

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

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

**REPLY OF MDS AMERICA, INCORPORATED
TO OPPOSITION TO PETITION FOR RECONSIDERATION OF
DIRECTV, INC. AND ECHOSTAR SATELLITE CORPORATION**

MDS America, Incorporated ("MDS America"), by its undersigned counsel, hereby responds to the Opposition filed jointly by DIRECTV, Inc. and EchoStar Satellite Corporation (collectively, the "DBS Operators") in response to MDS America's Petition for Reconsideration of the Commission's *Memorandum Opinion and Order and Second Report and Order*.¹

I. The Commission Should Adopt MDS America's Proposed Rule Revisions.

In its Petition for Reconsideration, MDS America urged the Commission to (1) adopt the original proposal for a two-tiered MVDDS transmitter power limit, retaining the 14 dBm EIRP

¹ Amendment of Parts 2 and 25 of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the Ku-Band Frequency Range; Amendment of the Commission's Rules to Authorize Subsidiary Terrestrial Use of the 12.2-12.7 GHz Band by Direct Broadcast Satellite Licensees and Their Affiliates; and Applications of Broadwave USA, PDC Broadband Corp., and Satellite Receivers, Ltd. to Provide a Fixed Service in the 12.2-12.7 GHz Band, ET Docket No. 98-206, FCC 02-116, *Memorandum Opinion and Order and Second Report and Order* (released May 23, 2002), *appeals docketed sub*

limit for MVDDS transmitters sited in urban areas (*i.e.*, those in the Top 50 Television Markets),² but increasing the rural EIRP limit to 39 dBm, and (2) to adopt revised regional EPFD limits that vary also according to whether the DBS receiver is in an urban or a rural area.³ The Opposition raises no questions concerning the other four changes proposed by MDS America.

II. The Opposition Provides No Basis for Denial of MDS America's Requested Rule Modifications.

A. Co-Existence Abroad of DBS and MVDDS Systems Using MDS America's Technology

The Opposition serves mainly to demonstrate that the DBS Operators know far less about MVDDS deployment and spectrum sharing than does MDS America. Significantly, the DBS Operators have never challenged MDS America's technical demonstration, documented in the Clewiston Phase I Report, of the ability of MVDDS to co-exist with the DBS Operators' co-frequency DBS operations in the U.S.⁴ Nonetheless, belatedly attempting to discredit MDS America, the DBS Operators apparently spent much time and effort attempting to reinvigorate a dead issue⁵ initially raised by Northpoint concerning the co-existence with co-frequency DBS operations of overseas operations using the MVDDS technology licensed to MDS America.

Unfortunately, the DBS Operators overlooked or ignored significant submissions in the docket. For example, the DBS Operators somehow missed the transcript of the videotape of Mr.

nom. Northpoint Technology, Ltd. v. FCC (D.C. Cir. Nos. 02-1194, 02-1195, 02-1209, 02-1234 - 36, and 02-1270 (*consol.*) filed Jun. 21, 2002; *stay granted Aug. 29, 2002.*

² See *Ex parte Letter of MDS America*, filed Feb. 12, 2002.

³ The proposed limits are: Southeast (Louisiana, Mississippi, Alabama, Georgia, Florida) - 166.7/ -155.7 dBW/m²/ 4 kHz; South-Central (New Mexico, Texas, Oklahoma, Arkansas, Tennessee, North Carolina, South Carolina) -168.7, -157.7 dBW/m²/4 kHz; West (California, Oregon, Washington, Idaho, Montana, Wyoming, Nevada, Utah, Arizona, Colorado) -173.0, -160.0 dBW/m²/4 kHz; and East/Mid-West (all other states) -170.5, -158.5 dBW/m²/4 kHz. These limits are based on an urban C/I ratio of 23 dB, and a rural C/I ratio of 9 dB or lower.

⁴ See FCC File No. 0095-EX-IL-2001.

⁵ See *Decision* at ¶ 9.

