

DOCKET FILE COPY ORIGINAL

KELLOGG, HUBER, HANSEN, TODD & EVANS, P.L.L.C.

MICHAEL K. KELLOGG  
PETER W. HUBER  
MARK C. HANSEN  
K. CHRIS TODD  
MARK L. EVANS  
STEVEN F. BENZ  
NEIL M. GORSUCH  
GEOFFREY M. KLINEBERG  
REID M. FIGEL

SUMNER SQUARE  
1615 M STREET, N.W.  
SUITE 400  
WASHINGTON, D.C. 20036-3209

(202) 326-7900

FACSIMILE:  
(202) 326-7999

HENK BRANDS  
SEAN A. LEV  
EVAN T. LEO  
ANTONIA M. APPS  
MICHAEL J. GUZMAN  
AARON M. PANNER  
DAVID E. ROSS  
SILVIJA A. STRIKIS  
RICHARD H. STERN, OF COUNSEL

April 24, 2001

Via Hand Delivery

Ms. Magalie Roman Salas  
Secretary  
Federal Communications Commission  
The Portals  
445 12<sup>th</sup> Street, S.W.  
Room TW-B204  
Washington, D.C. 20554

RECEIVED

APR 24 2001

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

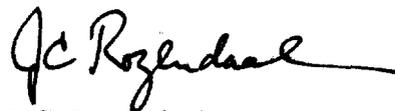
**Re: ET Docket No. 98-206/RM-9147; RM-9245; Applications of Broadwave USA et al., PDC Broadband Corporation, and Satellite Receivers, Ltd., to provide a fixed service in the 12.2-12.7 GHz Band**

Dear Ms. Salas:

Enclosed for filing please find an original and four copies of the *Northpoint Technology, Ltd., and Broadwave USA, Inc., Opposition to Petitions for Reconsideration for First Report and Order* in the above-captioned matter.

I have enclosed an additional copy for date-stamp and return in the self-addressed envelope provided. Thank you for your assistance in this matter.

Yours sincerely,



J. C. Rozendaal

Enclosure

Number of Copies rec'd  
ENCLOSURE

0 + 4

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

**RECEIVED**

APR 24 2001

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 of )  
NGSO FSS Systems Co-Frequency with )  
GSO and Terrestrial Systems in the Ku-Band )  
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; and )  
)  
)  
Applications of Broadwave USA, PDC )  
Broadband Corp., and Satellite Receivers, )  
Ltd., to Provide a Fixed Service in the 12.2- )  
12.7 GHz Band )  
\_\_\_\_\_)

ET Docket No. 98-206  
RM-9147  
RM-9245

**NORTHPOINT TECHNOLOGY, LTD., AND BROADWAVE USA, INC.,  
OPPOSITION TO PETITIONS FOR RECONSIDERATION  
OF FIRST REPORT AND ORDER**

Antoinette Cook Bush  
Northpoint Technology, Ltd.  
400 North Capitol Street, N.W.  
Suite 368  
Washington, D.C. 20001  
(202) 737-5711

Michael K. Kellogg  
J.C. Rozendaal  
Kellogg, Huber, Hansen,  
Todd & Evans, P.L.L.C.  
Sumner Square  
1615 M Street, N.W.  
Suite 400  
Washington, D.C. 20036  
(202) 326-7900

*Counsel for Northpoint Technology, Ltd.,  
and Broadwave USA, Inc.*

April 24, 2001

## TABLE OF CONTENTS

SUMMARY .....	ii
I. THE COMMISSION CORRECTLY CONCLUDED THAT NORTHPOINT’S TERRESTRIAL TECHNOLOGY CAN SHARE SPECTRUM UBIQUITOUSLY WITH BOTH DBS AND NGSO FSS SYSTEMS .....	2
A. The Commission’s Decision To Allow Terrestrial Sharing of the 12 GHz Band Is Well Reasoned and Supported by Substantial Evidence in the Record as a Whole .....	3
B. Terrestrial Service in the 12 GHz Band Will Not Cause Harmful Interference with DBS Operations .....	4
C. The Commission Properly Considered and Rejected the Arguments of the NGSO FSS Operators .....	10
II. THE COMMISSION CAN ASSUAGE CONCERNS ABOUT TECHNICAL NEUTRALITY BY ISSUING WAIVERS ON A CASE-BY-CASE BASIS INSTEAD OF CREATING A NEW “MVDDS” SERVICE.....	14
CONCLUSION .....	19

## SUMMARY

The DBS and NGSO FSS operators have filed multiple petitions for reconsideration of the Commission's decision to allow sharing of the 12 GHz band between terrestrial and satellite users, as described in the *First Report and Order* released December 8, 2000. None of these petitions even purports to present new technical or other evidence not already presented to the Commission. Instead, the satellite operators simply regurgitate the same tired arguments that have consistently failed to convince the Commission while ignoring the ample refutation of those arguments contained in the lengthy record of these proceedings. Put simply, the Commission's decision to allow sharing is well supported by substantial evidence in the record as a whole. None of the petitions provides any valid ground for reconsidering that decision.

That the Commission has in the past been refused to allow the sharing of spectrum between terrestrial and satellite services is no reason not to allow sharing in the present case. The failure of others in the past only underscores how innovative Northpoint's proposed terrestrial technology really is. Nor is the Commission's decision to allow terrestrial sharing in any way inconsistent with ITU-R BO.1444, which concerns itself exclusively with sharing between DBS and NGSO FSS operations. Suggestions by the DBS operators that Northpoint should be banished to some less attractive frequency band are designed to hinder meaningful competition in the markets for MVPD and broadband Internet access. The SBCA's accusation that the Commission "misapplied its own analytical framework" when it decided to allow terrestrial sharing of the 12 GHz band is baseless.

The NGSO FSS operators fare no better than their DBS cousins. Boeing's argument that allowing terrestrial operations in the 12 GHz band will confine NGSO FSS operations to the 11.7-12.2 GHz band is wrong not only because the need, if any, for NGSO FSS operators to avoid the 12 GHz band will be intermittent and fleeting but also because NGSO FSS operators would still have more than 2,500 MHz available to be used creatively to avoid interference. SkyBridge filed a petition that weighs in at *twice* the allowed page limit without filing a timely request for waiver of the 25-page limit, and then wastes precious pages on a meritless argument that the Commission failed to give notice of its intent to allow sharing of the 12 GHz band. SkyBridge's complaints about the Commission's proposed regulations to govern sharing are premature and out of place: they belong in comments on the proposed regulations, not here.

The Commission's decision to allow terrestrial sharing of the 12 GHz band is based chiefly on Northpoint's technology. SkyTower expresses concern that the Commission might inadvertently foreclose future technologies from making use of the 12 GHz band by limiting the applicability of its sharing rules directly or indirectly to Northpoint's technology. To the extent the Commission wishes to address this concern, it should do so by forgoing the creation of a new service altogether and instead considering on a case-by-case basis applications for licenses with waivers.

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

_____ )	
In the Matter of )	
)	
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 )	ET Docket No. 98-206
Frequency Range; )	RM-9147
)	RM-9245
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; and )	
)	
Applications of Broadwave USA, PDC )	
Broadband Corp., and Satellite Receivers, )	
Ltd., to Provide a Fixed Service in the 12.2- )	
12.7 GHz Band )	
_____ )	

**NORTHPOINT TECHNOLOGY, LTD., AND BROADWAVE USA, INC.,  
OPPOSITION TO PETITIONS FOR RECONSIDERATION  
OF FIRST REPORT AND ORDER**

In its *First Report and Order* released on December 8, 2000, the Commission correctly determined that Northpoint's terrestrial technology can share the 12.2-12.7 GHz frequency band (the "12 GHz band") ubiquitously with existing and planned Direct Broadcast Satellite ("DBS") and Nongeostationary Satellite Orbit Fixed Satellite Service ("NGSO FSS") uses.<sup>1</sup> Eight petitions for reconsideration of the *First Report and Order*

---

<sup>1</sup> First Report and Order and Further Notice of Proposed Rule Making, *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*,

have been filed. In five of these petitions, DBS and NGSO FSS interests seek to undo the Commission's decision to allow new terrestrial broadcasts in the 12 GHz band.<sup>2</sup>

Northpoint Technology, Ltd., and Broadwave USA, Inc. (collectively, "Northpoint"), hereby oppose those petitions for reconsideration insofar as they concern the ability of terrestrial services to share the 12 GHz band with existing and planned satellite uses.<sup>3</sup> To the extent that the petitions of SkyTower and Boeing object to the Commission's basing a new service on Northpoint's proven technology, the Commission can avoid the problem by declining to create a new service and instead simply issuing waivers on a case-by-case basis to applicants that have proven themselves capable of sharing the spectrum with other existing and planned users of the 12 GHz band.

