

A Summary of FCC BAS Issues

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ABSTRACT

“May you live in interesting times” goes an old Chinese curse. The last few years have certainly been “interesting” times for the Broadcast Auxiliary Service (BAS) at the FCC. As Chairman of the Society of Broadcast Engineers FCC Liaison Committee, the SBE committee responsible for all national-level SBE filings, the author has been involved in preparing SBE comments for literally dozens of rulemakings involving Part 74 BAS issues. This paper will review some of the more recent and significant of those FCC rulemakings.

2 GHz TV BAS

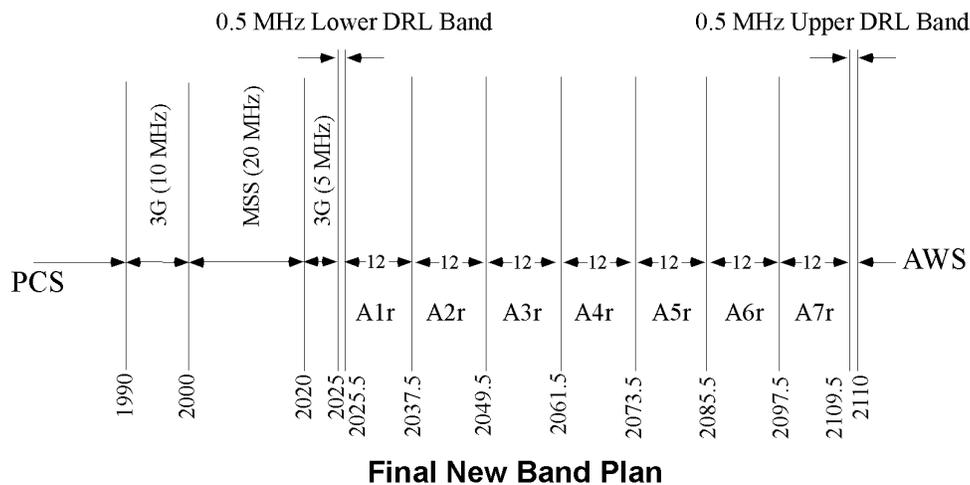
The pre-eminent BAS issue at the FCC is easily the 2 GHz TV BAS band. This prime frequency real estate has been coveted by a seemingly un-ending list of competing users, from the Mobile Satellite Service (MSS) to the Advanced Wireless Services (AWS, also known as Third-Generation wireless services, or 3G), to Nextel (as a *quid pro quo* for de-interleaving the 800 MHz Specialized Mobile Radio (SMR) band, to eliminate interference to public safety operations in

that band), to the Department of Defense (as an overflow band for high-power DoD uplinks), to the National Aeronautics & Space Administration (NASA) and the National Oceanic and Atmospheric Administration (NOAA), although the NASA and NOAA uses have so far proven to be a compatible sharing with broadcasters’ use of 2 GHz frequencies.

ET Docket 95-18: MSS

After eight years of rulemakings, on November 10, 2003, the FCC adopted a “final” band plan for a reduced-bandwidth (from 120 MHz to 85 MHz) and re-farmed 2,025–2,110 TV BAS band, consisting of seven exactly 12 MHz wide channels, plus two 500-kHz wide upper and lower data return link (DRL) bands, each with twenty 25-kHz wide DRL channels. Figure 1 shows the old and new 2 GHz TV BAS channels.

This band plan was suggested by SBE in its April 14, 2003, comments to ET Docket 00-258 Third Notice of Proposed Rulemaking (to be discussed later), and were also filed as *ex parte* comments to the ET 95-18



DRL = Data Return Link

All frequencies and bandwidths are in MHz.

Fig 1. Final New 2 GHz TV BAS band plan

rulemaking. By making the channels exactly 12 MHz wide (as opposed to 12.1 MHz wide), the 250-kHz step synthesizers used in most 2 GHz BAS transmitters and receivers would remain compatible for both full-channel and split-channel operations. This also eliminated the initially proposed approach of keeping a single “oddball” channel with a bandwidth of 13 MHz. Such a channel plan would probably not have been useful from a practical standpoint, because it would require receivers to have two different intermediate frequency (IF) bandpass characteristics, one optimized for a 12-MHz wide channel and another optimized for a 13-MHz wide channel. Instead, the SBE plan made all of the 2 GHz TV BAS channels equal, and used the overflow 1 MHz for upper and lower 500 kHz wide bands that fulfilled two important purposes: first, as effective guardbands against adjacent-band high-power AWS based stations, and second, as a means of using a low-power, narrow-band, data channel with low-level and highly robust modulation to relay data from an electronic news gathering (ENG) receive site to a TV Pickup station (*e.g.*, an ENG truck) attempting to establish a path to a particular ENG receive-only site. A matching DRL receiver in the ENG truck could then use this “how am I doing?” signal for automatic transmitter power control (ATPC), and as an indicator of how close to threshold a digitally-modulated ENG signal might be skirting. By using cross-band protocols brute force overload (BFO) to the low-level signal being received at the ENG receive-only site, and the low-level DRL signal that the telemetry receiver in the ENG truck would have to detect, would be avoided. For example, an ENG truck using TV BAS Channels A1 through A4 would use a DRL channel in the high side DRL band, whereas an ENG truck using TV BAS Channel A4 through A7 would use a DRL channel in the low side DRL band. It is anticipated that a “polite protocol” system would be used, where the DRL transmitter at an ENG receive-only site would scan for an available DRL channel, and select the first available channel in the pertinent half of its DRL band. With a total of forty such channels being available, this should be sufficient for even the largest TV markets.

