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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

May 24, 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*

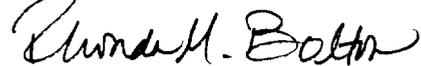
Dear Ms. Salas:

An error appears on page 12 of EchoStar Satellite Corporation's Reply Comments on the MITRE Corporation Report, filed on May 23, 2001 in the above-referenced matter. In the 11th line of page 12, "3.7 dB" should replace "3.7 dbw." For your convenience, eight copies of a corrected version of EchoStar's Reply Comments are attached (four copies for ET Docket No. 98-206 and two copies each for RM-9147 and RM-9245).

Also enclosed is an additional copy of the corrected version of EchoStar's Reply Comments 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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in the Ku-Band Frequency Range;)

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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

**COMMENTS OF ECHOSTAR SATELLITE CORPORATION
ON THE MITRE CORPORATION REPORT**

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May 23, 2001

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SUMMARY

While Northpoint Technology Ltd. (“Northpoint”) would have the Commission believe that it “need no longer concern itself with . . . arguments over whether sharing of the spectrum is feasible” based on MITRE’s report,¹ that view is strangely inconsistent with the actual words of MITRE.² MITRE found that the new service poses a risk of significant interference, concluding 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 No matter how much Northpoint tries to downplay that stark finding, the Commission cannot lightly disregard it and conclude, as Northpoint would have it, that the MITRE report stands effectively for the opposite.

The MITRE Report also concluded that band sharing “appears feasible *if and only if* suitable mitigation measures are applied.”⁴ Northpoint latches onto the “appears feasible” snippet from that sentence, and disregards completely what follows: the all-important condition. That condition, however, is where MITRE was careful to place *its* emphasis: sharing is feasible not just “if,” but “if and only if” suitable mitigation measures are applied. Equally important, MITRE pointed out that “residual interference” would remain even with the mitigation measures

¹ See Comments of Northpoint Technology Ltd. and Broadwave USA, Inc. on MITRE Corporation Report (dated May 15, 2001), at 4 (“Northpoint Comments on MITRE Report”). Northpoint Technology Ltd. and Broadwave USA, Inc. are referred to here collectively as “Northpoint.”

² “MITRE Technical Report: Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band,” MITRE Corporation, April 2001 (“MITRE Report”).

³ MITRE Report at xvi and 6-1 (emphasis added).

⁴ *Id.* at xvii and 6-1 (emphasis added).

it identified, and left explicitly open the question of whether *any* mitigation measures are appropriate:

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?

Whatever parts of the MITRE report one chooses to emphasize, this is definitely not a blessing of a new terrestrial service in a frequency band used by 15 million households. At the very most, it should be the beginning of a careful reevaluation of the burdens that a new service would pose for the primary users of the band. MITRE's question reaches the heart of the feasibility issue. Northpoint appears to acknowledge as much, agreeing that "[t]here has never been any question that the *threat* of interference exists," and stating further that "[t]he question has instead been whether any technology is available to reduce or eliminate that threat."⁵ Northpoint, however, treats mitigation as a simple and minor matter. The Commission too simply presumed in its *Report and Order* that practical, cost-effective mitigation techniques exist that would easily make band sharing feasible. The MITRE Report teaches at a minimum that, in light of the threat of significant interference, the Commission should evaluate *whether* there are suitable mitigation methods, not presume that there are.

In EchoStar's view, the answer to the question left open by MITRE is evident from MITRE's Report: the mitigation measures that might make sharing "feasible" according to MITRE's analysis are too costly, and in many cases MITRE itself expresses doubts about their effectiveness. Equally important, the costs of many of those measures would unacceptably be

⁵ Northpoint Comments on MITRE Report at 5 (emphasis in original).

borne by the wrong person – the DBS consumers who would have to put up with replacing, moving, or covering their dish, and the communities all over the country that would have to live with thousands of skyscraper-high towers. And they would also be inconsistent with MITRE’s own view that mitigation should be proactive (i.e., not await consumer complaints) and that, “[t]o the maximum extent possible, mitigation should be accomplished *prior* to a license being granted for MVDDS operation.”⁶ If mitigation is ineffective or too costly, sharing is not, in actuality, feasible. Yet, Northpoint says nothing in response to the MITRE Report to address these problems, and the Commission has never addressed them.

