

ANN BAVENDER\*  
ANNE GOODWIN CRUMP  
VINCENT J. CURTIS, JR.  
RICHARD J. ESTEVEZ  
PAUL J. FELDMAN  
ROBERT N. FELGAR\*  
RICHARD HILDRETH  
FRANK R. JAZZO  
ANDREW S. KERSTING\*  
EUGENE M. LAWSON, JR.  
HARRY C. MARTIN  
GEORGE PETRUTSAS  
RAYMOND J. QUIANZON  
LEONARD R. RAISH  
JAMES P. RILEY  
KATHLEEN VICTORY  
HOWARD M. WEISS

\* NOT ADMITTED IN VIRGINIA

**ORIGINAL**  
FLETCHER, HEALD & HILDRETH, P.L.C.

ATTORNEYS AT LAW  
11th FLOOR, 1300 NORTH 17th STREET  
ARLINGTON, VIRGINIA 22209-3801

(703) 812-0400

TELECOPIER

(703) 812-0486

INTERNET

www.fhh-telcomlaw.com

FRANK U. FLETCHER  
(1939-1985)  
ROBERT L. HEALD  
(1956-1983)  
PAUL D.P. SPEARMAN  
(1936-1962)  
FRANK ROBERSON  
(1936-1961)  
RUSSELL ROWELL  
(1948-1977)  
EDWARD F. KENEHAN  
(1960-1978)  
CONSULTANT FOR INTERNATIONAL AND  
INTERGOVERNMENTAL AFFAIRS  
SHELDON J. KRYS  
U. S. AMBASSADOR (ret.)  
OF COUNSEL  
EDWARD A. CAINE\*  
MITCHELL LAZARUS\*  
EDWARD S. O'NEILL\*  
JOHN JOSEPH SMITH  
WRITER'S DIRECT

703-812-0440

lazarus@fhh-telcomlaw.com

April 14, 1999

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

**BY HAND DELIVERY**

Magalie Salas, Esq.  
Federal Communications Commission  
445 12th Street, SW, Room TW-B204  
Washington, DC 20554

Re: ET Docket No. 98-206

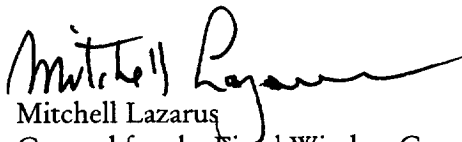
Dear Ms. Salas:

Enclosed for filing with the Commission are the original and four copies of the Reply Comments the Fixed Wireless Communications Coalition in the above-referenced proceeding.

Please date stamp and return the enclosed extra copy of the Reply Comments.

If further information is necessary, please call me at the number above.

Respectfully submitted,

  
Mitchell Lazarus

Counsel for the Fixed Wireless Communications Coalition

ML:deb

Enclosures

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**ORIGINAL**  
Before the  
**Federal Communications Commission**  
Washington DC 20554

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of	)	
	)	
Amendment of Parts 2 and 25 of the	)	
Commission's Rules to Permit Operation	)	ET Docket No. 98-206
of NGSO FSS Systems Co-Frequency with	)	RM-9147
GSO and Terrestrial Systems in the KU-Band	)	RM-9245
Frequency Range	)	
and	)	
Amendment of the commission's Rules to	)	
Authorize Subsidiary Terrestrial Use of the	)	
12.2-12.7 GHz Band by Direct Broadcast	)	
Satellite Licensees and their Affiliates	)	

**REPLY COMMENTS OF THE**  
**FIXED WIRELESS COMMUNICATIONS COALITION**

Leonard R. Raish  
Mitchell Lazarus

FLETCHER, HEALD & HILDRETH, P.L.C.  
1300 North 17th Street, 11th Floor  
Arlington, VA 22209  
703-812-0400

April 14, 1999

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## SUMMARY

SkyBridge launched these proceedings with repeated promises to deliver its services without impacting Fixed Service (FS) providers. Now, with the Commission considering provisions to implement those promises, SkyBridge instead advocates rules that would defeat equitable sharing with the FS. Some of the other Ku-band NGSO applicants take positions even more deleterious to the FS.

