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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

May 9, 2001

Via HAND DELIVERY

Ms. Magalie Roman Salas
Office of the Secretary
Federal Communications Commission
The Portals – TW-A325
445 Twelfth Street, S.W.
Washington, D.C. 20554

Re: *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, ET Docket No. 98-206, RM-9147, RM-9245*

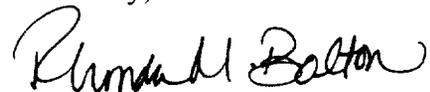
Dear Ms. Salas:

On behalf of EchoStar Satellite Corporation ("EchoStar"), enclosed please find for filing an original and eleven copies of EchoStar's Reply regarding its Petition for Reconsideration in the above-referenced matter.

Also enclosed is an additional copy of EchoStar's Reply which we ask you to date-stamp and return with our messenger.

If you have any questions, please do not hesitate to contact me.

Sincerely,



Rhonda M. Bolton
Counsel for EchoStar
Satellite Corporation

Enclosures

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

**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 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)
 Corporation 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

To: The Commission

REPLY OF ECHOSTAR SATELLITE CORPORATION

EchoStar Satellite Corporation ("EchoStar") hereby replies to the oppositions to its Petition for Reconsideration of the Commission's First Report and Order finding that a new terrestrial service can share the 12.2-12.7 GHz spectrum on a secondary basis with Direct Broadcast Satellite ("DBS") service. First Report and Order and Further Notice of Proposed Rulemaking, ET Docket No. 98-206, RM-9147, RM-9245, FCC 00-418 (rel. Dec. 8, 2000) ("*Report and Order*"). The Commission's findings in the proceeding have been overtaken in a dramatic manner by a subsequent development: MITRE Corporation's independent report, required by statute and recently released by the Commission, contradicts the Commission's conclusion that sharing is feasible. The report also proves false the premise of this entire proceeding – Northpoint's idea that interference can be reduced by locating the terrestrial transmit towers in the north.

EchoStar believes that the Commission's sharing conclusion could be shown to be incorrect even prior to release of the report. At best, the Commission's finding was a rush to judgment: the study conducted by MITRE should have been undertaken by the Commission before reaching any conclusion on sharing, consistent with the Commission's duty of reasoned decisionmaking under the Administrative Procedure Act.¹ In any event, the MITRE study is now available, and it provides further conclusive proof that the Commission conclusions were neither "well supported by substantial evidence in the record as a whole" nor "well founded,"² as claimed by the parties opposing reconsideration. The Administrative Procedure Act requires no less than a step back, a deep breath and a very hard second look at this proceeding in light of the new evidence. The same kind of cool reevaluation is required by the specific statutory requirement of independent testing that resulted in the MITRE report.

In comprehending the devastating implications of MITRE's report for Northpoint's claims, it is useful to remember what this proceeding has been all about. Its impetus and foundation has always been the idea from which Northpoint has coined its name – the notion that interference into DBS can be reduced by locating terrestrial towers to the north of the satellite dishes. As Northpoint explained it, its "technology utilizes the generally southerly orientation of domestic DBS dishes to avoid interference with conventional DBS services." Northpoint Petition for Rulemaking (filed Mar. 6, 1998) at 4. And, as the *New York Times* recently told it, Northpoint's "epiphany" was based on its engineer's observation that "a porch light behind him did not obscure the twinkling stars overhead." Stephen Labaton, "An Earthly Idea for Doubling the Airwaves," *NEW YORK TIMES*, Apr. 8, 2001, Section 3, at 1. If this

¹ The MITRE study also proves wrong the *Report and Order's* conclusion that "further independent testing" would not "yield any further useful information." *Report and Order* at ¶ 215.

² Opposition of Northpoint Technology, Ltd. and Broadwave USA, Inc., at ii ("Northpoint Opposition"); Opposition of Satellite Receivers, Ltd., at 2.

“reasoning proves correct,” the *Times* continued, the terrestrial towers could beam “signals on the same frequencies from the north of their intended subscribers.” *Id.* In the *Report and Order*, the Commission accepted Northpoint’s representations at face value. It concluded that Northpoint’s use of “directional southward pointing transmitting antennas” and “northward pointing receive antennas” presents “a creative mechanism by which to receive greater use of a limited amount of spectrum, thus fostering spectrum efficiency.” *Report and Order* at ¶ 259.

