

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

In the Matter of )  
)  
Fixed Wireless Communications Coalition, Inc. ) RM-11778  
Request for Modified Coordination Procedures )  
in Bands Shared Between the Fixed Services )  
and Fixed Satellite Service )  
)

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 Petition for Rulemaking filed by the Fixed Wireless Communications Coalition, Inc. (FWCC) relating to a more spectrally efficient frequency coordination policy for Fixed Satellite Service (FSS) Earth stations. Pursuant to a December 9, 2016, Public Notice assigning rule making (RM) number 11778 to the FWCC petition dated October 11, 2016, the comment deadline is January 9, 2017 (since 30 days from December 9, 2016, is January 8, 2017, a Sunday). Therefore, these comments are timely filed.

**I. EIBASS Supports the FWCC Petition**

1. EIBASS agrees with FWCC: The long-standing practice of the Commission to routinely frequency coordinate terrestrial FSS satellite uplink and downlink stations for all possible frequencies in their band, and for all possible look angles, so called full-band, full-arc licensing and frequency coordination, represents an inefficient use of spectrum that constitutes a *de facto* policy of spectrum warehousing. The Commission should reconsider forthwith its practice of automatically granting FSS stations such special case frequency coordination status, and treat FSS stations like terrestrial Fixed Service (FS) stations; that is, as the default case, only frequency coordinate, license and require others to protect, frequencies and paths actually being used. EIBASS commends FWCC for once again raising this unjustified and inefficient frequency coordination policy.

2. EIBASS raised this same issue in its January 14, 2013, comments to IB Docket 12-267, the stated purpose of which was "a comprehensive review" of the Part 25 Satellite Communications rules.<sup>1</sup> EIBASS felt a "comprehensive review" of the Part 25 rules would include examining the preferential full-band, full-arc coordination for FSS stations and filed comments regarding this practice. Yet in the August 13, 2013, IB 12-267

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<sup>1</sup> September 28, 2012, IB Docket 12-267 Notice of Proposed Rulemaking (NPRM), at Paragraph 1.

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Report & Order (R&O), at pages 68–69, paragraph 221, footnote 487, the Commission declared the EIBASS comments as "beyond the scope of this proceeding," However, the Commission also stated "We will address these recommendations at another time." Thanks to FWCC and its RM-11778, that "other time" has now arrived.

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

3. So once again the full-spectrum, full-arc protection issue is the subject of an FCC rulemaking (albeit at this stage only a public notice assigning an RM number). 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 FS 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' use of 7 and 13 GHz Part 74 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 R&O, at paragraph 14, the Commission noted 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 FSS 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

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the WT Docket 10-153 rulemaking (“BAS Flexibility”)<sup>2</sup>, allowing FS stations entry to the 7 and 13 GHz TV BAS bands: FS stations would not be allowed to have their path intersect any portion of the operational area of record of a TV Pickup station in the same band.<sup>3</sup>

5. At paragraph 15 of the ET Docket 03-254 R&O the Commission used as its justification of not re-visiting the full-band, full-arc issue 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 anxious not to have too bright a light shined on the full-band, 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 FWCC, in response to the full-band, 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-band, full-arc protection for satellite downlinks.<sup>4</sup> Thus, FWCC did not get its requested declaratory ruling, and FSS stations continue to enjoy full-band, full-arc spectrum warehousing.

7. EIBASS agrees with FWCC: It is time to revisit this super-priority routinely given to terrestrial FSS stations. Just as the Commission would not grant a terrestrial point-to-point microwave link a license for facilities other than immediately needed paths and frequencies, merely because of possible future need, the default case for a FSS station should be authority to operate and protection of only the actual uplink/downlink frequencies and look angles that are actually used. In an era where the Commission is doing its best to more efficiently use spectrum by allowing users from different Rule Parts to use the same spectrum, it no longer makes sense to routinely grant FSS

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<sup>2</sup> WT Docket 10-153 R&O, FNPRM and MO&O dated August 9, 2011, effective October 27, 2011.

<sup>3</sup> 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*.

<sup>4</sup> IB 00-203 Second R&O, at paragraph 1.

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stations full-band, full-arc protection. Making this change would help ensure the highest and best use of limited and valuable shared spectrum.

8. EIBASS recognizes that while terrestrial FS stations can have their frequency and other parameters changed without too much difficulty, changes or repairs to orbiting satellites, especially satellites in Clarke orbit, are not possible. If a transponder fails, either another transponder frequency on the same satellite must be used, or, in the rare event of loss of an entire satellite, a different satellite, at a different location in Clarke orbit, must be used. Further, such changes need to be available in real time, or near real time. The FWCC proposal for growth channels and growth look angles for an alternative satellite or satellites presumes failure protocols for alternative transponders and/or alternative satellites that may not be in place, but it's a start for accommodating the need for real time back up, while still allowing terrestrial FS stations access to frequencies in a shared band if the FS applicant can demonstrate that no other bands are available or suitable, and the FS applicant has an immediate need for the new path. EIBASS believes that the FWCC proposal is a reasonable balancing of FS and FSS needs.

