



March 6, 2017

Ms. Marlene H. Dortch, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

Re: RM-11778, *Fixed Wireless Communications Coalition, Inc., Request for Modified Coordination Procedures in Bands Shared Between the Fixed Service and the Fixed Satellite Service*
Ex Parte Communication

Dear Ms. Dortch:

The Fixed Wireless Communications Coalition (FWCC)¹ files this *ex parte* statement in response to filings made simultaneously with or subsequent to our Reply Comments of January 24, 2017.

A. BACKGROUND

The Commission routinely licenses an earth station in the Fixed Satellite Service (FSS) over an entire frequency band, and across the entire geostationary arc, regardless of how little spectrum the earth station plans to use and how few satellites it plans to access.² The practice is sometimes called “full-band, full-arc” coordination. The Commission permits it even in bands shared with the Fixed Service (FS) on a co-primary basis.

¹ The FWCC is a coalition of companies, associations, and individuals interested in the fixed service – i.e., in terrestrial fixed microwave communications. Our membership includes manufacturers of microwave equipment, fixed microwave engineering firms, licensees of terrestrial fixed microwave systems and their associations, and communications service providers and their associations. The membership also includes railroads, public utilities, petroleum and pipeline entities, public safety agencies, cable TV providers, backhaul providers, and/or their respective associations, communications carriers, and telecommunications attorneys and engineers. Our members build, install, and use both licensed and unlicensed point-to-point, point-to-multipoint, and other fixed wireless systems in frequency bands from 900 MHz to 95 GHz. For more information, see www.fwcc.us.

² See 47 C.F.R. §§ 25.203(c)(2)(ii), (iv).

The FS, in contrast, is permitted to license only the specific locations, azimuths, and frequencies it will actually use.³

On October 11, 2016, the FWCC, acting on behalf of its members that use, operate, manufacture for, engineer, and coordinate the FS, filed the Petition for Rulemaking that initiated this docket. We explained how full-band, full-arc earth station licensing blocks the FS from making productive use of vacant frequencies and pointing directions. This is a form of spectrum warehousing, which the Commission has condemned in other contexts.⁴ We requested these outcomes:⁵

1. An FSS earth station in a shared FS/FSS band can coordinate and license only the specific combinations of frequency, azimuth, and elevation angle it plans to use within one year. Combinations not in use after one year are deleted from the license.
2. An FSS applicant can coordinate any amount of additional “growth capacity” for possible future use, and can hold that growth capacity for any length of time. It can license any or all of its growth capacity at any time with no further coordination, and must be using the newly licensed capacity within one year. An FS applicant can coordinate on and license FSS growth capacity only as a last resort, and only after attempting to consult with the FSS licensee.
3. The operator of an earth station that must routinely access multiple satellites, or must add and change satellites on short notice (such as a teleport or transportable), can request a waiver permitting it to coordinate and license any or all frequencies, azimuths, and elevation angles with no time limit on use.
4. In the event of a genuine emergency such as satellite failure or natural disaster, an FSS licensee can operate on its growth capacity immediately and without prior notice. It must apply to license the usage within ten days. (We added this provision in our Reply Comments, in response to concerns raised by opponents.)

Scope of this letter. So as not to clutter the record, we respond here primarily to new and expanded arguments that appeared in the docket since our last filing.

³ An FS link is also subject to payload requirements and must be carrying half that amount of traffic within 30 months of licensing. 47 C.F.R. § 101.141(a)(3)(ii). An FSS earth station retains its license no matter how little traffic it carries.

⁴ *E.g., Intelsat Licensee LLC*, 27 FCC Rcd 11234 at ¶ 15 (IB 2012) (“Commission’s policy against spectrum warehousing”); *Redesignation of the 17.7-19.7 GHz Frequency Band*, 17 FCC Rcd. 24248 at ¶ 92 (2002) (“policy of preventing spectrum warehousing and promoting more efficient use of the spectrum by incumbents and new entrants alike”).

⁵ This is a summary. Please see our Petition and Comments for details.

B. INTRODUCTION

The FSS has enjoyed a large coordination advantage over the FS in shared bands for many decades. Each earth station routinely holds in reserve, against speculative future need, an entire allocated band, amounting to hundreds of megahertz, and every possible pointing angle toward the geosynchronous arc, for the life of the license. This benefits earth station operators, who can change satellites or transponders without the inconvenience of having to modify the license. It disadvantages FS operators, who remain locked out of vacant spectrum they need.