Moreover, without explanation or justification, the Commission proposed to open all of the 10.7-11.7 GHz band to GSO FSS downlink operations, a two-fold expansion over the 500 MHz presently available to GSO. The idea is both unnecessary and unwise. First, the record of this proceeding does not show a spectrum shortage for GSO FSS, while such a shortage for the FS is well documented. Second, coordination records show that FS facilities tend to concentrate in the parts of the band closed to FSS, a form of *de facto* frequency separation. Opening these frequencies to FSS will create large geographic regions that have no 11 GHz frequencies at all available for the FS. The Commission should leave the 11 GHz FSS allocation unchanged. In addition, and contrary to Panamsat's request, the Commission should maintain the GSO limitation to international services at 10.7-11.7 GHz.

SkyBridge seeks to reopen the Commission's decision not to propose allocating 17.3-17.8 GHz to NGSO FSS systems. The FS uses (and needs) the 17.7-17.8 GHz part of that band. The only measures SkyBridge proposes to protect FS expansion are the same measures it advocates for the 11 GHz band, which are inadequate. A grant of SkyBridge's request would cut further into the increasingly scarce spectrum for FS applications, and the Commission should reject it.

SkyBridge and other NGSO interests oppose several measures necessary to permit coordination of new and expanded FS facilities with NGSO gateway earth stations. The NGSO parties argue that these measures are expensive, unnecessary, or both. But NGSO providers enter the band under an obligation to allow for reasonable expansion by the incumbent services, and cannot now be heard to object to the cost of coexistence. Moreover, these measures are necessary to prevent NGSO gateway earth stations from "sterilizing" large geographical areas against FS operations. Notwithstanding NGSO objections, the Commission should—

- implement its proposal for exclusion zones around the 50 largest population centers, and expand it to include corridors 50 km to either side of intercity routes;
- limit numbers of gateway sites to 40 for all NGSO providers;
- set a minimum antenna size of 4.5 meters;
- require 18 dB of "virtual shielding" around gateways that FS operators can take into account in coordination, but that FSS operators need not build unless actually required;
- adopt coordination procedures appropriate to NGSO operations; and
- continue to prohibit service links in shared bands allocated for gateway operation.

Adoption of these measures will implement the promises SkyBridge made at the outset of this proceeding: to operate without interference to the FS, and without hindering FS expansion.

Before the  
**Federal Communications Commission**  
Washington DC 20554

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Authorize Subsidiary Terrestrial Use of the	)	
12.2-12.7 GHz Band by Direct Broadcast	)	
Satellite Licensees and Their Affiliates	)	

**REPLY COMMENTS OF THE  
FIXED WIRELESS COMMUNICATIONS COALITION**

The Fixed Wireless Communications Coalition (FWCC)<sup>1</sup> hereby submits these Reply Comments in the above-captioned proceeding.<sup>2</sup>

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<sup>1</sup> The FWCC 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 communication service providers and their associations. Its membership also includes railroads, public utilities, petroleum and pipeline 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.

<sup>2</sup> NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems, ET Docket No. 98-206, Notice of Proposed Rulemaking, FCC 98-310 (released Nov. 24, 1998) (Notice).

**I. THE COMMISSION SHOULD LEAVE THE 11 GHz GSO ALLOCATION UNCHANGED.**

**A. The Commission Should Abandon Its Proposal to Permit GSO FSS Earth Stations Access to The Full 10.7-11.7 GHz Band.**

Current rules limit GSO FSS downlink operations in the 10.7-11.7 GHz band to 500 MHz only, at 10.95-11.20 and 11.45-11.70 GHz.<sup>3</sup> Appendix A of the Notice proposes to open the full band to GSO FSS downlink operations.<sup>4</sup> The text of the Notice neither announces nor justifies this windfall.

The proposal is unwise and unnecessary. Nothing in the record of this proceeding points to a shortage of 10.7-11.7 GHz spectrum for GSO FSS downlinks. On the other hand, the record does reflect a steadily worsening shortage of spectrum for terrestrial operations, of which this band is a significant part.<sup>5</sup>

Adoption of the proposal will make coordination of new Fixed Service (FS) facilities in the 11 GHz band all but impossible in many parts of the country. Comsearch's comments noted pointed out a concentration of FS facilities at 10.70-10.95 and 11.20-11.45 GHz, the frequencies that are presently unavailable for routine earth station operation.<sup>6</sup> Comsearch believes this *de facto* frequency separation is an inexpensive means to resolve potential interference between

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<sup>3</sup> 47 C.F.R. § 25.202(a)(1).