**I. THE COMMISSION CORRECTLY CONCLUDED THAT NORTHPOINT'S TERRESTRIAL TECHNOLOGY CAN SHARE SPECTRUM UBIQUITOUSLY WITH BOTH DBS AND NGSO FSS SYSTEMS**

The Commission's decision to allow terrestrial sharing of the 12 GHz band with satellite uses was well founded. The satellite community's arguments to the contrary have been properly considered and rejected.

---

ET Docket No. 98-206, FCC 00-418, ¶¶ 213, 228 (rel. Dec. 8, 2000) ("*First Report and Order*").

<sup>2</sup> Three of the five petitions come from DBS operators Echostar Satellite Corp. ("Echostar") and DirectTV, Inc. ("DirecTV"), and their trade association, the Satellite Broadcasting and Communications Association ("SBCA"); the remaining two were filed by NGSO FSS operators the Boeing Company ("Boeing") and SkyBridge L.L.C. ("SkyBridge").

<sup>3</sup> The Petition for Reconsideration filed by PanAmSat Corp. and the Joint Petition for Partial Reconsideration filed by Hughes Communications, Inc., *et al.*, do not address terrestrial use of the 12 GHz band. Accordingly, Northpoint takes no position with respect to the issues raised in those petitions.

**A. The Commission’s Decision To Allow Terrestrial Sharing of the 12 GHz Band Is Well Reasoned and Supported by Substantial Evidence in the Record as a Whole**

The central theme running through all five petitions seeking to undo the Commission’s decision to allow terrestrial sharing of the 12 GHz band with satellite uses is that the Commission somehow failed to pay sufficient attention to the satellite community’s arguments aimed at stifling the development of terrestrial competitors. Yet precisely the contrary is true. Far from ignoring or refusing to consider the satellite operators’ arguments and evidence, the Commission carefully considered the thousands of pages submitted by the satellite community before deciding to authorize terrestrial service.<sup>4</sup>

Significantly, none of the petitions for reconsideration even purports to present new technical or other evidence not already presented to the Commission.<sup>5</sup> Instead, the satellite operators for the most part simply regurgitate the same tired arguments that have consistently failed to convince the Commission while ignoring the ample refutation of those arguments contained in the lengthy record of these proceedings. For the Commission’s convenience, a partial listing of relevant evidence in the record supporting

---

<sup>4</sup> To mention just two examples, the Commission was well aware that Boeing’s system “is not designed to avoid terrestrial interference” and that Boeing allegedly faces difficulties in implementing frequency diversity due to its anticipated “point-to-multipoint structure.” *First Report and Order* ¶ 222. Similarly, the Commission considered and rejected the DBS operators’ interpretation of the voluminous test results regarding terrestrial sharing of the 12 GHz band. *Id.* ¶¶ 212, 215.

<sup>5</sup> New material may be presented in a petition for reconsideration filed pursuant to 47 C.F.R. § 1.429 in three limited circumstances: (1) the facts relied on relate to events that have occurred or circumstances that have changed since the last opportunity to present them to the Commission; (2) the facts relied on were unknown to petitioner until after its last opportunity to present them to the Commission; or (3) the Commission determines that consideration of the facts relied on is required in the public interest. *See* 47 C.F.R. § 1.429(b).

the Commission's decision is attached hereto as Appendix A. Put simply, the Commission's decision to allow sharing is well supported by substantial evidence in the record as a whole. None of the petitions provides any valid ground for reconsidering that decision.

**B. Terrestrial Service in the 12 GHz Band Will Not Cause Harmful Interference with DBS Operations**

As noted above and in Appendix A, there is ample evidence in the record supporting the Commission's conclusion that terrestrial services can share the 12 GHz band with DBS operators without causing harmful interference. This simple fact is fatal to the DBS operators' other arguments, all of which rest on the false premise that DBS operations will suffer as a result of terrestrial broadcasts.

The DBS petitioners argue that the Commission should have rejected Northpoint's proposal for terrestrial service in the 12 GHz band because it has rejected other proposals for sharing spectrum between satellite and terrestrial uses in the past.<sup>6</sup> This argument simply underscores the point that Northpoint's technology is truly innovative: Northpoint has found a technical solution that has eluded others in the past. Northpoint has spent 7 years before the Commission demonstrating that its terrestrial system can share the 12 GHz band with DBS operators without causing harmful interference. The Commission was correct to recognize Northpoint's achievement by authorizing terrestrial sharing of the 12 GHz band (although, as discussed in Part II below, the Commission could more suitably recognize Northpoint's achievement by granting the pending license applications of its affiliates).

---

<sup>6</sup> SBCA Petition for Reconsideration at 4-7; EchoStar Petition for Reconsideration at 5-8; DirecTV Petition for Reconsideration at 11-14.

The DBS petitioners also make much noise about an alleged inconsistency between the Commission's decision to allow terrestrial sharing of the 12 GHz band and the International Telecommunication Union's ("ITU's") recommendation to allow a 10% increase in unavailability of DBS broadcasts due to NGSO FSS operations.<sup>7</sup> To suggest, as the DBS operators do, that the 10% increase in unavailability was somehow supposed to sweep up every possible source of interference with DBS operations is to misread the record of the ITU's proceedings.<sup>8</sup> The very title of the ITU's recommendation belies the DBS operators' claim; it is called "Protection of the BSS in the 12 GHz Band and Associated Feeder Links in the 17 GHz Band *from Interference Caused by Non-GSO FSS Systems*."<sup>9</sup> The SBCA itself concedes that "[n]o compromise solution was ever discussed at WRC-2000 with respect to MVDDS/BSS sharing."<sup>10</sup> Nothing in the ITU's recommendation prevents the creation of a separate interference budget for terrestrial broadcasters, particularly in view of the worldwide co-primary allocation for fixed services in the 12 GHz band.<sup>11</sup>

---

<sup>7</sup> SBCA Petition for Reconsideration at 7-9; Echostar Petition for Reconsideration at 12-19; *see also* SkyBridge Petition for Reconsideration at 6-7.

<sup>8</sup> *See, e.g.*, Recommendation ITU-R BO.1444, "considering" clause (n) (emphasizing need to "define criteria to protect a network in the BSS [Broadcast Satellite Services] and associated feeder links from interference caused by non-GSO FSS systems")

<sup>9</sup> Recommendation ITU-R BO.1444 (emphasis added).

<sup>10</sup> SBCA Petition for Reconsideration at 7. "WRC-2000" refers to the 2000 World Radiocommunication Conference.

<sup>11</sup> *See* 47 C.F.R. § 2.106 (table of international frequency allocations). Although subject to the requirement that terrestrial operations not cause harmful interference with DBS broadcasts, the Commission authorized new terrestrial operations under the existing *primary* U.S. allocation for fixed service in the 12 GHz band. *See First Report and Order* ¶¶ 6, 213.

The DBS petitioners also complain about the Commission's decision to require on-site mitigation to protect DBS subscribers from harmful interference if necessary. Their opposition to on-site mitigation is particularly strange in view of DirecTV's admission that, when its subscribers encountered interference from existing terrestrial POFS operations, it has "relocated subscriber dishes at its own expense or otherwise reduced the interference to acceptable levels."<sup>12</sup> Similarly, Echostar encourages its subscribers to upgrade from an 18-inch dish to a 24-inch dish if their signal fades in rain or snow.<sup>13</sup> These examples confirm that on-site mitigation is feasible. It is simply not true, as DirecTV would have it, that "a certain percentage of DBS subscribers must choose between tolerating harmful interference into their DBS service or receiving no DBS service at all."<sup>14</sup> Rather, the Commission has made it clear that providers of new terrestrial service will have the obligation to mitigate harmful interference to all subscribers within the mitigation zone during the mitigation period.<sup>15</sup> Nor is it realistic to suppose, as DBS operators do, that a DBS "subscriber will not be able to identify the true cause of the interference," if any, from terrestrial broadcasts.<sup>16</sup> The better assumption is

---

<sup>12</sup> Opposition of DirecTV, Inc. at 7 n.8, *Northpoint Technology Petition for Rulemaking to Modify Section 101.147(p) of the Commission's Rules To Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band By Digital Broadcast Satellite Licensees and Their Affiliates*, RM No. 9245 (FCC filed Apr. 20, 1998).

