandfathering is required for the 31 GHz band because the NPRM indicates that there are currently no “active authorizations” for TV BAS stations in the 31 GHz band). On behalf of the grandfathered 39 GHz BAS users, SBE requests guidance as to how to best coordinate with the primary occupants of the band, perhaps by advising where a complete listing may be found of who these occupants are in all areas, for ease of contacting them.

XIV. Single Listing of Common Technical Requirements

32. SBE concurs with the proposal to only list common technical requirements such as the minimum path length requirements in Part 101, with references to the Part 101 rule section in Parts 74 and 78. This will help ensure consistency in the Rules should modifications be made in the future.

XV. Temporary Conditional Authority for New or Modified BAS Stations

33. So long as the proposal to make evidence of frequency coordination mandatory is accepted, SBE concurs with the proposal to allow temporary conditional authority once a BAS application has been filed, subject to the certain restrictions such as eligibility, no operation in an area requiring international coordination, no rule waivers, no antenna structure registration requirement, and no radio “quiet” zone operations. In this regard, SBE notes that the proposed rule, Section 74.25(c)(ii), appears to be missing the word “not” in the published NPRM.

XVI. Short-Term Authority

34. SBE applauds and concurs with the proposal to extend Section 74.24 Short-Term Authority rights to Broadcast Network Entities (“BNE”) and to Cable Network Entities (“CNE”). BNEs and CNEs have been overlooked for far too long and there is no reason that they should not be able to benefit from this rule section where appropriate. Since BNEs/CNEs do not have an AM, FM or TV call sign to use for identification purposes, SBE proposes allowing the use of the network or cable entity name and base of operations city; for example “NBC TV UNIT 5- Burbank,” or “ABC UNIT 3- New York,” or “ESPN UNIT 2- Bristol, Connecticut.” Such identification would differentiate the signal from that of a specific TV station, in the event that interference or other problems are being caused and the operator needed to be identified. This change will have the added benefit of making life easier for Part 74 volunteer coordinators when they are called on at the last minute to sort out problems.

35. SBE agrees that the exception from the obligation to frequency coordinate Short Term Authority operations in advance, Section 74.24(g), which states that prior frequency coordination “...shall not apply where an unanticipated need for immediate short-term mobile station operation would render compliance with the provisions of this paragraph impractical,” should be clarified to make it clear that it will never be deemed “impractical” to undertake prior coordination for a scheduled event, regardless of whether that scheduled event is one-time or recurring (*e.g.*, sporting events and political conventions). Since by definition a “scheduled event” is known in advance, it should never be “impractical” to conduct the prior frequency coordination normally required for entities availing themselves to Section 74.24 Short Term Authority.

36. SBE believes that no definition of “scheduled in advance,” such as 24 hours, 48 hours, 3 days, 10 days, 30 days, *etc.*, should be placed in the Rules at this time. SBE believes that

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the time interval defining "scheduled in advance" should be left to the good faith interpretation of individual frequency coordinators and parties needing to avail themselves to short-term operating authority. For example, in the heavily congested markets with a very active frequency coordinator, "scheduled in advance" may be considered to be events scheduled as little as 24 hours in advance, whereas in a less congested market with less severe frequency coordination requirements "scheduled in advance" may be considered to be events scheduled at least two weeks in advance. SBE notes that breaking news events are, by definition, not scheduled in advance.

37. SBE also supports the proposal to create a rule section allowing the designation of a frequency coordinator for major scheduled events. SBE presumes that for those areas where an established SBE-affiliated BAS frequency coordinator already exists the designated coordinator would either be that coordinator, or a person recommended by the local coordinator, absent a compelling reason to select a different designated coordinator.

38. SBE believes that the 720-hour per year per frequency limit should be changed to a 30 calendar day period per year per radio or TV market (as defined in the current edition of the *Broadcasting Yearbook* or the *Television Factbook*), if the provision for temporary conditional authority is adopted. The 720-hour limit has proven to be unenforceable since no log of short-term operation is required. Substituting a simple 30-day limit for short-term authority operations, without regard to the number of hours per day or any skipped days (with one exception), would then only require an FCC inspector to determine the date of the first short-term authority operation, and thereby would become a far more enforceable rule. The one exception would be for an itinerant with no regular presence in a market. Such itinerants should be allowed to halt and re-start the 30-day clock when it exits from a market and later returns to the same market in the same calendar year. This approach will allow BNEs and CNEs the flexibility they need, while pushing local stations to properly license their regularly used channels. Inclusion of a "per market" allowance would permit, for example, coverage of both the Indy 500 and the Brickyard 400 by the same broadcaster, as well as other geographically dispersed events such as the Kentucky Derby, since the frequencies coordinated for use "on the road" often differ from those licensed "at home." SBE notes that no Section 74.24 authority need be invoked for operations consistent with the terms of the station authorization. SBE also believes that the Commission should clarify that short-term authority may NOT be invoked for links with permanently installed antennas; for example, a point-to-point microwave that is only operated one or two days per month. SBE believes that

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such permanently installed but intermittently operated links should be required to be frequency coordinated and licensed.

39. Not addressed in the NPRM is the current Section 74.24(g)(1) requirement that CARS licensees always be given advance notice of short-term operation on a frequency co-channel or adjacent-channel to a CARS link. SBE believes that this requirement is unnecessary and redundant, given the frequency coordination tools that now exist in the form of well over 100 SBE-affiliated BAS frequency coordinators, who are well aware of the shared nature of the 13 GHz TV BAS band with the CARS licensees.

