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

In the Matter of	)	
	)	
Amendment of Parts 2 and 25 of the	)	ET Docket No 98-206
Commission's Rules to Permit Operation	)	RM-9147
of NGSO FSS Systems Co-Frequency with	)	RM-9245
GSO and Terrestrial Systems in the Ku-	)	
Band Frequency Range	)	DA 01-933
	)	
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	)	

REPLY COMMENTS OF THE SATELLITE BROADCASTING AND COMMUNICATIONS ASSOCIATION ON THE MITRE REPORT

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REPLY COMMENTS OF THE SATELLITE BROADCASTING AND COMMUNICATIONS ASSOCIATION ON THE MITRE REPORT

The Satellite Broadcasting and Communications Association ("SBCA"), by its attorneys and pursuant to the Public Notice released by the Commission on April 23, 2001,[1] hereby submits these Reply Comments on the MITRE Corporation's *Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band*.[2]

[1] FCC Public Notice, *Comments Requested on the MITRE Corporation Report on Technical Analysis of Potential Harmful Interference to DBS from Proposed Terrestrial Services in the 12.2-12.7 GHz Band (ET Docket 98-206)*, DA 01-933 (April 23, 2001).

[2] SBCA's Reply Comments are limited to major policy issues raised by the MITRE Report. SBCA directs the Commission to the reply comments being filed concurrently by its members, including DIRECTV, Inc. and Echostar Satellite Corporation, for a detailed discussion of the technical issues raised by the MITRE Report. In addition, to the extent any issues raised in the MITRE Report are addressed by SBCA's previous filings in this proceeding, SBCA hereby incorporates such filings in these comments.

I. INTRODUCTION AND SUMMARY

Over the past two decades, the Commission and Congress have nurtured Direct Broadcast Satellite ("DBS") service as the best hope for opening the multichannel video programming distribution markets to real competition. During this time, the Commission developed a spectrum management policy for the 12.2-12.7 GHz ("12 GHz") band that established competition among DBS providers and between DBS and other multichannel video programming distribution services. A principal element of this policy -- codified at section 101.147(p) of the Commission's rules, 47 C.F.R. § 101.147(p) -- is that DBS is given priority status in the 12 GHz band with respect to fixed terrestrial services.

As a result of the Commission's policies, DBS has become, in the words of the Commission, "the principal competitor of cable television service . . ."[3] in the video programming distribution market and has enormous potential to be the premier provider of ubiquitous and sophisticated broadband services as well. Indeed, one of the primary benefits of DBS -- a benefit that derives from its satellite architecture -- is that it can and does reach nearly every American home with a high quality digital signal, including homes in remote, rural and underserved areas that otherwise would not receive *any* broadcast or advanced services.

The technical superiority of DBS has been emphatically recognized by the Commission. For example, the Commission noted in its Sixth Annual Report on the status of competition in the multichannel video programming distribution markets, "DBS subscribers continue to report higher levels of customer satisfaction over cable," adding that "[a]ccording to surveys of DBS subscribers, the primary advantages of DBS are superior channel capacity [], digital quality

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[3] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Seventh Annual Report, CS Docket No. 00-132, FCC 01-1, at ¶ 61 (Jan. 8, 2001).

picture, CD-quality sound, and specialized programming such as exclusive sports packages."[4] Congress likewise has consistently fostered and championed DBS as the chief competitor to cable and, as the authorizing legislation which led to the MITRE Report makes clear,[5] does not intend for DBS operations to be jeopardized by harmful interference simply for the sake of authorizing yet another terrestrial video distribution service.

In authorizing MVDDS, the Commission has reversed over two decades of spectrum management policy and placed into jeopardy the lone established competitor to incumbent cable monopolists. Specifically, in authorizing MVDDS, the Commission has authorized a ubiquitous terrestrial service that, in the form of Northpoint's proposed system, would cause harmful interference to priority DBS service operations in the 12 GHz band. Moreover, the Commission has authorized MVDDS on a non-interference basis, knowing full well that harmful interference is an elemental aspect of Northpoint's MVDDS design, but based on the assumption that unproven, after-the-fact interference mitigation measures could be developed and implemented to lessen the harmful interference that MVDDS will cause to DBS operations. By this action, the Commission has turned this proceeding and the 12 GHz band into a laboratory for spectrum-sharing experimentation that threatens the viability of the one and only service that is not only the primary competitor to cable, but is also the holder of priority band rights in the 12 GHz band. What makes this situation so exasperating is that this experimentation is entirely unnecessary, because there is ample alternative spectrum which has already been allocated for the identical purpose of providing point-to-multipoint video programming and data services, such as the 2.5

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[4] *Annual Assessment of the Status of Competition in the Market for the Delivery of Video Programming*, Sixth Annual Report, 15 FCC Rcd 978, 1012 (2000).

