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

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|)) | IB Docket No. 12-267 |
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To: The Commission

Comments of EIBASS

Engineers for the Integrity of Broadcast Auxiliary Services Spectrum (EIBASS) hereby respectfully submits its comments in the above-captioned Notice of Proposed Rulemaking (NPRM) relating to a comprehensive review of licensing and operating rules for Part 25 Satellite Communications. Pursuant to a December 19, 2012, Order to IB Docket 12-267, the comment deadline was extended from December 24, 2012, to January 14, 2013. Therefore, these comments are timely filed.

I. EIBASS Supports a Comprehensive Review

1. EIBASS agrees that it is time for a comprehensive review of the Part 25 Satellite Communications rules. EIBASS further agrees that unnecessary, *i.e.*, outmoded application filing requirements, and unnecessary technical restrictions, should be eliminated. However, the NPRM does not address two important regulatory issues: First, the requirement for terrestrial microwave services sharing spectrum with space-to-Earth satellite communications to protect satellite downlink receiving stations for all possible frequencies and all possible look angles (so-called "full-spectrum, full-arc" protection). Second, an the NPRM does not address updated interference protection criteria for fixed TV Broadcast Auxiliary Services (BAS) electronic news gathering receive-only (ENG-RO) sites.

II. Full-Spectrum, Full-Arc Protection Should Be Eliminated

2. The full-spectrum, full-arc protection issue is within the scope of this rulemaking, which is a broad comprehensive review of the Part 25 rules. Further, at paragraph 5, the first bullet point is "focus our rules on addressing interference concerns."

- 3. In its March 3, 2004, comments to the ET Docket 03-254 rulemaking concerning Mobile Satellite Service (MSS) sharing of the 7 and 13 GHz TV BAS bands (and also the 10 GHz Fixed Service band) for uplinking and downlinking, the Society of Broadcast Engineers, Inc. (SBE) objected to the proposal for terrestrial TV BAS operations to protect MSS downlinks on all possible frequencies and look angles. SBE argued that this would effectively convey greater than co-equal status to MSS downlinks with respect to broadcasters' terrestrial use of their 7 and 13 GHz terrestrial frequencies. SBE further argued that this would constitute a form of spectrum warehousing, and noted that Section 309(j)(4)(B) of the Communications Act explicitly prohibits spectrum warehousing, as follows:
 - (4) CONTENTS OF REGULATIONS. In prescribing regulations pursuant to paragraph (3), the Commission shall
 - (B) include performance requirements, such as appropriate deadlines and penalties for performance failures, to ensure prompt delivery of service to rural areas, to prevent stockpiling or warehousing of spectrum by licensees or permittees, and to promote investment in and rapid deployment of new technologies and services; [bolded italics added]
- 4. While stating in the January 20, 2010, ET Docket 03-254 Report & Order (R&O), at paragraph 14, that

We would **expect** prospective FSS licensees to select sites sufficiently removed from typical mobile BAS/CARS areas of use to reasonably accommodate the frequencies and look angles for which the FSS licensees seek coordination [bolded italics added]

and

We would **expect** NGSO FF licensees to seek coordination only for frequencies and look angles that they reasonably anticipate using over the life of the system [bolded italics added]

the Commission declined to *require* that these policies be incorporated into the Part 25 rules. That is, the Commission did not adopt the "keep away zones" proposed by SBE. Ironically, just such a policy was adopted in the recent WT Docket 10-153 rulemaking ("BAS Flexibility")¹, allowing fixed service entry to the 7 and 13 GHz TV BAS bands: Fixed service stations would not be allowed to have their path intersection any portion of the operational area of record for a TV Pickup station in the same band.² Indeed, the Commission decided that a TV Pickup station

WT Docket 10-153 R&O, FNPRM and MO&O dated August 9, 2011, effective October 27, 2011.

