

Before the  
**FEDERAL COMMUNICATIONS COMMISSION**  
Washington, DC 20554

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;	)	
	)	
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;	)	
	)	
Applications of Broadwave USA,	)	
PDC Broadband Corporation, and	)	
Satellite Receivers, Ltd. to Provide a	)	
Fixed Service in the 12.2-12.7 GHz band	)	

**OPPOSITION OF THE BOEING COMPANY  
TO PETITIONS FOR RECONSIDERATION**

The Boeing Company (“Boeing”), by its attorneys and pursuant to Section 1.429 of the Commission’s Rules, 47 C.F.R. § 1.429, hereby opposes portions of certain Petitions for Reconsideration that were filed in response to the Commission’s First Report and Order (“*Order*”) in the above-captioned proceeding.<sup>1</sup>

---

<sup>1</sup> *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range*, FCC 00-418 (Dec. 8, 2000) (“*Order*”).

**I. IN LIGHT OF THE DIVERGENT PETITIONS FOR RECONSIDERATION THAT WERE FILED IN THIS PROCEEDING, THE COMMISSION SHOULD REVISE ITS RULES FOR NGSO FSS NETWORK TO ENSURE THAT THEY ARE CONSISTENT WITH THE WRC-2000 CONSENSUS AGREEMENT.**

In its *Order*, the Commission culminated more than three years of domestic and international efforts by authorizing the operation of non-geostationary fixed satellite service (“NGSO FSS”) networks in the Ku-band. The Commission took this action upon finding that globally operated NGSO FSS networks could “provide important services to the public, particularly in rural and unserved areas.”<sup>2</sup>

While potentially valuable to consumers, the authorization of NGSO FSS networks has not been an easy task. Spectrum sharing issues had to be resolved with respect to numerous radiocommunications services that operate in the Ku-band. Following WRC-97, ITU-R Working Groups sought to address these issues and what resulted was “the most comprehensive and current studies on NGSO FSS protection of GSO FSS networks, FS operations and BSS systems available to date.”<sup>3</sup>

Not only were the studies comprehensive, but, more importantly, they were based on consensus. Most of the spectrum sharing issues relevant to NGSO FSS operations in the Ku-band were resolved in advance of the 1999 Conference Preparatory Meeting (“CPM”) and the remaining issues were resolved during the CPM and subsequently affirmed by WRC-2000.<sup>4</sup> The

---

<sup>2</sup> *Id.*, ¶¶ 19, 166 (“The implementation of NGSO FSS systems will allow new advanced services to be provided to the public, as well as provide increased competition to existing satellite and terrestrial services. Indeed, the NGSO FSS, because of its ability to serve large portions of the earth’s surface, can bring advanced services to rural areas.”).

<sup>3</sup> *Id.*, ¶ 20.

<sup>4</sup> *See id.*

meetings that produced these consensus agreements were attended by both NGSO FSS proponents and, importantly, by even more representatives of incumbent spectrum users.

The United States government, with the help of United States industry, “was an active participant” in the ITU-R Working Group process.<sup>5</sup> The United States delegation to relevant ITU-R meetings was usually the largest delegation in attendance, reflecting the variety of interests involved.

Most importantly, at the end of the day, the United States supported the consensus agreement that was adopted by WRC-2000. In doing so, the United States agreed with other countries that the “combination of single-entry validation, single-entry operational and, for certain antenna sizes, single-entry additional operational epfd limits, . . . along with the aggregate limits . . . protects GSO networks in these bands.”<sup>6</sup>

In light of the United States support for the international consensus agreement that was adopted by WRC-2000, it seems appropriate that the Commission should incorporate the WRC-2000 outputs in their entirety in the Commission’s rules for U.S.-licensed satellite systems. In most instances, the Commission went forward with this approach. For example, the Commission concluded that the “single-entry EPFD<sub>down</sub> limits and aggregate EPFD<sub>down</sub> limits for NGSO FSS operations” that were adopted by WRC-2000 “adequately protect GSO FSS operations and we will require NGSO FSS systems to comply with each type of limit as appropriate.”<sup>7</sup>

---

<sup>5</sup> See Order, ¶ 15.

<sup>6</sup> *Protection of GSO FSS and GSO BSS Networks From the Maximum Aggregate Equivalent Power Flux-Density Produced by Multiple Non-GSO FSS Systems in Frequency Bands Where Equivalent Power Flux-Density Limits Have Been Adopted*, Resolution COM 5/6, at “considering c” (WRC-2000).

<sup>7</sup> Order, ¶ 72.

In a few cases, however, the Commission departed from the terms of the WRC-2000 consensus agreement. The instances of these departures are recited in a Petition for Reconsideration filed by SkyBridge L.L.C. and should be given careful consideration by the Commission.<sup>8</sup> The industry consensus that existed for the WRC-2000 agreement is now being threatened by these departures, which are creating confusion and new disagreements about the steps that are necessary to permit NGSO FSS networks to operate in the Ku-band on a shared basis with GSO satellite systems.

