 ORIGINAL

Before the
Federal Communications Commission
Washington DC 20554

In the Matter of	)	
	)	
FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service that Share Terrestrial Spectrum	)	IB Docket No. 00-203 RM-9649
	)	
FWCC Petition for Rulemaking to Set Loading Standards for Earth Stations In the Fixed-Satellite Service that Share Terrestrial Spectrum	)	
	)	
Onsat Petition for Declaratory Order that Blanket Licensing Pursuant to Rule 25.115(c) is Available for Very Small Aperture Terminal Satellite Network Operations at C-Band	)	SAT-PDR-19990910-00091
	)	
Onsat Petition for Waiver of Rule 25.212(d) to the Extent Necessary to Permit Routine Licensing of 3.7 Meter Transmit and Receive Stations at C-Band	)	
	)	
Ex parte Letter Concerning Deployment of Geostationary Orbit FSS Earth Stations in the Shared Portion of the Ka-band	)	

REPLY COMMENTS OF THE FIXED WIRELESS COMMUNICATIONS COALITION

FIXED WIRELESS COMMUNICATIONS COALITION

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REPLY COMMENTS OF THE
FIXED WIRELESS COMMUNICATIONS COALITION

The Fixed Wireless Communications Coalition (FWCC) hereby files these Reply Comments in the above-captioned proceeding.[1]

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[1] Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service that Share Terrestrial Spectrum, IB Docket No. 00-203, Notice of Proposed Rulemaking, FCC 00-369 (released Oct. 24, 2000) (Notice). The Fixed Wireless Communications Coalition is a coalition of equipment manufacturers and users interested in terrestrial fixed microwave communications. Its membership includes manufacturers of microwave equipment, licensees of terrestrial fixed microwave systems and their associations, and communications service providers and their associations. Its membership also includes railroads, public utilities, petroleum and pipelines

I. SUMMARY

The present rules permit an FSS earth station operator to warehouse large amounts of non-auctioned spectrum urgently needed by the Fixed Service, even in bands supposedly shared on a co-primary basis. An earth station is routinely licensed for the entire allocated band, without regard to its actual need for bandwidth, while FS facilities, in contrast, are strictly regulated as to both spectrum efficiency and loading. As a result, FSS earth stations have ready access to far more spectrum than they actually need, while FS operations in many parts of the country are frozen in place, unable to expand service.

The "twice actual need" standard. The FWCC requests that an earth station be licensed for no more than twice the amount of spectrum it actually needs, after an initial two-year ramp-up period. This allows for 100% back-up capacity. Further, the FWCC supports a broad reading of "actual need" to meet the special needs of those earth stations, such as broadcasters, cable headends, and teleports, that routinely access multiple or varying satellites, and those, such as Intelsat earth stations, that have genuinely unpredictable needs.

The FWCC joins the satellite industry in respectfully disfavoring the Commission's counterproposal, which would require an earth station that denies coordination after two years to demonstrate its use of the frequencies in question. We agree with the satellite operators that this

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entities, public safety agencies, the broadcast industry, and their respective associations, telecommunications carriers, landline and wireless, local, and interexchange carriers, and others. A list of members is attached as Appendix A.

The National Association of Broadcasters and the National Cable Television Association do not support this filing.

option would be too rigid and restrictive in practice, and would deny an earth station the ability to contract in advance for specific back-up capacity.

Most of the arguments raised against the demonstrated-use option apply to a far lesser extent, if at all, to the twice-actual-need standard. We believe this standard will be easier to administer. It also schedules any disputes about frequency use at the two-year anniversary of the license, rather than during the pendency of the coordination, when it would hinder the FS applicant's efforts to commence operations.

Most of the remaining opposition reflects the earth station operators' understandable wish to preserve their unfettered rights to the entire band. But this warehousing wastes hundreds of megahertz of spectrum. Whatever small benefit it may provide to the FSS cannot justify the very large cost to the FS and its users, and to the economy as a whole.

Coordination rules. The FWCC also seeks a change in the coordination rules. An earth station that accepts interference when it chooses its site, perhaps because it does not plan to use the interfering frequencies, or because it knows that terrain or a specific local feature (such as a berm or building) will attenuate the interfering signal, should be required to accept the same level of interference, on the same frequency and under the same conditions, from a later-coordinating FS facility.

Opposition to this proposal rests largely on misunderstandings. Briefly: An earth station cannot be significantly worse off under the rule than without it. But application of the rule will permit a badly needed expansion of FS facilities in populated areas.

In addition to its normal growth, the FS will see a significant increase in demand for capacity to provide support infrastructure for third generation (3G) broadband mobile services.

The Commission is working to identify mobile spectrum for this service,[2] but a considerable amount of FS spectrum will also be needed for base station backhaul and other necessary support. The requested rule changes will facilitate delivering these services.