WT 10-153 R&O/FNPRM/MO&O, at Paragraph 23. For TV Pickup stations with ambiguous operational areas, such as "in the vicinity of city, state," a point-radius operational area of 90 km centered on the city of license reference coordinates for the parent TV station would be substituted. See the June 7, 2011, public notice DA 11-1011, Wireless Backhaul: Further Inquiry into Fixed Service Sharing of the 6875-7125 MHz and 12700-13200 MHz Bands.

on just one 7 GHz frequency, or just one 13 GHz frequency, would act as a keep-away preclusion for fixed service stations for the entire band.

5. Indeed, at paragraph 15 the Commission used as its justification that

...such matters have been fully considered and addressed in prior proceedings and see no need to revisit them here.

However, there was no footnote citation for what those "other proceedings" might have been; it was as if the Commission was not anxious to have too bright a light shined on the full-spectrum, full-arc issue.

- 6. After some research, EIBASS found the IB Docket 00-203 rulemaking. That rulemaking was the result of a May 5, 1999, *Request for Declaratory Ruling* by the Fixed Wireless Communications Coalition (FWCC), in response to the full-spectrum, full-arc problem and its preclusionary impact to terrestrial use of shared frequencies. On January 8, 2001, FWCC filed its comments to the resulting IB Docket 00-203 rulemaking, and on February 9, 2001, filed its reply comments. EIBASS found those comments to be persuasive and well done. But to no avail: In the January 30, 2002, Second R&O to IB 00-203, the Commission terminated its consideration of the issues raised by FWCC, concluding that the record in the proceeding provided an "insufficient basis" to change full-spectrum, full-arc protection for satellite downlinks.³ Thus, FWCC did not get its requested declaratory ruling, and satellite receiving stations continue to enjoy full-spectrum, full-arc spectrum warehousing.
- 7. EIBASS submits that it is time to revisit this super-priority given to terrestrial satellite receiving stations. Just as the Commission would not grant a terrestrial point-to-point microwave link on other than immediately needed paths and frequencies, merely because of possible future need, a satellite receive station should only be entitled to protection of downlink frequencies and look angles that are actually used. If a particular satellite fails and the downlink needs to communicate with a different satellite, and thus be protected for a different look angle, then the licensee should have to undertake a new prior coordination notice (PCN) study if a shared band is involved. An engineering STA could be granted for the downlink's short-term use, while the PCN process is undertaken.

³ IB 00-203 Second R&O, at paragraph 1.

III. Protection Criteria for ENG-RO Sites

- 8. Then there is the problem of uplinks that share TV BAS spectrum proposing stations in metropolitan areas with heavy ENG use; *i.e.*, Class I or Class II ENG markets. ⁴ An example of an uplink at an inappropriate site is the October 26, 2011, application by ViaSat, Inc. (ViaSat) for an Earth Exploration Satellite Service (EESS) 2 GHz uplink at Duluth, GA, File Number SES-LIC-20111027-01267. Duluth is a suburb of the Atlanta, GA, TV market. A Petition to Deny the ViaSat application was filed by Station WGCL-TV, D19 (V46), Atlanta, on January 6, 2012, and the application was subsequently withdrawn on February 15, 2012. But had WGCL-TV not been alerted to this proposal for an inappropriately-sited uplink, EIBASS has little doubt that it would have been granted. In that event, the first WGCL-TV might have learned of the cochannel operation was when interference to one or more of its ENG-RO sites began occurring.
- 9. Another example is Globalstar USA Licensee LLC (Globalstar). Globalstar filed an experimental application, File Number 0026-EX-PL-2010, for an MSS uplink at Milpitas, California, in the San Francisco Bay Area. The Milpitas location has unobstructed line-of-sight to at least five fixed ENG-RO sites: Loma Prieta Mountain, Monument Peak, Mt. Allison, San Bruno Mountain and Sutro Tower in San Francisco, so a more inappropriate site could hardly be found. Although Globalstar included 6,875–7,055 MHz as one of its requested bands (TV BAS channels B1 through a portion of B8, or 72% of the 7 GHz TV BAS band spectrum), the resulting experimental license, WF2XKO, fortunately only authorized 5,091–5,250 MHz, which does not include any TV BAS band frequencies. Thus, the spectrum train wreck was avoided, but asking for 7 GHz TV BAS frequencies in a TV market with heavy ENG use was inappropriate to start with.
- 10. EIBASS further notes that the Globalstar application showed the widest emission as 2M50G2D, or 2.5 MHz, yet the application requested seventy-two times that amount of bandwidth in its request for 7 GHz operation-- exactly the abusive scenario raised by SBE in 2004.