9. EIBASS concedes that if an FSS station can demonstrate a clear and compelling need for full-band, full-arc authority, such as a multi-dish teleport facility, then the less spectrum efficient full-band, full-arc authorization should be available. Without such a demonstration EIBASS contends that there are no technical or legal reasons to authorize full-band, full-arc operation.

10. A provision should be available for routine full-arc licensing (but not full-band licensing) of FSS stations communicating with non-geosynchronous low Earth orbit (NGSO LEO) satellites, which require tracking the satellite as it comes into view from a particular fixed location and travels across the sky until loss of the look angle at the opposite horizon. However, such a full-arc frequency coordination should only be granted upon a showing of need, and not by default, which is now the practice. Further, only those frequencies actually needed should be granted for uplinks, or require protection for downlinks.

11. Even if no changes to full-band, full-arc protection of FSS stations are made, there are several steps the Commission should take to minimize the impact to terrestrial FS use in shared bands, as follows:

11A. Eliminate analog transmissions. A C-band uplink might use as much as 3 kW of transmitter power for analog but only 20 W transmitter power for digital. When checking on-line satellite listings EIBASS cannot find any analog transmissions for full time use. The satellite companies have only a few transponders that can do analog if needed. Indeed, most satellite news gathering (SNG) trucks used by broadcasters can no longer uplink an analog signal. The Commission proposed eliminating analog transmissions by satellites many years ago but never followed

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through with upgrading to all digital.<sup>5</sup> With the Commission requiring source identification of uplink transmitters, this is an ideal time to sunset analog satellite transmissions

11B. Enforce user fees. Conduct an audit of all FSS licensees who have not paid their annual user fee for whatever reason; perhaps because they have gone out of business, or possibly due to oversight or even because lack of enforcement causes licensees to believe they can get away with it. FSS licenses should be canceled if user fees have not been paid.

11C. Enforce the "construction completed" notification requirement.<sup>6</sup> This would ensure that only actually constructed FSS stations receive protection. That is, enforce the same requirement for FSS licensees that Part 74, Part 90 and Part 101 FS licensees have had for years: If a timely construction completed notification is not filed (*i.e.*, the equivalent of a Universal Licensing System (ULS) "NT" filing), the license is canceled.

11D. Shorten the FSS license term from 15 years to 5 years. EIBASS believes that many FSS facilities go away, leaving their 15-year license as a ghost license, un-necessarily precluding terrestrial operation. FSS licensees sometimes add additional dishes but fail to modify their license to reflect these additional antennas. Allowing 15 years before a license renewal is required makes it too likely that the FSS license will no longer reflect actual operation.<sup>7</sup>

11E. Make it more difficult to obtain Special Temporary Authority (STA) for a new FSS station, versus a regular FSS license. Short of a satellite or transponder failure, no one urgently needs a FSS license as it takes a while to contract for satellite service, purchase an uplink, obtain the necessary local permits, and install an uplink. Uplink users need to submit their FSS application when they purchase the hardware, and not wait until the facility is constructed and then realize they need a license to operate.<sup>8</sup>

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<sup>5</sup> October 17, 2008, IB Docket 00-248 Eighth Report and Order and Order on Reconsideration, at paragraphs 30–32.

<sup>6</sup> Section 25.133(b)(1) of the FCC Rules requires an FSS applicant to "certify it has completed construction."

<sup>7</sup> EIBASS notes that no rule change would appear to be necessary, as Section 25.121(b) of the FCC Rules states "The Commission reserves the right to grant or renew station licenses for less than 15 years if, in its judgment, the public interest, convenience and necessity will be served by such action."

<sup>8</sup> EIBASS notes that Section 25.120(b)(1) of the FCC Rules regarding FSS STAs explicitly states "Convenience to the applicant, such as marketing considerations or meeting scheduled customer in-service dates, will not be deemed sufficient for this purpose."

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11F. Allow FS stations to use previously protected spectrum as SECONDARY while licensed FSS stations are PRIMARY on their currently licensed frequency and look angle. Provisions for an "immediate STA" for FSS should be created to allow real time or near real time shifting of a transponder frequency upon failure of a particular transponder, or shifting to another satellite if failure of an entire satellite. Documentation from the satellite provider should of course be a required exhibit, but informal documentation, such as an e-mail, should be acceptable. The "immediate STA" should not be available for "convenience" changes of frequency or satellite.