<sup>13</sup> Echostar's advice can be found at the customer service portion of its DISH Network Web site: [http://echostar.custhelp.com/cgi-bin/echostar.cfg/php/enduser/std\\_adp.php?p\\_sid=WV1c2iLf&p\\_lva=990610-000074&p\\_refno=990610-000074&p\\_created=929049149&p\\_sp=cF9ncmlkc29ydD0mcF9yb3dfY250PTE1OSZwX3BhZ2U9Mg](http://echostar.custhelp.com/cgi-bin/echostar.cfg/php/enduser/std_adp.php?p_sid=WV1c2iLf&p_lva=990610-000074&p_refno=990610-000074&p_created=929049149&p_sp=cF9ncmlkc29ydD0mcF9yb3dfY250PTE1OSZwX3BhZ2U9Mg) (visited Apr. 23, 2001).

<sup>14</sup> DirecTV Petition for Reconsideration at 16.

<sup>15</sup> See *First Report and Order* ¶ 217.

<sup>16</sup> DirecTV Petition for Reconsideration at 17.

that DBS subscribers will find their TV screens, mailboxes, and answering machines flooded with messages warning that terrestrial broadcasts are about to begin in their area, and they should be on the lookout for any change in performance, which should be attributed to the new terrestrial signals and reported right away. Under those circumstances, there is no risk that (as DirecTV imagines) consumers would “naturally assume that the DBS operator has voluntarily reduced the reliability and quality of its DBS service,”<sup>17</sup> or that (as Echostar supposes) consumers “may not know that the reason for the interference is beyond Echostar’s power to control.”<sup>18</sup>

The DBS operators next propose that Northpoint’s terrestrial service should be banished to some less attractive frequency band, such as the bands allocated to MMDS or LMDS.<sup>19</sup> This suggestion should be recognized for what it is: a thinly veiled attempt to undermine the ability of any terrestrial service to provide meaningful competition to DBS in the markets for MVPD and broadband Internet access. As the record of these proceedings shows, the 12 GHz band has particularly favorable transmission characteristics that make it more favorable for spectrum sharing than the lower MMDS wavelengths and more reliable in inclement weather than the higher LMDS wavelengths.<sup>20</sup> Moreover, the 12 GHz band is one of the few bands in which adequate bandwidth is available to provide a commercially viable MVPD offering. The

---

<sup>17</sup> DirecTV Petition for Reconsideration at 17.

<sup>18</sup> Echostar Petition for Reconsideration at 25.

<sup>19</sup> SBCA Petition for Reconsideration at 14-17; Echostar Petition for Reconsideration at 20-22; DirecTV Petition for Reconsideration at 17-22.

<sup>20</sup> See Northpoint Comments, Exh. 2, at 6-9 (FCC filed Mar. 2, 1999) (“Northpoint 1999 Comments”); AT&T Comments at 11 (FCC filed Mar. 12, 2001); *First Report and Order* ¶ 168.

Commission has recognized, for example, that the capacity limits of MMDS are “generally not competitive with that of most cable systems.”<sup>21</sup> Perhaps most important, Northpoint proposes to offer terrestrial service using receiving equipment that is already widely available commercially at attractive price points.<sup>22</sup> By leveraging the economies of scale and scope associated with this equipment, as well as the existing distribution network for the equipment, Northpoint can provide service in the 12 GHz band without the crippling capital costs that have hobbled previous “wireless cable” ventures.<sup>23</sup> Hence, contrary to the DBS operators’ suggestion, Northpoint is *not* “yet another wireless cable attempt that could be accommodated elsewhere.”<sup>24</sup> The Commission has an obligation to promote the efficient use of spectrum,<sup>25</sup> and the scale economies and technical

---

<sup>21</sup> Sixth Annual Report, *Annual Assessment of the Status of Competition in Market for the Delivery of Video Programming*, 15 FCC Rcd 978, ¶ 86 (2000); see also Seventh Annual Report, *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, CS Docket No. 00-132, FCC 01-1, 2001 WL 12938, ¶ 87 (rel. Jan. 8, 2001) (“[I]t appears that most MMDS licenses will not be used in the future to compete in the MVPD market . . . . The MMDS industry is currently transitioning from offering video programming to offering data services.”).

<sup>22</sup> See Northpoint 1999 Comments at 15-17.

<sup>23</sup> See Northpoint 1999 Comments at 16 and sources cited therein. Other technical factors likewise make the 12 GHz band more economically attractive for terrestrial service than other bands. The Commission has recognized, for instance, that “LMDS requires cellularization to limit rain attenuation, and the cells are small—five kilometers (3 miles) or less in radius.” Third Report and Order and Memorandum Opinion and Order, *Rulemaking to Amend Parts 1, 2, 21, and 25 of the Commission’s Rules to Redesignate the 27.5-29.5 GHz Frequency Band, to Reallocate the 29.5-30.0 GHz Frequency Band, to Establish Rules and Policies for Local Multipoint Distribution Service and for Fixed Satellite Services*, 15 FCC Rcd 11857, ¶ 27 (2000).

<sup>24</sup> Echostar Petition for Reconsideration at 21; see also DirecTV Petition for Reconsideration at 17-19.

<sup>25</sup> See 47 U.S.C. §§ 151, 157, 303(g), 309(j)(3); see also, e.g., Order, *Aircell, Inc.; Petition Pursuant to Section 7 of the Act, For a Waiver of the Airborne Cellular Rule, or, in the Alternative, for a Declaratory Ruling*, 14 FCC Rcd 806, ¶ 17 (1998) (“[T]he Commission has repeatedly indicated that it is under a statutory mandate to make services

advantages available in the 12 GHz band make it the most efficient place to create new bandwidth through spectrum sharing, in fulfillment of that obligation.

In an argument reflecting uncommon desperation, the SBCA accuses the Commission of “misapply[ing] its own analytical framework” by saying both (1) that it would analyze technical criteria for terrestrial use of the 12 GHz band using a “worst case” scenario in which the backlobes of a DBS receiving antenna were unshielded, and (2) that “in many cases the reflector dish, terrain, or various structures would shield the backlobes, thus mitigating or eliminating the interference.”<sup>26</sup> There is no inconsistency between these two statements. As paragraph 217 of the *First Report and Order* makes clear, the Commission simply decided to set sharing standards based on the worst-case impact to any DBS subscriber despite the fact that the worst-case scenario is uncommon. This outcome is extremely favorable to DBS operators; it does not represent any misunderstanding or misapplication on the part of the Commission.

In a nutshell, the DBS petitioners get both the facts and the law backwards. The lack of any substance to the DBS industry’s arguments leaves them with nothing but empty rhetoric – and they manage to get even that backwards. Echostar scores no points by accusing the Commission of “putting the horse before the cart” in the *First Report and Order*.<sup>27</sup> The horse is *supposed* to go before the cart.<sup>28</sup>

---

available which are in the public interest, convenience and necessity. This mandate includes the public interest obligation to promote the efficient use of spectrum resource, as well as to promote new technologies and make available new services to the public.”)

<sup>26</sup> SBCA Petition for Reconsideration at 11-12 (quoting *First Report and Order* ¶¶ 206, 214).

<sup>27</sup> Echostar Petition for Reconsideration at 9.

### C. The Commission Properly Considered and Rejected the Arguments of the NGSO FSS Operators

Like their DBS cousins, the NGSO FSS operators devote the bulk of their comments to rehashing their discredited arguments about why terrestrial sharing is not feasible. These arguments are no more convincing now than when the Commission first rejected them, and the Commission should reject them once again.

Beyond arguing that the Commission should have been persuaded by NGSO FSS submissions against sharing when they were previously presented, Boeing devotes quite a bit of space to the specific point that allowing terrestrial operations in the 12.2-12.7 GHz band “would restrict NGSO FSS operations to the 11.7-12.2 GHz band.”<sup>29</sup> Boeing is doubly wrong on this issue. First, terrestrial operations do not require NGSO FSS systems to completely avoid operations in the 12.2-12.7 GHz band. Only a tiny fraction of NGSO FSS receivers could ever possibly be affected by interference from terrestrial broadcasts – and even then, the need for frequency diversity would be fleeting as the NGSO satellites move across the sky.<sup>30</sup> Second, even if it were true that terrestrial

---

<sup>28</sup> DirecTV hardly does better when it accuses the Commission of leaving its subscribers with an “outrageous Hobbesian choice” (DirecTV Petition for Reconsideration at 16), reflecting an apparent confusion of the political philosopher Thomas Hobbes (1588-1679) with the Cambridge stable operator Thomas Hobson (ca. 1544-1630) (who insisted that his customers take the horse nearest the door or none).