However, although broadcasters finally have a band plan that is not a moving target, the FCC decision in the ET Docket 95-18 Third Report and Order (R&O) to only require MSS and or AWS operators to compensate broadcasters in the top-30 TV markets for their costs in converting from 17-MHz wide analog channels to 12-MHz wide digital channels meant that for a 3 to 5 year transition period there would be two different 2 GHz TV BAS band plans in use: one with seven 12-MHz wide digital channels, and the other with five 17-MHz wide analog channels. Under this scenario TV stations in markets 31–100 would have to wait up to three years before receiving compensation for changing their 2 GHz TV Pickup BAS equipment to the new band plan, and TV stations in markets 101–210 would

have to wait up to five years. Fixed-link 2 GHz TV BAS stations operating in the re-allocated 1,990–2,025 MHz spectrum would also have to be relocated during the new one-year mandatory negotiation period (MNP) adopted by the ET 95-18 Third R&O, but with the major loophole that if MSS and the fixed link BAS broadcaster couldn’t come to an agreement during the new MNP, then the MSS operator did not have to convert the fixed-link until year three if the fixed link was in markets 31–100, or until year five if the fixed link was in markets 101–210. Fixed links at 1,990–2,025 MHz in markets 1–30 would have to be cleared during the MNP, but, of course, broadcasters in the larger markets have mostly already cleared fixed links out of the entire 2 GHz TV BAS band, so as to free up spectrum for TV Pickup (ENG) operations.

Because there are many instances where a top-30 TV market is adjacent to a smaller TV market, this FCC decision to require MSS to initially compensate broadcasters only in the top-30 markets, so as to minimize the start-up costs to MSS (as if that should be broadcasters’ problem), raises the very real threat that a major news event in a smaller TV market could bring in top-30 market ENG operations using digital modulation with 12-MHz wide channels, in the same area, and at the same time, as existing analog ENG operations using 17-MHz wide channels. To gauge the interference impact of such a scenario, SBE asked Microwave Radio Corporation (MRC) to conduct laboratory tests of the amount of interference that a digital coded orthogonal frequency division multiplex (COFDM) signal operating on the new band plan would cause to conventional FM video ENG operations still using 17-MHz wide analog channels, and vice versa, for varying received signal strengths at an ENG receive-only site, and for varying amounts of channel overlap.

MRC Study Results

That MRC report concluded that there would be up to a 47 dB degradation to analog operations, and up to a 43 dB degradation to digital operations, if simultaneous ENG operations were attempted in the same area at the same time by new band plan digital ENG and old band plan analog ENG. SBE concluded that while perhaps even more heroic real-time frequency coordination might make up for a 10 to 20 dB worsening in frequency coordination requirements, a 43 to 47 dB worsening of a frequency coordination burden could never be accommodated.

SBE and MSTV/NAB Petitions for Reconsideration

Accordingly, on January 7, 2004, SBE filed a Petition for Reconsideration to the ET Docket 95-18 Third R&O, asking the FCC to re-consider its decision to only require MSS to convert in advance TV BAS operations in the top-30 TV markets. Instead, SBE urged the FCC

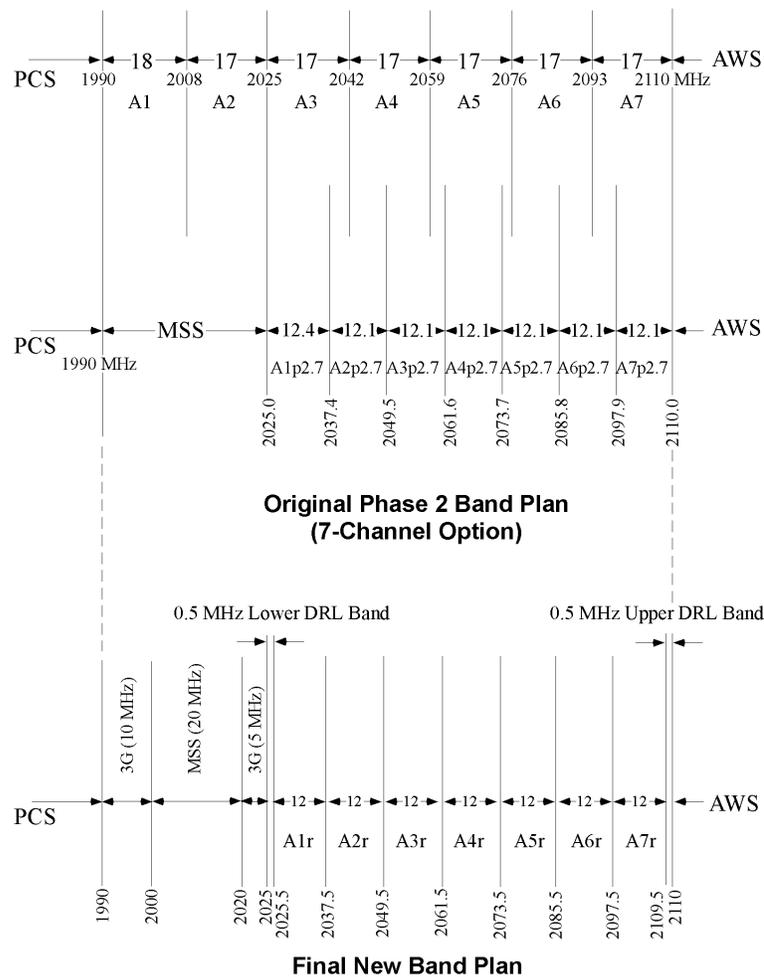
to require MSS to convert in advance all 2 GHz TV BAS operations in all TV markets before MSS would be allowed use of 2,000–2,020 MHz. The Association for Maximum Service Television (MSTV) and the National Association of Broadcasters (NAB) also jointly filed a Petition for Reconsideration, similarly urging the FCC to re-consider its decision. The MSTV/NAB filing noted that given the questionable financial history of MSS operators, smaller market TV stations might be left “holding the bag” when it came time for MSS to reimburse those stations in three to five years. In effect, the FCC ET 95-18 Third R&O was requiring TV stations (and smaller market TV stations, at that) to underwrite the start-up costs of MSS, and to accept a post-dated check from a failing bank: a sucker bet, if there ever was one.