XVII. TV STLs and ICRs on Un-Used TV Channels

40. SBE has no problem with placing in the Rules the existing policy requirements that TV STLs and ICRs operating on “un-used” TV channels limit their transmitting antenna half-power beam width to no more than 25° and limit their EIRP to no more than 35 dBW, but strenuously objects to allowing such links to be established without the benefit of an engineering analysis. Section 74.603(h) requires that point-to-point links operating on un-used TV channels meet all of the technical requirements that a newcomer TV translator or LPTV station would have to meet. This is an entirely reasonable requirement, as the Commission would certainly not allow a 20-watt TPO/3,163-watt EIRP (1,928-watt ERP) TV translator or LPTV station to be established without a detailed engineering study. Such stations could easily cause havoc if transmitting from a high-elevation site. The obvious and simple solution is for WTB to route all applications for point-to-point links on un-used TV channels through LPTV Branch, so that the proposal is evaluated just like any other proposal for a new TV translator or LPTV station. SBE proposes that if the point-to-point link will use vertical rather than horizontal polarization, a -10 dB polarization factor be applied when the station is analyzed by LPTV Branch for compliance with the Part 74 TV translator/LPTV rules (for example, if the point-to-point link proposes vertical polarization with a main-beam EIRP of 3,000 watts, LPTV Branch would study the proposal as if it were a TV translator or LPTV station with a main-beam EIRP of 300 watts [or 183 watts ERP]). Such an approach will strongly encourage, but not absolutely require, the use of vertical rather than horizontal polarization, and SBE believes that this is exactly the correct approach for UHF TV STLs/ICRs, because in some limited cases a *bona fide* UHF STL/ICR may also be able to provide service directly to viewers who incidentally happen to be in the narrow beam width required for a UHF STL/ICR, while at the same time avoiding abusive situations that have

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occurred in the past, where applicants have proposed multi-path, multi-antenna UHF "STLs" as a poorly disguised means of circumventing a TV translator/LPTV station filing window.

41. SBE supports the proposal to restrict new point-to-point relays on un-used UHF channels to Channels 14 through 51, with a grandfather clause for existing links on Channels 52 through 69. SBE requests, however, that the Commission clarify how or if such grandfathered links will be protected by newcomers.

XVIII. TV Aural STL Sound Channels

42. SBE agrees that there is no longer any need to allow TV stations to take up precious 950 MHz Aural BAS frequencies as a back up for relaying the audio portion of their signal, as TV STLs routinely use subcarriers on the FM video channel to relay the audio portion of the TV signal. Such use is already secondary to the needs of radio stations anyway.⁸ It is entirely appropriate to eliminate the references to TV stations using 950 MHz Aural BAS frequencies in both Sections 74.502(b) and 74.603(b), and to delete Section 74.603(c) in its entirety.

XIX. Implementation of RPU Channel Splits

43. SBE is relieved to see that 16 years after the FCC adopted a rulemaking splitting the 152–154, 160–161, and 450–451/455–456 MHz remote pickup ("RPU") channels into building-block stackable segments, but stayed the effective date until a future Order from the Chief of the Mass Media Bureau, resolution is finally at hand. SBE endorses the instant proposal to make the stackable channel segments 7.5 kHz segments at VHF and 6.25 kHz segments at UHF rather than the originally proposed 5-kHz segments, so as to match today's Part 90 land mobile radio equipment. Being able to use readily available land mobile radios rather than custom Part 74 only RPU radios can significantly lower the cost of such radios to broadcasters. This revision of the channel bandwidth quantum level from 7.5 kHz segments to 6.25 kHz segments should not, of course, apply any new restriction on the type of modulation that is allowable in the aggregated channel bandwidth.

44. SBE agrees with the proposed 3-year transition period, and also with the option to remain on the 1984 refarming plan, on a secondary basis, if broadcasters in a given area so choose. This will allow flexibility to broadcasters, which is needed because although Part 90 narrow band radios may be fine for dispatching and operational communications, such radios

⁸ Section 74.502(b) of the FCC Rules.

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are generally not suitable for audio program feeds, where better fidelity and no real-time delay are important. While the use of 100-kHz wide N₁ channels and 25-kHz wide N₂ channels have lots of dispatch-type communications, there are plenty of program uses of the same channels and radio equipment. The most common example is airborne traffic reporters where the same RPU channel and hardware does both dispatching and transmission of program material to be broadcast. In other words, broadcasters won't reap any benefit from narrow band, dispatch quality radios that are inappropriate for program relay functions on N₁ or N₂ channels used for this purpose and especially wider bandwidth 50-kHz wide R channels and 100-kHz wide S channels. Because of processing delays inherent in both digital television ("DTV") and digital audio broadcast ("DAB") transmission systems, there will be an increasing need to use these channels for fold back-to-field talent in real time. The delays caused by low bit rate audio coding (such as P25) make narrow band digital modulation inappropriate for broadcast purposes. SBE also agrees that it would be appropriate to apply Part 90 emission mask and frequency stability criteria to narrow band Part 74 RPU operations. However, the current technical parameters should be maintained for 25 kHz wide N₁ and N₂ channels used for program material and for wide band RPU operations on the R and S channels. SBE notes that its coordinators have already implemented plans, such as adjacent-market carrier offsets, to maximize use of this spectrum while accommodating the broadcaster-specific quality requirements, and it is important that successful plans are not unnecessarily disturbed.

45. SBE has no objection to the proposal to require Part 74 RPU stations operating on 166.25 MHz and 170.15 MHz on a shared basis with federal government users to convert to 12.5 kHz wide "narrow band" channels by January 1, 2005, the same deadline as required by the National Telecommunications and Information Agency ("NTIA") for federal government radios using these frequencies. Indeed, SBE would like to see broadcasters' use of 166.25 and 170.15 MHz frequencies for EAS purposes upgraded to co-primary with the federal government (in the same manner that NASA's use of 2 GHz ENG band frequencies was recently upgraded to co-primary with BAS, in the Second Report & Order to ET Docket 95-18).

