

DUPLICATE

BEFORE THE  
**Federal Communications Commission**

WASHINGTON, D.C. 20554

RECEIVED - FCC

SEP 28 2004

Federal Communication Commission  
Bureau/Office

In re the Applications of	)	File Nos.	SAT-LOA-19970904-00080/84
	)		SAT-LOA-19971222-00219
<b>Northrop Grumman Space &amp; Mission</b>	)		SAT-AMD-20031104-00324
<b>Systems Corporation</b>	)		SAT-AMD-20040312-00030/34
	)		SAT-AMD-20040719-00136/40
For Authority to Launch and Operate	)		
Geostationary and Non-Geostationary	)		
Satellites in the Fixed-Satellite Service	)		

To: Chief, International Bureau

**CONSOLIDATED OPPOSITION TO PETITIONS TO DENY OR DISMISS**

**NORTHROP GRUMMAN SPACE TECHNOLOGY  
& MISSION SYSTEMS CORPORATION**

Stephen D. Baruch  
David S. Keir  
Leventhal, Senter & Lerman, P.L.L.C.  
2000 K Street, N.W., Suite 600  
Washington, D.C. 20006  
(202) 429-8970

September 28, 2004

Its Attorneys

## SUMMARY

Petitioners' claims are rooted largely in the false premise that NGST's applications share critical characteristics with applications filed by EchoStar in August 2003, which were denied earlier this year. Contrary to these claims, both the procedural posture of the NGST and EchoStar applications and their substantive content are fundamentally different, and NGST and EchoStar therefore are not "similarly situated" parties.

NGST's applications were initially dismissed as not acceptable for filing due to incompleteness, because the International Bureau's Satellite Division determined that they did not include required information regarding two-degree spacing at V-band and orbital debris mitigation. Upon further review, however, the Bureau concluded that the relevant requirements were subject to more than one reasonable interpretation, and it reinstated the applications. The sufficiency of NGST's contingent showing regarding use of the Ka-band primary non-geostationary orbit ("non-GSO") bands by geostationary-orbit ("GSO") satellites was discussed in the Satellite Division's initial letter, but was not a basis for the incompleteness finding that was later reversed.

EchoStar's applications, on the other hand, were denied after acceptance for filing and complete processing. This action was taken because EchoStar failed either to demonstrate compliance with the Commission's Rules regarding Ka-band spectrum use or to justify a waiver of those Rules by showing that its proposed GSO networks would not cause harmful interference to primary non-GSO systems in the bands sought. The defect in EchoStar's applications was thus a substantive grantability defect; it was not a matter of procedural completeness.

With respect to the substance of the NGST applications, NGST has demonstrated in its March 12 and July 19 Amendments how its geosynchronous-orbit satellites, operating as part of a non-GSO system, will indeed operate compatibly with other non-GSO systems. NGST

also demonstrated, contingently, how it would be able to operate the same spacecraft as “GSO” satellites on a completely secondary basis with respect to Commission-authorized non-GSO FSS systems should the Commission treat the proposal as one for GSO use of the primary non-GSO FSS bands. EchoStar never made a quantitative showing – either in its applications or its petition for reconsideration – that its proposed GSO operation would not cause harmful interference to non-GSO systems, and in fact, maintained that non-GSO systems should be subject to EPFD limits to protect the GSO networks in these bands too.

In its Petition, SES Americom argues that NGST has failed to justify its request for a waiver of the Commission’s 28 GHz band plan, contending that compliance with international EPFD limits cannot be the basis for departing from the Commission’s spectrum allocations because the Commission has not yet formally adopted the EPFD limits for the Ka-band. SES Americom bases this claim on the early and unsettled status of EPFD limits in 1998, at the time that such limits were first proposed for consideration in the *Ku-Band NGSO* rulemaking proceeding. The uncertainty and division that characterized the regulatory situation at the time of the decision relied upon by SES Americom was resolved by 2000, and the reliability and validity of the Ku-band and Ka-band EPFD limits to protect co-frequency GSO FSS networks is now both well settled and accepted by the Commission.

Significantly, at no point does SES Americom even suggest that the EPFD limits in the ITU Radio Regulations are insufficient to protect Ka-band GSO networks from unacceptable and harmful interference, or that the comprehensive technical showing in NGST’s March 12 Amendment is insufficient to show that the EPFD limits for 19.7-20.2 GHz and 29.5-30 GHz that are contained in Article 22 of the ITU Radio Regulations are met by NGST’s non-GSO FSS system. Because NGST has demonstrated that its HEO non-GSO FSS satellites meet the EPFD limits, NGST must be deemed to have successfully demonstrated its entitlement to the

waiver it seeks to enable secondary operation of the GESN non-GSO FSS system satellites in the upper 500 MHz of the Ka-band GSO FSS spectrum.

Finally, SES Americom's procedural arguments against NGST's "GSO" use of the non-GSO FSS bands are unavailing. NGST recognizes that its use of geosynchronous satellites in the non-GSO component of GESN subjects it to some additional regulatory obligations that would not apply if a totally HEO constellation were to be deployed. However, even if it were to be assumed, *arguendo*, that NGST's geosynchronous-orbit satellites in the 18.8-19.3 GHz and 28.6-9.1 GHz bands are GSO satellites, NGST's application contains a technical demonstration that the operational measures it proposes to employ to protect co-frequency non-GSO FSS systems would result in no noticeable impact on the performance of the other non-GSO FSS systems that are proposed for operation in the primary Ka-band non-GSO FSS spectrum. SES Americom does not make any claim that this demonstration is incorrect in any way, and more significantly, no pending non-GSO FSS applicant has claimed that NGST's proposed "GSO" use of the non-GSO FSS primary bands would cause harmful interference to those proposed systems.