Blanket Ka-band licensing. Finally, the FWCC opposes streamlined blanket licensing of ubiquitous GSO FSS earth terminals in Ka-band spectrum shared with the FS. The last time the Commission tried something similar, with 4GHz receive-only earth stations, so many received protection that it became all but impossible to coordinate new 4GHz FS applications near metropolitan areas. We fear history's repeating itself.

* * * *

Implementation of the requested rules will not harm the satellite industry. The FWCC only seeks access to spectrum that an earth station is not using, and has no plans to use. Nor do we request *equal* rules for the two services -- just *equitable* rules. The sole significant effect of the requested rules will be to make FS service available where none can be offered now, without new allocations, simply by using existing spectrum more efficiently.

II. THE FWCC ACKNOWLEDGES THE PUBLIC INTEREST IN SATELLITE OPERATIONS.

Several comments emphasize the public interest in satellite communications.[3] The FWCC fully concurs. As discussed below, the FWCC endorses rules that offer the satellite industry more protection than do the Commission's proposals.

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[2] *Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, Including Third Generation Wireless Systems*, ET Docket No. 00-258, Notice of Proposed Rule Making and Order, FCC 00-455 (released Jan. 5, 2001).

[3] *E.g.*, Satellite Coalition at 9-12; Hughes at 3-5; GE Americom at 10-11; TRW at 3-4. See Appendix B for a list of first-round comments and name abbreviations.

It bears repeating: **The FWCC only seeks access to spectrum that an earth station is not using, and has no plans to use.** The FWCC makes no claim on frequencies an earth station requires for operation. We support needed flexibility for those earth stations that must access multiple satellites or must use satellites assigned by third parties outside the earth station operator's control. Beyond that, we also support rules that permit an earth station to identify and reserve another 100% of its occupied bandwidth for back-up.

The FWCC agrees that reliable satellite operations are essential to the Nation's economic well-being and very much in the public interest.

III. THE PRESENT SHARING RULES ARE INEQUITABLE AND SHOULD BE CHANGED.

Several satellite commenters believe the licensing and coordination rules are fine just as they are. These parties variously argue that (*1*) the rules actually favor the FS over FSS earth stations; (*2*) the rules are fair to both services, and do not deny the FS needed spectrum; or (*3*) the rules admittedly favor the FSS, but properly so. We take these up in turn.

(*1*) Some commenters argue the "first come, first served" rule has historically benefitted the FS over the FSS, because terrestrial operations in many shared bands were in place before satellite services began.[4] That was indeed true, at one time. But since then, satellite operations have spread very quickly. And the need for FS services has also continued to expand, with much of the spectrum required for that expansion tied up in unused earth station coordinations.

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[4] Satellite Coalition at 18-19; GE Americom at 6-8; Teledesic at 4-5.

Commenters also point to several gigahertz of spectrum not shared with satellite services.[5] But their count includes spectrum in the 2GHz bands reallocated to PCS and MSS, and 18GHz spectrum recently reallocated to GSO & NGSO FSS. Worse, all of the rest is at frequencies too high for long-haul service. Long-haul applications are most reliable in the 4 and 6GHz bands (and also 2GHz, which is no longer available to the FS). Higher frequencies require shorter paths to achieve the same level of reliability, due to the increased rain attenuation above 8GHz, and hence are much more expensive.

(*2*) Some commenters assert a lack of evidence that FS licensees are being excluded from operations in shared spectrum.[6] Comsearch, a frequency coordinator, reports that only a small percentage of FS coordinations in the 6 and 11GHz bands are unsuccessful as a result of interference cases with FSS stations.[7]

The FWCC has extensive anecdotal evidence from FS operators whose links were precluded by earth stations. No one tabulates that data, however. And Comsearch's finding merely shows that a prudent FS operator will not undertake the time and expense to complete a coordination unless it has a reasonable chance of success.

Earth station operators doubtless underestimate the problem because they rarely become aware of unsuccessful FS coordination efforts. The current rules permit the earth station operator to pre-coordinate the full band of frequencies, so the coordinator's database will reject any FS attempt to coordinate nearby. The FS applicant will usually then try other frequency bands, or

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[5] Satellite Coalition at 18; *see also* GE Americom at 8-9, TRW at 6-7.

[6] Satellite Coalition at 5-6, 17; Hughes at 6-7; GE Americom at 3; Loral at 2-4.

[7] Comsearch at 3.

search for some other economically viable alternative solution. Only as a last resort will the FS applicant ask earth station operator to coordinate, for experience shows this to be a long, expensive process that rarely results in successful coordination.