46. With regard to P channels, restricted to operational communications and tones for signaling, SBE believes that the bandwidths of P channels should be changed to 6.25 kHz, with an option for 12.5 kHz, so as to harmonize the P channels with the now proposed 6.25 kHz quantum bandwidth for RPU stations. Although such bandwidth changes would require

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refarming the P channel center frequencies as currently available synthesized RF decks⁹ are limited to 6.25-kHz center frequency increments and are not capable of 10-kHz increments. Therefore, to allow the use of existing Land Mobile hardware, the P channels need to be reconfigured to 6.25 kHz (or 12.5 kHz, as an option) wide channels. SBE believes that 6.25 kHz wide P channels would work fine for telemetry. Existing 10-kHz wide P channel radios should be grandfathered. SBE notes that one of the major manufacturers of BAS RPU radios, Moseley Associates, has discontinued the manufacturing of its Model TRL-1 and CL-100 P Channel telemetry return link ("TRL") radios, although Marti Electronics still offers its RPT-2, RPT-15 and RPT-30 radios. Nevertheless, having the option to use Part 90 radios would be beneficial to broadcasters.

47. SBE wishes to point out that P channels are a special subset of the RPU channels, often used for point-to-point TRLs. However, FCC Form 601 only allows specifying separate transmitting and receiving locations for point-to-point microwave links. In the SBE comments regarding the Universal Licensing System ("ULS") Form 601, at Section XXVI, we therefore propose that this artificial restriction be eliminated.

XX. BAS and ULS Policies

48. SBE has no problem with a 12-month construction period for RPU stations, and 18 months for aural and TV BAS stations; these periods are more than adequate for any applicant who truly intends to build, and not just "warehouse" frequencies against possible future need.

49. SBE also has no problem with requiring BAS STA requests to be pursuant to Section 1.931 of the FCC Rules. SBE recognizes that this will require electronic filing for STAs.

50. SBE further supports all but one aspect of the proposal to apply the recently created Section 1.929 major vs. minor change criteria to BAS filings. Under this proposal, RPU applications would be subject to Sections 1.929(a) and 1.929(c)(4), and TV BAS (and, SBE submits, also aural BAS) applications would be subject to Sections 1.929(a) and 1.929(d). SBE particularly likes Section 1.929(d)(1)(iv), which defines any change in emission type as "major," thus requiring an application and a detailed frequency coordination study before a

⁹ This term refers to a module within the radio equipment that prepares audio or digital "baseband" signals for RF transmission; that is, an "RF deck" filters, pre-emphasizes, limits total modulation, generates the RF signal, modulates and amplifies the composite signal for final transmission.

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fixed link could change its modulation from analog to digital, or from analog to hybrid analog/digital.

51. However, SBE disagrees with applying Section 1.929(d)(1)(i), which would allow changes in the location of a transmitting antenna by up to ± 5 seconds in latitude or longitude to be classified as a “minor” change, presumably not requiring a detailed frequency coordination study and presumably eligible for “do it and let the FCC know about it later” treatment. SBE believes that this would be a mistake for fixed, point-to-point links that rely on highly directive parabolic dish transmitting and receiving antennas to allow frequency re-use (not frequency sharing) in the same geographic area.

52. At Paragraph 80 the NPRM notes that under existing BAS rule Sections 74.551 (for aural BAS stations) and 74.651 (for TV BAS stations) a licensee must obtain prior Commission approval for any change in the location of a transmitting antenna. A ± 5 second shift of latitude or longitude represents a distance of approximately 200 meters (650 feet). As shown by the attached Figure 1, for point-to-point fixed link microwave stations that use highly directive parabolic microwave dishes, a relocation of up to 200 meters between stations at the same “site” can drastically alter the relative geometries between two microwave antennas, and thereby also drastically alter the interference conditions between the two links. For the microwave links depicted in Figure 1, the modifying ICR, 7 GHz station WLO-292, was able to accomplish its move only by using a super-Category A, 8-foot diameter high performance receiving dish at Mt. Allison, to avoid receiving interference from a co-channel, parallel-polarized link, WNPA-478. Obviously, if WNPA-478 would then be allowed to relocate anywhere within ± 5 seconds of its existing latitude and longitude (that is, within approximately a 200-meter radius circle), the carefully engineered relative geometry between the WLO-292 receive dish and the WPNA-478 could be destroyed, with likely drastic consequences to WLO-292. And this situation is hardly unique; indeed, the WLO-292 transmitting dish had to be upgraded to a super-Category A, 8-foot diameter ultra high performance antenna in order to protect another co-channel link, WPOT-265, with a receive site close to the new WLO-292 transmit site. Again, a 200-meter relocation of the WLO-292 transmitting antenna could negatively impact the nearby WPOT-265 receive dish.

53. Accordingly, SBE opposes applying Section 1.929(d)(1)(i) to aural or TV BAS fixed links unless a new frequency coordination study is first made to ensure that the supposedly “minor” relocation of a microwave dish will not have detrimental consequences to other links, especially those with nearby microwave antennas.

XXI. Updated Emission Designators

54. The NPRM proposes to update certain obsolete emission designators in Section 74.462 to current International Telecommunication Union (“ITU”) emission designators. Of course this should be done.

XXII. Wireless Assist Video Devices

55. SBE opposed the Association of Motion Picture and Television Producers (“AMPTP”) petition, RM-9856, to allow wireless assist video devices (“WAVDs”), because in its initially filed form there was too great of a threat of interference to television receivers and to existing Subpart H low-power auxiliary stations (“wireless mikes”). However, the changes proposed in the instant NPRM, namely reducing the allowable ERP to 250 mW, stricter emission limits, certified transmitters (as opposed to transmitters merely subject to declaration of conformance (“DOC”)), integral antennas, a 129-kilometer separation distance to co-channel TV, DTV, TV translator, LPTV, and Class A TV stations, a 200-kilometer separation distance to the Section 90.303 reference coordinates for co-channel operation to land mobile operations on former UHF TV channels in certain major cities, a prohibition against using WAVDs at live events for program material to be broadcast or for ENG purposes, and finally a requirement to notify local BAS frequency coordinators prior to WAVD operation, SBE now finds itself able to support the proposed and significantly “tighter” set of WAVD rules.