⁴ As categorized by SBE, and as adopted in the July 3, 2002, ET Docket 95-18 Second R&O, the four categories of 2 GHz BAS use are:

Category I: "Los Angeles" or "LA." Extremely heavy use, mostly split channel. There is lots of itinerant use and channel borrowing and sharing; even so, seven channels aren't enough.

Category II: "Metro." Spectrum is heavily used, especially during the news hours. There is some split channel use, not a lot, and some itinerant use. There is regular channel borrowing and sharing.

Category III: "Light." There is some electronic news gathering (ENG), some fixed link, maybe even some channels mostly vacant most of the time. Typically, a small-market, low-competition situation.

Category IV: "Rural." ENG is unheard of, the use is for fixed, long-haul relays to small-market TV stations, to TV translator stations, and to cable television headends. In some areas not all channels are even used.

- 11. Thus, EIBASS submits that it is not sufficient to only have unenforceable "expectations" that a shared-with-TV BAS band uplink or downlink station will only propose locations far from ENG operations in major markets, or will only request frequencies and bandwidths actually needed. The Part 25 rules need to be updated to preclude these abuses.
- 12. In the ET Docket 00-258 rulemaking, the Commission allowed the Department of Defense (DoD) to operate Space Ground Link System (SGLS) uplinks in the 2 GHz TV BAS band at up to eleven sites. As a result of negotiations between SBE and DoD, a *Memorandum of Understanding* (MOU) was negotiated, and ultimately signed on April 30, 2009.⁵ This MOU obligates DoD to protect fixed ENG-RO sites to a no more than 0.5 dB degradation of the ENG receiver's noise threshold. A noise threshold protection is needed because a breaking news story may occur at a location that is at the edge of the effective reception distance for the ENG-RO site; that is, unlike a fixed, point-to-point microwave path, where the transmit and receive ends are known and fixed, and thus the expected receive signal level can be calculated, a TV Pickup station, with its mobile operation, rarely knows in advance where its transmitting location will be. It is for this reason that broadcasters make the substantial investment in fixed ENG-RO receiving antennas on the tops of tall buildings, on mountain tops, or near the top of tall towers, so as to increase the likelihood that, no matter where a news story occurs, the ENG truck will have line-of-sight to at least one ENG-RO site.
- 13. Given the unique nature of ENG-RO sites, with their high elevation, omnidirectional or remotely steerable in real time receiving dishes, and use of varying polarizations (*i.e.*, horizontal, vertical, right-hand circular and left-hand circular), conventional Part 25 interference methodologies, are ineffective. These methodologies are based on generally large-diameter satellite receiving dishes, and assume a fixed, point-to-point microwave path with a receiving antenna meeting at least Category B criteria. Instead, the protection criteria should be the same as agreed to by DoD: No more than a 0.5 dB degradation of the ENG receiver's noise threshold.
- 14. To provide a safe harbor for satellite uplink applicants, EIBASS proposes that an ENG-RO site can be assumed to have a receiving antenna gain of 20 dBi at 2 GHz, 29 dBi at 7 GHz, and 31 dBi at 13 GHz (corresponding to an MRC Ultrascan II ENG receiving antenna) and a receiver with a noise threshold of -95 dBm (corresponding to the most robust case use of QPSK modulation). Thus, to not degrade this noise threshold, the receive signal level (RSL) of the undesired satellite uplink signal must be no stronger than -104.1 dBm at the input to the ENG receiver. If calculations show that the predicted RSL meets this criteria, perhaps because of a

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See http://www.eibass.org/index.php/fcc-filings/45-sbe-dod-mou-regarding-the-2-ghz-tv-bas-band

prudently located uplink location with terrain obstruction to all nearby ENG-RO sites, then the uplink application would have been deemed to have demonstrated protection of the TV Pickup operation. However, the calculation could not assume any receiving antenna pattern isolation or any polarization discrimination, and must take into account the AGL height of the ENG receiving antenna (which is often substantial).