ET Docket 00-258: AWS/3G

In the middle of the ET 95-18 rulemaking came another FCC rulemaking, ET Docket 00-258, proposing

instead to give to AWS a portion of the 35 MHz of spectrum ear-marked for re-allocation to MSS. Unlike MSS, whose proponents kept going bankrupt with embarrassing regularity, terrestrial commercial mobile wireless operations (CMRS) were bursting at the spectrum seams, and had an immediate need for additional bandwidth for advanced wireless services. Further, spectrum awarded for CMRS use for AWS/3G would be subject to spectrum auctions (unlike MSS, which was awarded its spectrum without any spectrum auction payments). Therefore, given the reality that MSS appeared to be having difficulty implementing its 1,990–2,008 MHz Phase 1 spectrum, let alone its 2,008–2,025 MHz Phase 2 spectrum, on February 20, 3003, the FCC issued a combined Third R&O/Third NPRM/Second Memorandum Opinion and Order (MO&O) to ET Docket 00-258, reallocating 15 MHz of spectrum from MSS to AWS. As shown by Figure 2, this was done in two separate bands, one at 1,990–2,000 MHz and the other at 2,020–2,025 MHz, leaving MSS with 20 MHz of spectrum at 2,000–2,010 MHz.

Fig 2. Former Phase 2 band plan vs new 2 GHz TV BAS band plan, as adopted by the ET Docket 95-18 Third R&O.



All frequencies and bandwidths are in MHz.

However, this re-shuffling of the 35 MHz of spectrum being lost by broadcasters meant that the reallocation of 2 GHz TV BAS spectrum would no longer be coincident with the break between existing TV BAS Channel A1 (1,990–2,008 MHz) and Channel A2 (2,008–2,025 MHz). This meant that the two-step plan adopted by the FCC in the ET Docket 95-18 Second R&O, where in Phase 1 broadcasters would clear just 1,990–2,008 MHz, and convert to an interim band plan using seven 14.5-MHz wide channels, and then, at some indefinite later date, when MSS had filled up operations at 1,990–2,008 MHz and needed its remaining 17 MHz of spectrum at 2,008–2,025 MHz, Phase 2 would be triggered. Under Phase 2 broadcasters would have to re-farm the 2 GHz TV BAS band channels a second time, this time to 12.1-MHz wide channels. So, the awarding of 20 MHz of 2 GHz spectrum from MSS to AWS/3G meant that the Phase 1/Phase 2 band plan was “dead,” although it took the FCC another nine months to acknowledge this, during which time broadcasters were in a what-will-the-band-plan-really-be limbo. But, the band plan fog has now evaporated, and at long last broadcasters finally have a band plan that is not a moving target.

ET Docket WT 02-55: 2 GHz SMR

A “wild card” in the 2 GHz band reallocation is a Petition for Rulemaking filed by Nextel, which became Wireless Telecommunications Bureau (WT) Docket 02-55. It seems that the interleaved nature of channels assigned to the 800 MHz Specialized Mobile Radio (SMR) band was causing interference to public safety communications also using SMR frequencies. The public safety SMR applications tended to use a few high-power sites to cover a wide area, in the traditional two-way mobile-relay architecture. But, as commercial user SMR operations matured, morphing into many smaller, low-elevation cells in populated areas, brute force overload interference began to be caused to public safety operations trying to communicate with a base station 10 or 20 miles away, by an adjacent-channel commercial SMR cell site perhaps only a half-block away. Thus, the problem was not that the low-power, low-elevation commercial SMR cell site was failing to meet FCC out-of-channel emission leakage requirements, or that public safety agencies were using radios with a poor adjacent-channel rejection ratio (ACLR), but rather two incompatible cellular architectures. To solve this problem, Nextel proposed de-interleaving the 800 MHz SMR band, but wanted 2 GHz spectrum in compensation for the net effective reduction in 800 MHz channel capacity resulting from such a de-interleaving. Accordingly, Nextel is asking for some portion of the 1,990–2,025 MHz spectrum being given up by broadcasters, but, at this time, Nextel seems to be the odd man out.