56. Although SBE would, of course, prefer to see no additional users on “un-used” UHF TV channels, so as to minimize the stress on existing and sometimes displaced Subpart H wireless microphone, interruptable fold back (“IFB”), and telemetry and control transmitters, the revisions now proposed have enough safeguards that SBE can no longer justify opposing WAVDs. In effect, these now proposed restrictions make WAVDs secondary to broadcasters' use of UHF television frequencies for wireless microphones, IFBs, and telemetry and control transmitters. To further clarify this status, SBE proposes that the new WAVD rules define WAVD transmissions as “operational communications” for priority of communications purposes, as defined in Section 74.403(b) of the FCC Rules.

57. However, SBE notes that in GN Docket 01-74 TV Channels 52 through 59 will now also be removed from the universe of “un-used” television channels. This will ultimately require many higher priority, licensed, wireless mike stations to switch to the remaining “in-core” channels, so in many markets WAVDs will find NO “un-used” television channels. Should

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“rogue” operation WAVDs such as the rogue operation of wireless microphones as cited in footnote 150 of the NPRM occur, SBE will expect vigorous and prompt action by the FCC’s Enforcement Bureau. As proposed in its May 14, 2001, comments to GN Docket 01-74, SBE hopes that the Commission can find a home for secondary Subpart H devices, and possibly also WAVDs, in guard-band lower 700 MHz band spectrum, possibly at 698–704 MHz (TV Channel 52) and/or 740–746 MHz (TV Channel 59).

58. SBE has proposed a fundamental change to spectrum allocations, management and coordination in its May 14, 2001, comments to GN Docket 01-74 (Reallocation of TV Channels 52–59). SBE feels that it should point out those comments in this proceeding. SBE believes that the FCC should create usage compatible spectrum allocations that cross over existing service spectrum allocations. SBE pointed out in its GN Docket 01-74 filing, and in several other filings before the Commission, that the location for a broadcast event can be a sports venue that can be a movie shoot that can be a live music event that can be an awards show, and so on. It is also not uncommon for convention centers and other venues to host a number of different events at once. The common denominator has been, is, and will continue to be use of wireless microphones and wireless IFBs. Complex events may bring together Part 74, Part 95, and Part 15 devices, not to mention the not so well kept secret that many devices at such events that require an FCC license are being operated with no authority whatsoever. This common tie should now be translated into updated spectrum management.

59. Creating a unified field production theory for spectrum allocated to wireless microphones and wireless IFBs is now not only appropriate, but overdue. This would be a major breakthrough toward getting the myriad of unlicensed users licensed and would cut through a veritable thicket of obstacles that now stand in the way of on-scene frequency coordination.

60. In its early filed June 25, 2001, comments, AMPTP claimed that WAVDs (at least as envisioned by AMPTP) already exist and are in use by broadcasters. This is incorrect. Broadcasters use short-range video links from cameras to nearby production facilities as TV Pickup stations operating in the 2 or 2.5 GHz TV BAS bands; they do not use “vacant” UHF television channels. However, SBE has heard reports of wireless TV links being illegally used in the Los Angeles area on UHF TV Channels 14 and 20, employing conventional NTSC analog video and audio carriers. Such devices are, of course, not authorized under Subpart H (“Low Power Auxiliary Stations) of Part 74 of the FCC Rules, and in the Los Angeles area Channels 14 and 20 are used for police communications. Indeed, the Southern California

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Frequency Coordinating Committee (“SCFCC”) has reported cases of interference to police communications by such unauthorized short-haul video links.

61. AMPTP objects to having an integral antenna for WAVDs. An integral antenna is an important safeguard against uninformed parties using an external, high gain antenna to illegally boost the station’s EIRP, and the requirement for an integral antenna is an important part of why SBE no longer opposes WAVDs. SBE believes that a WAVD can be manufactured with an integral antenna sufficiently robust to withstand day-to-day use. To allow the option for connecting an external antenna to a WAVD transmitter opens the door to mischief, and the Commission should decline to allow such a risk.

62. Finally, AMPTP wants WAVD licenses to be assignable to “independent contractors,” as opposed to only being licensable to production studios themselves. SBE urges that the FCC not allow this. It is important that the licensing authority and responsibility be kept on a short, and easily traceable, leash. If third-party contractors are allowed to operate WAVDs under the license obtained by a production studio, the necessary responsibility and accountability borne by a WAVD licensee would be diluted. If an independent contractor needs to use WAVDs, let that independent contractor apply for its own license; this will make it much more likely that the WAVDs will be properly used.

XXIII. 950 MHz Aural BAS Channel Splits

63. Although the NPRM proposes to finally implement the 1984 RPU channel splits, a similar implementation of the 1985 950 MHz aural BAS channel splits was not addressed. SBE assumes that this was an oversight, since like the yet to be implemented RPU channel splits, the “SBE Letter” pointed out that the 950 MHz aural BAS channel splits have similarly never been implemented, even though 15 years have passed since the release of the MM Docket 85-36 R&O. Further, unlike the not yet implemented RPU channel splits, where a cautionary note regarding the unknown effective date appears in the FCC rules, there is no similar cautionary note in Subpart E of the FCC rules. Thus, the only way one would know that the 950 MHz aural BAS channel splits appearing in Section 74.502(b) of the FCC rules have never had an effective date set, even after 15 years, would be to examine, or be familiar with, the November 7, 1985, MM Docket 85-36 R&O. SBE trusts that the Commission would agree that such “booby trapped” rules are never in the public interest, and that the 1985 950 MHz aural BAS channel splits should similarly, and at long last, be officially implemented.