<sup>4</sup> Notice, Appendix A, C.F.R. § 25.202(a)(1) (proposed).

<sup>5</sup> See Comments of the FWCC at 3-4; Comments of the Fixed Point-to-Point Communications Section, Wireless Communications Division of the Telecommunications Industry Association at 3-4.

<sup>6</sup> Comments of Comsearch at 7.

earth stations and terrestrial fixed systems.<sup>7</sup> Certainly the FS concentration in frequencies presently closed to earth stations is compelling evidence of the difficulties in coordinating between the two services by other means.

Opening the full 10.7-11.7 GHz band to GSO FSS downlink operations would eliminate coordination by frequency separation, and hence would severely inhibit new FS installations. As it is, many FS providers require several channel pairs to carry their traffic, and have trouble fitting into the parts of the band available to them.<sup>8</sup> If the Commission opened the entire band to FSS operations, it would create large geographic regions having no 11 GHz frequencies available at all for the FS. For this reason the FWCC vigorously opposes the proposal as an unjustified threat to FS operations.

The FWCC similarly opposes Comsearch's proposal that an individual earth station be permitted to license *either* the current earth station bands (10.95-11.20 and 11.45-11.70 GHz) *or* the newly added bands (10.70-10.95 and 11.20-11.45 GHz), but not both.<sup>9</sup> Comsearch argues this would preserve the ability of FS operators to coordinate with at least some earth stations, through frequency separation.<sup>10</sup> The FWCC opposes this option because neighboring earth

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<sup>7</sup> Comments of Comsearch at 6-7.

<sup>8</sup> FS operators using the 11 GHz band are not permitted to waste spectrum. They must achieve spectrum efficiencies of at least 2.5-4.5 bits/second/Hertz, 47 C.F.R. § 101.141(a)(3), although modern equipment typically does far better. FS users must load to 50% of those figures within 30 months of licensing, *id.* at note 3, and may not be licensed for frequency diversity absent a factual showing that required communications cannot otherwise be achieved. 47 C.F.R. § 101.103(c). Even with such a showing, protection channels are limited to one for every three working channels. *Id.*

<sup>9</sup> Comments of Comsearch at 7.

<sup>10</sup> Comments of Comsearch at 7-8.



stations that chose different bands would, between them, foreclose FS operations in the area.

The Commission should leave the 11 GHz FSS allocation unchanged.

**B. The Commission Should Reject Requests to Expand GSO Licensing to Domestic Services at 10.7-11.7 GHz.**

The Commission proposed to continue limiting GSO FSS stations to international operations in the 10.7-11.7 GHz band, to help restrict the total number of earth stations in the band.<sup>11</sup> The FWCC concurs, as do all but one of the other parties commenting on the issue.<sup>12</sup>

Panamsat seeks a presumption that GSO FSS domestic communications be permitted if the earth stations to be used are "limited in number" and located outside NGSO gateway exclusion zones. But it also asks the Commission to authorize domestic GSO applications within exclusion zones, if the applicant demonstrates a need to locate there, coordinates with existing FS facilities, and demonstrates that the earth station's existence "will not unreasonably constrain" future FS use of the 10.7-11.7 GHz band.<sup>13</sup>

The Commission should reject this request, not only because it represents yet another satellite encroachment on FS operations, but because it is wholly unjustified. Panamsat's sole stated ground is its view that the present rules "place NGSO systems in a preferred position" relative to GSOs by allowing them domestic communications in the 10.7-11.7 and 12.75-13.25 GHz bands.<sup>14</sup> This argument might have some basis if NGSOs and GSOs were otherwise

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<sup>11</sup> Notice at ¶ 17.

<sup>12</sup> Comments of the FWCC at 7; Comments of Boeing at 83-84; Comments of Comsearch at 8.

<sup>13</sup> Comments of Panamsat at 19-21 & n.41.

<sup>14</sup> Comments of Panamsat at 19.

comparable, but there are countless technical, regulatory, and market differences between the two. Panamsat does not show, or even allege, that exact parity between NGSOs and GSOs is feasible as a general matter, or even desirable. Nor does Panamsat allege that GSOs need these bands to relieve a shortage of capacity. In view of the harm this rule change would work against the FS, and especially considering the utter absence of any public interest argument in its favor, the Commission should reject Panamsat's request.