The FS had no objection to routine full-band, full-arc coordination in earlier years, when spectrum was plentiful. Today, when there is not enough to go around, earth stations' hoarding has become problematic. The FS and its customers pay a high price for FSS operators' casual convenience.

One test of whether full-band, full-arc coordination still makes sense is whether the Commission would adopt it today. That is almost unthinkable. The Commission and its regulatees struggle to squeeze the maximum productivity out of every last hertz. If the FS/FSS sharing regime were now taking effect for the first time, no one would seriously consider a request that earth stations be allowed to hold large quantities of spectrum just in case they might need it someday. The practice is no more reasonable for having been in place a long time. In no other service is a licensee permitted to block others from unused, non-auctioned spectrum.

The FSS tries to defend its special treatment by citing the cost and delay of construction and launch, and the importance of traffic that satellites carry. These arguments once distinguished satellite operations from other services, but less so nowadays. Commercial mobile carriers pay billions of dollars for spectrum—satellite spectrum is free—and take many years to develop and deploy. Still other services, including the FS, carry communications that are critical to the safety of life and property, and to the proper functioning of markets and the economy. The satellite industry has an important place in the mix of technologies that keep the Nation running, and its characteristics differ in some respects from those of other services. But nothing particular to satellite communications justifies the enormous waste of spectrum that results from full-band, full-arc coordination.

C. FILINGS IN SUPPORT

Several parties came out in favor of the FWCC petition, additional to those that filed initial comments. The National Spectrum Management Association, whose membership includes the nation's leading experts on frequency coordination, supports the elimination of spectrum warehousing. Burns & McDonnell, an engineering firm, explains how full-band, full-arc licensing disadvantages the electric utilities' fixed microwave networks. Lockard & White, another engineering firm, notes that putting an unlimited hold on unused spectrum is not in the public interest, and mentions the Commission's long history of working against that practice. The Wireless Internet Service Providers Association agrees there are sufficient reasons for the

Commission to open a rulemaking on the FWCC petition. Google Fiber, Inc. offers detailed arguments on why satellite interests fail to make the case against the FWCC petition.

D. EARTH STATIONS' RESPONSE TO EMERGENCIES

Several satellite interests defend full-band, full-arc coordination on the ground that earth stations must make rapid operational changes in the event of an emergency, such as satellite outage or natural disaster.⁶

We agree the issue needs attention. In response to this same concern raised in the first round of comments, our reply comments proposed that an FSS licensee be allowed to operate on its growth capacity immediately and without prior notice in the event of a genuine emergency, and that it be required to apply to license the usage within ten days, if the usage persists that long.

FSS interests may object that our proposal does not account for every conceivable emergency situation. They could be right. But no plausible logic entitles the FSS to absolute protection at the expense of the co-primary FS. The FS likewise has outages and emergencies that interrupt critical transmissions and require operators to change locations and frequencies. As explained in our reply comments, the FS should not have to bear all of the risks as between the two services. The relief we seek will distribute that risk more equitably, while having minimal adverse effect on earth station operations.

E. NEEDS OF TRANSPORTABLES

Two parties that operate temporary-fixed (“transportable”) earth stations explain that they may not know the location and operational details of an event until a few days before it occurs.⁷

Our reply comments suggested that temporary-fixed licensees are good candidates for full-band, full-arc waivers, subject to the existing requirement that they coordinate individually with potentially affected FS facilities.⁸

⁶ Satellite Industry Ass’n 11-12, 15-16; SES Americom at 4; National Association of Broadcasters at 2; General Communication, Inc.; The SPACECONNECTION, Inc.; Encompass Digital Media; Trinity Christian Center of Santa Ana, Inc. at 2; Public Broadcasting Service at 1; Content Companies.

⁷ Letter from Pacific Satellite Connection, Inc. (filed Jan. 19, 2017); Letter from PSSSI Global Services, LLC (filed Jan. 12, 2017).

⁸ 47 C.F.R. § 25.277(d).