<sup>29</sup> Boeing Petition for Reconsideration at 3.

<sup>30</sup> See *First Report and Order* ¶ 225 (finding that “a very small percentage of potential NGSO FSS subscribers would have any interference potential from MVDDS deployment”). Boeing’s own flawed calculations suggest that interference might be possible in, at most, a radius of 2 km from a Northpoint transmitter serving a distance of 16 km. See *Ex Parte Submission of Boeing, Northpoint Analysis* at 3 (Table 2: “Exclusion Zone Analysis”) (FCC filed May 1, 2000). Northpoint has shown that Boeing exaggerates this distance by an order of magnitude. See *Ex Parte Submission of Northpoint Technology, Ltd., Letter to Chairman William E. Kennard, Technical Annex* at 3 (FCC Filed July 6, 2000). Even assuming Boeing’s 2-km radius to be correct,

operations would require NGSO FSS operators to avoid the 12.2-12.7 GHz band, the NGSO FSS systems need not be restricted to the 11.7-12.2 GHz band. In contrast to the mere 500 MHz allocated to terrestrial operations in this proceeding, over 3,000 MHz is available for NGSO FSS operations, leaving at least 2,500 MHz to be used creatively to avoid interference in the 12.2-12.7 GHz band in those rare instances where it may be necessary.<sup>31</sup>

The other NGSO FSS operator, SkyBridge, filed a petition *twice* as long as permitted by the Commission's rules, and it did so without filing a timely request for waiver of the applicable 25-page limit.<sup>32</sup> In view of this violation of the Commission's rules, the Commission should decline to consider SkyBridge's petition.

If the Commission does consider SkyBridge's overlong petition, it will discover that SkyBridge squanders precious pages on the argument that the Commission failed to "provide notice of its intention to adopt new rules prior to the adoption thereof."<sup>33</sup>

---

however, would yield a potential interference zone corresponding to less than 1.6% of the Northpoint service area.

<sup>31</sup> See *First Report and Order* ¶ 2 (1,000 + 687.5 + 1,000 + 500 = 3,187.5 MHz allocated to NGSO FSS in total).

<sup>32</sup> Although SkyBridge did file a belated request for waiver simultaneously with its overlong petition, the Commission's rules unambiguously require that "the request shall be filed at least 10 days before the filing date." 47 C.F.R. § 1.48(b). The only reason offered in support of the request is that SkyBridge "cannot address all of the myriad and diverse topics raised in the *First Report & Order* that warrant reconsideration within the page limit." Request for Waiver at 2. This argument is not very convincing, since the many other parties filing petitions managed to stay within the page limit. In any case, the argument was plainly available to SkyBridge more than 10 days before the filing date, yet SkyBridge offers no excuse for its tardiness. It is the policy of the Commission that even a *timely* request for waiver of a prescribed page limit "shall not be routinely granted." 47 C.F.R. § 1.48(b). SkyBridge's untimely request should be judged by an even stricter standard.

<sup>33</sup> SkyBridge Petition for Reconsideration at 2; *id.* at 2-5.

Although it may be true that the Commission did not propose rules to govern spectrum sharing when it issued the *Notice of Proposed Rulemaking* (“*NPRM*”),<sup>34</sup> it is also true that the Commission *did not adopt* any such rules in the *First Report and Order*, so SkyBridge’s argument misses the mark.

In the initial *NPRM*, the Commission sought comment on, among other things, “the feasibility of the two services [i.e., NGSO FSS and terrestrial service] sharing the same spectrum.”<sup>35</sup> As the Commission was not yet sure whether such sharing would be feasible, it determined that to propose rules governing that sharing (which it might not allow at all) would be “premature.”<sup>36</sup> In other words, the Commission first wanted to decide *whether* sharing was feasible before deciding *how* the sharing would be regulated. Consistent with this approach, when the Commission issued its *First Report and Order* allowing sharing of terrestrial and satellite uses of the spectrum, it simultaneously issued a *Further Notice of Proposed Rule Making* (“*Further NPRM*”) with rules to govern how the sharing would be accomplished. In view of this history, SkyBridge’s argument about inadequate notice boils down to the proposition that, when the Commission sought comment on the feasibility of spectrum sharing, the public could not know that the Commission might determine spectrum sharing to be feasible. That proposition is so silly as to be virtually self-refuting.

---

<sup>34</sup> Notice of Proposed Rulemaking, *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*, ET Docket No. 98-206, 14 FCC Rcd 1131 (1998) (“*NPRM*”).

<sup>35</sup> *NPRM*, 14 FCC Rcd at 1180, ¶ 96.

<sup>36</sup> *NPRM*, 14 FCC Rcd at 1180, ¶ 98.

After first accusing the Commission of having failed to propose rules, SkyBridge turns around and chastises the Commission for failing to adopt rules to SkyBridge's liking.<sup>37</sup> But SkyBridge's complaints on that score are premature, as the Commission has not yet settled on specific sharing rules. SkyBridge's opinion on the Commission's proposed rules belongs in (and has already been presented in) SkyBridge's comments in response to the *Further NPRM*, not here.

SkyBridge is likewise off base when it attempts to show an inconsistency between the Commission's decision to allow terrestrial sharing of the 12 GHz band while declining to allow NGSO FSS uplinks in the 17.3-17.7 GHz band.<sup>38</sup> In fact, there is no inconsistency. Unlike interference from NGSO FSS earth stations, each of which requires an exclusion zone of several hundred meters within which reception of DBS signals is not possible,<sup>39</sup> interference from Northpoint's low-power terrestrial transmitters can be mitigated throughout the transmitter's entire service area. Moreover, the National Telecommunications and Information Administration and the Department of Defense specifically objected to NGSO FSS use of the 17.3-17.7 GHz band as incompatible with existing and planned governmental uses of that band.<sup>40</sup> The Government had no corresponding objection to terrestrial use of the 12 GHz band. Accordingly, the Commission's decisions regarding the two bands are entirely justified.

---

<sup>37</sup> SkyBridge Petition for Reconsideration at 8-10.

<sup>38</sup> SkyBridge Petition for Reconsideration at 14-15.

<sup>39</sup> See, e.g., SkyBridge Petition for Reconsideration at 14 n.37.

<sup>40</sup> See Ex Parte Letter from William T. Hatch (Acting Associate Administrator, Office of Spectrum Management, National Telecommunications and Information Administration, U.S. Dept. of Commerce) to Dale Hatfield (Chief, Office of Engineering and Technology, Federal Communications Commission) (FCC filed Feb. 12, 1999).

SkyBridge's economic arguments are just as flawed as its technical ones. SkyBridge's wild assertion that terrestrial service "is economically unsuitable for providing service in rural areas"<sup>41</sup> is refuted by Northpoint's repeated public commitments to provide nationwide service, in all 211 local television designated market areas ("DMAs") within two years of licensing.<sup>42</sup> Northpoint's proven technology and rapid build-out plan stand in marked contrast to the NGSO FSS operators' ever-changing business plans and ever-receding launch dates.

In short, the satellite operators offer no new information and no sound reason for the Commission to reconsider its decision to allow ubiquitous sharing of the 12 GHz band between terrestrial and satellite services.

## **II. THE COMMISSION CAN ASSUAGE CONCERNS ABOUT TECHNICAL NEUTRALITY BY ISSUING WAIVERS ON A CASE-BY-CASE BASIS INSTEAD OF CREATING A NEW "MVDDS" SERVICE**

One remarkable feature of the Commission's decision to allow terrestrial sharing of the 12 GHz band with satellite uses is that it relies critically upon *Northpoint's* demonstration that its technology can operate co-frequency with both DBS and NGSO FSS services. Even the SBCA – no friend of Northpoint's – acknowledges that the Commission's decision "appears to be based solely upon test data supplied by Northpoint."<sup>43</sup> DirecTV likewise recognizes that the Commission's decision "is based

---

<sup>41</sup> SkyBridge Petition for Reconsideration at 15-16.

<sup>42</sup> See, e.g., *Reauthorization of the Satellite Home Viewer Act: Hearing Before the Subcomm. on Telecommunications, Trade, and Consumer Protection of the House Comm. on Commerce*, 106th Cong., 1st Sess. 51-52 (1999) (statement of Sophia Collier, President and CEO of Northpoint Technology) ("Once regulatory approval is achieved, our service can be deployed in the first markets in as little as six months, with nationwide coverage within two years.").