IB Docket 01-185: ATC for MSS

Yet another rulemaking involving 2 GHz is International Bureau (IB) Docket 01-185, an outgrowth of a rather amazing Petition for Rulemaking filed by MSS parties, where they admitted that MSS telephones would not work in many high-rise buildings and “urban canyons,” and accordingly asked for authority to build an ancillary terrestrial component, or ATC; in effect, terrestrial MSS, or the very same system of terrestrial cell sites used by 900 MHz cellular and 1.9 GHz Personal Communications Service (PCS) CMRS providers. Oh, and one more thing: MSS argued that its ATC shouldn’t be subject to spectrum auctions, as required by the 1996 Telecommunications Act for CMRS grants, because its proposed system of terrestrial base stations (only in the major metros, with sufficient populations to make it attractive, of course), would be “ancillary.” Of course, cellular and PCS operators, who have paid literally billions of dollars to the federal government in spectrum auction fees for the rights to build their systems, went ballistic at this proposal. But, they lost: on February 10, 2003, the FCC issued a R&O to IB Docket 01-185, granting MSS authority to build its requested ATC, and without being subject to spectrum auctions. Apparently, lobbying works.

The IB 01-185 decision was both good news and bad news for TV BAS: it was good news in that the FCC selected the “reverse band plan” for MSS terrestrial base stations, meaning that the high-power operations would be at 2,492.5–2,500 MHz, and therefore would not be an adjacent-band interference threat to sensitive ENG receivers at 2,025–2,110 MHz (although a terrestrial MSS base station could still be a BFO threat). However, the decision was bad news in that it assumed that there were *no* grandfathered TV BAS operations on former TV BAS Channel A10 (2,483.5–2,500 MHz), and it was also bad news in that high-power terrestrial MSS base stations at 2,492.5–2,500 MHz would represent both an adjacent-channel leakage ratio (ACLR) threat and a BFO threat to 2.5 GHz TV BAS operations on TV BAS Channel A9 (2,467–2,483.5 MHz) and possibly also to TV BAS Channel A8 (2,450–2,467 MHz). Accordingly, on April 4, 2003, SBE filed a Petition for Reconsideration, pointing out that the Universal Licensing System (ULS) showed no fewer than 87 TV BAS stations licensed for grandfathered operations on Channel A10; 17 as inter city relay (ICR) stations, and 70 as TV Pickup stations. Therefore, while the FCC decision addressed ACLR and BFO interference threats to TV BAS operations on Channel A09, the decision overlooked the far more serious *co-channel* interference threat to grandfathered TV BAS operations on Channel A10! As of the date of submission of this paper (January, 2004), no action on the SBE Petition for Reconsideration has occurred.

ET Docket 00-258 (Second Stanza, Fourth NPRM): DoD Uplinks at 2 GHz

Just when SBE thought that things could not possibly get any more convoluted for 2 GHz TV BAS, on July 7, 2003, the FCC released a Fourth R&O to ET Docket 00-258, proposing to relocate up to 11 high-power Department of Defense (DoD) satellite uplink stations out of the 1,761-1,842 MHz federal government Space Ground Link System (SGLS) band and into (you guessed it) the refarmed 2,025–2,110 MHz TV BAS band. The reason for this move is the reallocation of 1,710–1,755 MHz, and 2,110–2,155 MHz, from the federal government to (you guessed it again) AWS. This, in turn, will require the federal government fixed-link microwaves now at 1.7 GHz to migrate to the 1.8 GHz SGLS band, which in turn will require the 11 DoD uplinks to move to 2,025–2,110 MHz, at least according to the National Telecommunications and Information Agency (NTIA) and DoD.

This writer finds it shocking that the FCC adopted the R&O to WT Docket 02-353 on October 16, 2003, finalizing the decision to award 90 MHz of additional spectrum to AWS (at 1.7 and 2.1 GHz), two weeks *before* the initial set of comments to the ET Docket 00-258 Fourth NPRM were even due. This gives the appearance that the “fix is in” on the ET 00-258 Fourth NPRM, as it pre-judges a major issue required for AWS getting access to 1.7 GHz.