15. EIBASS notes that as of April 16, 2008, the Commission allowed TV Pickup licensees to add their fixed ENG-RO sites to their TV Pickup license.⁶ EIBASS further notes that as a result of the WT Docket 10-153 rulemaking regarding BAS Flexibility, 7 and 13 GHz TV Pickup stations must add their fixed ENG-RO site(s) to their TV Pickup license(s).⁷ To provide an incentive for 2, 2.5 and 6.5 GHz TV Pickup licensees to voluntarily add their fixed ENG-RO sites to their TV Pickup license(s), EIBASS proposes that a Part 25 uplink station sharing spectrum with TV BAS only has an obligation to protect fixed ENG-RO sites of record. That is, if for some reason a 2, 2.5 or 6.5 GHz TV Pickup licensee chooses not to add any or all of its ENG-RO sites to its TV Pickup license, it will mean forgoing protection for those sites. EIBASS notes that this would not mean that TV Pickup licensees cannot modify an ENG-RO site or add an ENG-RO site. If the shared Part 25 satellite uplink operation is co-primary, an existing uplink station would not have any obligation to protect new or modified ENG-RO sites constructed after the uplink was authorized. Similarly, though, a modifying uplink would be required to protect all ENG-RO sites of record at the time of any modification. That is, between co-primary stations, the newcomer or modifying station is obligated to protect the earlier-in-time incumbent.⁸ Finally, for secondary satellite uplinks, such as the Earth Exploration Satellite Service (EESS) operating the in the 2 GHz TV BAS band, new and/or modified ENG-RO sites would have to be protected. Thus, a secondary EESS station would be prudent to select a remote site, unlikely to be displaced by expanding 2 GHz TV ENG operations.

IV. Space Station Control Arrangements

16. At paragraph 23, the NPRM proposes to eliminate the requirement for an uplink applicant to specify a street address and telephone number for each TT&C station's control point as part of its application. Instead, the Commission proposes to allow the applicant to provide this

⁶ See Licensees of Television Pickup Stations Now Have the Option to Identify Their Stationary, Receive-Only Sites on ULS To Aid Coordination with Other Services; DA 08-892, dated April 16, 2008.

⁷ August 9, 2011, WT 10-153 R&O/FNPRM/MO&O, at paragraph 31.

The "first in time" principal was spelled out at paragraphs 53 and 58 of the February 7, 2002, ET Docket 98-142 R&O, and at paragraph 21 of the April 2, 2003, ET Docket 98-142 MO&O, namely that a laterauthorized station has to protect the operation of an earlier-authorized station.

information at a later date, after the uplink license has been granted. So long as this supplemental information would become available in the International Bureau Filing System (IBFS), linked to the original application, EIBASS has no objection to this approach. However, if the supplemental control point contact information would not be available on-line and linked to the original application, EIBASS objects to the proposal, at least if the uplink shares spectrum with TV BAS. It is not just the Commission that should be able "to quickly locate any TT&C earth stations that may be in an emergency area" so as to "verify that the operator is able to maintain control of its satellite(s)." If the uplink is operating on a frequency shared with TV BAS, a broadcaster experiencing interference and having a reasonable belief that the interference might be coming from a satellite uplink station, should also be able to contact the licensee at a known control point and telephone number. This information is routinely required for all point-to-point TV BAS applications, and EIBASS sees no reason why a satellite operator shouldn't be expected to provide the same information.

V. Summary

17. The stated purpose of this rulemaking is a comprehensive review of licensing and operating rules for satellite services. Therefore, addressing the full-spectrum, full-arc issue, and interference criteria for protection of fixed TV BAS ENG-RO sites, are within the scope of the rulemaking, even though not explicitly addressed in the NPRM. Control point information for satellite stations must continue to be available not just to the Commission, but to any interested party, and so a delayed requirement to report TT&C control point information must be implemented so that it is available on-line and linked to the original application.

Respectfully submitted,

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