The MITRE study proves that conclusion to be wrong. MITRE found that the use of towers located in the north *aggravates* interference into DBS (in some cases more, in some cases less). Yet, the Commission’s conclusion that sharing of the band is feasible was inextricably based on Northpoint’s “creative mechanism.” No matter how hard Northpoint tries to distort MITRE’s report in its relentless public relations campaign, it is difficult to discount the importance of MITRE’s finding that Northpoint’s idea, on which it has built its case, does not work. Whether intentionally or not, Northpoint seems to have misled the Commission.

Beyond undermining the basis of this entire proceeding, MITRE’s conclusions are also inconsistent with the *Report and Order’s* specific findings. The Commission concluded that a new service “can operate in the 12.2-12.7 GHz band on a non-harmful interference basis” with DBS, and was convinced that harmful interference “can be avoided through engineering techniques and regulatory safeguards.” *Report and Order* at ¶¶ 1, 215. MITRE, for its part, concluded that “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,”³ and that band sharing “*appears feasible if and only if suitable mitigation measures are applied.*” *Id.* at xvii, 6-1 (emphasis added).

³ MITRE Corporation, Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band (April 2001), at xvi, 6-1 (emphasis added) (“MITRE Test Report”).

Northpoint has been trying to portray these two statements as consistent by downgrading MITRE's concern to a question of implementing appropriate mitigation measures. This misreads the MITRE analysis, which concludes by identifying the following all-important question:

The question remains: do the potential costs of applying the necessary mitigatory measures, together with the impact of the residual MVDDS-to-DBS interference that might remain after applying such measures, outweigh the benefits that would accrue from allowing MVDDS to coexist with DBS in this band?

Id. In other words, while the Commission in the *Report and Order* concluded that sharing is feasible and ruled that the only question was what mitigation measures to adopt, MITRE's study leaves open the question of whether *any* mitigation measure is appropriate – whether the cost of any such measure outweighs its benefits. The Commission did not undertake that analysis in the *Report and Order*, and should perform it now on reconsideration.

In EchoStar's view, the answer to that open question is straightforward: not only are the mitigation measures listed by MITRE too costly (for example, 100-200 meter towers, with all of the environmental and aesthetic concerns associated with such gigantic structures mushrooming throughout the country). In addition, the cost of many of these measures would be borne by the wrong party – not the company providing the secondary service but the consumer of the primary service. It is that consumer that would have to tolerate the move of his/her dish from one end of the roof to the other, or the shielding of the dish with aluminum foil. Such an intrusion would be all the less palatable because there are very good reasons why a DBS dish is installed at a particular spot in the first place: it may be the best or only spot from which service can be received, and it may be the spot where it is least obtrusive visually. Any mitigation at the DBS consumer premises impermissibly makes the DBS service secondary.

I. THE INDEPENDENT TESTS PROVE THAT THERE IS NO BASIS FOR THE COMMISSION'S FINDING OF NO HARMFUL INTERFERENCE

Northpoint has described the essence of its "technology" as involving north-pointing receivers and south-pointing transmitters:

Conceptually, Northpoint's technology utilizes the generally *southerly* orientation of domestic DBS dishes to avoid interference with conventional DBS services. By using directional terrestrial *transmitters pointed south*, Northpoint's signals arrive at the 'back' of standard consumer DBS dishes and are *not received or noticed by the subscriber as interference to the existing DBS video programming*. With the addition of a second dish pointed north, however, the subscriber would be able to receive the wholly different Northpoint transmission.⁴

That idea was the basis for the Commission's *Report and Order*.

Northpoint proposes to share the 12.2-12.7 GHz band with DBS operators . . . with the use of *directional southward pointing transmitting antennas*. DBS receiving antennas point southward and upward toward the geostationary arc. Northpoint proposes to reuse the spectrum by *utilizing northward pointing receive antennas* to receive its own signal.

Report and Order at ¶ 259 (emphasis added). The Commission went on to credit Northpoint's idea as "present[ing] a creative mechanism by which to receive greater use of a limited amount of spectrum, thus fostering spectrum efficiency." *Id.* Significantly, in its proposed rules for MVDDS, the Commission left no question that it was adopting the very scheme proposed by Northpoint, stating "we propose to require MVDDS transmitting antennas to . . . generally point *southward*." *Id.* at ¶ 315 (emphasis added).

Enter the MITRE Corporation, which was tasked by the Commission to perform the Congressionally mandated independent tests of MVDDS technology to determine whether such systems would cause impermissible harmful interference to incumbent DBS systems. While the Commission had found that the new service "can operate" in the DBS spectrum on a non-harmful interference basis, MITRE reached a different conclusion:

⁴ Northpoint Petition for Rulemaking at 4 (emphasis added).

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.