<sup>43</sup> SBCA Petition for Reconsideration at 2.

primarily upon the proposals of Northpoint.”<sup>44</sup> No other company has come forward with a terrestrial service technology proven capable of sharing spectrum ubiquitously with satellite users.

Northpoint’s special role in proving that spectrum sharing is possible has naturally led some parties to attempt to free-ride on Northpoint’s innovation. Boeing, for example, proposes that the Commission should allow new terrestrial use of the 12 GHz band subject to the “requirement that Northpoint and its affiliates make their patents available to all other parties on reasonable terms and conditions without unfair discrimination.”<sup>45</sup> Boeing does not say where the Commission is supposed to get authority to effectuate this kind of taking of Northpoint’s property.<sup>46</sup> Furthermore, Boeing’s proposal rests on the mistaken notion that Northpoint wants the Commission to adopt its technology as some kind of official standard that all terrestrial broadcasters in the 12 GHz band must use, as when the Commission set technical standards for AM stereo equipment and DTV.<sup>47</sup>

In fact, Northpoint wants no such thing. Northpoint has never asked that the Commission create a new “MVDDS” service and has never suggested that its technology should be enshrined in Commission regulations in a way that might artificially constrain future sharing of the band. Instead, Northpoint has simply asked the Commission to

---

<sup>44</sup> DirecTV Petition for Reconsideration at 3.

<sup>45</sup> Boeing Petition for Reconsideration at 24.

<sup>46</sup> *Cf. Bell Atlantic Tel. Cos. v. FCC*, 24 F.3d 1441, 1446 (D.C. Cir. 1994) (rejecting suggestion that FCC possesses implicit eminent domain authority, absent express statutory grant).

<sup>47</sup> *See* Boeing Petition for Reconsideration at 22.

grant its license applications together with the necessary waivers of Part 101 rules to allow it to provide video and data services to the public nationwide.<sup>48</sup>

SkyTower's Petition for Reconsideration expresses concern that the Commission might "inadvertently foreclose SkyTower and other future technologies from making efficient use of this spectrum by limiting the applicability of its MVDDS rules directly or indirectly to specific technologies proposed by specific companies."<sup>49</sup> To the extent the Commission wishes to address this concern, it should *not* do so by modifying the proposed rules for the new terrestrial service, as SkyTower suggests. Indeed, such a modification is scarcely possible on the record of these proceedings because (as noted above) the Commission's decision to allow terrestrial sharing rests chiefly on Northpoint's innovative technology. Instead of tweaking the regulations for its new service, the Commission should forgo creating a new service altogether and instead consider applications for licenses and waivers on a case-by-case basis.

Northpoint has already proven that its spectrum sharing technology works; it is ready to be licensed now. SkyTower, by contrast, admits that its "[s]tratospheric platform technology is only now emerging from the experimental stage and becoming a commercially viable telecommunications architecture."<sup>50</sup> Furthermore, SkyTower proposes that "the Commission should allow maximum flexibility for new technologies

---

<sup>48</sup> See, e.g., Northpoint Comments at 31 (FCC Filed Mar. 12, 2001) ("Northpoint 2001 Comments"); see also Joint Broadcasters Comments at 4 (FCC filed Mar. 12, 2001) ("The Commission proposes to unnecessarily complicate and delay resolution of Northpoint's waiver requests and license applications by creating a new wireless service that would require a lengthy rulemaking to establish service rules followed by an application period and license auction.").

<sup>49</sup> SkyTower Petition for Reconsideration at 10-11.

<sup>50</sup> SkyTower Petition for Reconsideration at 3.

to make use of the spectrum *as long as they provide the required proof of non-interference.*<sup>51</sup> But so far only Northpoint has provided the requisite proof; therefore, by SkyTower's own criterion, only Northpoint deserves to be licensed. As noted above, the need for each proposed technology to demonstrate non-interference is not just a practical necessity but a specific statutory command contained in Section 1012 of Public Law No. 106-553.<sup>52</sup> It would be detrimental to the public interest to prevent Northpoint from providing service while the Commission waits to see if another technology emerges and can prove itself.

Interestingly, SkyTower itself provides support for the notion that the Commission should deal with applications on a case-by-case basis rather than creating a new service and auctioning off licenses. SkyTower observes that "one of the major hurdles a new, more efficient technology may face is finding spectrum in which to operate," and that "the uncertainty as to whether spectrum is available may adversely affect the ability to secure private financing of the very technologies that the Commission seeks to foster."<sup>53</sup> Considering applications to share spectrum on a case-by-case basis always leaves the door open for a new technology to prove itself and thereby gain access to spectrum. By contrast, creating a new service with a fixed number of licenses and auctioning those licenses off to the highest bidder creates uncertainty not only as to whether a license can be had but also about how much each license will cost. By

---

<sup>51</sup> SkyTower Petition for Reconsideration at 7 (emphasis added); *see also id.* at 9 ("any new technology would need to demonstrate compliance with non-interference standards during the licensing process").

<sup>52</sup> *See supra* Part I.B.

<sup>53</sup> SkyTower Petition for Reconsideration at 9.

compounding the uncertainty in this way, auctioning licenses exacerbates the negative effect on the incentive to invest in bandwidth-enhancing technologies.<sup>54</sup> Northpoint recognizes that auctions often can be a valuable and efficient means of issuing licenses, especially when the Commission has taken the initiative to make a particular frequency band available for new uses and multiple technologically indistinguishable applicants are competing for licenses. But when, as here, a uniquely qualified applicant has taken the initiative to create new bandwidth in *already licensed* spectrum, a rigid adherence to the auction paradigm may cause more harm than good.<sup>55</sup>

Accordingly, the Commission should grant Northpoint's license applications and waiver requests promptly. Later, if SkyTower or any other company ever proves to the Commission's satisfaction that its technology can share the band with Northpoint, DBS, and planned NGSO FSS users, then it, too, should be eligible for a license with appropriate waivers.<sup>56</sup> But not before.

---

<sup>54</sup> For a more thorough discussion of the negative effects that creating a new service and auctioning licenses will have on private financing of new technologies, see the declaration of former FCC Chief Economist Dr. Thomas W. Hazlett (App. 1. to Northpoint 2001 Comments) ¶¶ 13-25, 29.

<sup>55</sup> See Northpoint 2001 Comments at 8-9; Hazlett Decl. ¶¶ 15-25; Northpoint Reply Comments at 3-4 (FCC filed Apr. 5, 2001).

<sup>56</sup> See Northpoint 2001 Comments at 31; see also Joint Broadcasters Comments at 7 ("If other terrestrial competitors eventually develop, then they can make the same applications and the same showings of technical compatibility as Northpoint, and the Commission may consider them on a case-by-case basis.")

## CONCLUSION

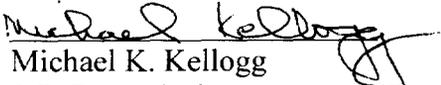
The Petitions for Reconsideration should be denied insofar as they seek a reversal of the Commission's decision to allow deployment of terrestrial services in the 12.2-12.7 GHz frequency band. To the extent the Commission is inclined to reconsider its regulations to make them more technology-neutral, it should accomplish this goal by declining to create a new "MVDDS" service and instead granting waivers to qualified applicants once they have demonstrated their ability to share frequencies ubiquitously with existing and planned uses of the 12.2-12.7 GHz band.

Respectfully submitted,

NORTHPOINT TECHNOLOGY, LTD.,  
AND BROADWAVE USA, INC.