Even more mystifying, however, Northpoint depicts the MITRE report as a blessing of *its own* technology. Again, MITRE’s words are completely at odds with Northpoint’s wishful interpretation of them. In fact, MITRE found that Northpoint’s idea for reducing interference in this spectrum (southpointing transmit antennas and northpointing receive antennas) *aggravates* interference instead of alleviating it. See MITRE Report at xviii, 6-2 (emphasis in original).

In its bizarre annotation of MITRE’s report, Northpoint obliquely comments on this passage that MITRE’s suggestion of south-pointing receivers is covered by Northpoint’s patents. This is not accurate, as SBCA explains in its Reply Comments filed today. In addition, however, MITRE’s suggestion is precisely the opposite from the idea that Northpoint has trumpeted to the Commission and that has been the impetus for this proceeding.

⁶ MITRE Report at 6-8 (emphasis added).

In sum, the lesson from the MITRE report is that, at most, the Commission should take a step back and coolly reevaluate its initial conclusion in this proceeding. The report cannot rationally be read by anyone, no matter how partisan, as supporting Northpoint’s “clarion call” reading of “net, net: license Northpoint.”⁷

⁷ Northpoint Technology, Annotated Version of MITRE Technical Report – Abstract and Executive Summary (dated Apr. 25, 2001), appended to Letter from Sophia Collier and George “Chip” Tangen, Broadwave USA, to Members of Congress (dated Apr. 30, 2001) as Attachment 2.

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A Fixed Service in the 12.2-12.7 GHz Band)	
)	

To: The Commission

**REPLY COMMENTS OF ECHOSTAR SATELLITE CORPORATION
ON THE MITRE CORPORATION REPORT**

EchoStar Satellite Corporation ("EchoStar") hereby submits its reply comments on the MITRE Corporation Report entitled "Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band."¹ While Northpoint Technology Ltd. ("Northpoint") would have the Commission believe that it "need no longer concern itself with . . . arguments over whether

¹ "MITRE Technical Report: Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band," MITRE Corporation, April 2001 ("MITRE Report"). MITRE Corporation was tasked by the Commission to perform the congressionally mandated independent tests of Multichannel Video Distribution and Data Service ("MVDDS") technology to determine whether such systems would cause interference to incumbent DBS systems, pursuant to "Prevention of Interference to Direct Broadcast Satellite Services," Section 1012(b), Pub. L. No. 106-553, 114 Stat. 2762, 2762A-344 (2000).

sharing of the spectrum is feasible” based on MITRE’s report,² that view is strangely inconsistent with the actual words of MITRE. MITRE found that the new service poses a risk of significant interference, concluding 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 No matter how much Northpoint tries to downplay that stark finding, the Commission cannot lightly disregard it and conclude, as Northpoint would have it, that the MITRE report stands effectively for the opposite.

The MITRE Report also concluded that band sharing “appears feasible *if and only if* suitable mitigation measures are applied.”⁴ Northpoint latches onto the “appears feasible” snippet from that sentence, and disregards completely what follows: the all-important condition. That condition, however, is where MITRE was careful to place *its* emphasis: sharing is feasible not just “if,” but “if and only if” suitable mitigation measures are applied. Equally important, MITRE pointed out that “residual interference” would remain even with the mitigation measures it identified, and left explicitly open the question of whether *any* mitigation measures are appropriate:

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

² See Comments of Northpoint Technology Ltd. and Broadwave USA, Inc. on MITRE Corporation Report (dated May 15, 2001), at 4 (“Northpoint Comments on MITRE Report”). Northpoint Technology Ltd. and Broadwave USA, Inc. are referred to here collectively as “Northpoint.”

