

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

In the Matter of	)	
	)	
Allocation of 3G Spectrum below 3 GHz	)	ET Docket No. 00-258
	)	
Mobile Satellite Service	)	ET Docket 95-18
	)	
Policy & Service Rules for 2 GHz MSS	)	IB Docket 99-81
	)	

To: The Commission

**Petition for Reconsideration**

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 Petition for Reconsideration of the October 21, 2004, ET Docket 00-258 Seventh Report and Order (Seventh R&O) regarding Department of Defense (DoD) uplinks relocated to the 2,025–2,110 MHz TV Broadcast Auxiliary Services (BAS) band.

**I. The Seventh R&O Seriously Mis-States the SBE Position**

1. At Paragraph 31 of the Seventh R&O, the Commission characterizes the SBE position as agreeing that DoD uplinks at up to eleven sites could successfully share frequencies with 2 GHz TV BAS operations if those TV BAS operations had been converted from FM video analog to digital coded orthogonal frequency division multiplexing (COFDM). This is a gross and serious distortion of the SBE comments. The SBE comments stated that allowing up to eleven DoD uplinks to operate in the 2 GHz TV BAS band would only be feasible if TV BAS operations were converted to digital and if the side lobe suppression of the large DoD uplink antennas was improved by 30 dB or so by the addition of a "pie plate" shroud around the periphery of the uplink antenna, lined with an RF-absorbing material. The SBE comments pointed out that only these two steps, in combination, would be likely improve the desired-to-undesired (D/U) signal ratio between the desired TV BAS signal at an electronic news gathering receive only (ENG-RO) site and the undesired DoD uplink signal by 60 dB or so. This would have the potential to change the relationship between DoD uplinks and TV BAS from one of frequency sharing to frequency re-use. There is a world of difference between the two: Frequency sharing means that a DoD uplink cannot operate in the same area and at the same time as a co-channel TV BAS station, whereas

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frequency re-use means that a DoD uplink could simultaneously use the same frequency as an operating ENG station.

2. SBE realizes that adding a shroud to existing DoD uplink antennas might mean that a larger radome would be required, but believes this to be an entirely reasonable expense that should be born by DoD as one of the entry requirements for being allowed to operate co-channel with 2 GHz TV BAS. SBE therefore asks that the Commission issue a Memorandum, Opinion & Order (MO&O), correcting its mischaracterization of the SBE comments, and making it clear to DoD that any uplink selected for operation in the 2,025–2,110 MHz TV BAS band must have its side lobe suppression upgraded to at least -90 dBc.

3. SBE continues to note that one of the mitigation measures discussed in the Seventh R&O, that of construction shielding berms around a DoD uplink antenna, is unlikely to work. This is because such berms would restrict the look angles of an uplink dish, and both the Fourth NPRM and the Seventh R&O made it clear that low elevation angles will sometimes be necessary when a DoD uplink needs to communicate with a non-geostationary orbit military satellite. Coupled with the fact that ENG-RO sites are intentionally sited on tall buildings, near the tops of tall towers, and on mountain tops, so as to increase the likelihood that an ENG truck will have line of sight to an ENG-RO antenna, this would mean that a shield berm around a DoD uplink antenna would need to be impractically high, perhaps on the order of 100 to 200 feet AGL, in order to be beneficial to TV BAS operations. Such a tall berm would severely restrict the range of look angles available to a DoD uplink, to the degree that SBE expects DoD would find it to be "not acceptable."

### **II. Protection of TV Pickup Operations versus Protection of Fixed Link TV BAS**

4. At Paragraph 14 of the Seventh R&O it is unclear to SBE whether the Commission is saying that TV Pickup operations (*i.e.*, ENG) are not entitled to protection from interference, or only that the FCC Rules do not explicitly state how a fixed station (*i.e.*, a co-channel DoD uplink) is to go about demonstrating protection of TV Pickup receive only sites. SBE accordingly asks the Commission to confirm that a DoD uplink must demonstrate that it protects not only the receiving antennas of fixed-link 2 GHz TV BAS station (*i.e.*, studio-to-transmitter links (STLs) and inter city relays (ICRs)), but also ENG-RO sites. Protection of an ENG-RO is far more difficult because those receiving antennas are either omnidirectional, or remotely steerable, and accordingly no allowance for receiving antenna directivity can be applied.

### **III. Interference Threat Would Only Be One Way!**

5. At Paragraph 27 the Seventh R&O makes the rather stunning observation that, once a particular DoD uplink authorized for operation at 2 GHz, TV BAS operations would have to protect DoD operations, as well as DoD operations protecting TV BAS. This shows a fundamental misunderstanding of the relationship between TV BAS and DoD uplink operations. As was pointed out in the SBE comments, terrestrial TV BAS stations are not remotely an interference threat to the DoD receivers on board an orbiting military satellite, but a high-power DoD uplink is a serious interference threat to nearby ENG-RO sites. SBE is shocked that the Commission still apparently doesn't understand the grossly unequal relationship that would be created: The interference threat would be entirely from DoD uplinks to TV BAS. It is for this reason that only frequency re-use, and not frequency sharing, should be considered.

### **IV. "Arbitration"**

6. Finally, SBE is concerned about the language in the Seventh R&O, again at Paragraph 27:

For those rare situations where no reasonable coordination can be negotiated, the issue may be raised to the FCC and NTIA to jointly arbitrate resolution.

This sound very much like an un-equal playing field to SBE. It implies that if DoD insists on converting an uplink to 2,025–2,100 MHz (or, alternatively, adding frequencies in that band, in addition to existing 1.8 GHz space-ground link system (SGLS) frequencies), and local broadcasters object, on the grounds that, say, most of their ENG-RO sites have line-of-sight to the DoD uplink antenna, that DoD will be permitted to do an "end run" around the frequency coordination process, leaving out the local broadcaster, and simply get NTIA and the FCC to allow the newcomer uplink, regardless of the interference that would be caused.

7. SBE asks the Commission to clarify just what is means by the term "where no reasonable coordination can be negotiated." If DoD can't demonstrate protection of earlier-in-time ENG RO sites to local TV BAS licensees, then it has no business asking NTIA and/or the Commission to over-rule the protection requirements, and grant authorization for a 2 GHz DoD uplink over the objections of local TV BAS licensees.

8. SBE is particularly concerned about the Buckley AFB uplink. The SBE comments demonstrated that *every one* of the Denver area ENG-RO sites have line-of-sight to that uplink. Denver would be a classic example of where frequency sharing would never be feasible. Only frequency re-use.

**V. Summary**

9. The Seventh R&O seriously mischaracterized the SBE comments by only noting SBE's convert-TV BAS-to-digital requirement, while ignoring SBE's other requirement, that the side lobe suppression of DoD uplink antennas be improved by some 30 dB, to at least -90 dBc. The Seventh R&O also suggests that the Commission doesn't appreciate that the interference threat would be entirely one-way, from DoD uplinks to TV BAS. The Commission needs to confirm that ENG-RO sites must be protected, in addition to the protection of fixed link receive sites. Finally, the Commission needs to clarify just what it means by the ominous term "where no reasonable coordination can be negotiated."

Respectfully submitted,

Society of Broadcast Engineers, Inc.

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