[5] Section 1012, Prevention of Interference to Direct Broadcast Satellite Services, of the Commerce, Justice, State and Judiciary Appropriations Act, H.R. 5548, Pub. L. No. 106-553, 114 Stat. 2762A-141 (2000).

GHz band allocated to Multichannel Multipoint Distribution Service ("MMDS"), the 24 GHz band allocated to Digital Electronic Message Service ("DEMS"), the 28 GHz band allocated to Local Multipoint Distribution Service ("LMDS") and the 39 GHz band.

The comments filed by Northpoint Technology, Ltd. ("Northpoint") attempt to address this reality by arguing that the various mitigation measures outlined in the MITRE Report are not untested and unproven but rather are contemplated by its patents. As demonstrated below, however, Northpoint's patents are general method patents, the central feature of which -- the much-ballyhooed "south-pointing" transmission into "north-pointing" receivers -- has been shown by the MITRE Report's findings to be no more (and often less) effective than north-pointing the transmitter. Moreover, many of the potential mitigation measures suggested by Northpoint and MITRE involve unacceptable retrofitting or other alterations of DBS consumers' private property, which, if authorized, would be tantamount to a *de facto* conversion of DBS into a secondary service.

II. THE MITRE REPORT DEMONSTRATES THAT THE COMMISSION LACKS AN ADEQUATE BASIS FOR AUTHORIZING MVDDS IN THE 12 GHZ BAND

The defining characteristic of this proceeding and of the filings that led to its commencement has been the cavalier treatment of the interference that would be caused to DBS operations if MVDDS is allowed to operate in the 12 GHz band. The Commission has consistently asserted that DBS operations must be protected from MVDDS interference, yet at the same time has acknowledged that Northpoint's MVDDS design would cause unacceptable interference to DBS operations in areas around Northpoint's transmitters. The MITRE Report confirms that Northpoint's system would cause "significant interference" to DBS operations and concludes that DBS "sharing" of the 12 GHz band with Northpoint's MVDDS system is not feasible absent mitigation measures, which may be prohibitively expensive and, more

importantly, may leave residual MVDDS-to-DBS interference unremedied.[6] Northpoint attempts to deflect the impact of the MITRE Report's conclusions by recasting the MITRE Report and this proceeding as an examination into "whether any technology is available to reduce or eliminate" the "threat" its system poses to DBS.[7] This merely begs the central question: Why, if Northpoint's "patented technology" is such a breakthrough, are extensive mitigation measures necessary to ensure that "sharing" is even feasible. The answer is quite simple: As currently designed, Northpoint's proposed system would cause actual harmful interference to DBS operations.

The Commission's sole basis for authorizing MVDDS was the test reports and other filings supplied by Northpoint. However, the MITRE Report, which was released after the *First Report and Order*, raises substantial doubts as to the efficacy of central features of Northpoint's system by proposing such mitigation measures as raising the MVDDS transmitter as high as 200 meters *above* the height of DBS receive antennas and directing the MVDDS transmitters northward rather than southward, thus negating Northpoint's eponymous claim to fame. Northpoint has responded by claiming that each of the mitigation measures involving terrestrial operational and design parameters is a "feature" of its technology and that some of these measures are covered by its patents. In reality, Northpoint's patents are method patents which are so broadly drafted that they could encompass virtually any terrestrial operation in any satellite band and virtually any mitigation measure. For example, the '834 patent[8] describes a method for transmitting terrestrial signals over satellite frequencies, the basic premise of which is

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6 MITRE Report at xvii, 6-1.

7 Comments of Northpoint Technology, Ltd. and Broadwave USA, Inc., On MITRE Corporation Report at 5.

8 U.S. Patent No. 6,208,834 (issued March 27, 2001) ("the '834 patent").

to transmit the terrestrial signal in directions other than those "that are within the satellite reception look angle."[9] As that patent states, however, "the invention is not limited to any particular transmission frequencies . . . [and] the invention is not limited for use with a particular transmission modulation technique . . . ."[10] The central fact remains that Northpoint's amorphous technology does *not* prevent harmful interference to DBS operations.

Moreover, Northpoint's patents contain the same interference doublespeak that has characterized Northpoint's posture throughout this proceeding. For example, the '834 patent asserts that "the power level at which the terrestrial signals may be transmitted must be limited to prevent interference with the satellite signals transmitted in the same frequency"[11] and that "[t]he invention avoids interference between the terrestrial and satellite signals" by adjusting the