³ MITRE Report at xvi and 6-1 (emphasis added).

⁴ *Id.* at xvii and 6-1 (emphasis added).

the benefits that would accrue from allowing MVDDS to coexist with DBS in this band?⁵

Whatever parts of the MITRE report one chooses to emphasize, this is definitely not a blessing of a new terrestrial service in a frequency band used by 15 million households. At the very most, it should be the beginning of a careful reevaluation of the burdens that a new service would pose for the primary users of the band. MITRE's question reaches the heart of the feasibility issue. Northpoint appears to acknowledge as much, agreeing that "[t]here has never been any question that the *threat* of interference exists," and stating further that "[t]he question has instead been whether any technology is available to reduce or eliminate that threat."⁶ Northpoint, however, treats mitigation as a simple and minor matter. The Commission too simply presumed in its *Report and Order* that practical, cost-effective mitigation techniques exist that would easily make band sharing feasible.⁷ The MITRE Report teaches at a minimum that, in

⁵ *Id.* That statement is enough by itself to belie Northpoint's argument that MITRE was "confident about the efficacy of these mitigation techniques." Northpoint Comments on MITRE Report at 5. And MITRE pointedly expressed doubt about the mitigation measures it suggested. *See* MITRE Report at 6-2 (qualifying its description of some of these measures as a means of only "reduc[ing]" harmful interference). *See also id.* at 6-3 (MITRE appears even less certain of the effectiveness of the design-related suggestions, stating that such changes "*might* reduce the interference impact on DBS downlinks.") (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. It is clear, therefore, that MITRE listed the mitigation measures and discussed the licensing process not as a recommendation, but rather as an illustrative framework for the Commission's further evaluation of the feasibility of band sharing. Nor could it be otherwise: neither the mitigation process, nor the licensing process is described as part of a task assignment or task objective in Section 1 of MITRE's report, thus MITRE was not tasked by the Commission with either of these duties.

⁶ Northpoint Comments on MITRE Report at 5 (emphasis in original).

⁷ The Commission concluded that harmful interference "can be avoided through engineering techniques and regulatory safeguards." *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*

(Continued ...)

light of the threat of significant interference, the Commission should evaluate *whether* there are suitable mitigation methods, not presume that there are.

In EchoStar’s view, the answer to the question left open by MITRE is evident from MITRE’s Report: the mitigation measures that might make sharing “feasible” according to MITRE’s analysis are too costly, and in many cases MITRE itself expresses doubts about their effectiveness. Equally important, the costs of many of those measures would unacceptably be borne by the wrong person – the DBS consumers who would have to put up with replacing, moving, or covering their dish, and the communities all over the country that would have to live with thousands of skyscraper-high towers. And they would also be inconsistent with MITRE’s own view that mitigation should be proactive (i.e., not await consumer complaints) and that, “[t]o the maximum extent possible, mitigation should be accomplished *prior* to a license being granted for MVDDS operation.”⁸ If mitigation is ineffective or too costly, sharing is not, in actuality, feasible. Yet, Northpoint says nothing in response to the MITRE Report to address these problems, and the Commission has never addressed them.

Even more mystifying, however, Northpoint depicts the MITRE report as a blessing of *its own* technology. Again, MITRE’s words are completely at odds with Northpoint’s wishful interpretation of them. In fact, MITRE found that Northpoint’s idea for

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, 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), at ¶¶ 1, 215 (“*Report and Order/FNPRM*”).

⁸ MITRE Report at 6-8 (emphasis added).

reducing interference in this spectrum (southpointing transmit antennas and northpointing receive antennas) *aggravates* interference instead of alleviating it:

*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 Report at xviii, 6-2 (emphasis in original).

In its bizarre annotation of MITRE's report, Northpoint obliquely comments on this passage that MITRE's suggestion of south-pointing receivers is covered by Northpoint's patents. This is not accurate, as SBCA explains in its Reply Comments filed today. In addition, however, MITRE's suggestion is precisely the opposite from the idea that Northpoint has trumpeted to the Commission and that has been the impetus for this proceeding.

