

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

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

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Re: Ex Parte Communication in 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; Requests of Broadwave USA et al. (DA 99-494), PDC Broadband Corporation (DA 00-1841), and Satellite Receivers, Ltd. (DA 00-2134) for Waiver of Part 101 Rules

Dear Ms. Salas:

I write on behalf of Northpoint Technology, Ltd., and Broadwave USA, Inc., (collectively, "Northpoint") to address certain issues raised in reply to Northpoint's Opposition to Petitions for Reconsideration filed in ET Docket No. 98-206.

A number of satellite companies have used the release of a report on spectrum sharing in the 12 GHz band by the MITRE Corporation ("MITRE") to reiterate their opposition to terrestrial use of the 12 GHz band in general and to deployment of Northpoint's technology in particular. Specifically, Boeing, EchoStar and DirecTV have asserted that the MITRE Report provides a basis for the Commission to reconsider its decision to approve MVDDS sharing of the 12 GHz band with satellite users and the application of Northpoint technology in the band.

As shown below, however, MITRE does not provide any basis whatsoever for reconsideration of the Commission's decision in the First Report and Order ("*First Report and Order*") to authorize the terrestrial use of the 12 GHz band. A simple

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comparison of the text of the Commission's *First Report and Order* and the MITRE Report makes obvious MITRE's support for the Commission action.

EchoStar states that the MITRE report "contradicts the Commission's conclusion that [spectrum] sharing is feasible." See EchoStar Reply to Oppositions to Petitions for Reconsideration at 1. Even a casual reading of the MITRE report demonstrates this is not the case. The final paragraph of the MITRE report states:

MITRE believes that with implementation of the licensing process and other policy recommendations outlined above, *spectrum sharing between DBS and MVDDS services in the 12.2-12.7 GHz band is feasible*. MITRE Report § 6.3, at 6-8 (emphasis added).

Quite plainly, MITRE concludes that spectrum sharing is "feasible," not infeasible, as Echostar claims. MITRE has even proposed a process for licensing of terrestrial operations in the 12 GHz band, thus underscoring its belief that the spectrum can be successfully shared.

Boeing attempts to get into the MITRE debate with the similar statement that MITRE "placed into question . . . the conclusions that were reached in the Commission's *Order*." See Boeing Reply to Oppositions to Petition for Reconsideration at 2. Boeing then asserts that MITRE's report somehow validates Boeing's own prior technical filings on NGSO FSS-Northpoint sharing. See *id.* at 3. Of course, this cannot be the case since MITRE concerned itself exclusively with DBS-terrestrial sharing and had nothing to say about either DBS or terrestrial services sharing with NGSO FSS.

MITRE's conclusion that sharing between satellite and terrestrial services in the 12 GHz band is feasible is completely consistent with the Commission's *First Report and Order*. It is noteworthy that MITRE agrees not only with the Commission's conclusion, but also with the Commission's analysis supporting that conclusion. To demonstrate this concurrence, below is reproduced the text of the Commission's decision to authorize terrestrial operations in the 12.2-12.7 GHz band next to the relevant quotations from MITRE on the same subject.

| Feasibility – Both agree sharing can occur successfully. | |
|--|---|
| The Commission: | MITRE: |
| <p>"<i>Decision</i>. We conclude that MVDDS can operate in the 12.2-12.7 GHz band under the existing primary allocation, which requires that a Fixed Service not cause harmful interference to the co-primary BSS." <i>First Report and Order</i> ¶ 213.</p> | <p>"MITRE believes that with implementation of the licensing process described in Section 6.3 and the other policy recommendations outlined above, spectrum sharing between DBS and MVDDS services in the 12.2-12.7 GHz band is feasible." MITRE Report at xxi.</p> |