Now, never mind that NTIA and DoD were astonishingly vague on the technical parameters for these DoD uplinks, or that many of them were in major TV markets with heavy ENG operation, as shown by Figure 3; this didn’t keep the FCC from issuing a Fourth NPRM to ET Docket 00-258, proposing a bizarre and incompatible on its face sharing of 2 GHz TV BAS spectrum. Accordingly, on November 3, 2003, SBE filed comments to the ET 00-258 NPRM, pointing out a plethora of problems with the proposal, including the fact that the geographic coordinates given for six of the eleven DoD uplinks were significantly in error, one by more than 40 kilometers! These are especially serious errors when the NPRM surmises that there might be terrain shielding between the DoD uplinks the ENG receive-only sites, meaning that interested parties such as SBE need accurate uplink coordinates in order to

construct shadowgraph maps and run terrain profiles from the proposed DoD uplinks to know ENG receive-only sites. SBE had at first thought that the geographic coordinates for the eleven DoD uplinks given at Paragraph 26 of the NPRM were intentionally “dithered,” so as not to provide this information to Osama or Saddam (well, forget Saddam). Unfortunately, it appears that, in so far as identifying the geographic coordinates of its uplinks, DoD is the “gang that couldn’t shoot straight,” not a comforting thought.

<u>Uplink Facility</u>	<u>Location</u>
Naval Satellite Control Network	Prospect Harbor, ME
New Hampshire Tacking Station, New Boston AFS	near Manchester, NH
Eastern Vehicle Check-Out Facility	Cape Canaveral, FL
Buckley AFB	near Denver, CO
Colorado Tracking Station, Schriever AFB	near Colorado Springs, CO
Kirtland AFB	near Albuquerque, NM
Camp Parks Communications Center	Pleasanton, CA
Naval Satellite Control Network, Laguna Peak	near Los Angeles, CA
Vandenberg Tracking Station, Vandenberg AFB	near Lompoc, CA
Hawaii Tracking Station, Kaena Point	Oahu, HI
Guam Tracking Stations	Guam, Mariana Islands

Fig 3. List of Proposed DoD uplink locations.

The SBE pointed out that the proposed DoD uplinks would be a major interference threat to TV BAS operations in TV markets such as Los Angeles, San Francisco, Denver, Boston, Albuquerque, Orlando, and Colorado Springs, and further that the interference would be all one-way: that is, terrestrial ENG operations did not remotely pose an interference threat to the telemetry, telecommand and control (TT&C) receivers aboard military satellites, but that high-power (SBE estimates main-beam EIRPs of up to 115 dBm) DoD uplinks would pose a serious interference threat to ENG receive-only sites, with their sensitive receivers. The SBE comments further demonstrated that the NPRM assumption of terrain shielding was a particularly bad one, given that ENG receive-only sites are intentionally placed on mountain tops, near the top of tall towers, or on the roofs of high-rise buildings, to increase the likelihood that no matter where a news event occurs in a TV station’s coverage area, an ENG truck responding to that news event will be able to establish a path to at least one of those high-elevation ENG receive-only sites. The SBE comments included multiple shadowgraph maps and terrain profiles documenting that many of the DoD uplink sites would have unobstructed line-of-sight to multiple existing ENG receive-only sites. For example, Figure 4 shows that the DoD uplink at Buckley Air Force Base would have line-of-sight to *every one* of the Denver area ENG receive only sites.

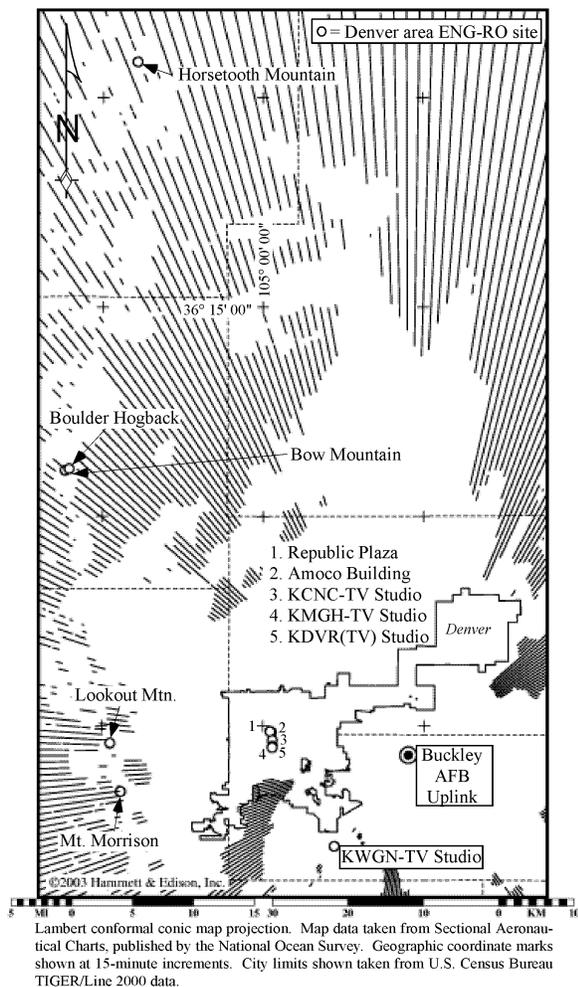


Fig 4. Buckley AFB uplink line-of-sight conditions.