F. RESPONSE TO OTHER SATELLITE CONCERNS

The Satellite Industry Association (SIA) denies the existing rules are biased in favor of FSS,⁹ saying they are more than fair to FS applicants.¹⁰ It insists the coordination requirements are “substantially the same for both services”¹¹—that the dearth of FS licenses in the 4 GHz band is due to something other than imbalance in the coordination rules.¹² It asserts that full-band, full-arc coordination is a necessary element in efficient use of shared spectrum.¹³ It sees no unfairness in an FS operator having to select sites, take advantage of terrain, install shielding, and incur cost and delay—all to protect spectrum that an earth station is not using, has no plans to use, and may never use.¹⁴

SIA tries to leverage the FSS international-only restriction at 11 and 13 GHz¹⁵ into a claim that the rules overall “strongly tilt the balance of coordination in favor of FS operations.”¹⁶ This is wrong. There are no comparable FSS restrictions on 4 and 6 GHz bands, the only FS spectrum suitable for links that must span tens of miles. All of the shared bands, including 11 and 13 GHz, permit FSS full-band, full-arc coordination to the FS’s detriment. SIA’s protestations notwithstanding, the rules overall tilt heavily in favor of FSS.

SIA concedes there are few FS links at 4 GHz.¹⁷ To avoid the correct explanation—large numbers of FSS receive dishes blocking FS coordination—SIA tries an historical theory. SIA explains that FS used the 4 GHz band first. When FSS earth stations arrived, they had to site in remote areas to avoid FS links. In time the FS cut back its use of the band, and FSS began locating its earth stations more centrally. Now, SIA suggests, the FS’s having to site around FSS earth stations makes it no worse off than the FSS was in those earlier days.¹⁸

SIA omits the timeline, which is key. The FS initially built out in the band in the 1950s and 60s. The first practical geosynchronous satellites launched in the early and mid-1970s, when unused spectrum was far more plentiful than today. Fifteen years later, earth station coordination zones carpeted the Nation. Four-gigahertz receive-only earth stations became ubiquitous, encouraged by a deregulatory regime that eased their licensing requirements and which, since

⁹ SIA at i.

¹⁰ SIA at 7-8.

¹¹ SIA at 3.

¹² SIA at 4.

¹³ SIA at 13.

¹⁴ SIA 6-7; *see also* SES Americom at 4.

¹⁵ SIA at 3.

¹⁶ SIA at 2.

¹⁷ SIA at 4.

¹⁸ SIA at 6-8.

1991, has allowed them to register for interference protection against the FS.¹⁹ Many receive-only registrants were consumers whose non-steerable backyard dishes accessed one or a few transponders on one satellite.

Through all of this history, FS links coordinated as they do today—only for the locations, azimuths, and frequencies they actually used. Earth stations, including receive-only earth stations, have always used full-band, full-arc coordination.

The FS's task now of siting around large numbers of full-band, full-arc earth stations is vastly more difficult than the FSS's siting around the FS in the 1970s. This is due to both the difference in coordination procedures and the greatly increased demands on spectrum. Making matters worse, over a quarter of the earth stations in the Commission's database that the FS is required to protect do not exist, while another 38 percent are located far from their licensed coordinates.²⁰

When the FS operated large 4 GHz networks during the 1960s and 70s, says SIA, it expressed no complaints about the FS/FSS sharing framework.²¹ SIA thinks this is because the rules “overwhelmingly” favored the FS by protecting installed FS incumbents.²² We disagree. The FSS did not complain either, in those days, about the need to protect incumbents. There was no need to. The rules protected only the FS locations and frequencies actually in use. FS occupied bandwidths were generally narrower than today, and pressure for spectrum was far lower. FSS then had enough spectrum for its own actual needs, as did the FS.

Similarly, SES Americom describes the Commission's having asked in 1970 whether the FS had left room for FSS, saying it had “substantially saturated” C-band in some areas.²³ (C-band FSS has flourished in the decades since.) SES Americom adds that no one then considered “curtailing” FS authorizations to facilitate FSS coordination.²⁴ It is easy to see why. The Commission's 1970 remark came in the earliest days of geosynchronous satellites, when there was lots of spectrum for everyone. Besides, the Commission could only have “curtailed” FS licenses by completely shutting down the links, as the licenses reflected only the locations,

¹⁹ *Alien Carrier Interference*, First Report and Order, 6 FCC Rcd 2806 at ¶¶ 4-11 (1991).