XXIV. Production Wireless Intercom System (“PWIS”) Radios

64. An issue not explicitly addressed in the NPRM, but certainly pertinent to any updating of the Part 74 BAS rules, and therefore a “logical outgrowth” of the NPRM and therefore addressable in this instant rulemaking, is the use of vacant UHF channels for radio communications between coaches, players, and ancillary staff at sporting events, which SBE refers to as a Production Wireless Intercom System, or “PWIS” radios.¹⁰ SBE believes that this rulemaking should address eligibility and permissible use aspects of PWIS radio systems.

65. Section 74.2 of the FCC Rules addresses the BNE eligibility for Part 74 licensing. A BNE is defined as simultaneously distributing programming to ten or more stations at least 12 hours every day. While users of PWIS radio systems such as the National Football League (“NFL”) and Stanford University (“Stanford”) undoubtedly have their football games seen on ten or more TV stations simultaneously, they certainly did not do so at least 12 hours every day. It is therefore clear that neither NFL or Stanford could qualify for a Part 74 Subpart H Low Power Auxiliary license as a BNE. However, Section 74.801 of the Low Power Auxiliary rules provides additional eligibility criteria for Motion Picture Producers (“MPP”) and for Television Program Producers (“TPP”). The TPP definition is “a person or organization engaged in the production of television programs.” Arguably, both NFL, Stanford, and probably 100 or so other ESUs (for “enormous state university” schools) with football and/or basketball games that are routinely televised could be deemed to qualify as TPPs. Indeed, just this argument was used in the “Eligibility and Frequency Coordination” portion of the Stanford University Part 74 Low Power Auxiliary application. Since the Commission subsequently granted a Part 74 license to Stanford University, call sign BLP-01529, plus the precedent of the NFL Part 74 license, call sign BLP-01517, SBE concludes that NFL and Stanford are properly licensed to use Part 74 wireless microphones. Further, other large schools with televised sporting events would similarly appear to be eligible for licensing under Part 74, Subpart H.

¹⁰ The “Coachcom” wireless intercom system manufactured by the Radiocom Division Telex Communications is one example of a PWIS radio. The Model BTR-600 “Coachcom” system operates between 520–608 MHz (TV Channels 22–36) and between 614–760 MHz (TV Channels 38–62) using F1E emission with 32 kHz deviation and a transmitter power of 40 mW (16 dBm). The BTR-600 is FCC type accepted for Part 74 operations.

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66. Accordingly, SBE believes that this rulemaking should once and for all settle the PWIS eligibility issue: professional sports teams and ESUs that regularly have their sporting events transmitted by television are eligible, whereas smaller sports venues which are typically not broadcast over television, such as most high school games, are NOT eligible. SBE believes that local sporting events that are cablecast do NOT meet the eligibility criteria; that is, “cablecast” does not mean “televised.” To meet the “televised” criteria SBE believes that the signal must be aired over a licensed TV, DTV, Class A TV, or LPTV station (Section 74.801 refers to a television program producer, not a cable television program producer). Also, rehearsal or practice games, which would not generally be televised, would NOT meet the eligibility criteria. Thus, the above proposed interpretations of the Section 74.801 TPP eligibility would turn on the eligibility faucet a little wider, but it certainly would not open the floodgates. There may be other practical applications of PWIS in the future besides sporting events and a consistent rule will benefit all users of BAS spectrum.

67. With this eligibility comes responsibilities. For example, the Stanford application explicitly committed Stanford to fully frequency coordinate with other licensees operating in the area and with any SBE-affiliated BAS frequency coordinators covering the area in question; that is, it made it clear that Stanford cannot simply take their PWIS equipment with them when they travel to different venues and presume that the home game frequencies can continue to be used. Although Section 74.803 mandates such frequency coordination, having the application affirmatively commit to such behavior ensures that the applicant is fully aware of the obligation to frequency coordinate in advance. Accordingly, SBE acknowledges the eligibility for perhaps another several hundred entities to sit at the Part 74 table, but hopes that the Commission will use the R&O to this proceeding to point out that table manners are required. Further, SBE believes that the Commission needs to clarify that if there is a conflict between wireless microphone frequencies used by a broadcaster and a TPP, then the priority of communications stipulated in Section 74.403(b) applies: namely, first emergency communications, then program material to be broadcast, then cues and orders, then operational communications, and last, test transmissions. Further, SBE believes that if two users are both using a frequency for the same priority use (*e.g.*, cues and orders), then priority within a category should be first given to cues and orders in support of live material, then to cues and orders in support of tape delayed material, and the lowest priority should be assigned to cues and orders in support of productions and rehearsals (*i.e.*, staged material that can repeated if necessary). SBE further recommends that the TPP use of PWIS be defined as “operational communications” for the purpose of Section 74.403(b). SBE

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anticipates, as the spectrum fills up with more uses while the number of available TV channels continues to shrink, the question will arise as to whether it is more important to use the frequencies to play the game or to broadcast it, since both will not be possible.

68. If the Commission affirms this reading of the Part 74 Rules, SBE anticipates that not only will it continue its highly successful “Game Day” frequency coordination program, but extend this service to frequency coordination for other televised sports venues, possibly expanding game day coordinators (“GDCs”) to part-time paid positions. While presently SBE’s attention is focused on televised sporting events, SBE recognizes that there may be other events in the future, not sporting events, that will fall under the same TPP provisions and will require the services of an event frequency coordinator, as major national political conventions have required for decades.