The Petitions of EchoStar and SES Americom should thus be denied.

**TABLE OF CONTENTS**

	<b><u>Page</u></b>
SUMMARY .....	ii
I. Background .....	1
II. The EchoStar Ka-Band Applications Denied Earlier This Year Were Not “Similarly Situated” With NGST’s Applications. ....	4
III. It Is Well Settled That A Non-GSO FSS System That Operates At Or Below The Ka-Band EPFD Limits Will Not Cause Unacceptable Or Harmful Interference To A Co-Frequency GSO FSS Network. ....	9
IV. NGST’s Proposed Geosynchronous-Orbit Use Of The Non-GSO FSS Primary Ka-Band Spectrum Is Consistent With Commission Precedent. ....	13
V. Conclusion .....	17

BEFORE THE  
**Federal Communications Commission**  
WASHINGTON, D.C. 20554

In re the Applications of	)	
	)	File Nos. SAT-LOA-19970904-00080/84
<b>Northrop Grumman Space &amp; Mission</b>	)	SAT-LOA-19971222-00219
<b>Systems Corporation</b>	)	SAT-AMD-20031104-00324
	)	SAT-AMD-20040312-00030/34
For Authority to Launch and Operate	)	SAT-AMD-20040719-00136/40
Geostationary and Non-Geostationary	)	
Satellites in the Fixed-Satellite Service	)	

To: Chief, International Bureau

**CONSOLIDATED OPPOSITION TO PETITIONS TO DENY OR DISMISS**

Northrop Grumman Space & Mission Systems Corporation, by counsel and through its Northrop Grumman Space Technology sector ("NGST"), hereby opposes the Petition to Deny and the Consolidated Petition to Dismiss or Deny filed respectively on September 13, 2004 by EchoStar Satellite LLC ("EchoStar") and SES Americom, Inc. ("SES Americom") in response to NGST's March 12, 2004 and July 19, 2004 amendments to the above-captioned applications. As NGST demonstrates below, neither petitioner has provided any justification for the dismissal or denial of NGST's applications, and the subject applications should therefore be processed and granted.

**I. Background**

NGST's applications for a fully-interconnected and interdependent V-band/Ka-band fixed-satellite service ("FSS") system employing a combination of geostationary satellite orbit ("GSO") and non-geostationary satellite orbit ("non-GSO") spacecraft were originally filed in 1997.<sup>1</sup> International and domestic spectrum allocation issues at V-band and the vagaries of

---

<sup>1</sup> See Application of TRW Inc., File Nos. SAT-LOA-19970904-00080/84 (filed Sept. 4, 1997); Amendment of TRW Inc., File No. SAT-AMD-19971222-00219 (filed Dec. 22, 1997).



the processing round system for space station applications delayed or derailed the realization of NGST's original vision for its proposed "GESN" system for many years. Indeed, it was not until late in 2003 that the Commission finally completed rulemaking proceedings that established sharing rules for non-GSO FSS systems in the 2 x 500 MHz of primary Ka-band non-GSO FSS spectrum and a band plan for FSS satellites and systems at V-band.<sup>2</sup> By the end of 2003, the regulatory elements were in place to enable the processing of NGST's comprehensive approach for its proposed GESN system.

On March 12, 2004, NGST amended its four V-band GSO applications and its V-band/Ka-band non-GSO application to restore its hybrid, consolidated vision for GESN.<sup>3</sup> In its Amendments, which NGST requests to have considered and processed as a unified system filing, NGST:

- reduced the number of satellites in the non-GSO component of GESN from 15 to 7;
- changed the orbits of its non-GSO satellites from exclusively medium Earth orbit to a combination of 3 highly-elliptical orbit ("HEO") and 4 geosynchronous-orbit satellites that will operate in the originally-proposed 2 x 1000 MHz of Ka-band spectrum and 2 x 3000 MHz of V-band spectrum without a material increase in interference potential;
- modified the orbital locations proposed for 3 of the 4 spacecraft in the GSO component of GESN;
- added 2 x 500 MHz of Ka-band GSO primary spectrum to its GSO satellites at 89° W.L., 2 x 1000 MHz of Ka-band GSO primary spectrum at 116.5° E.L., and an additional 1500 MHz of V-band downlink spectrum to all but its 15° E.L. satellite (bringing the total V-band downlink spectrum on each of the three affected satellites to 4500 MHz).

---

<sup>2</sup> In December 2003, the Commission adopted rules to implement allocation and power limitation actions that were taken at a series of three International Telecommunication Union ("ITU") World Radiocommunication Conferences, culminating with the 2003 conference. *See Allocation and Designation of Spectrum for Fixed-Satellite Services in the 37.5-38.5 GHz, 40.5-41.5 GHz and 48.2-50.2 GHz Frequency Bands; Allocation of Spectrum to Upgrade Fixed and Mobile Allocations in the 40.5-42.5 GHz Frequency Band; Allocation of Spectrum in the 46.9-47.0 GHz Frequency Band for Wireless Services; and Allocation of Spectrum in the 37.0-38.0 and 40.0-40.5 GHz Band for Government Spectrums, Second Report and Order*, IB Docket No. 97-95, FCC 03-296 (released Dec. 5, 2003) ("V-Band Second Report and Order").

<sup>3</sup> *See* FCC File Nos. SAT-AMD-20040312-00030 through -00034 (collectively, "NGST March 12 Amendments").