| Both Agree on How to Prevent Interference | |
|---|---|
| The Commission: | MITRE: |
| <p>“Section 2.1 of our rules defines “harmful interference” as “interference which endangers the functioning of a radionavigation service or of other safety services or <i>seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service.</i> . . .” In some instances, spectrum sharing may result in services causing interference or degradation to or occasional outages of other services. Spectrum management decisions often address this issue by specifying operating requirements to minimize to the greatest extent possible the level to which such impacts occur. In this proceeding, we find that we can develop operating requirements for MVDDS that will ensure that DBS operations are not seriously degraded or subject to repeated interruptions due to MVDDS operations, thus avoiding any harmful interference to DBS.” <i>First Report and Order</i> ¶ 213.</p> <p>“We note that the record in this proceeding demonstrates a variety of techniques that an MVDDS operator may use to protect DBS operations from harmful interference caused by MVDDS operations.” <i>First Report and Order</i> ¶ 216.</p> | <ul style="list-style-type: none">• MVDDS sharing of the 12.2–12.7 GHz band currently reserved for DBS poses a significant interference threat to DBS operation in many realistic operational situations.• However, a wide variety of mitigation techniques exists that, if properly applied under appropriate circumstances, can greatly reduce, or eliminate, the geographical extent of the regions of potential MVDDS interference impact upon DBS.• MVDDS/DBS bandsharing appears feasible if and only if suitable mitigation measures are applied. Different combinations of measures are likely to prove ‘best’ for different locales and situations.” MITRE Report at xvi-xvii. |

| Both Agree on Specific Recommendations for Sharing. | |
|--|---|
| The Commission: | MITRE: |
| <p>“We note that the record in this proceeding demonstrates a variety of techniques that an MVDDS operator may use to protect DBS operations from harmful interference caused by MVDDS operations. Specifically, an MVDDS operator may employ all or some of the following techniques: 1) careful site selection of their transmitters to avoid large concentrations of DBS receive antennas within 1-3 kilometers of the transmitters; 2) beam shaping through customized MVDDS antennas or tilting the beams of their transmitters to avoid DBS receive antennas; 3) adjusting the height of their transmitters; 4) reducing the power of their transmitters during periods of DBS fading due to rain; 5) more accurately pointing DBS receive antennas toward the intended satellite at their expense and with the permission of the DBS subscriber; 6) relocating DBS receive antennas at their expense and with the permission of the DBS subscriber; 7) replacing smaller DBS receive antennas with larger DBS receive antennas at their expense and with the permission of the DBS subscriber; 8) shielding DBS receive antennas from their transmitters at their expense and with the permission of the DBS subscriber; 9) employing planar DBS antennas at their expense and with the permission of the DBS subscriber; and 10) using multiple transmit antennas at each tower with customized beam patterns and lower power.” <i>First Report and Order</i> ¶ 216.</p> | <p>“Techniques for preventing or reducing MVDDS interference in DBS receivers fall into three general categories:</p> <ul style="list-style-type: none"> • Selection of MVDDS operational parameters • Possible MVDDS system-design changes • Corrective measures at DBS receiver locations <p>“Mitigatory techniques in each of these three categories are discussed in detail in Section 6.2. The most important operational parameters that can be adjusted to control interference in existing MVDDS system designs are transmitter power, frequency offset, tower height, elevation tilt, and azimuthal orientation.” MITRE Report at xvii.</p> <p>“Potential MVDDS design changes that might reduce the interference impact on DBS downlinks include real-time power control, multiple narrow transmitting-antenna beams, the use of circular polarization, and increasing the size of MVDDS receiving antennas.” MITRE Report at 6-3.</p> <p>“Corrective measures that can be applied at DBS receiver installations include relocation and retrofitting of existing DBS antennas, the use of alternative antenna designs, and the replacement of older DBS set-top boxes.” MITRE Report at 6-4.</p> |

As this table make clear, MITRE validated the Commission's prior conclusions as well as identifying some additional methods of mitigation that had not been cited in the Commission's *First Report and Order*.

The only significant detail where MITRE differs from a Commission proposal is MITRE's recommendation of the maximum threshold increase in unavailability that terrestrial service should be allowed to cause DBS. The Commission sought comment on a proposal that the new MVDDS service be allowed to cause no more than 2.86% increase in unavailability to DBS. However, MITRE recommends that this figure be increased to 10% – a standard much more favorable to Northpoint than the commission's proposal. In explanation, MITRE noted that “[a]n increase of 2.86% seems very small and there is precedent for 10% increase as a criterion.” MITRE Report § 6.3, at 6-6.