Tellingly, Comsearch did not mention the 4GHz band, which has coordinated so many small-aperture, receive-only earth stations as to effectively sterilize the entire band for much of the country. The primary point-to-point users of the band, AT&T and MCI Worldcom, long ago abandoned the construction of new routes, and many point-to-point manufacturers have dropped their 4GHz product lines altogether. It is now virtually impossible to coordinate any FS system in the 4GHz band in or near a metropolitan area, even though in many cases the FSS receiver is not using the particular frequency the FS applicant needs.[8] The rules discussed below will make some of that vacant, unneeded spectrum available to the FS, for more efficient use of the spectrum and better service to users of both the FS and FSS.[9]

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[8] With an apparently straight face, GE Americom says there is plenty of 4GHz spectrum in rural areas, so the real problem is not lack of spectrum at all, but a lack of FS interest in installing facilities where nobody needs them. GE Americom at 8. It would actually make more sense to site FSS earth stations in remote areas, where they would not impede the growth of needed FS facilities in metropolitan areas. *The FWCC does not propose that here*, although it did reach such an agreement with an NGSO licensee on gateway siting in the 10.7-11.7GHz band. *See* Letter from Leonard R. Raish & Thomas J. Keller, Co-Chairmen, FWCC, and Jeffrey H. Olsen, Counsel for Skybridge LLC, to Magalie Roman Salas, Secretary, FCC, in ET Docket No. 98-206 (filed Dec 8, 1999).

[9] Some commenters also point to the relatively small number of filings in support of the FWCC as evidence the FS spectrum shortage does not exist. Satellite Coalition at 17; GE Americom at 6. Several terrestrial carriers belong to the FWCC, supported the Petition, and participated in its preparation and prosecution throughout this proceeding. The FS industry prefers to concentrate its efforts through the FWCC in order to conserve both the Commission's resources and its own.

(*3*) Some satellite interests assert that the special nature of satellite communications entitles the industry to inequitable sharing rules. The argument takes two forms: Earth station operators need lots of spare spectrum (*A*) to meet their customers' day-to-day needs,[10] or (*B*) in case something breaks down.[11]

The FWCC is sympathetic to argument *A*. Our "twice actual need" proposal, discussed below, would define "actual need" broadly enough to cover all legitimate cases in which an earth station must access multiple or unpredictable satellites.

We also acknowledge argument *B*, to the extent that we support 100% backup capacity beyond actual need. But earth station operators want more -- much more, the whole band for every earth station. That position might have been reasonable in earlier decades, when spectrum was plentiful and satellite technology was still new and unreliable. Today, however, it makes no sense for earth stations to camp on unused frequency many times wider than the bandwidth they actually use, while FS operators must turn away actual customers (internal or external) for lack of spectrum.

Of course, it is understandable that earth station operators would fight to keep their unfettered rights to the entire band. Instant access to any frequency offers the highest possible

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[10] *E.g.*, satellite systems must respond rapidly when emergencies arise, satisfy the ever-changing needs of satellite customers, implement operator-to-operator coordination agreements, and institute advances in the state of the art. Satellite Coalition at 6-7, 12-13; Hughes at 6; GE Americom at 12-13, 17; PanAmSat at 3-5; HBO/TBS at 7-9; TRW at 8-9; NCTA at 5-6; Disney at 2-5; NPR at 5-7. Moreover, earth stations may have to change satellites quickly to cover news, weather-related emergencies, entertainment, political, and sporting events -- sometimes switching between satellites during commercial breaks -- and must accommodate "occasional use" customers on short notice. Loral at 4-7; BT North America at 4-6; Telesat Canada at 8-9; NCTA at 3.

[11] Nearly every satellite commenter made this point.

degree of protection against equipment failure, and at no cost whatsoever to the earth stations. But there are costs nonetheless. The Commission designated these bands as shared because there was otherwise not enough suitable spectrum to go around. There is even less spectrum now, as the FS has steadily lost bandwidth to other services, and is asked to share formerly exclusive spectrum with new satellite operations. Earth stations' warehousing of hundreds of megahertz of idle spectrum, merely as a contingency, is nothing but waste. It provides a relatively small benefit to the FSS, but at a very large cost to the FS and its users, and to the economy as a whole.

Two frivolous arguments need a brief reply. First, TRW suggests the FS seeks to impose new limits on deployment of satellite technology out of anticompetitive motives, in order to gain a marketplace advantage over FSS.[12] But most FS operators build out systems primarily for their own companies' use, and do not compete with the FSS for business. In any event, the FWCC seeks to resolve a long-standing inequity in favor of FSS, not to create one in favor of FS.[13] Second, two parties suspect the Commission's proposal seeks to "penalize" the satellite services

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[12] TRW at 4, 6.