NGST included technical justifications and, where necessary, requested waivers of applicable technical and processing rules to accommodate its GESN system proposal. In the case of the plane of geosynchronous-orbit satellites in the non-GSO component of GESN at Ka-band, NGST requested, *inter alia*, a contingent waiver of the 28 GHz Band Plan to permit it to use the four geosynchronous-orbit satellites to supplement the HEO satellites in the 18.8-19.3 GHz and 28.6-29.1 GHz bands, and included a demonstration (supplemented in a later amendment) of how such use would be made without causing harmful interference to Commission-authorized non-GSO FSS systems in the same bands.<sup>4</sup>

On May 18, 2004, the Satellite Division of the International Bureau released a letter dismissing a number of the interrelated NGST applications, construing the applications to be incomplete as filed.<sup>5</sup> There were two bases for these dismissals, neither of which pertained to the use of the Ka-band by geosynchronous satellites as part of NGST's proposed non-GSO network. First, the Satellite Division found that NGST had failed to include a two-degree spacing interference analysis with respect to "authorized" GSO satellites in the V-band. Second, the Satellite Division found that NGST had omitted a casualty risk assessment with respect to controlled atmospheric re-entry of non-GSO satellites. The Satellite Division also noted in its letter that NGST would need to provide a more comprehensive technical showing regarding the ability of its proposed plane of geosynchronous satellites to operate on a secondary basis in the Ka-band with respect to proposed and future Commission-authorized non-GSO FSS systems.

On June 16, 2004, the Satellite Division reversed its May 18<sup>th</sup> decision on its own motion; reinstated all of NGST's dismissed applications; and directed NGST to further amend its

---

<sup>4</sup> NGST March 12 Amendments (File No. SAT-AMD-20040312-00030), at 27.

<sup>5</sup> See Letter from Thomas S. Tycz, Chief, Satellite Division, International Bureau, Federal Communications Commission, to Peter Hadinger, NGST, DA 04-1387, dated May 18, 2004 ("*May 18<sup>th</sup> Letter*").



applications to demonstrate that its GSO satellites are compatible with the two-degree spacing requirement at V-band, and to provide a more detailed casualty risk assessment concerning its proposal for controlled re-entry of the HEO non-GSO spacecraft.<sup>6</sup> NGST timely filed the requested amendments on July 19, 2004.<sup>7</sup> NGST's July 19 Amendments included the showings required by the Commission on two-degree spacing and orbital debris mitigation, along with a supplemental showing (responsive to the admonition in the Satellite Division's *May 18<sup>th</sup> Letter*) that provided further technical detail in support of NGST's contingent request for a waiver of the 28 GHz Band Plan to allow it to operate "GSO" satellites on a truly secondary basis in the 18.8-19.3 GHz and 28.6-29.1 GHz bands. The amended applications were deemed acceptable for filing, and were placed on Public Notice on August 13, 2004.<sup>8</sup> The Petitions of EchoStar and SES Americom to which this Consolidated Opposition responds were filed on September 13, 2004.

**II. The EchoStar Ka-Band Applications Denied Earlier This Year Were Not "Similarly Situated" With NGST's Applications.**

EchoStar's Petition to Deny is rooted in the false premise that NGST's applications share critical characteristics with applications originally filed by EchoStar in August 2003, which were properly denied earlier this year.<sup>9</sup> EchoStar maintains "the asserted deficiencies in EchoStar's applications were also present in NGST's GSO applications at the time they were accepted for filing."<sup>10</sup> Not only is this inaccurate, EchoStar leaps from this false

---

<sup>6</sup> See Letter from Thomas S. Tycz, Chief, Satellite Division, International Bureau, Federal Communications Commission, to Peter Hadinger, NGST, DA 04-1725, dated June 16, 2004 ("*June 16<sup>th</sup> Letter*").

<sup>7</sup> See FCC File Nos. SAT-AMD-20040719-00136 through -000140 (collectively, "NGST July 19 Amendments").

<sup>8</sup> See FCC Public Notice, "Policy Branch Information, Satellite Applications Accepted for Filing," Report No. SAT-00234 (Int'l Bur., August 13, 2004).

<sup>9</sup> See *EchoStar Satellite, LLC*, DA 04-1167, slip op. (Sat. Div., released April 29, 2004) ("*EchoStar Denial Order*").

<sup>10</sup> EchoStar Petition at 2.

premise to the conclusion that the Bureau's rejection of EchoStar's applications "requires that it also deny NGST's GSO applications."<sup>11</sup> SES Americom makes a substantially similar argument in its Petition.<sup>12</sup> In fact, however, both the procedural posture of the NGST and EchoStar applications and their substantive content are and were fundamentally different, and NGST and EchoStar therefore are not "similarly situated" parties, as EchoStar and SES Americom maintain.

NGST's applications were initially dismissed as fatally incomplete at the acceptance stage, without prejudice to refiling because, as described above, the International Bureau's Satellite Division determined that they did not include both (1) a two-degree spacing interference analysis with respect to "authorized" GSO satellites in the V-band, and (2) a casualty risk assessment with respect to controlled atmospheric re-entry of the HEO non-GSO satellites.<sup>13</sup> The sufficiency of NGST's initial showing in support of its contingent request for a waiver of the 28 GHz Band Plan to enable it to operate "GSO" satellites on a secondary basis in the non-GSO FSS primary bands was discussed in the initial letter, but it was most decidedly not a basis for the initial incompleteness determination. Upon further review, however, the Bureau reckoned that its two-degree spacing and orbital debris mitigation requirements were subject to more than one reasonable interpretation, and it reinstated the applications, permitting NGST to amend them to provide the required information.<sup>14</sup>

In its Petition, EchoStar seizes upon the reinstatement of NGST's non-GSO application and maintains that its own GSO Ka-band applications are entitled to the same

---

<sup>11</sup> EchoStar Petition at 4.