XXV. Shared Use in the 2.5 GHz TV BAS Band

69. In its January 26, 2001, Declaratory Order¹¹ in response to the September 1, 1999, Request for Declaratory Ruling by the County of Los Angeles and the Cities of Burbank, Long Beach and Los Angeles (“Petitioners”), the Commission affirmed that use of 2.4 GHz band frequencies (i.e., Channels A8 (2,450–2,467 MHz) and A9 (2,467–2,483.5 MHz) by broadcasters for TV Pickup (i.e., ENG) operations was co-equal to use of these shared frequencies by public safety agencies (e.g., police and sheriff departments). The Commission accordingly declined to give priority for the use of these frequencies for public safety uses. The SBE applauds this Declaratory Ruling and requests that this confirmation of co-equal status of TV BAS with public safety agencies’ use of 2.4 GHz band frequencies for tactical video down links (“TVDL”), covert surveillance, and other uses be added to Section 74.602(a)(1) of the FCC Rules.

XXVI. Problems With FCC Form 601

70. SBE believes that this rulemaking is an appropriate place to address certain problems with FCC Form 601, the Universal Licensing System (“ULS”) form. For example, the ULS will not allow specifying TV Pickup stations with multiple ENG receive only sites using remotely controlled, steerable dishes to increase the likelihood that an ENG feed from anywhere in a TV station’s coverage area will be possible. Further, although such ENG

¹¹ DA 01-160.

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receive only sites are often on tall towers or buildings, the ULS will reject receiving antenna heights of more than 6.1 meters (20 feet) AGL. This is of particular concern in areas near international borders, for maintaining proper protection of existing receivers. Another ULS problem applies to 450 MHz telemetry return links (“TRLs”) using narrowband (10 kHz wide) “P” channels: such systems operate as point-to-point links but the ULS only recognizes point-to-point links in the TV and Aural microwave bands; a 450 MHz TRL is classified as a remote pickup station (“RPU”) and the ULS will not permit an RPU station to specify a fixed receive site that is different from the transmitter site. FCC Form 601 should be changed to allow specifying a receive point for 450 MHz TRLs.

71. As with the ULS problem accepting dual emission designators for hybrid analog/digital BAS microwave links, SBE submits that it is silly for an application form to be the limiting factor. Broadcasters have developed extensive networks of ENG receive only sites, most with receiving dishes at greater than 6.1 meters AGL, and it is nonsensical for the Commission’s ULS system not to be able to document the locations and heights of these receiving locations. Such information is critical for cross-service frequency coordination; for example, to ensure that a high-power Personal Communications Services (“PCS”) D-block base station does not get inadvertently located at a site with an ENG receive only facility, causing brute force overload (“BFO”) to the ENG site. SBE there urges the Commission to use this rulemaking as a vehicle to modify the ULS system where necessary to match how BAS systems are really used, so as to “...make available, so far as possible, to all the people of the United States a rapid, efficient, Nation-wide, and world-wide wire and radio communication service...”¹²

72. Four other problems with Form 601 deserve mention. First, broadcasters must request the “borrowing” of unusual frequencies for coverage of major special events, such as political conventions and some sporting events, in ways which do not always match the normal usage of the borrowed frequency. For example, use of an open TV channel is often requested at high power levels (Subpart D RPU as opposed to Subpart H Low Power Auxiliary) at a venue. In such a case, the entire channel is often requested at once, because the same study applies to the whole channel as any part of it, and having the extra spectrum allows both accommodation of late-coming low power users and avoidance of numerous “rogue” users by last-minute adjustment of the frequencies actually used within the channel. Second, the

¹² Communications Act, Title I, Section 1.

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instructions for Schedule I, Item 13, limit a BNE to TV Pickup stations only, which appears to conflict with Section 74.631(j) regarding other bands, such as the 13 GHz band, which allow point-to-point links for BNEs. Third, Page 6 of the instructions, under “electronic filers,” discusses the mailing of exhibits that cannot be transmitted electronically, which may be true of such things as coordination letters received only on paper. This does not always appear to work properly. Fourth, SBE notes that the number of units authorized no longer appears anywhere on a TV Pickup license, or application, or in the database. SBE believes that documentation should appear somewhere so it is not forgotten that a TV Pickup may be a multi-unit license, and that some TV Pickup licenses cover significant numbers (more than 20) transmitters.

XXVII. Experimentals on Broadcast or BAS Frequencies

73. SBE believes it appropriate to raise in this rulemaking the status of experimental licenses or STAs for experimental stations operating on broadcast or BAS frequencies. SBE does not object to the issuing of experimental licenses or STAs for broadcast or BAS frequencies *per se*, since, by definition, such operations are secondary to those of licensed stations. However, because the transmissions of experimental stations are often not on a scheduled basis, and often do not include any easy means of station identification, the potential for interference, and possibly serious interference, to licensed BAS links, especially STLs, exists. Because an experimental station might be transmitting intermittently for a few days or weeks, and then suspend operations for several weeks or months while further developments are pursued, trying to track down such interference, either by the impacted station or by the Commission’s Enforcement Bureau staff, is often difficult. Accordingly, SBE has on several occasions requested that any experimentals that authorize operations on broadcast or BAS frequencies contain a “prior notification” clause requiring the experimental station to contact any local BAS frequency coordinating committee that may exist in its area of operation and let the coordinator know of the operations, provide a best estimate of the dates and times of the operation, and, most importantly, provide a “hot line” telephone number that will always be answered whenever the experimental station is radiating. In SBE’s experience, an ounce of prior notification is worth a pound of cure. A copy of the most recent letter sent to OET in regard to this problem is attached, as Figure 2.