In sum, the lesson from the MITRE report is that, at most, the Commission should take a step back and coolly reevaluate its initial conclusion in this proceeding. The report cannot rationally be read by anyone, no matter how partisan, as supporting Northpoint's "clarion call" reading of "net, net: license Northpoint."⁹

⁹ Northpoint Technology, Annotated Version of MITRE Technical Report – Abstract and Executive Summary (dated Apr. 25, 2001), appended to Letter from Sophia Collier and George "Chip" Tangen, Broadwave USA, to Members of Congress (dated Apr. 30, 2001) as Attachment 2.

I. NORTHPOINT’S CONTENTION THAT MANY OF THE SUGGESTED MITIGATION MEASURES ARE PART OF ITS TECHNOLOGY IGNORES MAJOR HURDLES DEMONSTRATED BY MITRE THAT PRECLUDE SHARING

Northpoint states, in a conclusory fashion, that each of the design and operational mitigation measures suggested by MITRE are “a feature of Northpoint’s technology,” typically by claiming that the measures are contemplated under patents held by Northpoint, or that Northpoint has already demonstrated the mitigation technique.¹⁰ However, whether the techniques have already been contemplated by Northpoint misses the point. The issues raised by MITRE, which the Commission must now consider, are first, whether these mitigation techniques are actually effective, second, whether they are practical, and third, whether the techniques are so costly compared to any possible benefits, as to render the service infeasible.¹¹ The record is bereft on all of these issues.

Instead, Northpoint essentially says, in response to each of MITRE’s suggested mitigation techniques “yes, we thought about that.” For example, when MITRE explains that it found that Northpoint’s idea (southpointing transmitters, northpointing receivers) *aggravates* interference, and that the opposite of Northpoint’s idea reduces it, Northpoint’s oblique response is only “Northpoint’s patents cover the geometry MITRE describes.”¹² Northpoint does not have

¹⁰ See Northpoint Comments on MITRE Report at 8. As SBCA explains in its Reply Comments, it is fairly simple to see from Northpoint’s patents that even under the most liberal reading of the patents, there is a significant question as to whether the patent can reasonably be read to encompass all of the techniques claimed by Northpoint.

¹¹ The equally important issue of whether certain techniques are consistent with the law is discussed below.

¹² Northpoint Comments on MITRE Report at 8.

one word to explain the fact that the MITRE statement thoroughly debunks the idea on which it has hitherto based its entire campaign and touted as a panacea for all interference problems in the band. Nor does Northpoint have a comment on the fact that MITRE questions the effectiveness of even that suggestion. Specifically, Northpoint states that, while better than Northpoint's suggestion, even "north-pointing" of MVDDS transmitters will create its own host of interference problems, particularly because such systems would introduce signals closer to the boresight of DBS antennas.¹³ MITRE admits further that it did not "validate" this concept, meaning there is no evidence that such a system would actually work in practice.¹⁴

As another example, MITRE questions the practicality of real-time power control, noting that it "might require an elaborate monitoring system. Worse, it would inevitably degrade MVDDS operation at the very times when it might be needed most (i.e., when DBS downlinks were shut down by heavy rain)."¹⁵ Northpoint's response disregards those cautions: "Northpoint holds the patent on this technique."¹⁶ In a further example, MITRE questions in essence the cost to the public of increasing the terrestrial antenna height to "at least 100, or perhaps even 200, meters above the level of DBS receiving antennas in the surrounding area" as a mitigation technique, pointing out that "fully utilizing this particular degree of freedom might be controversial in many locales."¹⁷ Northpoint's explanation of how this mitigation technique will

¹³ See MITRE Report at 6-3 (describing "caveats" about MITRE's suggestion).

¹⁴ See *id.* at xviii, and 6-3.