<sup>12</sup> SES Americom Petition at 8-9.

<sup>13</sup> *See May 18<sup>th</sup> Letter.*

<sup>14</sup> *See June 16<sup>th</sup> Letter.*

treatment, claiming that they are “similarly-situated” with NGST.<sup>15</sup> EchoStar’s GSO applications, however, are not similarly situated with NGST’s non-GSO application.

Under the Commission’s rules and decisions, in order to secure authority to operate GSO satellites in the non-GSO FSS primary bands, EchoStar and NGST (in the event that the latter’s geosynchronous-orbit satellites are not deemed to be part of the non-GSO component of GESN as NGST asserts) are each required to justify their requests for a waiver of the Commission’s 28 GHz Band Plan. This requirement is not a “completeness” requirement that is assessed at the acceptance for filing stage. Indeed, like NGST’s Amendments, EchoStar’s applications were duly accepted for filing in September 2003.<sup>16</sup> Instead, the requirement goes to the ultimate grantability of the applications. This is where all similarities between the situation EchoStar was in when its application was denied, and NGST is in now, end.

EchoStar’s applications were premised on its suspect assertion that the operation of non-GSO systems in the Ka-band was unlikely to occur and that its proposed GSO-only system therefore would not interfere with non-GSO operations. As a fallback position, EchoStar asserted that it would turn off its GSO spacecraft if interference to non-GSO systems occurred.<sup>17</sup> Where EchoStar did absolutely nothing to enhance this “showing,” even after NGST and Hughes separately pointed out the defects therewith in their October 2003 Petitions to Deny/Dismiss the

---

<sup>15</sup> EchoStar Petition at 4& 6. EchoStar made this same erroneous claim in connection with its Petition for Reconsideration of its applications. See EchoStar Reply to Opposition to Petition for Reconsideration, SAT-LOA-20030827-00180 *et al.*, at 4-5 (filed June 28, 2004).

<sup>16</sup> EchoStar seems somewhat confused concerning the actual status of its applications, stating correctly at several points that its applications were denied (Petition at 1, 3 & 5), while elsewhere referring to their “dismissal” (Petition at 4). EchoStar is flatly wrong, however, in its accusation that the Bureau denied its applications “without accepting them for filing and placing them on public notice.” Petition at 5. These applications were fully processed and denied. They were accepted for filing in a Public Notice released September 24, 2003. See Public Notice: Satellite Space Stations Accepted for Filing, Report No. SAT-00165. Petitions to Deny were filed by NGST and Hughes Electronics Corporation (“Hughes”) on October 24, 2003, EchoStar filed its Consolidated Opposition on November 6, 2003, and NGST and Hughes filed Replies on November 19, 2003.

<sup>17</sup> See EchoStar Applications, FCC File Nos. SAT-LOA-2003827-00180, -00182, -00185, and -00187, at 15-16.

EchoStar's original applications, NGST demonstrated in its March 12 Amendments how its geosynchronous-orbit satellites, operating as part of a non-GSO system, will be capable of operating compatibly with other non-GSO systems, and how, contingently, it would be able to operate the same spacecraft as GSO satellites on a completely secondary basis with respect to Commission-authorized non-GSO FSS systems.<sup>18</sup> In response to the Bureau's *May 18<sup>th</sup> Letter* and *June 16<sup>th</sup> Letter*, NGST supplemented this information with an even more detailed and comprehensive technical showing.<sup>19</sup>

Thus, NGST has submitted the type of showing that EchoStar failed to attempt at any time prior to the denial of its application.<sup>20</sup> Rather than take EchoStar's approach of filing applications while seeking a change in the rules to accommodate its proposal, NGST has designed its hybrid non-GSO/GSO system to comply with the existing GSO and non-GSO rules, seeking a waiver of the frequency allocation rules to the extent required to permit secondary, non-harmful-interference geosynchronous operation in the 18.8-19.3 GHz bands.

In contrast, when the Bureau considered EchoStar's applications on their merits earlier this year, it found that "EchoStar did not submit a technical showing demonstrating it could operate compatibly with non-GSO FSS systems," and thus it was compelled to deny the

---

<sup>18</sup> NGST March 12 Amendment (File No. SAT-AMD-20040312-00030), at 13, 26-27.

<sup>19</sup> See NGST July 2004 Amendment at Annex 3. Specifically, NGST has proposed to include in its non-GSO network a plane of four geosynchronous satellites that would operate in conjunction with and as part of the non-GSO component of GESN. The four geosynchronous satellites will supplement the GESN HEO non-GSO satellites in terms of coverage, and will enhance the frequency sharing among non-GSO FSS systems in the bands by allowing satellites of GESN and other non-GSO FSS systems to maximize their use of the non-GSO FSS bands even during in-line events. Without this enhancement, both GESN and the other non-GSO FSS system would have to retreat to one-half of the available bandwidth for the duration of the in-line event. NGST has committed to bearing the burden of shifting traffic away from a geosynchronous-plane spacecraft in the 18.8-19.3 GHz and 28.6-29.1 GHz bands during in-line events with another system's non-GSO satellites, and will not demand protection or a reduction in spectrum from any other Commission-authorized non-GSO satellite system when such in-line interference situations occur.