74. As detailed in the SBE letter, SBE has established on its web site downloadable color maps for all fifty states, plus Puerto Rico and the District of Columbia, showing which

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counties or parishes are covered by a BAS frequency coordinator. A spreadsheet is also available on the SBE web site giving the name, address, telephone number, facsimile number, and e-mail address for each of the more than 100 volunteer frequency coordinators. This resource makes it easy for an experimental licensee or STA holder operating on a broadcast or BAS frequency to determine if its area of operation is covered by a BAS frequency coordinator and, if so, to send an e-mail or to call the coordinator and provide the important "heads up" prior notification. Armed with such information, the local BAS frequency coordinator can steer, in a timely manner and with minimal effort, a broadcast station receiving mysterious new interference to the experimental operator, so that interference time signatures and/or a simple on-off test can be undertaken, again in a timely manner, to determine if the experimental station is the source of the problem. SBE believes that a prior notification requirement placed on all experimental licenses or STAs involving broadcast or BAS frequencies represents a minimal burden to experimental licensees and provides an effective "safety net" that will either keep interference to critical BAS operations from occurring in the first place, or will allow the prompt identification of interference so its impact can be minimized. Such a policy will also minimize the number of times broadcasters are required to contact the Commission's Enforcement Bureau for help in tracking down interference.

XXVIII. Section 74.403(b)

75. SBE notes that Section 74.403(b) of the FCC Rules exempts from the priority of use provisions frequencies listed in Section 74.402(a)(3), that is, the 26 MHz I-Group channels; the frequencies listed in Section 74.402(a)(7), that is, the 450/455 MHz P-Group channels; and the frequencies listed in Section 74.402(a)(8), that is, the 450/455 MHz R-Group channels. Although SBE understands why this rule exempts the P-Group channels, since those channels are limited to operational communications and telemetry, SBE is not aware of any reason for not applying the priority of use provisions to the I-Group and R-Group RPU channels. SBE therefore suggests that the references to Sections 74.402(a)(3) and 74.402(a)(8) be deleted from Section 74.403(b).

XXIX. Summary

76. SBE hopes that the Commission will quickly issue a Report and Order ("R&O"), with a blanket waiver (in effect, an immediate effective date) for digitally-modulated links in the 2,

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2.5, 7 and 13 GHz TV BAS microwave bands, and an effective date 30-days after release of the R&O for all other aspects of this rulemaking. SBE further urges the Commission to issue a FNPRM to investigate automatic transmitter identification for digitally-modulated TV Pickup microwave signals.

XXX. List of Figures

77. The following figures or exhibits have been prepared as a part of these ET Docket 01-75 comments:

1. Example of critical relative geometries between TV BAS links at the same site.
2. Copy of SBE's February 2, 2001, letter to OET regarding a prior coordination clause for experimentals authorizing operation on broadcast or BAS frequencies.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

/s/ James (Andy) Butler, CPBE
SBE President

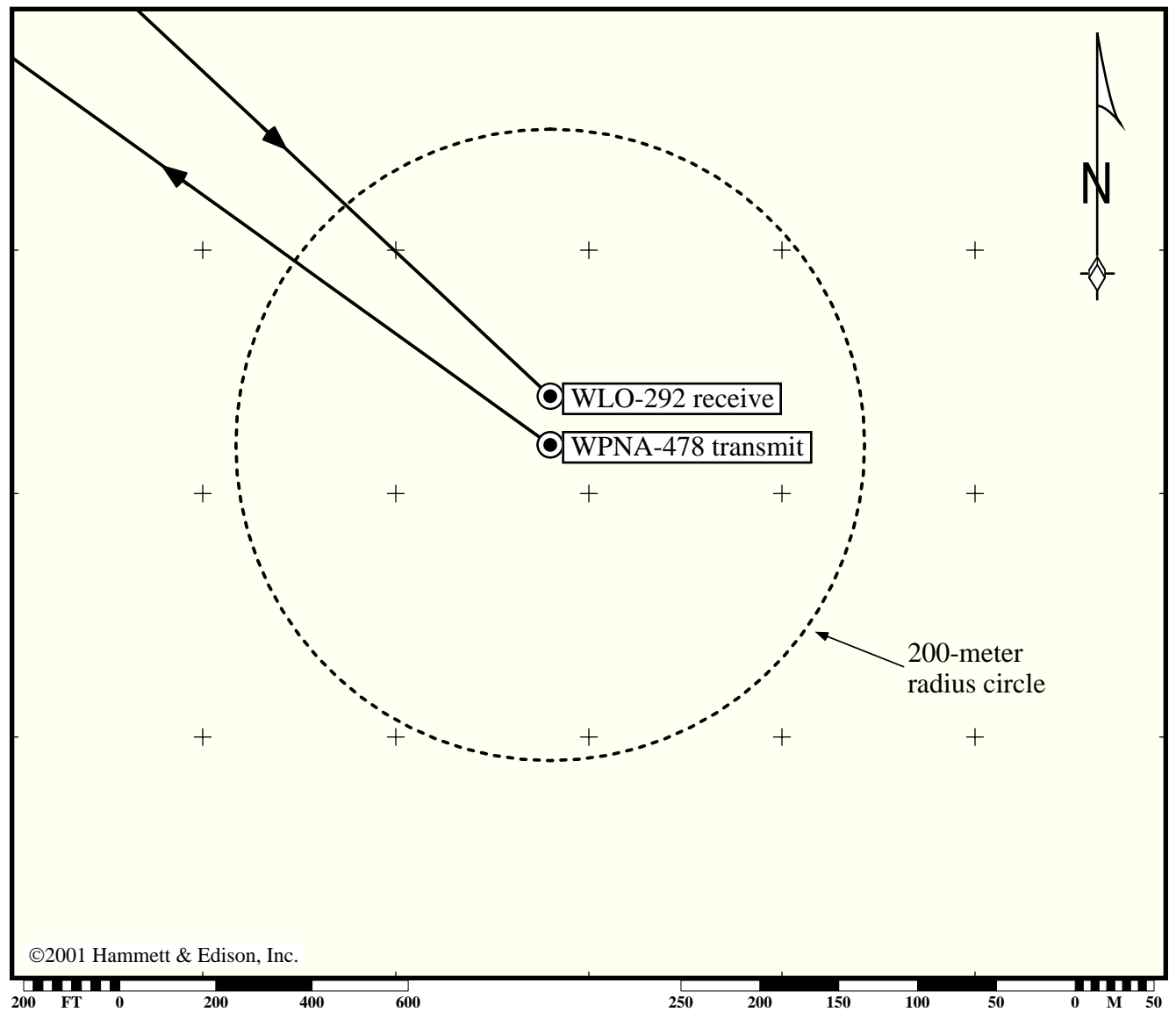
/s/ Dane E. Ericksen, P.E., CSRTE
Chairman, SBE FCC Liaison Committee