The SBE comments also attached e-mails to DoD personnel at the Naval Satellite Control Network (NSCN), the location of the Laguna Peak uplink near Los Angeles, and to USAF DoD personnel with responsibility for the Air Force uplink at Kirtland AFB near Albuquerque, asking for confirmation of certain technical parameters for those uplinks, neither of which were ever responded to; in spite of the assurances at Paragraph 27 of the NPRM that DoD would be fully responsive to broadcasters' frequency coordination needs if the proposed reallocation was granted, and in spite of the fact that the NPRM identified SBE as the coordinating entity for broadcasters. The SBE comments therefore concluded that it could not think of a less likely candidate for real-time or even near real-time frequency coordination of 2 GHz TV BAS frequencies than DoD; first, because of DoD's very nature, and second, because of the fact that the interference threat would be all one way, giving DoD no incentive to cooperate.

The SBE comments concluded that the proposed reallocation of high-power DoD uplinks to the already under stress 2,025–2,110 MHz TV BAS band was a

very bad idea that would result in a reduction of the ability of TV stations to get breaking news stories to the American public. SBE instead suggested that it would be a far more compatible sharing to keep the DoD uplinks in their present 1.8 GHz SGLS band, and require the federal government operations displaced from 1.7 GHz to frequency coordinate around the 11 DoD uplinks, as opposed to trying to get DoD uplinks in major TV markets to somehow frequency coordinate with dozens of ENG receive-only sites.

ET Docket 01-75: Updating and Harmonizing the Part 74 BAS Rules

This rulemaking undertook a general updating and harmonizing of the Part 74 BAS rules; it was the first such general updating of the BAS rules in about twenty years, made all the more unusual in that it was an Office of Engineering and Technology (ET) rulemaking rather than a Media Bureau (MB) rulemaking.

The SBE comments to ET Docket 01-75 ran 27 pages and over 10,000 words, and the SBE reply comments ran 9 pages and more than 3,000 words; it was one of SBE's largest and most detailed filings to an FCC rulemaking. The November 13, 2002, R&O included the following changes to the BAS rules:

- Allowed (gasp!) *digital* modulation for 2, 2.5, 7, and 13 GHz TV BAS operations, and for 950 MHz Aural BAS operations. Incredibly, SBE had been urging the FCC to routinely allow digital modulation since 1998, when TIA first filed a Petition for Rulemaking, RM-9418, to permit digital modulation in all BAS microwave bands. It took slightly over three years, plus SBE letters to the Chief of the Media Bureau and then to Congressman W.J. "Billy" Tauzin, Chairman of the Subcommittee on Telecommunications, the Congressional committee with FCC oversight, to get the FCC to take action on RM-9418 (which became an ET Docket 01-75 item).
- Clarified the emission designators for all-digital STLs, hybrid analog-digital STLs, and COFDM ENG.
- Eliminated the "step function" penalty for short TV BAS paths, as had been done several years earlier for short Private Operational Fixed Service (POFS) microwave paths; see Figure 5.
- Allowed BAS transmitters to use ATPC.
- Made fixed-link BAS operations at 950 MHz, 2.5, 7, and 13 GHz, subject to the prior coordination notice (PCN) rules of Section 101.103(d) of the FCC Rules.
- Allowed temporary conditional authority (TCA) for BAS applications, similar to that allowed for POFS applications for many years.

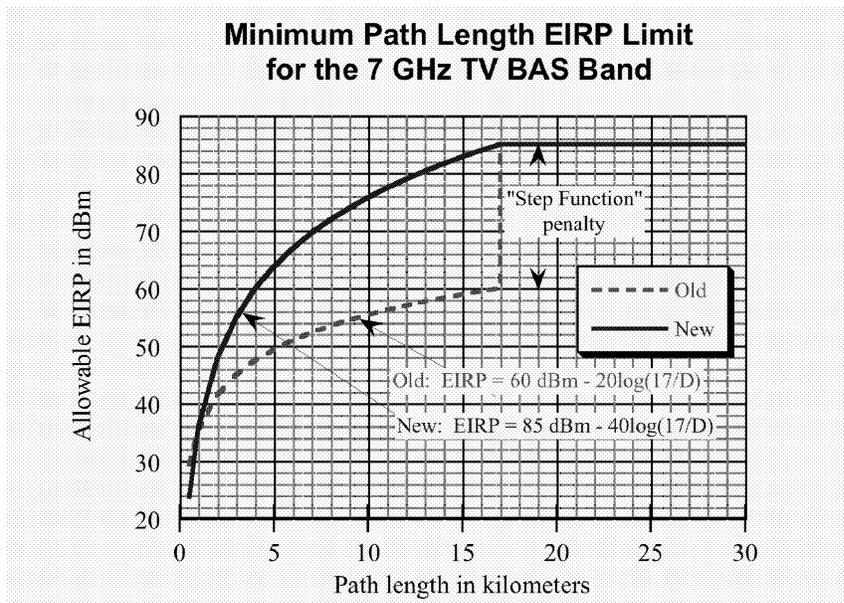


Fig 5. New vs old EIRP derating formulas for 7 GHz TV BAS links. Similar formulas apply at 13 GHz.