<sup>20</sup> EchoStar now maintains that it could have made such a showing if given the "opportunity." EchoStar Petition at 5. But EchoStar had an opportunity to correct the deficiencies in its application once they were pointed out by NGST and Hughes, and it failed to avail itself of this chance during the six months its application remained pending prior to its April 2004 denial.

application.<sup>21</sup> In other words, EchoStar's applications were denied after complete processing, not dismissed at the acceptance for filing stage.<sup>22</sup> In EchoStar's case, the flaw in its applications was not a procedural omission of required information, but its complete failure either to demonstrate compliance with the Commission's Rules or to justify a waiver of the those Rules.<sup>23</sup> The defect was substantive, not a matter of process or completeness.

Ultimately, EchoStar seeks to use the reinstatement of the NGST applications as a lever to secure the reconsideration and reinstatement of its rejected applications.<sup>24</sup> In substance, its filing is as much a supplement to its Petition for Reconsideration of the *EchoStar Denial Order* as it is a Petition to Deny NGST's applications, yet it has not sought leave to augment its showing there nor has it formally submitted its pleading for consideration in that proceeding. Accordingly, to the extent that EchoStar seeks to use this proceeding as a vehicle to influence Commission action in its own application proceeding, while failing to serve all parties to that proceeding,<sup>25</sup> these arguments should be disregarded as improper. For similar reasons, EchoStar's arguments directed to its pending Petition for Rulemaking<sup>26</sup> are misplaced and should be ignored.

---

<sup>21</sup> See *EchoStar Denial Order* at 6 (¶ 16).

<sup>22</sup> Indeed, if NGST's Amendment had been dismissed at the acceptance for filing stage for insufficiency of its showing on the requested contingent waiver of the 28 GHz Band Plan, NGST would have had a compelling "similarly-situated" argument to make for reinstatement based on the Commission's acceptance for filing of EchoStar's applications back in 2003.

<sup>23</sup> See *EchoStar Denial Order* at 6 (¶ 16).

<sup>24</sup> See EchoStar Petition at 7.

<sup>25</sup> EchoStar did not serve Hughes with its pleading, and Hughes is a party to the *EchoStar Denial Order* proceeding.

<sup>26</sup> See EchoStar Petition for Rule Making, RM-10767.



**III. It Is Well Settled That A Non-GSO FSS System That Operates At Or Below The Ka-Band EPFD Limits Will Not Cause Unacceptable Or Harmful Interference To A Co-Frequency GSO FSS Network.**

In its Petition, SES Americom argues that NGST has failed to justify its request for a waiver of the Commission's 28 GHz band plan in order to operate its non-GSO satellites in the 29.5-30 GHz and 19.7-20.2 GHz bands on a non-unacceptable-interference basis to co-frequency geostationary fixed-satellite service networks.<sup>27</sup> Specifically, SES Americom contends that compliance with international equivalent power flux-density ("EPFD") limits "cannot form the basis for justifying a departure from the Commission's spectrum allocations ..." because the EPFD limits "have not been considered, much less adopted by the FCC."<sup>28</sup> SES Americom goes on to cite as support for its proposition the situation circa 1998 regarding what became EPFD limits for non-GSO FSS systems in the Ku-band frequencies in the Commission's rules at the end of 2000.<sup>29</sup>

If SES Americom's comparison of the situation regarding Ku-band EPFD limits as of November 1998 – the date of the *Ku-Band NGSO NPRM* on which SES Americom relies – to the situation today regarding Ka-band EPFD limits is not apples to oranges, it is at least apples to apple pie. In 1998, when the *Ku-Band NGSO NPRM* was adopted by the Commission, the international regulatory status of EPFD limits was very raw and unstable. The International Telecommunication Union's ("ITU") 1997 World Radiocommunication Conference ("WRC-97") had, in a hugely controversial and heavily contested move, adopted provisional power limits

---

<sup>27</sup> SES Americom Petition at 6.

<sup>28</sup> *Id.*

<sup>29</sup> *Id.* at 7 (quoting *Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Services in the Ku-Band 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*, Notice of Proposed Rule Making, 14 FCC Rcd 1131, 1141 (1998) ("*Ku-Band NGSO NPRM*")).



(they were not yet uniformly called EPFD limits) on non-GSO FSS satellites in Ku-band and in parts of Ka-band (including the 19.7-20.2 GHz and 29.5-30 GHz bands). The objective of the power limits was to provide a quantification of the obligation on non-GSO FSS systems – specified in No. 22.2 of the ITU Radio Regulations – not to cause “unacceptable interference” to GSO networks in the FSS and in the broadcasting-satellite service (“BSS”). WRC-97, in addition to adopting provisional power limits, adopted a resolution that tasked the ITU’s Radiocommunication Sector (“ITU-R”) to conduct technical and regulatory studies during the three-year interval between WRC-97 and the next WRC (WRC-2000) to confirm or revise the power limits. As of November 1998, the EPFD limit concept had neither been fully developed nor agreed within the ITU-R, and was still the subject of intense technical debate. International consensus on a technical solution involving EPFD limits would not be tentatively reached for another year, and would not become codified until the conclusion of WRC-2000 in June 2000, at which time the EPFD limits on non-GSO FSS systems in both Ku-band and Ka-band frequencies subject to No. 22.2 of the ITU Radio Regulations were themselves written into the regulations.