[13] TRW may not be aware that the FS community has consistently made great efforts to accommodate the satellite industry's reasonable needs. For example, the FWCC volunteered to give up spectrum at 18.58-19.26GHz in the interest of promoting NGSO-delivered broadband services. *See* Comments of FWCC in IB Docket No. 98-172 (filed Nov. 19, 1998); Reply Comments of FWCC in IB Docket No. 98-172 (filed Dec. 21, 1998). The FWCC also made extensive and successful efforts to reach a band-sharing agreement with one NGSO licensee in the 10.7-11.7GHz band. *See* Letter from Leonard R. Raish & Thomas J. Keller, Co-Chairmen, FWCC, and Jeffrey H. Olsen, Counsel for Skybridge LLC, to Magalie Roman Salas, Secretary, FCC, in ET Docket No. 98-206 (filed Dec 8, 1999). In this docket, the FWCC reached an agreement with the leading CSAT proponent on blanket licensing of C-band terminals in shared spectrum. *See* Notice at para. 93.

because they did not pay for their spectrum at auction.[14] But this cannot be right, because FS providers likewise do not pay for their spectrum in the shared bands at issue. And the FWCC has emphasized that its proposals do not apply to predominantly auctioned bands designated primarily to exclusive FS operations, such as LMDS and 39GHz.[15] In these exclusive, area-wide FS license areas, satellite providers are free to seek spectrum leases and other accommodations from auction winners. The ongoing "secondary markets" proceeding offers a full discussion of lease opportunities.[16]

Catalina Transmission Corp. unwittingly summarized the problem for us. According to Catalina, FS coordination on a frequency unused by an earth station would lock out the earth station from that frequency for a long period of time, possibly forcing the operator to decline new business at some time in the future.[17] But the rejected FS operator is unable to serve its internal or external customer now, not possibly in the future. Similarly, JFL Communications, Inc. insists FSS licensees are not attempting to warehouse licensed spectrum -- rather, it says, licensees realize that growing customer demands will likely result in the need to access spectrum not

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[14] TRW at 11-14; Virtual Satellite at 2-3, 10-14. TRW makes this point in arguing against spectrum efficiency standards for satellite operations, which the FWCC also opposes.

[15] *See* Comments of the FWCC at 11 (filed Jan. 8, 2001). A third argument does not even rise to the level of frivolity. Megastar (pages unnumbered) believes the FS is less important than FSS, because most C-band FS services could be replaced by fiber, and so should be made secondary to FSS. If replacing FS links by fiber made economic sense, providers would be doing it. The fact that they are not is ample evidence that many FS links operate where installing fiber is either impossible (*e.g.*, because of terrain) or prohibitively expensive (as in built-up areas).

[16] *Promoting Efficient Use of Spectrum Through Elimination of Barriers to the Development of Secondary Markets*, WT Docket No. 00-230, Notice of Proposed Rulemaking, FCC 00-402 (released Nov. 27, 2000).

[17] Catalina at 3.

presently in use or planned for imminent use.[18] But that is a good description of warehousing, and the Commission should prohibit it.

In short, the present inequities in licensing and coordination between the FS and the FSS are both real and unjustified.

IV. THE FWCC AGREES WITH THE SATELLITE INTERESTS THAT "DEMONSTRATED USE" IS NOT A WORKABLE CRITERION, AND URGES A MODIFIED "TWICE ACTUAL NEED" STANDARD INSTEAD.

The satellite commenters universally condemn the Commission's proposal to require "demonstrated use" of frequencies on which an earth station seeks to deny coordination. They raise three fundamental arguments. First, some earth stations -- cable headends, teleports, Intelsat, news facilities, occasional use providers, others -- cannot choose their satellites (or transponders) in advance, and must be free to re-aim and retune on short notice.[19] Second, earth stations need back-up capacity in case of satellite or transponder failure.[20] Third, the proposal would impose a rigid, one-size-fits-all requirement, in place of permitting the parties themselves to evaluate the issues that go into frequency selection through a process of technical analysis and compromise.[21] The considerations listed in the Notice as identifying "demonstrated use" -- frequency diversity, intermittent use, transponder usage, future use, space segment assignment, equipment failure, balance of current and future use -- are too varied and complex for a clear,

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[18] JFL at 4.

[19] *E.g.*, HBO/TBS at 6-7; Megastar (pages unnumbered); Sprint at 2-4. See also n.10.

[20] *E.g.*, Satellite Coalition at 27 n.28, 33-34.

[21] Satellite Coalition at 5-6.

straightforward, and enforceable definition.[22] Moreover, demonstrating use would be administratively unworkable and burdensome to satellite operators and the Commission, and would entail disclosure of confidential information.[23]

The FWCC agrees on these points with the satellite interests. We concur that "demonstrated use" would unduly restrict the flexibility of earth stations that need access to multiple or unpredictable satellites and transponders, could prevent prompt restoration in case of failure, and would be difficult to administer. And the FWCC has another objection of its own: any dispute over denial of coordination on particular frequencies would arise at the worst possible time, just when the FS station is attempting to file its application and commence operations.

A. The Commission Should Adopt a "Twice Actual Need" Standard.

For all of the reasons set out above, the FWCC urges the Commission to abandon the "demonstrated use" proposal and instead adopt a modified version of the "twice actual need" standard the FWCC advanced in its original Petition.[24] The essential elements are these:[25]

- An Earth station may be initially licensed for twice the amount of bandwidth for which the applicant has shown "projected need" -- twice the maximum bandwidth that the applicant reasonably expects to be using

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[22] Satellite Coalition at 29; Hughes at 9; GE Americom at 15-16.