April 24, 2001

Antoinette Cook Bush  
Northpoint Technology, Ltd.  
400 North Capitol Street, N.W.  
Suite 368  
Washington, D.C. 20001  
(202) 737-5711

By:   
Michael K. Kellogg  
J.C. Rozendaal  
Kellogg, Huber, Hansen,  
Todd & Evans, P.L.L.C.  
Sumner Square  
1615 M Street, N.W.  
Suite 400  
Washington, D.C. 20036  
(202) 326-7900

*Counsel for Northpoint Technology, Ltd.,  
and Broadwave USA, Inc.*



Appendix A

Index

**Northpoint Sharing with DBS: Northpoint Will Not Cause Harmful Interference.....2**

Northpoint Sharing with DBS: Northpoint is Different from Other FS Systems.....3

Northpoint Sharing with DBS: Multiple Northpoint Transmitters - Aggregate Effect Not Harmful .....3

Northpoint Sharing with DBS: Testing Shows No Harmful Interference.....4

Northpoint Sharing with DBS: Interference Mitigation is Effective and Practical.....5

Northpoint Sharing with DBS: DBS Industry Overestimates Impact of Northpoint .....5

Northpoint Sharing with DBS: DBS Testing is Flawed.....7

**Northpoint/ NGSO Sharing.....8**

Northpoint/ NGSO Sharing: Mitigation Area is Small Compared to Northpoint Service Area .....8

Northpoint/ NGSO Sharing: No Loss in NGSO Service Capacity with Frequency Diversity.....9

Northpoint/ NGSO Sharing: No Exclusion Zones - Frequency Diversity Solves Co-primary Operation Issues .....9

Northpoint/ NGSO Sharing: Northpoint Requirement for Terrestrial PFD Protection from NGSO FSS .....10

Northpoint/ NGSO Sharing: NGSO FSS overestimate Northpoint impact.....10

Northpoint/ NGSO Sharing: Northpoint terrestrial PFD does not hinder NGSO FSS.....11

**Co-existence of All Three Services–Composite NGSO/Northpoint/DBS Sharing.....11**

Appendix A

**Northpoint Sharing with DBS: Northpoint Will Not Cause Harmful Interference**

Party	Title	Description	Date
Lucent Technologies	Ex Parte Letter	On Northpoint Field Trial in Washington DC	Oct 25, 1999
Northpoint	Reply Comments of Northpoint Technology in RM9245	Reply Comments of Northpoint Technology in RM9245	5-May-98
Northpoint	Presentation to the Federal Communications Commission	Northpoint/DBS, Northpoint/NGSO	13-May-99
Northpoint	Ex Parte Submission of Northpoint Technology	DBS Sharing	18-Jun-99
Northpoint	Ex Parte Submission of Northpoint Technology	Rebuttal to EchoStar report	8-Nov-99
Northpoint	Presentation to the FCC	Meeting with T. Derenge, J. Burtle, J. Knapp (OET), and H. Ng. (IB) with discussion of DC DBS compatibility testing	12-Nov-99
Northpoint	Technical Response to Comments of Pegasus Communications Corp.	Response to late-filed comments of Pegasus attaching dish installation instructions and FCC Compliance report	3-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with B. Calaff, K. Baum, J. Burtle, G. Matise, D. Young, C. Iseman, T. Stanley, H. Ng, R. Small, T. Derenge, J. Knapp, D. Hatfield attaching PowerPoint pre-sentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report, 1/18 Methodology for Predicting Terrestrial Interaction with DBS in 12 GHz Band	10-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with K. Ham, T. Stanley, C. Bomberger, M. Sozan, M. Pollak, H. Zeiler attaching 2/9 PowerPoint presen-tation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report, 1/18 Methodology for Predicting Terrestrial Interaction with DBS in 12 GHz Band	17-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with T. Stanley, K. Ham, M. Sozan, M. Pollack and D. Terry attaching 2/9 PowerPoint presentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compli-ance Report	28-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Response to SBCA letter	29-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to DirecTV	17-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Tom Sugrue re: licensing of the Broadwave affiliate network.	26-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman re: Echo Star & DirecTV Testing in Oxon Hill, MD	28-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	NP's Evaluation & Analysis of DBS-Terrestrial Compatibility Testing at Oxon Hill, MD	1-Aug-00
Northpoint	Ex Parte Submission of Northpoint	Meeting w/ Adam Krinsky re: terrestrial sharing	1-Sep-00

Appendix A

	Technology		
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Bryan Tramont & Deena Margolies, Comm. F.-Roth 8/31	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ OET re: satellite & terrestrial sharing	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Int'l Bureau 9/8 re: "NGSO interference budget".	11-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Ltr to Abelson & Hatfield re: views on appropriate standards for NP-DBS sharing	14-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Ex parte (DEBATE) Comm. Ness & OET with Pegasus, Echostar, DirecTV, SBCA, Boeing & Skybridge re: NP-DBS & NP-NGSO sharing & potential interference among applicants and licenses in the 12.2-12.7 GHz band.	20-Oct-00
Broadwave USA	Ex Parte Submission of Broadwave USA	Ltr to M. Salas re: Response to EchoStar ltr 10/24 re: interference	30-Oct-00
Broadwave USA	Ex Parte Submission of Broadwave USA	Ex parte (Salas) BC ltr to Jim Chadwick, MITRE re: BC correcting factual errors from 1st set of questions from MITRE	14-Feb-01
Northpoint Technology	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	12-Mar-01
Northpoint Technology	Reply Comments	Reply Comments	5-Apr-01
Northpoint	Comments of Northpoint Technology in ET Docket 98-206	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99
Northpoint	Reply Comments of Northpoint Technology in ET Docket 98-206	Reply Comments of Northpoint Technology in ET Docket 98-206	14-Apr-99
FCC Compliance and Information Bureau	CIB Final report regarding the test conducted on Diversified's system	CIB Final report regarding the test conducted on Diversified's system	Oct-99

**Northpoint Sharing with DBS: Northpoint is Different from Other FS Systems**

Party	Title	Description	Date
Northpoint	Presentat ion to the Federal Communications Commission	Northpoint/DBS, Northpoint/NGSO	13-May-99
Northpoint	Letter to Maglie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/Comm. Furchtgott-Roth & Bryan Tramont re: NGSO FSS	4-May-00

**Northpoint Sharing with DBS: Multiple Northpoint Transmitters - Aggregate Effect Not Harmful**

Party	Title	Description	Date
Northpoint	Presentat ion to the Federal Communications	Northpoint/DBS, Northpoint/NGSO	13-May-99

Appendix A

	Commission		
Northpoint	Presentation to the FCC	Meeting with T. Derenge, J. Burtle, J. Knapp (OET), and H. Ng. (IB) with discussion of DC DBS compatibility testing	12-Nov-99
Northpoint	Reply Comments of Northpoint Technology in ET Docket 98-206	Reply Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99

**Northpoint Sharing with DBS: Testing Shows No Harmful Interference**

Party	Title	Description	Date
Northpoint	Ex Parte Submission of Northpoint	Meeting with IB, 10 pgs.	22-Jan-99
Northpoint	Ex Parte Submission of Northpoint	Meeting with WTB, 10 pgs.	22-Jan-99
Northpoint	Ex Parte Submission of Northpoint	Meeting with D. Connors, 4 pgs.	22-Jan-99
Northpoint	Ex Parte Submission of Northpoint	Meeting with OET, 12 pgs.	22-Jan-99
Northpoint	Ex Parte Submission of Northpoint	Rebuttal to EchoStar report	8-Nov-99
Northpoint	Presentation to the FCC	Meeting with T. Derenge, J. Burtle, J. Knapp (OET), and H. Ng. (IB) with discussion of DC DBS compatibility testing	12-Nov-99
Northpoint	Ex Parte Submission of Northpoint	Response to SBCA letter	29-Feb-00
Northpoint	Ex Parte Submission of Northpoint	Northpoint/NGSO sharing proposals. (Furchtgott-Roth's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint	Northpoint/NGSO sharing proposals. (Ness's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint	Northpoint/NGSO sharing proposals. (Powell's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint	Northpoint/NGSO sharing proposals. (Tristani's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint	Letter to Chairman Kennard with an attached Response to DirecTV	17-Mar-00
Northpoint	Ex Parte Submission of Northpoint	Meeting w/ Tom Sugrue re: licensing of the Broadwave affiliate network.	26-Jul-00
Northpoint	Ex Parte Submission of Northpoint	Letter to Chairman re: Echo Star & DirecTV Testing in Oxon Hill, MD	28-Jul-00
Northpoint	Ex Parte Submission of Northpoint	NP's Evaluation & Analysis of DBS-Terrestrial Compatibility Testing at Oxon Hill, MD	1-Aug-00
Northpoint Technology	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	12-Mar-01
Lucent Technologies	Ex Parte Letter	On Northpoint Field Trial in Washington DC	Oct 25, 1999
Northpoint	Reply Comments of Northpoint Technology in ET Docket 98-206	Reply Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99
FCC Compliance and Information Bureau	CIB Final report regarding the test conducted on Diversified's system	CIB Final report regarding the test conducted on Diversified's system	Oct-99
Northpoint	Comments of Northpoint Technology	Comments of Northpoint Technology in ET Docket 98-206	14-Apr-99