## **II. THE NGSO INTERESTS SEEK ADOPTION OF RULES THAT WOULD DEFEAT EQUITABLE SHARING WITH THE FIXED SERVICE.**

SkyBridge launched these proceedings with repeated promises to deliver new services without impacting FS providers.<sup>15</sup> Yet, with the Commission now considering specific rules to implement its promises, SkyBridge is backing away. Some of the other Ku-band NGSO applicants take positions even more deleterious to the FS.

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<sup>15</sup> "The SkyBridge System will cause no degradation in the quality of service of [satellite and terrestrial] systems or the availability of satellite and terrestrial communications links." Amendment to SkyBridge L.L.C., Application for Authority to Launch and Operate the SkyBridge Satellite System, File No. 48-SAT-P/LA-97 at 22 (filed July 2, 1997) (SkyBridge Amendment). "As a result of [its frequency usage plan] and the Gateway coordinations that SkyBridge will undertake, SkyBridge protects FS users from interference with no impact on the SkyBridge system." *Id.* at 10. "The SkyBridge System has been designed to operate co-frequency with GSO and terrestrial networks while protecting them from interference." *Id.* at 20. "The SkyBridge System will not interfere with, and is not requesting protection from interference caused by, any existing system, whether GSO, NGSO, or terrestrial, as such systems are currently operated. . . . Furthermore, the SkyBridge System will impose no operational constraints on satellite and terrestrial operators." *Id.* at 22. "(1) NGSO FSS systems operating in the subject bands will cause no noticeable degradation to the quality of service or availability of GSO and terrestrial links; and (2) NGSO FSS systems operating in the subject bands will impose no operational constraints on GSO and terrestrial operators." Petition for Rulemaking of SkyBridge L.L.C., in NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems, RM-9147 at 2 (filed July 3, 1997) (SkyBridge Petition). *See also id.* at 17 (same). "There should be no significant reduction in the ability of existing FS operators to add new links to their systems." *Id.* at 12.

**A. The Commission Should Reaffirm its Decision Not to Authorize NGSO Gateways at 17.7-17.8 GHz.**

The Commission correctly declined to propose allocating 17.3-17.8 GHz to NGSO FSS systems.<sup>16</sup> SkyBridge challenges this decision.<sup>17</sup>

The FWCC's first-round Comments in this proceeding detailed several recent decisions that limit FS operators's access to spectrum for forced relocation and needed growth.<sup>18</sup> The 18 GHz band is one affected by those decisions.<sup>19</sup> The FWCC has explained elsewhere the unique value of the 18 GHz band to terrestrial services.<sup>20</sup>

In IB Docket No. 98-172, the Commission proposed to make 17.7-18.3 GHz a primary allocation to the FS.<sup>21</sup> Allocating 17.3-17.8 GHz to NGSO FSS, as SkyBridge requests, would intrude on the 17.7-17.8 GHz segment of that allocation. The only measures SkyBridge proposes

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<sup>16</sup> Notice at ¶¶ 14, 51.

<sup>17</sup> Comments of SkyBridge at 15-21.

<sup>18</sup> Comments of the FWCC at 3-4. Instances include reallocation of 1850-1990 and 2110-2200 MHz from the FS to PCS and mobile satellite services, Redevelopment of the Spectrum to Encourage Innovation in New Telecommunications Technology, ET Docket No. 92-2, First Report and Order, 7 FCC Rcd 6886 (1992), Second Report and Order, 8 FCC Rcd 6495 (1993), Third Report and Order, 8 FCC Rcd 6589 (1993); the reduction of spectrum available to the FS in the 18 GHz band, Redesignation of the 17.7-19.7 GHz Frequency Band, IB Docket No. 98-172, Notice of Proposed Rulemaking, FCC 98-235 (released Sept. 18, 1998); and the designation of the upper 6 GHz (6700-7075 MHz) for mobile satellite feeder links. Amendment of Parts 2, 25 and 97 of the Commission's Rules with Regard to Mobile Satellite Service Above 1 GHz, ET Docket 98-142, Notice of Proposed Rulemaking (released Aug. 4, 1998). The "shared" 3.7-4.2 GHz band is effectively unavailable to the FS due to the extremely difficult problems of coordinating new FS stations with existing licensed earth stations.

<sup>19</sup> Redesignation of the 17.7-19.7 GHz Frequency Band, *supra*.