An example scenario could be FSS has to immediately move transponder and/or satellite due to failure. Chances are new transponder/satellite won't cause interference to or receive interference from terrestrial FS link, but if so the terrestrial FS link has to immediately shut down if causing interference. If the FS link is receiving interference, it must either accept the interference, or find a new frequency. Of course, in the case of an FSS downlink frequencies, there is no risk of the FSS station causing interference to a terrestrial FS link. In the case of FSS uplink frequencies, there is no risk of the FSS station receiving interference from a terrestrial FS station. When the conditions are public and included as Special Conditions in the terrestrial FS license, the FS station assumes the risk to get access to spectrum that would otherwise not be available to them. In this scenario, any costs involved in dealing with inter-service interference would be paid for by the FS user because the terrestrial FS station knew in advance that they were sharing the band with the FSS user and the FS licensee accepted the possibility of interference if the FSS station had to move to another satellite or transponder frequency due to a satellite failure.

11G. FSS requests to change transponder and/or satellite. A typical scenario might be FSS chooses to move to new transponder and/or satellite for its own convenience. For example, their current contract has expired and the FSS user finds a better deal elsewhere. In this case, a new FSS application would have to frequency coordinate its proposed satellite(s)/transponder(s) around all existing terrestrial FS users pursuant to the principle that new users have to protect existing users. If there is a conflict during the coordination process, the FS gets 60 days to find, license and move to a new frequency before the FSS user can start operations and/or the newcomer FSS station may have to find a different transponder/satellite, or other uplink location to get a license. Once the change in transponder frequency or satellite is licensed, the FSS station then becomes PRIMARY to terrestrial FS in the shared band. EIBASS expects that much of the time the FSS station stays on one transponder and satellite. If/when a FSS station has to move there is a chance that the proposed transponder and/or satellite would not interfere with secondary terrestrial FS operations anyway. In this scenario, costs involved to make changes to an existing FS system to accommodate the FSS user's frequency or satellite change would be paid by the FSS user

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requesting the change because this change is being requested by the FSS user and not required because of a satellite failure.

EIBASS sees this as fair:

11G1: FS gets bandwidth and knows in advance it might be forced to move in the case of a satellite failure (*i.e.*, the FS user assumes the risk of establishing a terrestrial link in a band shared with FSS).

11G2: It is a whole lot easier to change a terrestrial link's frequency than to fix a satellite. Most modern terrestrial microwave equipment is frequency synthesized, with inherent user programmable frequency agility.

11G3: No more spectrum is "warehoused."

11H. Undertake an audit of coordinate accuracy for FSS stations. As shown by the attached Figure 1, a preliminary audit by EIBASS of FSS Earth station records in the Commission's MyIBFS data base for 2, 6, 7 GHz and 27–40 GHz Ka band satellite uplink Earth stations revealed over 200 stations with apparent licensing issues. As shown by Figures 2 and 3, some stations have inaccurate coordinates. EIBASS surmises this is because the coordinates were incorrectly determined in the first place, or because the FSS station ended up being constructed at a different site, or possibly even because the FSS station was relocated, without benefit of first obtaining a modified license for the new site. As shown by Figure 4, some FSS stations do not even appear to exist, even though licensed.

### III. Summary

12. EIBASS supports the FWCC petition for rulemaking, RM-11778.<sup>9</sup> In other words, fewer full-band, full-arc licenses should be issued, and only specific frequency full-arc licenses should be issued for FSS stations communicating with non-geostationary satellites. A shared risk protocol would be created for FS and FSS stations in a shared band, to eliminate "warehousing" and provide both users access to the same spectrum. Finally, an audit of FSS stations in the Commission's MyIBFS data base is sorely needed.

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<sup>9</sup> EIBASS notes that at page 3, Section B of the FWCC petition, listing the shared FS-FSS frequency bands, the 6,875-7,125 MHz Part 74 TV BAS band was omitted. The 7 GHz TV BAS band is now shared with FS stations, and also with MSS feeder link stations. Thus, the 7 GHz TV BAS band should be included in this proceeding.

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**IV. List of Figures**

13. The following figures or exhibits have been prepared as a part of these RM-11778 comments:
1. List of 234 FSS Earth stations with apparent licensing discrepancies.
  2. Coordinates vs. address location of FSS Station E000578, RCN License Subsidiary, Inc., Charles Town, Jefferson County, West Virginia.
  3. Coordinates vs. address location of FSS Station E130139, Ultisat, Inc., Indian Mountain, Yukon-Koyukuk, Alaska.
  4. Apparently non-existent FSS Station E980310, Prepa Networks Corp., Guaynabo, Guaynabo County, Puerto Rico.

Respectfully submitted,

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