[23] Satellite Coalition at 29-32; Hughes at 9-10; GE Americom at 18-19; LMGT at 3-4; Loral at 9-10; Astrolink at 6-8.

[24] Request for Declaratory Ruling and Petition for Rule Making of the Fixed Wireless Communications Coalition, RM-9649 (filed May 5, 1999).

[25] For details, please consult Comments of the FWCC at 8-12 (filed Jan. 8, 2001).

within two years' time. No documentation of projected need is required, other than the applicant's signature.[26]

- For example, an individual earth station might reasonably project a need to license the entire band if it expects to routinely access multiple satellites or satellites chosen by others, or if it plans to serve third-party customers with as-yet-unknown requirements. In contrast, an earth station constructed for the purpose of accessing a particular transponder would be restricted to twice the bandwidth of that transponder.

- After two years, an earth station using less than half the licensed bandwidth must modify its license to reduce the bandwidth to twice its actual need. This two-year period constitutes an initial loading period during which the earth station can establish its business and build its customer base.[27]

- "Actual need," for the purpose of retaining bandwidth after 24 months, may be liberally construed to accommodate individual earth stations (such as broadcasters, cable headends, teleports, and Intelsat providers) at particular sites that routinely access multiple satellites, or satellites chosen by others.

- The allowance of twice actual need is intended to give earth station operators adequate flexibility to identify back-up capacity in advance to allow for transponder or satellite failure.[28]

- An earth station operator may not deny FS coordination outside its licensed bandwidth, absent an exceptional showing of harmful interference to its licensed operations.

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[26] The signature attests: "The undersigned, individually and for the applicant, hereby certifies that all statements made in the application and in all attached exhibits are true, complete, and correct to the best of his or her knowledge and belief, and are made I good faith." FCC Form 312, Main Form, page 4.

[27] *See* Notice at para. 55. For the sake of symmetry, the FWCC would not object to shortening the loading period for FS stations from 30 to 24 months. *See id.*

[28] Outside the CSAT context, the FWCC has not objected to the common practice of an earth station's coordinating the entire visible geostationary arc, even where it plans to access only one or two satellites. This may be necessary to implement back-up options.

- ***Exemption***: Earth stations authorized for 40 MHz or less in each direction are exempt from showing "actual need."

Scope: This proposal applies only to shared FS-FSS bands in which the Commission has actually licensed and established technical rules for both point-to-point FS and FSS operations on a co-primary basis. The proposal does not extend to bands that the FCC has primarily designated to exclusive, wide-area FS operations, such as LMDS and 39GHz.[29]

As the satellite commenters have pointed out, the Commission's "demonstrated use" criterion would unavoidably raise questions about treatment of intermittent use, varying transponder usage over time, degrees of commitment to future use, and similar issues bearing on whether an earth station operator can protect spectrum against the request of an FS applicant.[30] Because the FWCC's "actual need" standard turns primarily on the type of service the earth station offers and the kind and number of spacecraft it accesses, rather than one-of-a-kind specifics of the earth station's daily operation, we believe "actual need" will yield fewer and briefer disputes about needed spectrum. Moreover, the FWCC proposal puts the timing of any such disputes at the two-year anniversary of the FSS license, when they are less likely to obstruct an urgent FS application.[31]

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[29] A number of other parties agree these sharing proposals should not be extended to the higher bands. *See, e.g.*, Astrolink at 4-6; Teledesic at 6-7; Winstar at 2; TRW at 14-17.

[30] *See* Notice at para. 54.

[31] Comsearch offers a different counterproposal: After an initial 24 month period, earth stations would be required to coordinate actual channel usage, as an aid to FS applicants seeking to identify available channels; but FSS relinquishment of the frequencies would still be negotiated through the coordination process. Comsearch at 6. FS industry experience leads us to doubt that many earth stations will voluntarily negotiate to relinquish frequencies unless the rules require it. The FWCC also believes the twice-actual-need standard will be administratively easier to implement, by far.

In short, the FWCC proposal based on twice actual need will allow earth stations to establish back-up capacity in advance. Liberal construction of "actual need" will accommodate the *bona fide* requirements of teleports, cable headends, broadcasters, international providers, and others who must access changing or unpredictable satellites or transponders. The proposal will also minimize disputes at the time FS providers are attempting to finalize coordination and commence operations.

B. The Twice-Actual-Need Standard Respects the Significant Differences Between FS and FSS Operations.

Several commenters protest that the Commission's proposals overlook inherent differences between terrestrial and satellite services.[32] These differences include low start-up costs, short construction times, and ease of access or repair for FS, while earth stations are inextricably linked with FSS satellites, which have large start up costs, long construction and implementation times, and large barriers to repair or replacement.[33]

At the outset, we note that satellite operators are forced into this argument by their defense of inequitable rules for the two services. Unable to dispute that earth stations currently receive preferential treatment under the present rules, the satellite interests have no choice but to insist that inherent differences between the services justify the disparity.