<sup>20</sup> Comments of the FWCC in Docket No. 98-172 at 6-7 (filed Nov. 19, 1998).

<sup>21</sup> Redesignation of the 17.7-19.7 GHz Frequency Band, *supra* at ¶ 31.

to protect FS expansion in that band are the same ones it advocates for the 11 GHz band, and which we show below to be inadequate.<sup>22</sup> A grant of SkyBridge's request would cut further into the increasingly scarce spectrum for FS applications.<sup>23</sup> The Commission should reject this proposal.

**B. NGSO Interests Have Failed to Establish That Exclusion Zones Are Either Unnecessary or Unduly Burdensome.**

The Commission proposed 100 km exclusion zones around the centers of the 50 largest population centers that would be closed to Ku-band NGSO gateway earth stations.<sup>24</sup> The FWCC supported this proposal. But it also noted that FS links are heavily used to connect population centers, and asked for expanded exclusion zones that cover corridors 50 km to either side of existing intercity routes.<sup>25</sup> The FWCC further noted that sunset proposals for the exclusion zones are predicated on an incorrect assumption that new 11 GHz licensing results from 2 GHz relocation.<sup>26</sup> In fact, FS expansion at 11 GHz results chiefly from growth.<sup>27</sup> Any sunset provisions are therefore completely unjustified.

Predictably, the idea of exclusion zones does not sit well with NGSO interests. SkyBridge expresses doubts that the need for FS facilities correlates well with the largest

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<sup>22</sup> Comments of SkyBridge at 20.

<sup>23</sup> The Commission also proposed to make the 17.3-17.8 GHz band coprimary with BSS effective April 1, 2007. *Id.* at ¶ 79. The FWCC joined SkyBridge in opposing this proposal. *See* Comments of the FWCC in Docket No. 98-172, *supra*, at 9.

<sup>24</sup> Notice at ¶ 24.

<sup>25</sup> Comments of the FWCC at 7-8.

<sup>26</sup> Notice at ¶ 25.

<sup>27</sup> Comments of Comsearch at 4-5.

population centers, and insists it must locate gateways close to fiber links.<sup>28</sup> Denali, a quasi-GSO applicant, proposes abolishing exclusion zones in favor of strict epfd limits at low elevation angles.<sup>29</sup> Boeing disfavors exclusion zones because they may entail added costs, but would accept 50-km radius zones around the 25 largest population centers.<sup>30</sup>

NGSO providers enter the band under an obligation to allow for continued operation and reasonable expansion by the incumbent services. They cannot now be heard to object to the cost of running fiber to gateway stations located away from high-density FS areas. These are predictable costs of system construction in a heavily used band. NGSO gateway facilities have far greater geographical flexibilities than do FS stations, whose sites are predetermined by customer locations and line of sight. NGSO providers can reasonably be asked to exploit their siting options in part to protect other services.

SkyBridge may be correct that an array of 100 km circles around the 50 largest population centers does not precisely capture the highest density of FS operations nationwide. But it probably comes close. And the Commission's proposal has the added advantage of administrative simplicity. Certainly it affords more uniform protection to FS operations than would SkyBridge's proposed reliance on frequency coordination and its definition of gateway

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<sup>28</sup> Comments of SkyBridge at 72-74. SkyBridge also opposes downlink exclusion zones on the ground that it plans to use the same gateway sites for uplinks, so that downlink restrictions would incidentally impose uplink restrictions that the Commission determined to be unnecessary. Comments of SkyBridge at 74. Any uplink restrictions are not the Commission's doing, however, but result solely from SkyBridge's own decision to collocate its uplink and downlink facilities. Nothing in the Commission's proposal stops SkyBridge from siting separate uplink facilities in the exclusion zones, or anywhere else it pleases.

<sup>29</sup> Comments of Denali at 12. Denali does not propose specific numbers.

<sup>30</sup> Comments of Boeing at 31.

stations.<sup>31</sup>

The Commission should adopt its proposal for exclusion zones, with the addition of intercity corridors as requested by the FWCC.