Each of the Petitions for Reconsideration that addressed NGSO FSS sharing rules focused on these points of departure. The petitions provide strong evidence that the Commission's deviations from the WRC-2000 agreement will serve only to upset the carefully negotiated consensus agreement that was achieved through the ITU-R process, potentially unraveling three years of good faith efforts on the part of the domestic and international radiocommunications communities.

Boeing believes that the Commission's *Order* does not provide adequate explanation for the Commission's departures from the WRC-2000 agreement. The *Order* suggests that because other countries were involved in the development of the international spectrum sharing rules for NGSO FSS, the WRC-2000 outputs "may not adequately address specific, domestic sharing conditions such as those prevalent in the U.S."<sup>9</sup>

In reality, the WRC-2000 outputs arguably reflected the interference concerns of the U.S. radiocommunications community more so than the concerns of any other country. In any event,

---

<sup>8</sup> See *Petition for Reconsideration of SkyBridge L.L.C.*, ET Docket No. 98-206 (Mar. 19, 2001) ("*SkyBridge Petition*").

<sup>9</sup> *Order*, ¶ 15.

the departures from the WRC-2000 agreement that were included in the Commission's *Order* seem to have nothing to do with special spectrum sharing conditions in the United States.

Almost all of the deviations appear to involve spectrum sharing between NGSO FSS networks and incumbent GSO FSS, BSS and FS networks, sharing scenarios that are not uniquely domestic.

For example, in the *Order* the Commission appears to convert the operational and additional operational limits that were adopted by WRC-2000 to protect GSO FSS networks into a second and third set of validation limits. The Commission directs NGSO FSS licensees to submit "a demonstration that its system is expected to meet the operational and additional operational limits" at least 90 days prior to the initiation of service.<sup>10</sup> This demonstration is required to be made using the three worst case test points within the United States and in other regions.<sup>11</sup>

The Commission's requirements overlook the fact that the operational and additional operational limits were designed to be operational in nature, applying only to interference that is actually observed into the specific victim GSO FSS antennas that the limits were adopted to protect. As SkyBridge notes in its Petition for Reconsideration, "the Operational Limits can, by definition, be exceeded (except into an operational GSO earth station)."<sup>12</sup> Therefore, any software simulation that attempts to employ a NGSO FSS network's "expected maximum traffic

---

<sup>10</sup> *Order*, ¶ 97; *see also id.*, ¶ 195.

<sup>11</sup> *See id.*, ¶ 98.

<sup>12</sup> *SkyBridge Petition* at 35.

loading distributions”<sup>13</sup> and the “worst three test points in the U.S.” and other countries<sup>14</sup> could produce results that, while exceeding the operational limits, in and of themselves may not violate the WRC-2000 agreement.

The Commission’s departure from the basic terms of the WRC-2000 agreement has prompted other parties that consented to the agreement to adjust their positions as well.<sup>15</sup> The additional requirements sought by certain parties were already considered and rejected by the U.S. and other countries during the WRC-2000 process, and again by the Commission during its deliberations on its domestic rules for NGSO FSS networks. The Commission should preserve the international compromise agreement that was reached at WRC-2000 by revising its rules for NGSO FSS networks so that they reflect accurately the compromise agreement that the U.S. advocated during four weeks of deliberations at Istanbul last year.

## **II. THE COMMISSION SHOULD REJECT ATTEMPTS TO ADOPT ADDITIONAL RULES FOR NGSO FSS LICENSEES THAT DO NOTHING TO ENHANCE SPECTRUM SHARING IN THE KU-BAND.**

Boeing believes the Commission should make its rules for NGSO FSS networks more uniform with the outputs of WRC-2000. The Commission should reject arguments that would have the domestic rules for NGSO FSS systems diverge even further from the international

---

<sup>13</sup> *Order*, Appendix A, § 25.146(b)(1)(i).

<sup>14</sup> *Id.*, Appendix A, § 25.146(b)(1)(v).

<sup>15</sup> For example, some U.S. satellite operators filed petitions arguing that the Commission should require NGSO FSS applicants to validate compliance with the operational limits prior to 90 days before coming into operation. They also argued that the compliance showing should be far more detailed, potentially including 30 test points, or comprehensive maps showing anticipated power levels at any point of operation. See *Petition for Reconsideration of PanAmSat Corporation*, ET Docket No. 98-206, at 4-6 (Mar. 19, 2001) (“*PanAmSat Petition*”); *Petition for Reconsideration of Directv, Inc.*, ET Docket No. 98-206, at 25-28 (Mar. 19, 2001) (“*Directv Petition*”).

consensus agreement. For example, the Commission should dismiss suggestions that it reopen negotiations on the 10% unavailability criteria for NGSO FSS networks in order to include aggregate interference from both NGSO FSS and MVDDS networks.<sup>16</sup> As the Commission is aware, the 10% unavailability criteria was the foundation upon which all other NGSO FSS spectrum sharing rules were created. Alteration of the 10% unavailability criteria would potentially necessitate revisiting every other aspect of the NGSO FSS spectrum sharing rules, a process that could take years to complete.