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[32] TRW at 4-5, 10-11; Teledesic at 4-5.

[33] Satellite Coalition at 8. Hughes additionally objects that FS operators are not required to make a showing of need for frequency. Hughes at 7. To the contrary, FS protection channels in the shared 4, 6, and 11GHz bands, are limited to one for every three working channels at most, 47 C.F.R. Sec. 101.103(c), and the operator must load to 50% of capacity within 30 months. 47 C.F.R. Sec. 101.141(a)(3) (table n.3).

To the contrary, however, such characteristics as start-up costs, construction times, and ease of repair are approximately comparable for FS facilities and FSS earth stations. True, they are very different for space stations, which are costly, take years to construct and launch, and present formidable obstacles to repair; and the satellite parties attempt to imbue earth stations with these same characteristics by association.[34] The Commission is asked to believe that FS facilities are fast and cheap to build, so that site restrictions are of no importance, while the economics of FSS earth stations entitle them to far greater deference as to siting and bandwidth. The commenters make this case only by implication, however, not directly, because the costs and construction times of the two kinds of facilities are actually not very different. In fact, the Commission's Rules allow a *longer* construction period for FS facilities than for earth stations.[35]

The FWCC further acknowledges important distinctions between FS and FSS operations by opposing spectrum efficiency standards for FSS systems, even though such standards apply to FS systems.[36] Earth stations must interoperate with existing spacecraft transponders, whose modulation techniques are fixed in orbiting hardware. As for new spacecraft, the FWCC acknowledges the complex engineering constraints imposed by size, weight, cost, available

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[34] For example, the Satellite Coalition complains the FWCC fails to acknowledge that rules for earth stations are designed based on how they interact with space stations. Satellite Coalition at 16.

[35] *Compare* 47 C.F.R. Sec. 101.63(a) (18 months for FS facilities) *and* 47 C.F.R. Sec. 25.133(a) (12 months for earth stations).

[36] 47 C.F.R. Sec. 101.141(a)(3). Two commenters chastise the FS for using spectrum inefficiently, apparently unaware the Commission's Rules mandate spectrum efficiency standards for the FS. JFL at 5; Megastar (pages unnumbered). Yet nothing in the Rules stops an FSS earth station from using a 500MHz allocation for a single voice channel, if for some reason it wishes to.

bandwidth, power output, and power consumption, among other considerations. Moreover, the FWCC has not sought to limit earth stations' coordinating over the entire geostationary arc, even though FS stations may coordinate only for specific azimuths.

The FWCC does not request *equal* rules for the two services. We seek only *equitable* rules.

V. THE COMMISSION SHOULD ADOPT THE FWCC'S PROPOSED COORDINATION RULES ON PRIOR ACCEPTANCE OF INTERFERENCE.

Current procedures allow an earth station applicant to selectively waive an interference objective. An earth station applicant may accept incoming an interference case from an incumbent FS facility because it does not plan to operate on the interfering frequencies, or because it knows that terrain or a specific local feature, such as a berm or building, will attenuate the interfering signal to an acceptable level. In some cases the earth station may simply need that particular site, notwithstanding the interference. Yet, when a subsequent FS applicant seeks coordination, the earth station operator is free to disregard mitigating facts and hold the FS operator to the same unattainable standard the earth station itself waived -- even in cases where the terrestrial user would not cause actual interference to the earth station.

The Rules should require an earth station that accepts a higher-than-desired interference case when selecting its site to accept the same level of interference from later-coordinating FS stations. The FWCC showed in its first-round comments that cumulative interference from multiple subsequent FS stations is not a realistic concern.[37] The FWCC also clarified that an

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[37] Comments of the FWCC at 19-20 (filed Jan. 8, 2001).

earth station may adhere to its original coordination criteria outside the specific frequency bands or azimuths on which it waived higher levels of interference.[38]

The obligation would be symmetrical. An FS facility that sited despite incoming interference from an earth station would be required to accept the same level of interference, on the same frequency and under the same conditions, from a later-coordinating earth station.[39] For a detailed explanation of how the rule would operate in practice, see the Reply Comments of David B. Popkin in this docket, being filed today.

Most of the opposition to this proposal comes from satellite operators who misconstrue it.

One commenter fears the rule would discourage earth stations from accepting more than the least amount of interference that could cause problems in any conceivable case.[40] Again: the proposed rule applies only to interference the earth station voluntarily accepts when it chooses its site. An existing earth station that could bar a later FS applicant, but accepts it anyway, is under no obligation to any subsequent FS applicants.