**C. Proposed Alternatives to Limits on Gateway Numbers, Antenna Size, and Shielding Will Improperly Hinder FS Operation and Expansion.**

The FWCC's Comments proposed a minimum antenna size of 4.5 meters and a maximum of 40 gateways sites, with NGSO providers required to collocate as necessary to achieve that maximum.<sup>32</sup> Boeing supports a minimum 4.5 meter antenna size.<sup>33</sup> But SkyBridge opposes any rules that would set minimum antenna size or maximum number of gateways, on the ground that such rules might impede the development of new technologies and result in economic inefficiencies.<sup>34</sup> Instead, SkyBridge asserts that frequency coordination and its definition of gateway stations will strictly limit the number of gateways.<sup>35</sup>

The FWCC is eager to prevent a recurrence of the situation at 4 GHz, where unconstrained earth station deployment has virtually shut down FS expansion. The limitations requested here address those concerns. The larger antenna size will permit coordination of more FS facilities within a gateway's coordination distance, while the limit on gateway numbers will control the overall areas that require coordination. The FWCC does not share SkyBridge's confidence that its definition alone will adequately control the proliferation of gateway sites.

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<sup>31</sup> Comments of SkyBridge at 74.

<sup>32</sup> Comments of the FWCC at 6-7, 9-10.

<sup>33</sup> Comments of Boeing at 79.

<sup>34</sup> Comments of SkyBridge at 75.

<sup>35</sup> Comments of SkyBridge at 75.

Even if today the definition correctly captured the correct subset of earth stations (on which we have doubts), the definition would not necessarily maintain its intended relevance as new applications evolve for SkyBridge's services.

**Shielding.** SkyBridge proposes to install and pay for earth station shielding necessary to coordinate a new gateway facility. Once the gateway is in place, SkyBridge would "accept" shielding necessary to coordinate a new FS facility, provided the FS operator paid for it.<sup>36</sup>

This position does not comport with SkyBridge's commitment that "[t]here should be no significant reduction in the ability of existing FS operators to add new links to their systems."<sup>37</sup> The Commission accepted this commitment: "[F]ixed operators need a reasonable assurance that coordination with NGSO FSS gateway stations would not hinder fixed service deployment."<sup>38</sup>

The FWCC previously requested the Commission to require a minimum of 18 dB shielding in all directions the earth station will use.<sup>39</sup> It now clarifies that request. NGSO providers should not have to incur the pointless expense of constructing unnecessary shielding. At the same time, however, FS operators should have the benefit of the shielding in the coordination process. The FWCC therefore proposes that the Commission require 18 dB of "virtual shielding" around gateway earth stations. This means that FS users can always assume 18 dB of shielding for coordination purposes, whether or not it is actually in place. The NGSO

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<sup>36</sup> Comments of SkyBridge at 72.

<sup>37</sup> SkyBridge Petition at 12.

<sup>38</sup> Notice at ¶ 23. Commissioner Ness wrote separately to emphasize, "[W]hatever spectrum sharing criteria are finally adopted by the Commission for the Ku-band must not restrict the growth and evolution of existing geostationary and terrestrial systems operating in the frequency band." Notice, Separate Statement of Commissioner Susan Ness.

<sup>39</sup> Comments of the FWCC at 9.

provider retains the option of whether to construct the shielding. In some cases the gateway facility may not need it at all; in other cases terrain shielding may suffice; in still other cases, actual shielding may be required over only a small range of azimuths. This proposal allows the NGSO provider to minimize its expenses, while giving FS operators reasonable flexibility in coordinating growth of their services.

**D. GSO Coordination Procedures Do Not Adequately Address the Characteristics of NGSO Operation.**

The Commission proposed to carry over existing GSO coordination procedures to NGSO operations.<sup>40</sup> Comsearch concurs.<sup>41</sup> SkyBridge proposes to adopt the coordination procedures in Appendix 28/Appendix S7 as revised by WRC-2000, and otherwise to use existing procedures.<sup>42</sup>

The FWCC strongly disagrees with these proposals. The FWCC pointed out in its Comments that the problems of coordinating NGSO and GSO earth stations are very different, and require different solutions. GSO earth station antennas are always aimed at the geosynchronous arc and rarely shift position, while NGSO gateways move their antennas continuously over much of the sky. Accordingly, coordination with NGSO gateways is much more difficult, and will require correspondingly more stringent procedures.<sup>43</sup> The FWCC also explained how the existing procedures strongly favor the satellite services over the FS in access to spectrum.<sup>44</sup> To address these problems, the FWCC asked for rules that require NGSO

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<sup>40</sup> Notice at ¶ 22.

<sup>41</sup> Comments of Comsearch at 2-3.