²⁰ The FWCC submitted a study with these findings to the International Bureau. Letter from to Andrew Kreig, Co-Chair, FWCC to Ms. Marlene H. Dortch, Secretary, FCC, attention Mindel De La Torre, Chief, International Bureau (dated Sept. 30, 2016). Google Fiber, Inc. at 9 (filed Jan. 9, 2017) and EIBASS at 7 (filed Jan. 9, 2017) present their own evidence of missing and mislocated earth stations in the present docket.

²¹ SIA at 5.

²² SIA at 5.

²³ SES Americom at 3, citing *Domestic Communication-Satellite Facilities*, 18 R.R.2d 1631, 1634 (1970).

²⁴ SES Americom at 3.

azimuths, and frequencies in active use. In any event, SES Americom's "curtail" language is inapposite here, as the FWCC did not seek retroactive effect of its requested rule change.

SIA makes an argument that satellite networks achieve high spectrum efficiency by reusing spectrum among satellites.²⁵ We don't dispute that. The FS likewise achieves high spectrum efficiency by extensively reusing spectrum among its tens of thousands of links around the country. SIA does not explain, however, why the "flexibility" it demands to change satellites or transponders without notice is necessary to its efficiency. Its citation on the need for flexibility dates to 1978, when spectrum was still plentiful and flexibility came at little cost.²⁶ Contrary to SIA's argument, full-band, full-arc coordination substantially *impairs* spectrum efficiency by holding useful spectrum out of service.

SES Americom calls the FWCC petition an "attempted spectrum grab."²⁷ The real spectrum grab, if there was one, came in the 1960s when the FSS acquired the right to set aside huge amounts of spectrum it did not need.²⁸ The FWCC petition merely seeks to restore a long-missing balance between the two services.

Finally, Encompass Digital Media notes that FS operators move data between fixed points with no need to alter frequencies or links, while FSS *space* stations can offer service over wide areas, allocating spectrum as needed to optimize service for a variety of customers. True; but space stations do not coordinate spectrum. The proper comparison here is between FS facilities and FSS *earth* stations, many of which have no more need to alter frequencies or pointing directions than do FS facilities.²⁹

CONCLUSION

Opponents to the FWCC petition raise valid points: that operators of transportable earth stations cannot predict their needs as to satellites and transponders; and that an earth station may have to respond to a genuine emergency such as satellite failure or natural disaster. For the first case, we suggest that transportables be eligible for the same waiver as teleports;³⁰ for the second,

²⁵ SIA at 9-10.

²⁶ SIA at 10 n.29, citing *American Satellite Corporation*, 72 F.C.C.2d 750, 754 (1978).

²⁷ SES Americom at 4.

²⁸ *Communications Satellite Corp. et al.*, Memorandum Opinion, Order and Authorization at ¶ 7, 8 F.C.C.2d 1001 (1967).

²⁹ SIA makes a similarly false analogy in comparing the spectrum efficiency of satellite networks to that of terrestrial mobile networks. SIA at 7-8. Mobile handsets need spectrum flexibility not to achieve efficiency, as SIA suggests, but because they routinely communicate with multiple towers on multiple frequencies. Fixed networks—both satellite or terrestrial—likewise achieve high efficiency by reusing spectrum. Flexibility has nothing to do with it.

³⁰ We ask to preserve the existing requirement that transportables coordinate individually with potentially affected FS facilities. 47 C.F.R. § 25.277(d).

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we think an earth station should be allowed to operate on its growth capacity immediately and without prior notice in an emergency, subject to licensing the usage within ten days. To continue full-band, full-arc coordination for all FSS earth stations to cover these eventualities, as our opponents suggest, is wasteful overkill.

SIA's and SES Americom's recitations of history from the 1970s, when there was far less need for spectrum, are irrelevant to the present day. Their arguments cannot obscure the simple fact that FSS earth stations warehouse vast amounts of supposedly co-primary spectrum that the FS needs. Our proposal reasonably addresses the situations that FSS cites in favor of full-band, full-arc coordination, while better balancing the two services' access to scarce spectrum.

Respectfully submitted,

A handwritten signature in black ink that reads "Andrew Kreig". The signature is written in a cursive style and is underlined with a single horizontal line.

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