- Allowed Broadcast Network Entities (BNEs) and Cable Network Entities (CNEs) to operate pursuant to Section 74.24 of the FCC Rules (Short Term Operation).
- Harmonized the bandwidths of 160 and 450 MHz Remote Pickup (RPU) stations to match those specified for Part 90 Land Mobile two-way operations (*i.e.*, stackable 7.5-kHz segments at 160 MHz and stackable 6.25-kHz segments at 450 MHz).
- After a delay of 17 years, finally implemented the 950 MHz Aural BAS channel splits adopted by the November 7, 1985, MM Docket 85-36 R&O.
- Allowed the use of wireless assist video devices (WAVDs) on un-used TV channels in the upper VHF and UHF bands, on a secondary, non-interference basis. Affirmed the restriction that WAVDs cannot be used at live events or for ENG operations (this was an outgrowth of RM-9856, which SBE also commented on).

The ET Docket 01-75 R&O was also significant for what it did *not* do, as follows:

- x Declined to adopt minimum loading (throughput) for digitally-modulated BAS links (as recommended by SBE).
- x Declined to adopt lower EIRP limits for digitally-modulated BAS links (again as recommended by SBE).
- x Declined to adopt an automatic identification (ID) requirement for TV Pickup stations employing digital modulation (SBE had proposed further study before adopting such a rule).

- x Declined to allow TV BAS links now “grandfathered” under the minimum path length EIRP restriction from continuing to be so grandfathered if they convert from analog to digital modulation, or make any other “major change” modification, as requested by SBE.
- x Declined to adopt minimum receiver selectivity standards for fixed BAS links, as requested by SBE.
- x Declined to prohibit Short Term Operation using permanently installed antennas, as requested by SBE.
- x Declined to prohibit new periscope antenna systems, as suggested by SBE.
- x Declined to change the Short Term Operation limit from 720 hours per year to a 30-calendar day per limit, as suggested by SBE.
- x Declined to prohibit the operation of WAVDs by third-party contractors, as requested by SBE.
- x Declined to adopt (as outside the scope of the rulemaking) rules addressing co-equal status of BAS and public safety use of the shared 2.5 GHz band.
- x Declined to adopt (as outside the scope of the rulemaking) a requirement that experimental grants specifying broadcast or BAS frequencies have an “SBE frequency coordination clause,” requiring the experimental operator to contact any local SBE-affiliated frequency coordinator that might exist in the county of operation, and provide a contact telephone number. Note: This clause is placed on many, but not all, OET experimental grants that allow operation on broadcast or BAS frequencies; SBE wanted to see this policy formalized, but didn’t get this.
- x Declined to adopt (as outside the scope of the rulemaking) SBE’s proposal to allow Subpart H Low

Power Auxiliary stations to continue to operate on Channels 52–69 on a secondary, non-interference basis.

x Declined to adopt (as outside the scope of the rulemaking) SBE's request that the ULS be modified to allow TV Pickup station applications to specify the locations *and heights* of their ENG receive-only sites.

The above are not an all-inclusive list of the changes wrought by ET Docket 01-75, but certainly cover the most important changes.

ET Docket 98-142: 7 GHz MSS Feeder Downlinks

This rulemaking opened up 6,700–7,025 MHz to MSS feeder downlinks. Because most of this band overlaps the 6,875-7,050 TV BAS, it will require 7 GHz TV BAS operations to protect these MSS satellite downlink receive sites, which supposedly have co-primary status. In reality, they have super-co-equal status to BAS, because they have to be protected not just for the actual frequencies that might be in use, and just for the look angles to in-use satellites, but rather protected for all possible downlink frequencies and for all possible look angles. Further, because MSS satellites are non-geostationary (NGSO), low-earth orbit (LEO) satellites, the range of look angles is much greater than it would be for a geostationary orbit (GSO) satellite. However, there are two offsetting factors: First, there are presently just three such MSS feeder downlinks, at Brewster, Washington; Clifton, Texas; and Finca Pascual, Puerto Rico. Second, the rulemaking established the principal of “first in time, first in right,” where an earlier-authorized station does not have to protect a later-authorized station. Presumably, this means that TV Pickup stations already authorized to operate in Brewster, Clifton, and Finca Pascual areas don't have to worry about restricting their operations in the vicinity of those MSS feeder downlink stations, as later-authorized 7 GHz TV BAS operations would be required to do. Hmmm.

ET Docket 98-206: NGSO FSS Gateway Uplinks in the 13 GHz TV BAS Band

This rulemaking opened up 12,750–13,250 MHz to MSS for NGSO Fixed Satellite Service (FSS) “Gateway” uplink stations. Thus, these MSS Gateway uplinks would overlap almost all of the 12,700–13,250 TV BAS band.

The NPRM proposed adopting a 50-km radius exclusion zone for Gateways around the top-100 largest U.S. cities, so as not to inhibit the growth of 13 GHz TV BAS operations (and also 13 GHz Cable Television Relay Service (CARS) operations), and SBE supported

this restriction in its comments and reply comments. Unfortunately, in the December 8, 2000, ET 98-206 R&O, this restriction was not adopted, nor was an alternative “growth zone” preclusion criteria adopted (the “growth zone” criteria would have used a certain density of fixed, terrestrial 13 GHz links as determining whether a preclusion zone would be created, as opposed to the metric of a city's population). However, in the February 11, 2003, ET 98-206 Reconsideration order a preclusion zone of 50 km around the top-100 TV markets was ultimately adopted, so all's well that ends well (but, keep reading).