<sup>42</sup> Comments of SkyBridge at 70-71.

<sup>43</sup> Comments of the FWCC at 17-19.

<sup>44</sup> Comments of the FWCC at 18-19.



gateways to use spectrum-efficient modulations adequate to leave half of the band available for FS growth, and for coordination only over the azimuths and frequencies actually used by a gateway. It also asked that NGSO/FS coordination take into account all of the factors likely to affect the actual incidence of interference, including antenna directionality, terrain shielding, frequency and geographic separation, and the virtual shielding proposed above. Finally, the FWCC asked that an earth station accepting a higher-than-desired interference objective when coordinating be required to give subsequently coordinating FS facilities the benefit of the same higher level.<sup>45</sup> (The FWCC first-round Comments justify and explain these points.) Taken together, these provisions will maximize efficient use of the 11 GHz spectrum by both NGSO gateways and FS operators, while minimizing significant harmful interference.

To ensure some probability of at least limited success in coordinating new FS facilities, the Commission should also reserve a minimum of one 40 MHz frequency pair in the 10.7-11.7 GHz band for exclusive FS use. The FWCC emphasizes that this reserved pair is needed in addition to the rules on exclusion zones, gateway numbers, antenna size, shielding, spectrum efficiency, and coordination procedures. Without those protections, one reserved pair would be inadequate by far. But there may well be cases in which the other protections will be insufficient to permit coordination of a needed link. A reserved pair is necessary as a last-ditch fallback for the FS.

**E. The Commission Should Disregard Comments that Request Service Links in Gateway Bands.**

The Commission correctly allocated different bands to NGSO gateway and service links, requiring the FS to share only with gateway facilities. Two NGSO applicants challenge this

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<sup>45</sup> Comments of the FWCC at 19-21.

proposal. Teledesic would permit service links in the gateway bands if they comply with the technical parameters established for the those bands.<sup>46</sup> Virtual Satellite supports service downlinks at 11.2-11.7 GHz with terminals capable of switching automatically to other bands if they find interference.<sup>47</sup>

Service links in bands shared with the FS will make sharing unworkable. Coordinating with several dozen gateway stations will be difficult enough, but coordinating with thousands of user terminals will be impossible.<sup>48</sup>

The Commission should not permit user terminals in the FS bands even on a non-coordinated, secondary basis. At least some terminals would almost certainly experience interference from the FS. That would give the NGSO provider very strong economic and customer-relations incentives to reopen the rules in an effort to control the interference by limiting FS operations. The Commission has determined in several recent proceedings that such problems are best solved by not permitting them to occur in the first instance, through implementation of band segmentation.<sup>49</sup> Here as well, the Commission should adhere to its original decision in segregating gateway and service links.

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<sup>46</sup> Comments of Teledesic at 6-7.

<sup>47</sup> Comments of Virtual Satellite at 13.

<sup>48</sup> Even SkyBridge agrees: "Deployment of ubiquitous NGSO FSS user terminals in these [FS] bands could substantially impede sharing with FS operations." Comments of SkyBridge at 66 (footnote omitted).

<sup>49</sup> *E.g.*, Allocation and Designation of Spectrum, IB Docket No. 97-95, Report and Order, FCC 98-336 (released Dec. 23, 1998); Redesignation of the 17.7-19.7 GHz Frequency Band, IB Docket No. 98-172, Notice of Proposed Rulemaking, FCC 98-235 (released Sept. 18, 1998); 37.0-38.6 and 38.6-40.0 GHz Bands, 12 FCC Rcd 18600 (1997).

## **CONCLUSION**

As late entrants to a crowded band, NGSO providers must take reasonable steps to protect both the incumbents' present operations and their reasonable expansion and growth to meet future needs.

The Commission should abandon its proposal to license GSO FSS earth stations for the full 10.7-11.7 GHz band. Adoption would largely eliminate frequency separation as a means of FS/FSS coordination. In addition, and contrary to Panamsat's request, the Commission should maintain the GSO limitation to international services at 10.7-11.7 GHz.