MITRE Test Report at xvi, 6-1 (emphasis added). MITRE further concluded that MVDDS/DBS bandsharing would not be possible at all in the absence of “suitable mitigation measures.” *Id.* at xvii, 6-1. But, as if to dispel any attempt to downplay its finding of a significant interference threat, MITRE left specifically open the question whether the benefits of *any* mitigation measure would outweigh its costs.

One of the mitigation measures listed in the report conveys MITRE's stunning discovery that the premise of this proceeding has been wrong all along:

*Pointing the MVDDS transmitting antennas **away from** the satellites, rather than toward them as generally envisioned, could have beneficial effects in many situations. . . . When the satellites are generally to the south and their elevation angle is reasonably high . . . dramatic improvements in interference protection appear possible when the MVDDS transmitting antenna points north. When satellite elevation angles are somewhat lower . . . the geometry is somewhat less favorable, but north-pointing seems to yield significant benefits in all locales where it has been simulated.*

MITRE Test Report at xviii, 6-2 (emphasis in original). Put simply, “north-pointing” is more beneficial in all locales where it has been tried, meaning that Northpoint's much touted “south-pointing” creates *worse interference* in all of those locales. The Commission has been misled, perhaps inadvertently, into believing that Northpoint has devised a “creative mechanism” for reducing interference. It should now reconsider its decision accordingly.

As for the cost-benefit comparison left open in the MITRE report, it is the key to understanding the discrepancy between the findings made by the Commission and those made by MITRE. The Commission rushed to the conclusion that a new service can share the spectrum with DBS, and that harmful interference “can be avoided through engineering techniques and regulatory safeguards.” *Report and Order* at ¶ 215. MITRE, on the other hand, questions whether any such measure is appropriate – whether its costs outweigh its benefits.

EchoStar will dwell on this question in more detail in its comments on MITRE's report, but a brief survey of MITRE's list shows the answer to be easy: the mitigation measures listed by MITRE are too costly to consumers and the public. Take the height of the transmit tower, for example. MITRE cautions that "substantial benefits may not accrue unless the tower height is at least 100, or perhaps even 200, meters above the level of DBS receiving antennas in the surrounding area." MITRE Test Report at 6-2. It does not take extensive analysis to conclude that the specter of thousands of skyscraper-size towers mushrooming throughout the country is an unacceptable mitigation technique, with the concerns that have hampered the siting of digital television towers magnified manifold.

In addition, the costs of other mitigation measures listed by Northpoint would be borne by the wrong party – the customer of the *primary* service. These include the options of replacing the DBS dish with a larger one, moving it to another spot on the consumer's roof, or shielding it. See *id.* at 6-4, 6-5. To entertain any such measures would be to toy with the consumer's rights: Northpoint would be trusted to explain to the DBS subscriber that he or she has a full right to say no to the suggested replacement, move or shielding, even though Northpoint would have the natural incentive to sell *its* service to the subscriber instead. Such visits would demote *de facto* to secondary status the primary DBS service in the band.

MITRE itself acknowledges the limited potential of several of its other listed mitigation measures.⁵ Significantly, there is no guarantee that *any* of the MVDDS operation or design-related mitigation measures will eliminate harmful interference to DBS systems, as MITRE qualifies its description of some of these measures as a means of only "reduc[ing]" harmful interference. *Id.* at 6-2. And MITRE

⁵ See, e.g., MITRE Test Report at 6-2, 6-3 (suggesting that adjusting the elevation tilt of the MVDDS transmitting antenna "may not be particularly effective;" that real-time power control might require "an elaborate monitoring system" and "worse, . . . would inevitably degrade MVDDS operations at the very times when it might be needed most;" and that even MITRE's "north-pointing" the MVDDS transmitter suggestion has drawbacks such as the possibility of actual physical damage to DBS receivers by placing a north-pointing antenna too close to receiver and its line of sight).

appears even less certain of the effectiveness of the design-related suggestions, stating that such changes “*might* reduce the interference impact on DBS downlinks.” *Id.* at 6-3 (emphasis added). In the end, MITRE leaves to the Commission the question of weighing “the impact of the residual MVDDS-to-DBS interference that might remain after applying such measures.” *Id.* at 6-1.

In sum, the Commission cannot reasonably go forward with the process of authorizing MVDDS-DBS band sharing in the face of an independent analysis concluding that harmful interference could result, and that the effectiveness of suggested mitigation measures is at best, questionable. This is especially true in light of evidence demonstrating the devastating, adverse effect that such interference would have on DBS subscribers and operators.⁶

The MITRE analysis ends not with an answer, but with a question. This question of costs versus benefits should be the beginning of the Commission’s inquiry into the feasibility of sharing. This is not a situation where the Commission can relegate a cost/benefit determination to a myriad of on-the-spot decisions throughout the nation. It is patently unreasonable for the Commission to proceed here leaving this fundamental question unaddressed.