Appendix A

**Northpoint Sharing with DBS: Interference Mitigation is Effective and Practical**

Party	Title	Description	Date
DirecTV	Opposition of DirecTV in RM-9245	DBS uses subscriber premises mitigation methods, "DirecTV has relocated subscriber dishes at its own expense or otherwise reduced the interference to acceptable levels." (FN8 at 7)	20-Apr-98
Northpoint	Reply Comments of Northpoint Technology in RM9245	Reply Comments of Northpoint Technology in RM9245	5-May-98
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to DirecTV	17-Mar-00
Broadwave USA	Ex Parte Submission of Broadwave USA	Meeting w/ Michael Marcus OET re: 18" DBS antennas	19-May-00
Northpoint	Ex Parte Submission of Northpoint	Meeting Bob Combs w/ Michael Marcus OET re: DBS	6-Jul-00
Northpoint	Ex Parte Submission of Northpoint	Meeting w/ Tom Sugrue re: licensing of the Broadwave affiliate network.	26-Jul-00
Northpoint	Ex Parte Submission of Northpoint	Letter to Chairman re: Echo Star & DirecTV Testing in Oxon Hill, MD	28-Jul-00
Northpoint	Ex Parte Submission of Northpoint	NP's Evaluation & Analysis of DBS-Terrestrial Compatibility Testing at Oxon Hill, MD	1-Aug-00
Northpoint	Ex Parte Submission of Northpoint	Meeting w/ Adam Krinsky re: terrestrial sharing	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint	Meeting w/ Bryan Tramont & Deena Margolies, Comm. F.-Roth 8/31	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint	Meeting w/ OET 8/31 re: satellite & terrestrial sharing	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint	Ex parte Comm. Ness & OET with Pegasus, Echostar, DirecTV, SBCA, Boeing & Skybridge re: NP-DBS & NP-NGSO sharing & potential interference among applicants and licenses in the 12.2-12.7 GHz band.	20-Oct-00
Fortel	Ex Parte Submission of Fortel	Ltr to FCC re: DirecTV 8/10/00 filing "Use a planar array in disrupted areas".	5-Jan-01
Northpoint Technology	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	12-Mar-01
Northpoint	Reply Comments	Reply Comments	5-Apr-01
Northpoint	Comments of Northpoint Technology	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99
Northpoint	Reply Comments of Northpoint	Reply Comments of Northpoint Technology in ET Docket 98-206	14-Apr-99
Echostar	Echostar DISH 500 Installation Manual	See Feb 3, 2000 ex parte filing of Northpoint Technology, Exhibit B	3-Feb-00

**Northpoint Sharing with DBS: DBS Industry Overestimates Impact of Northpoint**

Party	Title	Description	Date
Northpoint	Reply Comments of Northpoint	Reply Comments of Northpoint Technology in RM9245	5-May-98
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting attaching PowerPoint pre-sentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report, 1/18 Methodology for Predicting Terrestrial Interaction with DBS in 12 GHz Band	10-Feb-00

Appendix A

Party	Title	Description	Date
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting attaching Methodology for Predicting Terrestrial Interaction with DBS in 12 GHz Band	17-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with T. Stanley, K. Ham, M. Sozan, M. Pollack and D. Terry attaching 2/9 PowerPoint presentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report	28-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Furchtgott-Roth's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Ness's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Powell's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Tristani's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to DirecTV	17-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with Harry Ng, IB re: Interference level claim by DirecTV	13-Apr-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Tom Sugrue re: licensing of the Broadwave affiliate network.	26-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman re: Echo Star & DirecTV Testing in Oxon Hill, MD	28-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	NP's Evaluation & Analysis of DBS-Terrestrial Compatibility Testing at Oxon Hill, MD	1-Aug-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Adam Krinsky re: terrestrial sharing	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Bryan Tramont & Deena Margolies, Comm. F.-Roth	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ OET re: satellite & terrestrial sharing	1-Sep-00
Northpoint	Ex Parte Submission of Northpoint Technology	Ex parte (Debate) Comm. Ness & OET with Pegasus, Echostar, DirecTV, SBCA, Boeing & Skybridge re: NP-DBS & NP-NGSO sharing & potential interference among applicants and licenses in the 12.2-12.7 GHz band.	20-Oct-00
Broadwave USA	Ex Parte Submission of Broadwave USA	Ltr to M.Salas re: Response to EchoStar ltr 10/24 re: interference	30-Oct-00
Broadwave USA	Ex Parte Submission of Broadwave USA	Ex parte (Salas) BC ltr to Jim Chadwick, MITRE re: BC correcting factual errors from 1st set of questions from MITRE	14-Feb-01
Northpoint Technology	Comments	Comments in Response to the Further Notice of Proposed Rulemaking released on Dec. 8 2000	12-Mar-01

Appendix A

Party	Title	Description	Date
Northpoint Technology	Reply Comments	Reply Comments	5-Apr-01
Northpoint	Comments of Northpoint Technology	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99
Northpoint	Reply Comments of Northpoint Technology	Reply Comments of Northpoint Technology in ET Docket 98-206	14-Apr-99
FCC Compliance and Information Bureau	CIB Final report regarding the test conducted on Diversified's system	CIB Final report regarding the test conducted on Diversified's system	Oct-99

**Northpoint Sharing with DBS: DBS Testing is Flawed**

Party	Title	Description	Date
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with B. Calaff, K. Baum, J. Burtle, G. Matise, D. Young, C. Iseman, T. Stanley, H. Ng, R. Small, T. Derenge, J. Knapp, D. Hatfield attaching PowerPoint pre-sentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report, 1/18 Methodology for Predicting Terrestrial Interaction with DBS in 12 GHz Band	10-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with K. Ham, T. Stanley, C. Bomberger, M. Sozan, M. Pollak, H. Zeiler attaching 2/9 PowerPoint presen-tation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report, 1/18 Methodology for Predicting Terrestrial Interaction with DBS in 12 GHz Band	17-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with T. Stanley, K. Ham, M. Sozan, M. Pollack and D. Terry attaching 2/9 PowerPoint presentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compli-ance Report	28-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Furchtgott-Roth's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Ness's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Powell's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Northpoint/NGSO sharing proposals. (Tristani's office)	10-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to DirecTV	17-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/ Tom Sugrue re: licensing of the Broadwave affiliate network.	26-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman re: Echo Star & DirecTV Testing in Oxon Hill, MD	28-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	NP's Evaluation & Analysis of DBS-Terrestrial Compatibility Testing at Oxon Hill, MD	1-Aug-00
Broadwave	Ex Parte Submission of	Ex parte (Salas) BC ltr to Jim Chadwick, MITRE re: BC correcting factual errors from 1st set of	14-Feb-01

Appendix A

Party	Title	Description	Date
USA	Broadwave USA	questions from MITRE	

**Northpoint/ NGSO Sharing**

Party	Title	Description	Date
Northpoint	Presentation to the Federal Communications Commission	Northpoint/DBS, Northpoint/NGSO	13-May-99
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with T. Stanely, R. Calaff (WTB), T. Derenge, B. Franca, D. Hatfield, J. Knapp and G. Maise (OET) discuss-ing success of DC testing and refer commission staff questions to pp. 12-15 of progress report	1-Dec-99
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with D. Abelson, L. Haller, H. Ng, P. Pappas and T. Tycz (IB)	6-Dec-99
Northpoint	Letter to Magalie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00
Northpoint	Letter to D. Abelson in response to Boeing 12/20 ex parte	Letter to D. Abelson in response to Boeing 12/20 ex parte	21-Jan-00
Northpoint/Virgo	Ex Parte Submission of Northpoint Technology and Virtual Geosatellite	Letter to W. Kennard	8-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to Boeing	22-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/Comm. Furchtgott-Roth & Bryan Tramont re: NGSO FSS	4-May-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Kennard re: Boeings 5/1 ex parte filing "NGSO FSS".	6-Jul-00
Northpoint	Ex Parte Submission of Northpoint Technology	Ex Parte - Response to 9/18 Skybridge filing which is responding to NP 8/29 filing	17-Nov-00
Northpoint Technology	Reply Comments		5-Apr-01
Northpoint	Comments of Northpoint Technology in ET Docket 98-206	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99

**Northpoint/ NGSO Sharing: Mitigation Area is Small Compared to Northpoint Service Area**

Party	Title	Description	Date
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with H. Ng (IB) and T. Derenge (OET), 29pgs.	9-Sep-99
Northpoint	Letter to Magalie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00

Appendix A

Northpoint	Letter to D. Abelson in response to Boeing 12/20 ex parte	Letter to D. Abelson in response to Boeing 12/20 ex parte	21-Jan-00
Northpoint/Virgo	Ex Parte Submission of Northpoint Technology and Virtual Geosatellite	Letter to W. Kennard	8-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to Boeing	22-Mar-00
Broadwave USA	Ex Parte Submission of Northpoint Technology	Discussion of exclusion zones	28-Mar-00
Northpoint Technology	Reply Comments		5-Apr-01
Northpoint	Comments of Northpoint Technology in ET Docket 98-206	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99