By the time WRC-2000 ended, international agreement had been achieved. The agreements were developed with the active participation of the United States (with representation from both government and industry), and the resulting EPFD limits were deemed sufficient to protect GSO networks from unacceptable interference from non-GSO FSS systems.<sup>30</sup>

In its post-WRC-2000 Report and Order in the *Ku-Band NGSO* rulemaking proceeding in ET Docket No. 98-206 – a decision that conspicuously is not cited in SES

---

<sup>30</sup> The relationship between EPFD limits and No. 22.2 of the Radio Regulations is very significant. As EPFD limits are a quantification of “unacceptable interference,” any non-GSO system that operates at or below the limits would be producing a level of interference that is axiomatically deemed acceptable to or tolerable by GSO FSS networks. Clearly then, as NGST emphasized in its March 12 Amendments, the level of interference produced into a GSO FSS network by a non-GSO FSS system operating at or below the EPFD limits could not be “harmful” to GSO FSS networks, and thus is by definition consistent with secondary use of the subject frequency bands. See, e.g., NGST March 12 Amendments (File No. SAT-AMD-20040312-00030), at 26-27.

Americom's Petition – the Commission proudly adopted “technical sharing criteria (equivalent power flux density (‘EPFD’) uplink and downlink limits) for non-GSO FSS and geostationary-satellite orbit (‘GSO’) FSS operations in all bands *consistent with decisions taken at WRC-2000*.”<sup>31</sup> The ITU EPFD limits for Ku-band were incorporated into the Commission's rules substantially intact.<sup>32</sup> The uncertainty and division that characterized the regulatory situation at the time of the *Ku-Band NGSO NPRM*, and that led to the hedging expressed therein (and quoted by SES Americom), had been fully resolved by 2000 not only for the Ku-band non-GSO FSS systems for which the ITU EPFD limits were incorporated into the Commission's rules, but also for the Ka-band non-GSO FSS systems in bands subject to No. 22.2 of the ITU Radio Regulations. EPFD limits were developed for Ka-band at the same time and in the same process as they were for Ku-band systems, and they were finalized by WRC-2000.

The Commission, in its Report and Order in ET Docket No. 98-206 characterized the EPFD limits finalized by WRC-2000 as follows:

The numerous technical analyses undertaken by the ITU-R and CPM represent the most comprehensive and current studies on NGSO FSS protection of GSO FSS networks, FS operations and BSS systems available to date. Considering the agreements reached within the international arena and the record developed in response to these international agreements, we find that we have an adequate basis

---

<sup>31</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 Services in the Ku-Band 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*, Report and Order, 16 FCC Rcd 4096, 4100 (2000) (emphasis added) (“*Ku-Band EPFD Report and Order*”).

<sup>32</sup> The ITU Radio Regulations include a set of operational EPFD limits and a set of additional operational EPFD limits (both of which were not subject to compliance verification by the ITU-R) that are instrumental to the protection of GSO FSS Ku-band networks from unacceptable interference. The Commission incorporated the operational and additional operational limits adopted by the ITU into the domestic rules with a requirement that applicants demonstrate up-front compliance. Despite this procedural difference, the substantive protection requirements from the full set of EPFD limits at Ku-band, as adopted by the ITU at WRC-2000, were included in the Commission's rules intact. *See id.* at 4136-4136. There are operational EPFD limits for the Ka-band downlink frequencies as well, and NGST's March 12 Amendments demonstrate its compliance with all applicable Ka-band EPFD limits – validation and operational.

to adopt rules governing co-frequency operation of NGSO FSS systems in certain frequency bands.<sup>33</sup>

As the Ka-band EPFD limits were developed in parallel with the Ku-band limits, the Commission's endorsement clearly applies to these limits as well. SES Americom's attempt to equate the 1998 pre-EPFD limit situation for Ku-band with the universally agreed post-WRC-2000 EPFD limit situation is unsuccessful. Neither the limits nor any international consensus on the protection of GSO FSS and BSS networks from unacceptable interference by non-GSO FSS Ku-band and Ka-band systems existed in 1998; both exist now.

As a final matter, NGST emphasizes that nowhere in SES Americom's Petition is there even the assertion that the comprehensive technical showing in NGST's March 12 Amendment is anything other than sufficient to show that the EPFD limits for 19.7-20.2 GHz and 29.5-30 GHz that are contained in Article 22 of the ITU Radio Regulations are met by NGST's non-GSO FSS system. SES Americom also does not even implicitly contend that the Ka-band EPFD limits in the ITU Radio Regulations are not adequate to protect GSO FSS networks in the subject bands. To the contrary, the United States has, in recent meetings of ITU-R Working Party 4A meeting,<sup>34</sup> taken the express position that the ITU Radio Regulation Article 22 EPFD limits on non-GSO FSS systems in the 19.7-20.2 GHz band protect GSO FSS networks from unacceptable interference.<sup>35</sup>

In sum, there is every basis, technical and precedential, for the Commission to conclude that a Ka-band non-GSO FSS system that meets the EPFD limits in Article 22 of the ITU Radio Regulations will protect a co-frequency GSO FSS network from unacceptable

---

<sup>33</sup> *Ku-Band EPFD Report and Order*, 16 FCC Rcd. at 4109.

<sup>34</sup> ITU-R Working Party 4A is the ITU study group with responsibility for FSS matters, including non-GSO/GSO FSS sharing.

<sup>35</sup> *See, e.g.*, Document WP4A/34 (March 31, 2004) (U.S. contribution to April 2004 meeting of ITU-R Working Party 4A).

interference. As NGST has demonstrated that its HEO non-GSO FSS satellites meet the EPFD limits, there is no need for further Commission assessment here, and NGST must be deemed to have successfully demonstrated its entitlement to the waiver it seeks to enable secondary operation of the GESN non-GSO FSS system satellites in the upper 500 MHz of the Ka-band GSO FSS spectrum.