The Commission should also reject suggestions that NGSO FSS applicants be required to demonstrate compliance with the aggregate limits prior to licensing. While Boeing's NGSO FSS network will be able to comply with the single entry validation limits, the operational limits and the additional operational limits, it would be impossible for Boeing to demonstrate at this time that the interference from its network, along with every other network that has been proposed to operate in the Ku-band, would comply with the aggregate limits.

As the Commission knows, many of the NGSO FSS applications that are pending before the Commission include vague conceptual descriptions of the proposed networks, which would be inadequate to use in a simulation of aggregate interference characteristics. In any event, by definition, as long as each NGSO FSS network meets the single entry validation limits, the aggregate limits cannot be exceeded, at least not until a fourth NGSO FSS network is launched. This means that the Commission will have more than ample time to formulate aggregate interference compliance procedures long before they could potentially become a legitimate interference concern for GSO network operators.

---

<sup>16</sup> See *EchoStar Petition* at 12-20.

The Commission should also reject arguments that it should delay licensing NGSO FSS networks until after the ITU completes and publishes its determination of whether the NGSO FSS applications pending before the Commission comply with the single entry validation limits. The Commission routinely authorizes satellite systems prior to the completion of the ITU review process for coordination and other inter-network interference issues. The Commission conditions such authorizations on completion of ITU notification and coordination. The Commission routinely takes such action because of the substantial delay that has developed in the ITU's processing of satellite system notification and publication information. No reason exists for the Commission to employ a different policy for the licensing of NGSO FSS networks.

Finally, Panamsat argues the additional remedial procedures and penalties are needed to ensure that NGSO FSS operators comply with the Commission's rules. It is unclear why the Commission's existing rules for responding to alleged compliance problems are inadequate. The same rules have been sufficient to ensure that GSO FSS licensees comply with the Commission's rules and they should therefore be adequate to ensure NGSO FSS licensee compliance.

### **III. CONCLUSION**

NGSO FSS networks can introduce new competition into the satellite communications industry and can provide important services to consumers in all regions of the world. The international radiocommunications community has strongly endorsed the development of NGSO FSS networks through the adoption by WRC-2000 of spectrum sharing rules that permit these networks to operate on a complementary basis with other spectrum users in the Ku-band. The United States was an active participant in WRC-2000, along with the three years of deliberations and studies that led up to the international agreement. The Commission should now enable the prompt construction and launch of NGSO FSS networks by revising its domestic rules for such

networks to ensure their uniformity with the international spectrum sharing agreement that the United States supported at WRC-2000.

Respectfully submitted,

**THE BOEING COMPANY**

By: /s/ David A. Nall

R. Craig Holman  
Office of the General Counsel  
The Boeing Company  
P.O. Box 3999, M/S 80-RF  
Seattle, Washington 98124-2499  
(253) 773-9645

David A. Nall  
Bruce A. Olcott  
Stephen J. Duall  
Squire, Sanders & Dempsey L.L.P.  
1201 Pennsylvania Avenue, N.W.  
P.O. Box 407  
Washington, D.C. 20044-0407  
(202) 626-6600

Its Attorneys

April 24, 2001

**CERTIFICATE OF SERVICE**

I, Shenita Fauntleroy, hereby certify that on 24<sup>th</sup> day of April, 2001, I caused copies of the foregoing Opposition of The Boeing Company To Petitions For Reconsideration in ET Docket No. 98-206 to be served via first class mail, postage prepaid:

Phillip L. Spector  
Jeffrey H. Olson  
Diane C. Gaylor  
Paul, Weiss, Rifkind, Wharton & Garrison  
1615 L Street, N.W.  
Suite 1300  
Washington, D.C. 20036  
Counsel for Skybridge, L.L.C.

Joseph A. Godles  
Goldberg, Godles, Wiener & Wright  
1229 Nineteenth Street, N.W.  
Washington, D.C. 20036  
Counsel for Panamsat Corporation

Gary M. Epstein  
James H. Barker  
Latham & Watkins  
1001 Pennsylvania Avenue, N.W.  
Suite 1300  
Washington, D.C. 20004-2505  
Counsel for DirecTV, Inc.

Pantelis Michalopoulos  
Rhonda M. Bolton  
Steptoe & Johnson LLP  
1330 Connecticut Avenue, N.W.  
Washington, D.C. 20036  
Counsel for EchoStar Satellite Corporation

/s/ Shenita Fauntleroy  
Shenita Fauntleroy