DirecTV takes a slightly different tack than the other satellite operators. While admitting that MITRE found sharing “feasible,” DirecTV maintains that “the DBS operators have shown, and MITRE has confirmed, the types of mitigatory measures necessary to make sharing allegedly feasible are expensive, burdensome and impractical.” See DirecTV Reply to Oppositions to Petitions for Reconsideration at 10.

DirecTV does not cite any specific references within the MITRE Report or any other authority to support this statement. While MITRE's conclusion that sharing is “feasible” would seem to contradict DirecTV's assertion, it is useful to quote MITRE's own example of how Northpoint could apply mitigation in a real world setting:

During installation of the MVDDS transmit antenna on the roof of the MITRE facility in preparation for open range testing, one ad-hoc test was performed for the purpose of assessing the impact of MVDDS antenna azimuth and elevation on existing DBS installations.

With the MVDDS antenna pointed due North and 0 degrees elevation, the transmit power of the antenna was raised to the point of interfering with the DBS installation used for the laboratory interference measurements discussed in the previous sections, (approximately 300 feet away). Turning the antenna due east, at 5 degrees elevation, the transmit power was raised by 13 dB prior to any degradation of the previous installation.

While not intended to be a quantitative test, it is interesting to note that Northpoint engineers were able to predict and mitigate the impact of the MVDDS transmission on a nearby installation.

MITRE Report, App. A, at A-25. As this example demonstrates, mitigation techniques as suggested by Northpoint and cited by MITRE are not expensive, burdensome, or impractical as claimed by DirecTV. To the contrary, they have been proven to be effective as MITRE noted in its conclusion to Appendix A: “Appropriate selection of antenna azimuth and elevation angles was *demonstrated to be effective* in mitigating

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interference in areas close by [to the transmitter].” MITRE Report, App. A, at A-26 (emphasis added).

While the satellite industry attempts to inflame uninformed readers by repeating the word “interference” over and over again, it is clear that the MITRE report fully supports the Commission’s decision to authorize terrestrial operations and affirms the Commission’s findings on technical issues. The satellite industry’s claims that the MITRE report should be a basis for reconsideration are meritless.

Eighteen copies of this letter are enclosed – two for inclusion in each of the above-referenced files. Please contact me with any questions.

Yours sincerely,

A handwritten signature in black ink, appearing to read "J.C. Rozendaal". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

J.C. Rozendaal

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

CERTIFICATE OF SERVICE

I, Shannon Thrash, hereby certify that on this 3rd day of July, 2001, copies of the foregoing 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, D.C. 20554

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

Peter Tenhula, Sr. Legal Advisor*
Office of Chairman Michael Powell
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Adam Krinsky, Legal Advisor*
Office of Commissioner Gloria Tristani
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Bryan Tramont, Sr. Legal Advisor*
Office of Commissioner
Kathleen Abernathy
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Lauren Van Wazer*
Interim Legal Advisor
Office of Commissioner Michael Copps
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, D.C. 20006
*Counsel for the Satellite Broadcasting
and Communication Association*

Arthur Landerholm
Latham & Watkins
Suite 1000
555 11th Street, NW
Washington, D.C. 20004

*Counsel for Hughes
Communications, Inc., et al.*

Pantelis Michalopoulos
Rhonda M. Bolton
Steptoe & Johnson LLP
1330 Connecticut Avenue, NW
Washington, D.C. 20036

Counsel for EchoStar Satellite Corp.

James H. Barker, III
Latham & Watkins
1001 Pennsylvania Avenue, NW
Suite 1300
Washington, D.C. 20004-2505

Counsel for DIRECTV, Inc.

Jonathan Epstein
Holland & Knight LLP
2099 Pennsylvania Avenue, NW
Suite 100
Washington, D.C. 20006

Counsel for SkyTower, Inc.

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

Counsel for The Boeing Company

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

Counsel for SkyBridge, L.L.C.

Joseph Godles
Golderb, Godles, Wiener & Wright
1229 19th Street, NW
Washington, D.C. 20036

Counsel for PanAmSat Corp.


Shannon Thrash