/s/ Christopher D. Imlay, Esq.
Its Counsel

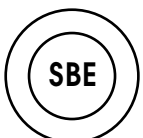
July 9, 2001

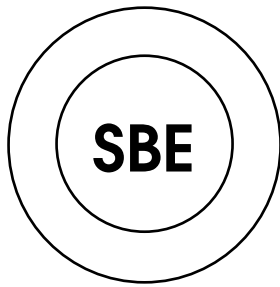
Booth, Freret, Imlay & Tepper
5101 Wisconsin Avenue, NW, Suite 307
Washington, D.C. 20016
202/686-9600

Example of ± 5 second Latitude or Longitude Change
in Location of WPNA-478 Transmitting Site



Azimuthal equidistant map projection. Geographic coordinate marks shown at 5-second increments.





SOCIETY OF BROADCAST ENGINEERS • Indianapolis, Indiana
FCC Liaison Committee

CHAIRMAN

DANE E. ERICKSEN, P.E., CSRTE
Hammett & Edison, Inc.
San Francisco, CA
707/996-5200 (voice)
707/996-5280 (fax)
dericksen@h-e.com

Committee Members

KENNETH J. BROWN
ABC, Inc.
New York, NY

GERRY DALTON, CBRE
WTS Bureau Systems
Dallas, TX

CLAY FREINWALD, CPBE
Entercom Communications
Seattle, WA

CHRISTOPHER D. IMLAY, Esq.
Booth, Freret, Imlay & Tepper
Washington, DC

GERALD M. LEBOW
TMC, Inc.
Valhalla NY

MIKE MCCARTHY, CSRE
McCarthy Radio Engineering
Chicago, IL

JOHN L. PORAY, CAE
SBE
Indianapolis, IN

RICHARD RUDMAN, CPBE
KFWB
Los Angeles, CA

BY FACSIMILE: 202/418-1918

February 2, 2001

Mr. James R. Burtle
Chief, Experimental Licensing Branch
Office of Engineering & Technology
Federal Communications Commission
The Portals Office Building
445 12th Street, SW
Washington, DC 20554

Dear Jim:

I recently received an email from Mr. Howard Fine of the Southern California Frequency Coordinating Committee (SCFCC) indicating that on January 27 OET granted Special Temporary Authority (STA), call sign WA2XQQ, to US Sea Launch which includes 7,049 MHz and 7,074 MHz (both 630KF9D emission) at Long Beach, California. The 7,049 MHz signal has the potential to cause interference to TV Broadcast Auxiliary Services (BAS) Channel B7 (7,025–7,050 MHz), and the 7,074 MHz signal has the potential to cause interference to TV BAS Channel B8 (7,050–7,075 MHz). As you know, as a result of careful frequency coordination in the Los Angeles area each of the ten available 7 GHz TV BAS channels are used multiple times for STL, ICR, and TV Pickup purposes, and therefore in-port “confidence” tests by US Sea Launch need prior coordination with SCFCC in order to ensure that interference is not caused.

As discussed in my October 12, 2000, letter to you, in 1996 SBE had negotiated an understanding with your predecessor, Mr. Paul Marrangoni, that experimental licenses issued by OET that authorized broadcast or BAS frequencies would contain a prior coordination clause, requiring the licensee to contact any SBE-affiliated BAS frequency coordinating committees that might exist in the area of operation. To that end, maps for each state, showing those counties with BAS frequency coordinators, are now posted on the SBE web site, along with contact information. However, the issuance of an STA to US Sea Launch for 7 GHz TV BAS band frequencies, without a prior coordination clause, had caused SBE to ask if the understanding was still in effect.

Regrettably, no response to my October 12, 2000, letter was received, and now the issuance of yet another STA to US Sea Launch, again authorizing in-port operations on critical 7 GHz TV BAS band STL

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frequencies, makes me wonder if for some reason you did not receive my October 12 letter. Please understand that SBE is not saying that STAs or experimental licenses specifying broadcast or BAS frequencies should never be issued, only that when such authorizations are issued they should contain a prior coordination clause requiring the user to contact and work with any BAS frequency coordinating committee that might exist in the area of the STA or experimental operations.

The WA2XQQ STA indicates that it will not go into effect until April 1, 2001, and will be good for a six-month period ending October 01, 2001. SBE therefore respectfully requests that this STA be rescinded and be re-issued with a prior coordination clause, and that all future renewals of this STA contain a prior coordination clause. Such action will ensure that SBE will not find it necessary to file an informal objection or Petition to Deny against the US Sea Launch STA.

Sincerely,

Dane E. Ericksen
Chairman, SBE FCC Liaison Committee
SBE Board of Directors

cc: Mr. Richard Williams, US Sea Launch
Mr. Howard Fine, SCFCC
Mr. Rick Edwards, Chairman, SBE Frequency Coordination Committee
All SBE FCC Liaison Committee members
Mr. John Poray, SBE Executive Director
Christopher D. Imlay, Esq., SBE General Counsel