**IV. NGST's Proposed Geosynchronous-Orbit Use Of The Non-GSO FSS Primary Ka-Band Spectrum Is Consistent With Commission Precedent.**

SES Americom next contends that NGST's proposed use of the Ka-band non-GSO FSS primary spectrum at 18.8-19.3 GHz and 28.6-29.1 GHz is "fundamentally inconsistent with Commission policies and must be denied."<sup>36</sup> SES Americom relies on the fact that the Commission has previously rejected proposals seeking authority to operate GSO spacecraft in non-GSO Ka-band spectrum.<sup>37</sup>

As an initial matter, and as described fully above, NGST has not proposed to operate "GSO" spacecraft in the Ka-band non-GSO primary bands; it merely has recognized and accounted for the prospect that the Commission may decide to treat its proposal to include a plane of geosynchronous-orbit satellites in the non-GSO component of GESN as a proposal to operate GSO satellites on a secondary basis in the non-GSO primary bands. Even so, NGST maintains that the arguments leveled by SES Americom against "GSO" use of the non-GSO bands are inapposite. The fact that the spacecraft are, as SES Americom points out,<sup>38</sup> within the definition of geosynchronous satellites does nothing to change this assessment. NGST has recognized that its use of geosynchronous satellites in the non-GSO component of GESN

---

<sup>36</sup> SES Americom Petition at 7.

<sup>37</sup> *Id.* at 8.

<sup>38</sup> *See id.* at 9-10.

subjects it to some additional regulatory obligations that would not apply if a totally HEO constellation were to be deployed in the bands.<sup>39</sup> Ultimately, however, it is the operation of the satellites as part and parcel of the non-GSO component of GESN that must control here; not the mechanistic fact that the orbits of the four geosynchronous-orbit satellites fit a definition.

Even if it were to be assumed, *arguendo*, that NGST's four geosynchronous-orbit satellites in the 18.8-19.3 GHz and 28.6-9.1 GHz bands are GSO satellites, the Commission should nevertheless reject SES Americom's arguments in opposition to the waiver of the Commission's 28 GHz band plan that NGST has requested to permit its four "GSO" satellites to operate on a secondary basis in those bands. Contrary to SES Americom's contention, the Satellite Division's denial of EchoStar's 2003 applications for authority to operate GSO satellites on a secondary basis in the Ka-band non-GSO primary frequencies is not controlling. As explained above, EchoStar's application was rightfully denied because EchoStar had completely failed to demonstrate how its proposed satellites could operate on a secondary basis with non-GSO FSS systems.<sup>40</sup>

In its comments on the Petition for Rule Making that EchoStar filed in conjunction with its applications for GSO FSS use of the non-GSO FSS primary bands, NGST took the position it maintains today: "Northrop Grumman emphasizes that it would not oppose a Commission determination, in whatever forum is appropriate, that GSO FSS networks may use the 18.8-19.3 GHz and 28.6-29.1 GHz bands on a truly secondary basis to non-GSO FSS

---

<sup>39</sup> See, e.g., NGST's discussion of milestone deadlines, power limitations, and waiver of any right to claim protection from Commission-authorized non-geosynchronous non-GSO satellites in its March 12 and July 2004 Amendments. March 12 Amendments (File No. SAT-AMD-20040312-00030) at 20 n.27, 27; July 19 Amendments, Attachment at 4.

<sup>40</sup> See *EchoStar Denial Order* at 6-7 (¶ 17). EchoStar made no technical showing whatsoever that it could protect non-GSO FSS systems, and its own application was internally inconsistent on the subject – most notably with respect to EchoStar's assertion that EPFD limits on non-GSO FSS systems for protection of GSO FSS networks should be extended to the non-GSO FSS primary bands. See, e.g., NGST Petition to Dismiss Applications of EchoStar, File Nos. SAT-LOA-20030827-00180, et seq., at 7-8 & n. 26 (filed October 24, 2003).



networks.”<sup>41</sup> It went on to identify the three conditions that would constitute “truly secondary” use.<sup>42</sup> All three of those conditions are met by NGST’s application if indeed its proposed use of the non-GSO primary bands for four geosynchronous-orbit satellites is considered to be a GSO use; none have been met by EchoStar.

SES Americom argues that NGST’s application for what it calls GSO use of the non-GSO primary bands cannot be granted because interference levels for the protection of non-GSO FSS systems have not yet been established.<sup>43</sup> In fact, NGST’s application contains a technical demonstration that the operational measures it proposes to employ to protect co-frequency non-GSO FSS systems would result in no noticeable impact on the performance of either of the other two non-GSO FSS systems that are proposed today for operation in the primary Ka-band non-GSO FSS spectrum.<sup>44</sup> Furthermore, the Commission’s 2003 decision establishing sharing arrangements between non-GSO FSS systems in the 18.8-19.3 GHz and 28.6-29.1 GHz bands, while not entirely on point with respect to the question of GSO use of the non-GSO bands, is at least instructive in terms of establishing the situations where interference mitigation measures are needed to permit the operation of non-GSO FSS systems.<sup>45</sup> NGST has incorporated the lessons learned from the Ka-band non-GSO/non-GSO sharing proceeding into its analysis in the March 12 Amendments, as supplemented in the July 19 Amendments.

---

<sup>41</sup> Comments of NGST in RM-10767, at 2-3 (filed October 27, 2003).

<sup>42</sup> *Id.* at 3.

<sup>43</sup> SES Americom Petition at 9.

<sup>44</sup> NGST July 19 Amendment at Annex 3, pp. 6, 8.