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[38] *Id*, at 21. Two commenters seek correction of a discrepancy between the text of the Notice and the proposed rule. The Notice limits the obligation to accept subsequent coordinations, based on the initial siting coordination, "[only] to the extent that those same conditions exist for subsequent requests for coordination." Notice at para. 78. The commenters want the quoted language included in the rule. Satellite Coalition at 43-44; Hughes at 12-13. The FWCC agrees.

[39] Winstar supports the Commission's proposal to require a new FS site that accepts a particular interference analysis model to accept use of the same model in subsequent coordinations, but seeks clarification that this requirement extends to future coordinations *only for that specific station*. Winstar at 7, *citing* Notice at para. 31. The FWCC supports this clarification.

[40] NCTA at 8.

Hughes fears the rule would extinguish an earth station's future rights to use the frequencies on which it accepts interference, after the terrestrial licensee leaves.[41] This is incorrect. The earth station always has the same right as it had when it coordinated the frequencies -- *i.e.*, the right to be free of interference from any source that exceeds the level it accepted at that time. Hughes's hypothetical situation contemplates that an FS operator might coordinate under the proposed rule; a second FS operator might do the same; and then the first FS operator might cease operations. The earth station still must continue to accept the second FS operator, but its interference into the earth station cannot exceed the level the earth station originally accepted.

Two commenters argue there are no "accepted interference objectives" whose waiver by an earth station would trigger the rule.[42] GE Americom adds that the amount of interference that makes a channel unusable varies widely from service to service and operator to operator.[43] True; but the earth station applicant states its own interference objective in the coordination notice. That is the level which, if exceeded, may obligate the earth station to accept a like amount of interference from later-coordinating FS stations, under appropriate conditions. It is wholly under the earth station applicant's control.

Comsearch opposes the proposed rule because an earth station may accept *predicted* interference on choosing its site, yet not experience *actual* interference in operation.[44] We agree;

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41 Hughes at 14-15.

42 Satellite Coalition at 46-47; Astrolink at 15.

43 GE Americom at 22.

44 Comsearch at 7-8.

but the earth station cannot have it both ways. If the earth station takes measurements at the site before coordination, and coordinates on the basis of actual interference, then it may use the levels of actual interference to deny coordination to a later-arriving FS applicant. But if the earth station chooses to coordinate its own site on the basis of predicted interference, then those numbers set the levels it must accept from an FS applicant.

Several commenters note that conditions may vary from one coordination to the next.[45] Buildings may be demolished and differently rebuilt; trees may grow and be cut down. An earth station that accepts interference when siting may be subject to different interference later, when a new FS applicant seeks to coordinate. But this misses the point. Suppose an earth station accepts predicted interference because it knows the site will be safe behind a building, and later, the building is demolished. Even without an FS applicant, the earth station still must contend with the preexisting interference, now unobstructed. The proposed rule caps additional interference from the new FS applicant at that same level, so the total interference can increase by no more than 3dB at the very most, and even that amount of increase is extremely unlikely.

In short, an earth station that accepts interference into its proposed facility should be required, thereafter, to accept the same conditions, to the same extent (but only to that extent) that it accepted originally.

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[45] Satellite Coalition at 43-44; Hughes at 12; LMGT at 7; Loral at 11.

VI. THE COMMISSION SHOULD REJECT THE PROPOSAL FOR BLANKET Ka-BAND EARTH STATION LICENSING.

The Commission proposes to allow streamlined blanket licensing of ubiquitous GSO FSS earth terminals in Ka-band spectrum shared with the FS.[46]

The 18.3-18.58GHz band addressed in this proposal is heavily used for the delivery of "wireless cable" video services throughout the country. The Commission has successfully promoted the use of this band to create competition to conventional cable TV delivery in major metropolitan markets. Although the band has always been designated for FS, other traditional point-to-point FS services have avoided it because the ubiquitous character of the wireless cable services has made frequency coordination very difficult. When the Commission reallocated spectrum in this band to be shared with FSS, it concluded that some sharing may be feasible for limited numbers of FSS earth stations.[47]

Under the present proposal, advanced by Hughes, blanket licensees would have the option of registering for interference protection on a site-by-site basis in accordance with the coordination procedures of Sections 25.203 and 25.251.[48]

Early C-band receive-only earth stations operated under similar rules, where some coordinated to seek protection and others did not. Eventually so many protected earth stations

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[46] Notice at paras. 98-99. Comments in support include Satellite Coalition at 48-51; Hughes at 17-23; GE Americom at 23; LMGT at 12.

[47] *Redesignation of the 17.7-19.7 GHz Frequency Band*, 15 FCC Rcd 13430, 13446-13454 at paras. 34-49 (2000) (IB Docket No. 98-172).

[48] Notice at para. 98.

were in place as to make it all but impossible to coordinate new 4GHz FS applications near metropolitan areas.