¹⁵ MITRE Report at 6-3.

¹⁶ Northpoint Comments on MITRE Report at 8.

¹⁷ MITRE Report at 6-2.

be applied in practice makes short shrift of the public's well-documented unwillingness to bear the environmental and aesthetic costs of towers even shorter than what MITRE proposes:

"Northpoint documented this technique years ago."¹⁸

Northpoint likewise provides no "concrete and technology-specific demonstration" of the effectiveness, practicality and cost-effectiveness of any of the other mitigation techniques suggested by MITRE although Northpoint admits that such a showing of this nature is necessary in this proceeding.¹⁹ Nor has *anyone* dealt with the concern raised by non-geostationary fixed satellite service ("NGSO FSS") operators that the proposed MVDDS-DBS interference mitigation techniques will in turn exacerbate MVDDS interference with NGSO FSS systems.²⁰

Merely *considering* a mitigation technique is not enough here, because the reliance on this band by millions of consumers for their DBS service is what is at stake. The techniques must be demonstrably effective and practical, and the costs must not outweigh any potential benefit of band sharing. This demonstration has not been made because it cannot be made; the mitigation measures that would be required under MITRE's analysis to make sharing feasible are of unproven effectiveness, impractical and too costly to consumers. It follows that sharing is not, in actuality, feasible, and should not be authorized by the Commission.

¹⁸ Northpoint Comments on MITRE Report at 8.

¹⁹ Northpoint Comments on MITRE Report at 6.

²⁰ See Comments of the Boeing Company [on the MITRE Report] (dated May 15, 2001).

II. THE LEGALITY OF MITIGATION AT THE DBS CUSTOMER PREMISES, SEEMINGLY THE MOST EFFECTIVE MITIGATION MEASURE, IS ALSO LEFT UNADDRESSED

Both MITRE and Northpoint have acknowledged that, in their view, mitigation involving MVDDS design and operational parameters would probably not be completely effective, suggesting that mitigation at the DBS customer premises may prove to be the most effective means of mitigation.²¹ But as EchoStar has explained throughout this proceeding, this means of mitigating harmful interference would be inconsistent with the primary allocation of the band to DBS, as it would effectively demote to secondary status the primary service in the band.²² Northpoint has never rebutted this point.

It is the DBS 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

²¹ See Northpoint Comments on MITRE Report at 5 “(If these off-site techniques do not completely eliminate the zone of potentially harmful interference with DBS, MITRE found that simple on-site mitigation techniques like moving the DBS receiving dish or adding a small clip-on shield can be effective.”) (citing MITRE Report at § 6.2.3, at 6-4 to 6-5). See also note 5, *supra*.

²² The suggestion made by Pegasus that DBS service providers be held physically responsible for implementation of mitigation at the DBS customer premises, while making MVDDS operators financially responsible, does not comport with the law, as it still renders DBS secondary in the 12 GHz band. See Comments of Pegasus Broadband Corporation to MITRE Report (dated May 15, 2001), at 7. First, this proposal does not take one iota away from the non-monetary hardship and inconvenience to be suffered by the consumer. Second, such a scheme would invite MVDDS service providers to dispute both the costs and necessity of mitigation performed by DBS operators, which MVDDS service providers will have *no* incentive to resolve. The result will be endless disputes, with DBS customers and the quality of their service caught in the middle. MVDDS providers in the meantime will happily offer their services to DBS customers as an alternative to the interminable dispute that MVDDS providers themselves have perpetuated.

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. Nor does Northpoint persuasively rebut the point that consumers will likely not tolerate such an intrusion unless they are misled to believe that they must. In other words, this type of “mitigation” is a smokescreen for making consumers of a primary subscription service mistakenly believe they have to accommodate a secondary service. This would deprive the primary users of this band of their rights, and the Commission should not permit it.