The Commission should adopt the following measures to facilitate sharing between the FS and NGSO FSS gateway earth stations:

- reaffirm the decision not to authorize NGSO gateways at 17.7-17.8 GHz;
- implement the proposal for exclusion zones around the 50 largest population centers, and expand it to include corridors 50 km to either side of intercity routes;
- limit numbers of gateway sites and minimum antenna size;
- require 18 dB of "virtual shielding" around gateways that FS operators can take into account in coordination, but that FSS operators need not build unless actually required;
- adopt coordination procedures appropriate to NGSO operations; and
- continue to prohibit service links in shared bands allocated for gateway operations.

Adoption of these measures will implement the promises SkyBridge made at the outset of this proceeding: to operate without interference to the FS, and without hindering FS expansion.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Leonard R. Raish" followed by a stylized monogram or initials "MLR".

Leonard R. Raish

Mitchell Lazarus

FLETCHER, HEALD & HILDRETH, P.L.C.

1300 North 17th Street, 11th Floor

Arlington, VA 22209

703-812-0400

April 14, 1999

Counsel for the Fixed Wireless  
Communications Coalition

## **APPENDIX A**

## **MEMBERS OF FIXED WIRELESS COMMUNICATIONS COALITION**

### **USERS**

Association of Public-Safety Communications Officials  
American Mobile Telephone Association  
UTC - The Telecommunications Association  
National Association of Broadcasters  
Independent Cable Telecommunications Association  
American Petroleum Institute  
International Wireless Cable Association  
Personal Communications Industry Association  
CBS Communications Services  
Norfolk-Southern Railroad  
Union Pacific Railroad  
Burlington-Northern Railroad  
BellSouth  
Bell Atlantic  
SBC Communications, Inc.  
People's Choice TV  
WinStar Communications, Inc.

### **MANUFACTURERS**

Harris Corporation - Microwave Division  
Digital Microwave Corporation  
Sierra Digital Communications  
California Microwave, Microwave Data Systems  
Tadiran Microwave Networks

## **CERTIFICATE OF SERVICE**

I, Deborah N. Lunt, a secretary for the law firm of Fletcher, Heald & Hildreth, P.L.C., hereby certify that a true copy of the foregoing "Reply Comments of the Fixed Wireless Communications Coalition" was sent this 14th day of April, 1999, via Hand-Delivery to the following:

Chairman William E. Kennard  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Commissioner Harold Furchtgott-Roth  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Commissioner Michael Powell  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Commissioner Susan Ness  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Commissioner Gloria Tristani  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Dale Hatfield, Bureau Chief  
Office of Engineering and Technology  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Rebecca Dorch, Deputy Chief  
Office of Engineering and Technology  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Bruce Franca, Deputy Chief  
Office of Engineering and Technology  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Julius Knapp, Chief  
Policy & Rules Division  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Geraldine Matise, Deputy Chief  
Policy & Rules Division  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Charles Iseman, Chief  
Spectrum Policy Branch  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Tom Derenge  
Spectrum Policy Branch  
Federal Communications Commission  
2000 M Street, Suite 480  
Washington, D.C. 20554

Thomas J. Sugrue, Chief  
Wireless Telecommunications Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W., Room 3C252  
Washington, D.C. 20554

D'Wana Terry, Chief  
Public Safety & Private Wireless Division  
Federal Communications Commission  
445 12th Street, SW, 4th Floor  
Washington, D.C. 20554

Herb Zeiler, Deputy Chief  
Public Safety & Private Wireless Division  
Federal Communications Commission  
445 12th Street, SW, 4th Floor  
Washington, D.C. 20554

John Cimko, Chief  
Policy Division  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W., Room 3C124  
Washington, D.C. 20554

Ed Jacobs  
Policy Division  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W., Room 3C1620  
Washington, D.C. 20554

Thomas Tycz, Chief  
Satellite & Radiocommunication Division  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Cassandra Thomas, Deputy Chief  
Satellite & Radiocommunication Division  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Richard B. Engelman, Chief  
Planning & Negotiations Division  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Damon Ladson, Deputy Chief  
Planning & Negotiations Division  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Ronald Repasi, Chief  
Satellite Engineering Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Kimberly Braum  
Satellite Engineering Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Julie A. Garcia  
Satellite Engineering Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554

Jennifer Gilsenan  
Satellite Policy Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 20554



Harry Ng  
Satellite & Radiocommunication Branch  
International Bureau  
Federal Communications Commission  
2000 M Street, Suite 800  
Washington, D.C. 2055

International Transcription Service  
1231 20<sup>th</sup> Street, N.W.  
Washington, D.C. 20037



Deborah N. Lunt