**Northpoint/ NGSO Sharing: No Loss in NGSO Service Capacity with Frequency Diversity**

Party	Title	Description	Date
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with H. Ng (IB) and T. Derenge (OET), 29pgs.	9-Sep-99
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with T. Stanely, R. Calaff (WTB), T. Derenge, B. Franca, D. Hatfield, J. Knapp and G. Maise (OET) discuss-ing success of DC testing and refer commission staff questions to pp. 12-15 of progress report	1-Dec-99
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with D. Abelson, L. Haller, H. Ng, P. Pappas and T. Tycz (IB)	6-Dec-99
Northpoint	Letter to Magalie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to Boeing	22-Mar-00
Broadwave USA	Ex Parte Submission of Northpoint Technology	Discussion of exclusion zones	28-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Kennard re: Boeings 5/1 ex parte filing "NGSO FSS".	6-Jul-00
Northpoint Technology	Reply Comments		5-Apr-01
Northpoint	Comments of Northpoint Technology	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99

**Northpoint/ NGSO Sharing: No Exclusion Zones - Frequency Diversity Solves Co-primary Operation Issues**

Party	Title	Description	Date
-------	-------	-------------	------

Appendix A

Party	Title	Description	Date
Northpoint	Presentation to the Federal Communications Commission	Northpoint/DBS, Northpoint/NGSO	13-May-99
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Tycz of Delayed Contribution to the ITU by France	12-Nov-99
Northpoint	Letter to Maglie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00
Northpoint	Ex Parte Submission of Northpoint Technology	Response to misleading statements made by SkyBridge in 12/15 ex parte attacking French DCA proposal to ITU	27-Jan-00
Northpoint/Virgo	Ex Parte Submission of Northpoint Technology and Virtual Geosatellite	Letter to W. Kennard	8-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to Boeing	22-Mar-00
Broadwave USA	Ex Parte Submission of Northpoint Technology	Discussion of exclusion zones	28-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Kennard re: Boeings 5/1 ex parte filing "NGSO FSS".	6-Jul-00
Broadwave USA	Ex Parte Submission of Broadwave USA	BCombs Ex parte ltr re: Skybridge & Virtual GEO re: homogenous satellite & NGSO FSS systems.	21-Nov-00
Northpoint Technology	Reply Comments		5-Apr-01
Northpoint	Comments of Northpoint Technology in ET Docket 98-206	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99

**Northpoint/ NGSO Sharing: Northpoint Requirement for Terrestrial PFD Protection from NGSO FSS**

Party	Title	Description	Date
Northpoint	Letter to Maglie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/Comm. Furchtgott-Roth & Bryan Tramont re: NGSO FSS	4-May-00
Northpoint Technology	Reply Comments		5-Apr-01
Northpoint	Comments of Northpoint Technology	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99

**Northpoint/ NGSO Sharing: NGSO FSS overestimate Northpoint impact**

Party	Title	Description	Date
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to Boeing	22-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Kennard re: Boeings 5/1 ex parte filing "NGSO FSS".	6-Jul-00
Northpoint Technology	Reply Comments		5-Apr-01

Appendix A

**Northpoint/ NGSO Sharing: Northpoint terrestrial PFD does not hinder NGSO FSS**

Party	Title	Description	Date
Northpoint	Comments of Northpoint Technology	Comments of Northpoint Technology in ET Docket 98-206	12-Mar-99
Northpoint	Letter to Maglie Roman Salas w/Technical Exhibits	NGSOs can share the Ku-band with Northpoint	6-Jan-00
Northpoint	Ex Parte Submission of Northpoint Technology	Letter to Chairman Kennard with an attached Response to Boeing	22-Mar-00
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting w/Comm. Furchtgott-Roth & Bryan Tramont re: NGSO FSS	4-May-00
Northpoint	Ex Parte Submission of Northpoint Technology	Ltr re: response to SkyBridge 7/10 ltr	11-Jul-00
Northpoint Technology	Reply Comments		5-Apr-01

**Co-existence of All Three Services–Composite NGSO/Northpoint/DBS Sharing**

Party	Title	Description	Date
Northpoint	Presentation to the Federal Communications Commission	Northpoint/DBS, Northpoint/NGSO	13-May-99
Northpoint	Ex Parte Submission of Northpoint Technology	meeting with T. Stanely, R. Calaff (WTB), T. Derenge, B. Franca, D. Hatfield, J. Knapp and G. Matisse (OET) discuss-ing success of DC testing and refer commission staff questions to pp. 12-15 of progress report	1-Dec-99
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with D. Abelson, L. Haller, H. Ng, P. Pappas and T. Tycz (IB)	6-Dec-99
Northpoint	Ex Parte Submission of Northpoint Technology	Meeting with T. Stanley, K. Ham, M. Sozan, M. Pollack and D. Terry attaching 2/9 PowerPoint presentation, NY Rain Event of 8/26, NY Rain Event 10/4, 10/6 FCC Compliance Report	28-Feb-00
Northpoint	Ex Parte Submission of Northpoint Technology	Response to SBCA letter	29-Feb-00
Northpoint/Virgo	Ex Parte Submission of Northpoint Technology and Virtual Geosatellite	Letter to W. Kennard	8-Mar-00

## CERTIFICATE OF SERVICE

I, Shannon Thrash, hereby certify that on this 24th day of April, 2001, copies of the foregoing, *Northpoint Technology, Ltd., and Broadwave USA, Inc., Opposition to Petitions for Reconsideration for First Report and Order*, were served by hand delivery\* and/or first class United States mail, postage prepaid, on the following:

Magalie Roman Salas\*  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Room TW-B204  
Washington, DC 20554

Bruce Franca, Acting Chief  
Rebecca Dorch, Deputy Chief  
Thomas Derenge  
Office of Engineering and Technology\*  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

Thomas J. Sugrue, Chief  
Wireless Telecommunications Bureau\*  
Federal Communications Commission  
445 12th Street, SW  
Washington, D.C. 20554

Donald Abelson, Chief  
Jennifer Gilsonan  
International Bureau\*  
Federal Communications Commission  
445 12th Street, SW  
Washington, D.C. 20554

Nathaniel J. Hardy  
Irwin, Campbell & Tannenwald, P.C.  
1730 Rhode Island Ave, NW  
Suite 200  
Washington, D.C. 20036-3101  
*Counsel for Satellite Receivers, Inc.*

David C. Oxenford, Esq.  
Shaw Pittman  
2300 N. Street, NW  
Washington, D.C. 20037  
*Counsel for PDC Broadband Corp.*

Margaret L. Tobey  
Morrison & Foerster, LLP  
2000 Pennsylvania Avenue, NW  
Suite 5500  
Washington, DC 20006  
*Counsel for the Satellite Broadcasting  
and Communication Association*

Arthur Landerholm  
Latham & Watkins  
Suite 1000  
555 11<sup>th</sup> Street, NW  
Washington, DC 20004  
*Counsel for Hughes  
Communications, Inc., et al.*

Pantelis Michalopoulos  
Rhonda M. Bolton  
Steptoe & Johnson LLP  
1330 Connecticut Avenue, NW  
Washington, DC 20036  
*Counsel for EchoStar Satellite Corp.*

James H. Barker, III  
Latham & Watkins  
1001 Pennsylvania Avenue, NW  
Suite 1300  
Washington, DC 20004-2505  
*Counsel for DIRECTV, Inc.*

Jonathan Epstein  
Holland & Knight LLP  
2099 Pennsylvania Avenue, NW  
Suite 100  
Washington, DC 20006

*Counsel for SkyTower, Inc.*

Stephen J. Duall  
Squire, Sanders & Dempsey LLP  
1201 Pennsylvania Avenue, NW  
P.O. Box 407  
Washington, DC 20044-0407

*Counsel for The Boeing Company*

Jeffrey H. Olson  
Paul, Weiss, Rifkind,  
Wharton & Garrison  
1615 L Street, NW  
Suite 1300  
Washington, DC 20036

*Counsel for SkyBridge, L.L.C.*

Joseph Godles  
Golderb, Godles, Wiener & Wright  
1229 19th Street, NW  
Washington, DC 20036

*Counsel for PanAmSat Corp.*

  
Shannon Thrash  
Legal Assistant