III. ADDITIONAL COMMENTS ON TECHNICAL ISSUES

A. Increase in DBS Unavailability

Northpoint states that it believes that a “20 dB C/I ratio would be sufficient to protect DBS.”²³ Leaving aside the fact that a percentage increase in unavailability (not a C/I ratio) is the appropriate criterion to employ here as EchoStar has consistently maintained, a 20 dB C/I ratio provides nowhere near sufficient protection, as it would be added to existing crosspole and adjacent satellite degradations. Moreover, this figure is also unrealistic and short-sighted because it fails to account for the degradation that may be expected once DBS deploys spot beam satellites. The potential for further degradation exists from the spot beams into CONUS beams due to the effect of adjacent satellites. EchoStar predicts that the degree of this further degradation may be such that a 20 dB C/I ratio will not be sufficient to protect DBS.

²³ Northpoint Comments on MITRE Report at 6, n.12.

B. DBS Quasi-Error Free C/N Requirement

The information relied upon by Northpoint in its discussion of video compression is woefully outdated. Northpoint attempts to make the case that the definition MITRE chose for unacceptable video performance is really “controlled” by the improper encoding levels that DBS operators employ.²⁴ Northpoint notes that the random pixilization that was used to determine interference threshold was really an encoding artifact. This is simply not true. In the early days of DBS, fixed rate encoding was used. This could give rise to occasional "compression artifacts" when the bit rate was starved. DBS traded off what were believed to be safe encoding rates versus number of channels in a transponder. However, for the last few years, and certainly for the duration of MITRE’s tests, both Echostar and, on information and belief, DirecTV have used a technique called Statistical Multiplexing. There is no longer a fixed-rate compression and virtually *all* of the occasional compression artifacts have been eliminated. EchoStar sets minimum and maximum levels for the Statistical Multiplexing encoder, and the maximum rate is set quite high (on the order of 8-9Mb/s) to ensure excellent video reproduction. This means any channel in the Statistical Multiplexing pool can command and obtain this high bit rate instantaneously. Since the normal average bit rate per channel is on the order of 2-3 Mb/s, the statistical effect comes into play in that not all channels will command the high instantaneous data rate at the same time, thereby evening out the peak demands. Thus, Northpoint’s discussion of video compression is completely irrelevant to today's state of the art video compression equipment actually in use.

²⁴ See Technical Appendix to Comments of Northpoint Technology, Ltd., and Broadwave USA, Inc., on MITRE Report at (“Northpoint Technical App.) at Section 3.3.

C. C/N Requirement for DBS Outage

Northpoint claims that the MITRE conversion of Eb/No to C/N appears flawed.²⁵

It is Northpoint, however, and not MITRE that has erred. Northpoint's analysis here also evidences a lack of understanding of MPEG data formats. The framing efficiency stated is correct at 0.92, not the 0.995 that Northpoint suggests. This is a simple mathematical computation and is derived from EchoStar's Reed-Solomon ("RS") outer forward error correcting code. Echostar uses an RS code based on 188 data bytes and 16 error correction bytes. The total transmitted bytes in a frame is therefore 204. The framing efficiency is then $188/204 = 0.9215$. The meaning of the data in Table 5 of section 3.4 of Northpoint's technical discussion is also impossible to decipher. It is not possible for an Echostar code rate 3/4 transmission to operate at C/N values as low as 4.1dB as Northpoint suggests. This implies an Eb/No value of about 3.7 dB, well below the theoretical point at which a code of this rate will operate. In sum, EchoStar believes that none of the adjustments to MITRE calculations that are suggested by Northpoint are necessary or appropriate.

D. Northpoint's Comments Regarding MITRE Appendix B

Northpoint asserts that it provides a "critical[]" examination of the contour data in Appendix B of MITRE's report, but this so-called critical examination is lacking in several respects.²⁶ For example, Northpoint questions the accuracy of the interference zones predicted by MITRE, characterizing the contours as "non-optimized" because they fail to account for

²⁵ Northpoint Technical App. at 10.