ET Docket 03-254: Frequency Coordination Rules for Sharing of 7 & 13 GHz between TV BAS and FSS Uplinks and Downlinks

As already explained, when the FCC allowed MSS feeder downlinks into the 7 GHz TV BAS band, and MSS Gateway uplinks into the 13 GHz TV BAS, it stated that it would leave until a future date the creation of rules defining frequency coordination protocols between MSS uplinks, MSS downlinks, and BAS. That other shoe has now dropped. On December 23, 2003, the FCC released an NPRM, ET Docket 03-254, proposing to develop such rules.

SBE will, of course, be filing comments. It is anticipated that one of the major issues will be the unreasonable “super co-equal” status that OET has so far handed to MSS, in that while TV BAS links are only protected for their one actual frequency and their actual path, MSS uplinks and downlinks are currently entitled to protection on all possible frequencies and for all possible look angles. This grossly inequitable treatment of supposedly co-equal users cries out for correction.

CS Docket 99-250: PCO Access to the 13 GHz Shared TV BAS/CARS Band

This Cable Services Bureau (CS) rulemaking gave Private Cable Operators (PCOs) access to the 13 GHz CARS band, which is shared with the 13 GHz TV BAS band. Unlike a regular cable television system, which has to obtain a franchise from a local governing body, has authority to place its cables on power poles and in underground public utility easements, but also has the obligation to serve all subscribers in its coverage area, a PCO needs no local franchise, and accordingly has the tremendous advantage of being able to “cherry pick” only the most desirable areas of a community for service. However, this generally means that a PCO cable feed is not permitted to cross a public right-of-way, such as a city street. Accordingly, each multiple dwelling unit (MDW) served by a PCO generally needs its own satellite receive dish and “headend,” which then feeds the building's master antenna system. By

allowing PCOs access to the 13 GHz CARS band, a single satellite receive dish may be able to serve several MDWs, thus reducing the need for each building having its own headend for, say, local ad insertion purposes. But, this then raises the specter of a serious increase in spectrum congestion, especially when one considers that, unlike BAS links, CARS links are permitted more than one frequency on a path; indeed, many CARS microwave stations not only use virtually all of the 13 GHz CARS/BAS spectrum, but do so on multiple paths.

SBE opposed allowing PCOs access to the 13 GHz CARS band, in its August 16, 1999, filing, but lost. Just to add insult to injury, not only did PCOs want access to 13 GHz, they wanted access to the top 50 MHz portion of the band, as well. That 13,200–13,250 MHz top-50 MHz portion is currently not available to CARS, and is reserved solely for BAS TV Pickup operations. Nevertheless, the FCC allowed PCOs access to this portion of the 13 GHz TV BAS band as well, with the proviso that if broadcasters needed the top-50 MHz for ENG operations, they could notify a PCO to temporarily discontinue its use of that top-50 MHz portion. Disney and NAB filed a joint Petition for Reconsideration of this decision by the Cable Services Bureau. SBE filed *ex parte* comments in support of the Disney/NAB reconsideration petition, on August 15, 2002. Unfortunately, the FCC discounted broadcasters' concerns in its March 26, 2003, MO&O, where the FCC concluded that it would be workable for broadcasters to inform a PCO that the 13,200–13,250 MHz portion of the BAS band is needed for ENG operations (say, in response to a breaking news event).

WT Docket 00-32: 4.9 GHz TVDLs

This rulemaking created a new allocation at 4,940–4,990 MHz for public safety use of video feeds from mobile and intinerant platforms (such as a police helicopter); the term Tactical Video Down Link (TVDL) for such uses was coined by Richard Rudman, one of the founders of SBE program of frequency coordination. The linkage to TV BAS is that a 2.5 GHz and 6.5 GHz TV BAS and POFS share frequencies, and sometimes frequency coordination by police or sheriff departments with broadcasters has been “strained.” Police use of these shared frequencies has, at times, appeared not to understand what “co-equal” means, and it is never wise for a civilian ENG truck operator to argue with someone with a badge, gun, and arrest authority. Therefore, SBE supported this rulemaking, on the rationale that if public safety has its own dedicated band for TVDL operations, it would much prefer that band to the shared 2.5 GHz or 6.5 GHz bands. SBE comments to WT Docket 00-32 requested that if public safety were to be given 50 MHz of

dedicated spectrum for TVDL, then public safety TVDL operations at 2.5 and 6.5 GHz should be terminated after a two-year transition period; this issue is still pending at the FCC.

SUMMARY

You will note that not a single one of these rulemakings is a Media Bureau rulemaking. It is a sad commentary that the Media Bureau has all but abandoned the role it once played in BAS rulemakings. This is strange, given the importance of BAS to broadcast operations. If broadcasters can't get coverage of breaking news events back to their studios, or can't get programming from their studios to their transmitters, then all of the myriad of Media Bureau's public interest and public service requirements, and broadcasters' desire to serve their local communities, will be for naught. This writer hopes that the Media Bureau will at last take back ownership of BAS issues, as BAS spectrum issues have unfortunately not received a warm welcome at other FCC bureaus and offices.

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