II. THE INDEPENDENT TESTS DEMONSTRATE THE INCONSISTENCY OF THE COMMISSION’S ORDER WITH STATUTORY DIRECTIVES

In concluding that the new service would not cause harmful interference to DBS operations, the Commission ignored the results of tests conducted by DBS operators demonstrating that harmful interference to DBS would in fact result from MVDDS operations in the 12 GHz band, did not consider whether the proposed service could meet even the liberal theoretical interference limits proposed

⁶ See EchoStar Reply Comments at 2-5 (survey reflects that more than one-quarter of current DBS subscribers would take the drastic step of canceling their DBS service in response to more frequent picture loss, nearly one-fifth would respond in this manner to more frequent freeze-framing or tiling, and of the subscribers who would likely cancel their service, more than half would migrate to cable).

by the Commission, and even ignored its own repeated holdings that co-frequency sharing between ubiquitous satellite and terrestrial services is not feasible. See EchoStar Satellite Corporation's Petition for Reconsideration (filed Mar. 19, 2001), at 3-4. The Commission also ignored calls for independent tests, declaring that "we do not find that further independent testing, as suggested by DIRECTV and EchoStar, would yield any further useful information. . . . We find that there is an ample record to analyze the interference scenario between MVDDS and DBS operations." *Report and Order* at ¶ 215.

The Commission, however, cannot ignore Congress. The Commission acknowledged that the Rural Local Broadcast Signal Act, Pub. L. No. 106-113, Title II, 113 Stat. 1501, 1501A-544, which it cited as a basis for its decision to authorize MVDDS operation, see *Report and Order*, at 100 n.548, requires the Commission to ensure that "no facility licensed or authorized to deliver local broadcast television signals 'causes harmful interference to the primary users of that spectrum. . . ." *Id.* Moreover, Congress subsequently enacted a statute requiring:

[a]n independent technical demonstration of any terrestrial service technology. . . . in the direct broadcast satellite frequency band to determine whether the terrestrial service technology proposed to be provided by that entity will cause harmful interference to any direct broadcast satellite service.

Prevention of Interference to Direct Broadcast Satellite Services," Section 1012(b), Pub. L. No. 106-553, 114 Stat. 2762, 2762A-344 (2000). Implicit in this statutory directive, as Northpoint has recognized, is "the need for each proposed technology to demonstrate non-interference" as "not just a practical necessity but a *specific statutory command* contained in Section 1012 of Public Law No. 106-553." Northpoint Opposition at 17 (footnote omitted, emphasis added). Accordingly, by Northpoint's own reckoning, the proponent of a terrestrial technology cannot be licensed to operate *unless and until* it demonstrates its ability to operate without causing harmful interference to DBS. *Id.* at 18 ("if . . . [a] company ever proves to the Commission's satisfaction that its technology can share the band . . . , then it, too, should be eligible for a

license *But not before.*" (emphasis added). The Commission's decision to license MVDDS was based on Northpoint's proposal, and the independent tests reveal that Northpoint's system has failed to demonstrate an ability to operate without causing harmful interference to DBS. Accordingly, there is no longer any question that the Commission's decision to allow MVDDS to share DBS spectrum contravenes statutes prohibiting the authorization of any service that causes harmful interference to primary users of spectrum generally, and DBS in particular. And for the same reasons, any Commission decision to license Northpoint would be contrary to law.

III. CONCLUSION

The results of Congressionally-mandated independent tests directly contradict the Commission's finding in the *Report and Order* that MVDDS can share the 12 GHz band without creating harmful interference to DBS. Moreover, it is clear that the fundamental question of whether the costs of bandsharing outweigh any benefits, which should *precede* any decision of this nature, remains unaddressed here. And the Commission's authorization of a secondary service that causes harmful interference to DBS is contrary to law as well as to the public interest. For these reasons, the Commission should reverse its decision regarding spectrum sharing.

Respectfully submitted,

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Dated: May 9, 2001

CERTIFICATE OF SERVICE

I, Rhonda M. Bolton, hereby certify that copies of the foregoing Reply were served this 9th day of May 2001 by hand delivery (indicated by *) or first-class United States mail, postage prepaid, upon the following:

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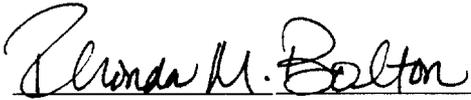
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