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[9] *Id.* at Col. 4: 3-4. Northpoint claims that the '834 patent encompasses the MITRE Report's finding that pointing the terrestrial transmit antenna northward as opposed to southward may alleviate interference to DBS operations in some cases. In fact, the '834 patent summarizes the terrestrial transmission method by showing a terrestrial transmission range of 180 degrees (*i.e.*, transmitting southward, completely outside of the satellite receiver antenna look angle). *See* the '834 patent at Col. 5. Although it adds that "the range may be more or less than this number," it further adds that "[i]n each case [regarding transmission ranges *outside* of 180 degrees], however, the terrestrial transmissions from each transmitter are in directions that are outside of the satellite receiving antenna look angle at any location . . . ." *Id.* at Col. 8: 46-49. In other words, if Northpoint's transmit antenna is pointed northward, the satellite receiver antenna *must* be pointed northward as well, so that Northpoint's transmit signals so not directly enter the satellite receiver antenna look angle. This is clearly inapplicable with respect to DBS and this proceeding because DBS receiver antennas will *always* be facing southward. Accordingly, contrary to Northpoint's contentions, in the DBS context, the '834 patent does not cover the northward pointing mitigation measure discussed by the MITRE Report. With respect to U.S. Patent No. 5,761,605 (issued June 2, 1998) ("the '605 patent"), that patent clearly describes an identical method because, according to the patent, the only reason that the satellite receiver antenna is not interfered with is because "the directional signals transmitted from the terrestrial transmitter are all travelling in a direction outside the reception range of the [satellite receiver antenna]." The '605 patent at Col. 5: 5-8. Although the '605 patent states that the terrestrial transmissions may be in other ranges within the scope of the invention, the claim of the patent pertains to a "terrestrial transmitter transmit[ting] in directions only outside of the directional reception range of the [satellite receiver antenna]." The '605 patent at Col. 6: 30-32. In other words, like the '834 patent, the '605 patent may cover a terrestrial transmit antenna pointed northward, but the satellite receiver antenna *must* also be pointed northward as well, so that Northpoint's transmit signals do not directly enter the satellite receiver antenna look angle, which could not apply in the DBS context.

[10] '834 patent at Col. 4: 17-22.

terrestrial transmission power.[12] At the same time, however, the '834 patent acknowledges that "[t]he terrestrial signal level within the exclusion zone [*i.e.*, the "area around the terrestrial transmitter"] is at a level which could cause interference with satellite signals unless the *satellite receiving antenna design is modified* to increase the directionality of the antenna . . . ."[13] In other words, having claimed to have developed a method for "reusing" satellite spectrum *without* causing interference to satellite subscribers, the patent then goes on to clarify that (1) the "reusing" method can cause interference to satellite service operations and (2) such interference must be remedied by redesigning the satellite subscriber equipment. This is not a method for "reusing" or "harvesting" spectrum. Rather, it is a method for "hijacking" or "pilfering" spectrum and, in the case of DBS operations, the victims of such pilferage are 40 million satisfied DBS viewers who own right, title and interest in their equipment and whose reception of DBS signals in the 12 GHz band is protected by law from interference caused by MVDDS operations.

III. MITIGATION MEASURES IMPLEMENTED AT THE DBS SUBSCRIBERS' PREMISES SHOULD NOT BE AUTHORIZED

As SBCA has made abundantly clear in previous filings, there is no precedential, policy or legal basis for requiring DBS subscribers to accept alterations to their private property as a condition of receiving a service that is allocated to the 12 GHz band under U.S. and international law on a priority basis and for which they pay subscription fees. To the contrary, such action would effectively nullify footnote 844 of the United States Table of Frequency Allocations.[14] As

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[11] *Id.* at Col. 9: 22-25.

[12] *Id.* at Col. 3: 15-16.

[13] *Id.* at Col. 9: 57-60 (emphasis added).

[14] 47 C.F.R. § 2.106, n.844. Such action would also nullify the non-interference status of DBS set forth under Part 101 of the Commission's rules. *See* 47 C.F.R. § 101.147(p).

the Commission indicated in explaining the licensing priority scheme that it implemented for the 28 GHz band:

> "Secondary" generally refers to a category of service with respect to other radio services. Stations of a secondary service shall not cause harmful interference to stations of primary or permitted services; cannot claim protection from harmful interference from stations of a primary or permitted service, but can claim protection from harmful interference from stations of the same or other secondary service(s) to which frequencies may be assigned at a later date. *See* 47 CFR § 2.104(d); 47 CFR § 2.105(c)(3). *As a general matter, the Commission does not coordinate secondary operations with respect to primary or permitted services.* [15]

The key point which the Commission appears to have lost sight of in this proceeding is that services operating on a non-interference -- or secondary -- basis are required either to avoid causing harmful interference to the priority service in the first place or to cease operation; coordination or mitigation that shifts responsibility for interference to the priority service is not an acceptable alternative. Thus, in the 28 GHz band plan, the Commission further explained:

> [W]e will require any service provider proposing to operate in a band segment in which it does not have licensing priority, to operate on an unprotected non-interference basis to the priority service. To ensure non-interfering operations, we will require all secondary operators to submit to the Commission a technical demonstration that it can operate on a non-harmful interference basis to the type of satellite system with licensing priority. . . . In addition, we will require secondary users to immediately cease operations upon notification of harmful interference into any service or system that has superior status or licensing priority in a particular band segment.[16]

In addition to contravening the concept of priority band status, mitigation at the DBS subscribers' premises imposes inappropriate burdens on the subscribers with whom MVDDS transmitters interfere. MVDDS interference is not a product of DBS subscriber equipment,

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[15] *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*, 12 FCC Rcd 22310, at n.53 (1997).

which has been carefully and specifically engineered to receive and process 12 GHz satellite transmissions in accordance with international technical standards and the Commission's equipment authorization and marketing rules. Indeed, DBS consumers have relied on these rules in making their investments in DBS equipment and therefore are entitled to expect a clear, interference-free DBS signal. It has been clear since Northpoint filed its petition for rulemaking that interference caused to DBS operations is an inherent aspect of MVDDS design, which intentionally directs signals of sufficient power into the backlobes of DBS receive antennas to cause interference to DBS reception, and it is this *source* of the problem --not the DBS consumer's equipment -- which the Commission must address in this proceeding.[17]

Requiring millions of DBS consumers to accept alterations to their state-of-the-art equipment -- which operates in full conformance with the Commission's rules -- and absorb transaction costs associated therewith would shift the burden for compliance with the Commission's non-interference rules away from the regulated licensee of the secondary service to a class of unregulated private individuals who are the subscribers to the primary service. This result is particularly bewildering given that there is ample alternative spectrum, such as LMDS spectrum which actually provides *more* bandwidth for services that are identical to MVDDS than the 12 GHz band. There is simply no basis for imposing alterations, dislocations or relocations on the priority band users. In short, the inability of would-be MVDDS providers to engineer a system that will not cause harmful interference to DBS service is not the DBS consumers' problem.

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[16] *Id.* at 22326.

[17] Northpoint Technology Petition for Rulemaking at 14 (March 6, 1998) ("The exclusion zone is an area where signals from the Northpoint terrestrial transmitter would cause harmful interference to DBS reception").

The Commission should not authorize *any* service that requires mitigation measures to compensate for the service's inherent inability to operate without subjecting priority services to harmful interference. Contrary to the notion that mitigation is the cure-all to this problem, the MITRE Report's findings strongly suggest that much more analysis needs to be undertaken. The MITRE Report makes clear the difficulty of determining with any precision the point at which a given MVDDS transmitter would not subject surrounding DBS consumers to harmful interference, and the numerous uncertainties surrounding MVDDS operation. For example, the MITRE Report notes the uncertainties associated with future DBS operations, stating that "DBS receivers operating with new and different satellites could be at risk in unforeseen ways" and, accordingly, recommends that "any satellites not addressed in the current report be studied further."[18] The report likewise notes that "any new DBS waveforms be subject to further study" and that any new MVDDS waveforms not be licensed "without further study."[19] MITRE also notes the uncertainties to which the DBS consumers would be subject, suggesting that mitigation measures be implemented *before* any license is issued because DBS consumers may not know the cause of MVDDS-induced outages and that, thus, there would be no trigger for eliminating actual interference.[20] Finally, MITRE suggests that even after issuance of a license, "the MVDDS transmitter would be allowed to begin transmitting for *test purposes*."[21] The record now establishes that there are simply too many uncertainties surrounding MVDDS operation to

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[18] MITRE Report at 6-7.

[19] *Id*.

[20] *Id*. at 6-8. The MITRE Report recommends that DBS consumers be protected from harmful MVDDS interference as long as the MVDDS transmitter operates. *Id*. at 6-6. This is not a debatable point. DBS operations have priority spectrum rights against harmful interference from fixed service operations in the 12 GHz band under both international and U.S. law, and this right is not conditioned by any sunset or other expiration date.

[21] *Id*. at 6-5 (emphasis added).

move forward with any kind of licensing at this time. Further testing is necessary in order to resolve these uncertainties. Failure to fully address and eliminate these uncertainties prior to licensing would be a reckless abdication of the Commission's responsibilities to the primary users of the band -- DBS licensees and DBS consumers.

IV. CONCLUSION

Based upon the MITRE Report's conclusion that MVDDS will cause significant interference to DBS operations and the fact that such conclusion was arrived at using Northpoint equipment and technology, SBCA again urges the Commission to reverse its decision to authorize terrestrial MVDDS operations in the 12.2-12.7 GHz band and to revise its rules accordingly. If the Commission elects to proceed with authorizing MVDDS service, it should do so on an experimental basis in a single market so that the further testing recommended by the MITRE Report can be carried out, and it must reject all mitigation measures discussed in the MITRE Report which involve any alterations, relocations or replacement of DBS subscriber equipment.

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