²⁶ *See id.* at Section 3.2

Northpoint's ability to position antennas at will to correct any such zones.²⁷ However, Northpoint's claim is unrealistic, as Northpoint clearly will not be at liberty to put 200-meter tall towers in any and every place it deems necessary to make such corrections. In addition, Northpoint suggests that it has always maintained that pointing transmit antennas north is an effective mitigation technique. But as EchoStar has already pointed out, this suggestion is inaccurate. Northpoint built its campaign on its "innovative" idea that southpointing antennas would cure all of the interference problems in this band, a myth that has been debunked by MITRE.

Finally, Northpoint uses a baseline outage of 24-hrs./year, which corresponds to the 99.7% availability number that, as EchoStar and DIRECTV have repeatedly explained, is an old, outdated prediction based on analog services predating DBS.²⁸ EchoStar has previously pointed out that in several areas of the country, the level of DBS availability is closer to the 99.90 - 99.95% range.²⁹ At these levels, the yearly outage is between 4.3 and 8.7 hours. The difference between 99.7% and the actual 99.90 - 99.95% availability range may appear small, but in reality it is not; a contour of 0.3 hr./year is significant here, as it translates to a 6.8% unavailability increase for a 99.95% availability and a 3.4% increase for 99.90% availability.

²⁷ *See id.*

²⁸ *See, e.g.*, Rebuttal to Northpoint's Evaluation and Analysis of DBS-Terrestrial Compatibility Testing at Oxon Hill, Maryland, Ex Parte Submission by DIRECTV, Inc. and EchoStar Satellite Corporation (dated Sept. 2000), at 3-4.

²⁹ *See, e.g.*, Report of Interference Impact on DBS Systems from Northpoint Transmitter Operating at Oxon Hill, MD, Ex Parte Submission by DIRECTV, Inc. and EchoStar Satellite Corp., (dated July 25, 2000).

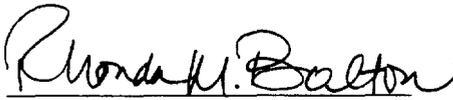
Both of these scenarios, of course, represent an increase in unavailability greater than the 2.86% proposed by the Commission in the *Report and Order/FNPRM*.³⁰

IV. CONCLUSION

The MITRE Report raises pivotal questions regarding the feasibility of sharing, including the effectiveness, practicality and cost of mitigation, which Northpoint and the Commission agree is necessary to make sharing possible in their view. Although neither Northpoint nor the Commission has addressed these questions, the answer is straightforward: mitigation is of questionable effectiveness, impractical, and the costs to consumers would far outweigh any benefits from having MVDDS co-exist with DBS in the 12 GHz band. For this reason, the Commission must act on MITRE's findings and reverse its decision regarding spectrum sharing.

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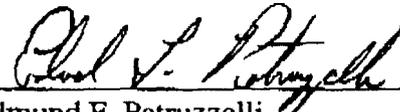
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Dated: May 23, 2001

³⁰ See *Report and Order and FNPRM* at ¶ 268 (calling for “a percentage of DBS unavailability that MVDDS would be permitted to cause to any DBS subscriber” to be “the same as a single NGSO FSS system, i.e., 2.86% of current unavailability.”).

**CERTIFICATION OF PERSON RESPONSIBLE FOR
PREPARING ENGINEERING INFORMATION**

I hereby certify that I am the technically qualified person responsible for preparation of the engineering information contained in the foregoing submission, that I am familiar with Parts 25 and 100 of the Commission's rules, that I have either prepared or reviewed the engineering information submitted in this pleading, and that it is complete and accurate to the best of my knowledge and belief.



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CERTIFICATE OF SERVICE

I hereby certify that on this 24th day of May 2001, a true and correct copy of the foregoing corrected pleading was served via hand delivery or U.S. mail (indicated by *) upon the following:

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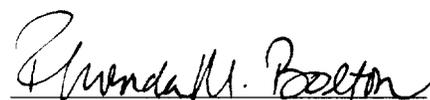
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