<sup>45</sup> *The Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ka-Band*, 18 FCC Rcd 14708 (2003) (discussing and adopting an “avoidance of in-line interference events” spectrum sharing method for non-GSO FSS Ka-band systems).



The standard that applies here is whether NGST has shown that it can operate “GSO” satellites on a non-harmful interference basis to primary non-GSO FSS operations in the 28.6-29.1 GHz and 18.8-19.3 GHz bands.<sup>46</sup> NGST has met this standard, notwithstanding SES Americom’s formalistic assertions to the contrary. In this last regard, it is significant that there is no claim by SES Americom that NGST’s “GSO” use of the non-GSO FSS primary bands would cause harmful interference to non-GSO FSS systems; it is more significant that there was no claim by either of the other two pending non-GSO FSS applicants – SkyBridge II, LLC or contactMEO Communications, LLC – that NGST’s proposed “GSO” use of the non-GSO FSS primary bands would cause harmful interference to those proposed systems.

As a final point, SES Americom asserts that the grant of NGST’s application would allow it to obtain “date priority” over other prospective applicants to use non-GSO FSS systems on GSO satellites.<sup>47</sup> NGST emphasizes first, in response, that as it has proposed only non-GSO FSS use of the bands (including through its plane of geosynchronous-orbit satellites), SES Americom’s concern is moot. Even as a “GSO” filing, the fact remains that NGST’s use of the bands is compliant with the Commission’s two-degree spacing policy, thereby leaving a plethora of orbital locations both within CONUS and around the world from which other GSO operators may (if justified) make secondary use of the non-GSO FSS primary bands.<sup>48</sup> Finally, NGST can only wonder aloud why SES Americom elected not to make its “date priority” assertion last September, following the Commission’s acceptance for filing of EchoStar’s applications for four GSO slots in the non-GSO FSS primary bands.

---

<sup>46</sup> See *EchoStar*, DA 04-1167, slip op. at 7 (¶ 17).

<sup>47</sup> SES Americom Petition at 10-11.

<sup>48</sup> NGST notes in this regard that with its filings for geosynchronous-orbit satellites in the non-GSO bands at 89° W.L. and 119° W.L., it has not filed on top of or within two degrees of any Ka-band GSO orbital location currently licensed to or applied for by SES Americom.

In sum, SES Americom levels a number of procedural/process type assertions against NGST's proposed use of the non-GSO FSS bands at 18.8-19.3 GHz and 28.6-29.1 GHz. None of these assertions, either alone or in combination, poses any obstacle to the grant of this element of NGST's application – either in the form applied for by NGST, or if the geosynchronous-orbit non-GSO FSS satellites proposed by NGST are treated by the Commission as GSO FSS satellites.

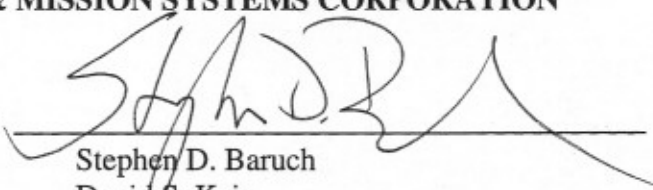
**V. Conclusion**

For all of the foregoing reasons, the Petitions filed by EchoStar and SES Americom should be denied, and the subject NGST applications should be processed and granted in due course.

Respectfully submitted,

**NORTHROP GRUMMAN SPACE TECHNOLOGY  
& MISSION SYSTEMS CORPORATION**

By: \_\_\_\_\_

  
Stephen D. Baruch  
David S. Keir

Leventhal, Senter & Lerman, P.L.L.C.  
2000 K Street, N.W., Suite 600  
Washington, D.C. 20006  
(202) 429-8970

September 28, 2004

Its Attorneys

**CERTIFICATE OF SERVICE**

I, Rochelle Johnson, do hereby certify that on this 28<sup>th</sup> day of September 2004, I sent a copy of the foregoing Consolidated Opposition to Petitions to Deny or Dismiss by U.S. first-class, postage prepaid mail to the following:

Mr. Thomas Tycz\*  
International Bureau – Room 6-A665  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Nancy J. Eskenazi, Esq.  
SES AMERICOM, Inc.  
Four Research Way  
Princeton, NJ 08540

Mr. Jay Whaley\*  
International Bureau – Room 6-A623  
Federal Communications Commission  
445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

Pantelis Michalopoulos, Esq.  
Philip L. Malet, Esq.  
Lee C. Milstein, Esq.  
Step toe & Johnson LLP  
1330 Connecticut Avenue, N.W.  
Washington, D.C. 20036-1795

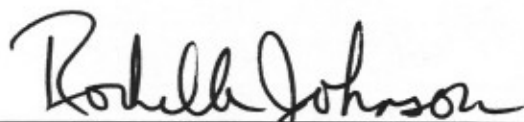
Mr. David M. Drucker  
Manager  
ContactMEO Communications, LLC  
2539 N. Highway 67  
Sedalia, CO 80135

Mr. David K. Moskowitz  
EchoStar Satellite LLC  
9601 South Meridian Boulevard  
Englewood, CO 80112

Peter A. Rohrbach, Esq.  
Karis A. Hastings, Esq.  
Hogan & Hartson L.L.P.  
555 Thirteenth Street, N.W.  
Washington, D.C. 20004

Ms. Karen Watson  
Ms. Lori Kalani  
EchoStar Satellite LLC  
1233 20<sup>th</sup> Street, N.W. – Suite 701  
Washington, D.C. 20036

\*via e-mail only

  
\_\_\_\_\_  
Rochelle Johnson