The FWCC understands the Commission's intent in permitting sharing of GSO FSS with FS in the 18.3-18.58GHz band was not to admit ubiquitous deployment of FSS earth stations, but to allow a small number of gateway earth stations. In fact, the Commission specifically concluded at the time that GSO FSS "will be unable to effectively blanket license ubiquitously deployed earth stations in the 18.3-18.55 GHz band" due to the large number of FS operations.[49] But the proposal now seeks to use all the spectrum between 8.3-18.8GHz for ubiquitously deployed earth terminals -- precisely what the Commission had determined to be impracticable less than a year ago. If history repeats itself, that would soon make the 18.3-18.58GHz "shared" band unusable for FS deployment.

The FWCC urges the Commission to reject the Hughes proposal for "blanket" licensing in the band 18.3-18.58 GHz, and to require any new earth station application in the band to be subject to the present rules, as modified by the licensing and coordination proposals discussed above.

CONCLUSION

There can be no serious dispute that the present licensing and coordination rules greatly favor FSS earth stations over the FS, even in "co-equal" shared spectrum. An earth station is nearly always licensed and coordinated for the entire band, while FS stations are limited by rule

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[49] *Redesignation of the 17.7-19.7 GHz Frequency Band*, 15 FCC Rcd at 13450 (para. 41).

to the bandwidth they actually need. The full-band earth station coordination wastes spectrum the FS needs.

This inequity is a fact. The proceeding turns on whether it is justified. The FSS commenters insist that it is. Every earth station needs access to the entire band, they say, in case it must change frequency to serve its customers, or to recover from spacecraft failure.

The FWCC advocates a rule change that would support those needs, while giving the FS more equitable access to spectrum. The FWCC proposes that earth stations be licensed and coordinated for twice the frequency they actually need. If an earth station routinely communicates with multiple or unpredictable satellites, its "actual need" will include those satellites. And the provision for *twice* actual need provides every earth station with 100% backup capacity. Moreover, the FWCC supports a more relaxed standard for an earth station's first two years of operation, while it builds a customer base.

The FWCC also advocates a change in coordination procedures to improve equity between the two services. Today an earth station can accept a higher-than-desired interference level when selecting its site and yet, later on, refuse to coordinate an FS station for its failure to meet that same unattainable standard. This makes no sense. An earth station that accepts an interference case when siting should be required to accept the same level of interference from a later-coordinating FS station. Adoption of this rule will not significantly increase an earth station's received interference, but will open the way to coordinating FS facilities where they are now foreclosed.

Finally, the FWCC opposes blanket licensing of earth stations at 18-3.18.58GHz. The Commission itself rejected the same idea less than a year ago. Based on the experience at 4GHz, we fear blanket deployment would effectively preclude new FS coordinations in the band.

The FWCC does not seek any rules that threaten satellite operations. We seek only access to spectrum that an earth station is not using, and has no plans to use -- hundreds of megahertz now tied up in unused earth station coordinations. Putting that idle bandwidth into service will help the Nation extract greater economic value from its limited spectrum resources.

Respectfully submitted,
FIXED WIRELESS COMMUNICATIONS COALITION

Ronald D Coles /mk

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February 9, 2001

FIXED WIRELESS COMMUNICATIONS COALITION

The Fixed Wireless Communications Coalition was formed by terrestrial fixed microwave users and suppliers to assure that adequate spectrum resources are available for current and future terrestrial fixed microwave communications. Such action is necessary because spectrum allocation and re-allocation actions currently under consideration at the FCC require fixed microwave interests to speak with a common voice. Additionally, the Coalition works for a regulatory climate both at the FCC and the ITU that permits the manufacture, operation, and use of terrestrial fixed microwave systems.

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APPENDIX B

Commenting parties:

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BT North America Inc. (BT)

Catalina Transmission Corp. (Catalina)

Comsearch

Fixed Wireless Communications Coalition (FWCC)

GE Americom Communications, Inc. (GE Americom)

Home Box Office and Turner Broadcasting System, Inc. (HBO/TBS)

Hughes Network Systems, Hughes Communications, Inc., and Hughes Communications Galaxy, Inc. (Hughes)

JFL Communications, Inc. (JFL)

Lockheed Martin Global Telecommunications, Inc. (LMGT)

Loral Space & Communications Ltd. (Loral)

Megastar, Inc.

National Cable Television Ass'n (NCTA)

National Public Radio, Inc. (NPR)

Onsat Network Communications, Inc. (Onsat)

PanAmSat Corp. (PanAmSat) (Note: Hughes owns 81% of PanAmSat)

Pinnacle Telecom Group (Pinnacle)

The Satellite Industry Ass'n, The Satellite Broadcasting and Communications Ass'n, the World Teleport Ass'n, and the Aerospace Industries Ass'n of America (Satellite Coalition)

SkyBridge LLC

Sprint Communications Co. L.P. (Sprint)

Teledesic LLC

Telesat Canada

TRW Inc. (TRW)

Virtual Geosatellite, LLS

The Walt Disney Company (Disney)

Winstar Communications, Inc. (Winstar)

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