Rosich of the Andorran Servei de Telecomunicacions d'Andorra ("STA"), who specifically stated that MDS International HyperCable equipment is used to provide local video programming to Andorran citizens to complement the internationally originated programming they receive via 12 GHz small satellite receive dishes.⁶ Similarly, the DBS Operators erroneously suggest that, in various situations cited by MDS America, there would have been interference complaints had co-frequency channels carried programming in the domestic language. In its March 12, 2001, Comment, however, MDS demonstrated that it had shared frequencies with Astra 1G Direct-to-Home ("DTH") operations in Europe.⁷ SES-Astra offers pan-European programming via 1G, whose footprint covers both the principality of Andorra and Lyons, France.⁸ The center of the 39 MHz-wide frequency band used by the MVDDS installation in Andorra is at 12.08450 GHz. For the MDS International test installation in Lyon, France, the center frequency is 12.645 GHz. European satellites, including Astra 1G, use channels 33 MHz wide. While

⁶ See Transcript of Videotaped Demonstration, submitted *Ex Parte* on Mar. 6, 2002, p. 1: "Mr. Rosich stated that [STA] took into consideration, before choosing the MDS system, that it not interfere with small-dish satellite service reception in the Ku band. Mr. Rosich stated that such lack of interference was an important factor, because the Andorran telecommunications regulator did not want international conventions violated. ... Mr. Rosich then showed the satellite receiving antennas installed near the MDS antenna, and stated that this provided good proof that terrestrial systems can coexist with satellite systems in the Ku band."

⁷ ET Docket 98-206, Comments of MDS America, Inc. on Further Notice of Proposed Rule Making, Mar., 12, 2001, p. 10 and App. 2, p. 3, and Table 3.2 p. 3. MVDDS currently shares frequencies with Eutelsat W2 as well. For example, Astra 1G is currently broadcasting *Canal Satellite France* centered at 12.640 GHz; and Eutelsat W2 is currently broadcasting three different channels exactly centered at 12.645 GHz (in English, Turkish, Polish, Hungarian, Czech and Russian). See <http://www.lyngsat.com>; see also *Transcript of Interpreted Videotaped Oral Deposition of Jean-Claude Ducasse* (Aug. 29, 2002) (attended by Kirk Kirkpatrick) at 297 – 300 (attesting to simultaneous transmission of a HyperCable terrestrial transmission and a Direct-to-Home satellite transmission to the same location in Andorra, and, with different satellites, in Greenland, in both cases with the MVDDS and satellite transmissions having the same center frequencies).

⁸ See <http://www.ses-astra.com/corporate/satellites/footprints.shtml#>.

there is obviously not complete congruity between the MVDDS frequencies and the satellite channels, there is considerable overlap around the MVDDS center frequencies.

That MDS has been broadcasting its signal in Andorra and Lyon for some years – without complaint – is truly indicative of successful frequency sharing. Given that the overlapping channels carry programming in a variety of European languages, which would likely be of interest to satellite viewers in both Lyons and Andorra, had interference occurred, it would likely have been reported. Moreover, given that the Andorra installation is operated by the government, which was testing the system, had there been disruption of this satellite service, it is unlikely that the government operators would have missed it or ignored it. Similarly, given that MDS International uses the Lyons installation to test its systems, and invites potential customers to the site to examine the equipment in field conditions, MDS International would have been careful to determine the feasibility of co-existence at that location before inviting visitors to evaluate the system operations there.

The DBS Operators' patronizing lack of surprise that no one in Andorra had called to complain "that he or she was having trouble watching '*South Park – Der Film*'" serves only to demonstrate their parochial misunderstanding of European life. Not only are most Europeans multilingual and frequent viewers of foreign language programming, but also Andorra's main industry is tourism.⁹ The DBS Operators' apparent perception that no one in Andorra would want to watch German-language programming, rather than documenting a lack of co-existence between DBS and MVDDS, only betrays the limited horizons of the DBS Operators.¹⁰

⁹ See <http://www.state.gov/r/pa/ei/bgn/>, the U.S. Department of State's website on the country of Andorra.

¹⁰ It also appears that the DBS Operators are attempting to quibble about BSS versus FSS sharing frequencies with MVDDS. True, the actual BSS frequencies in Region 1 are slightly different from those used in Region 2. However, this a matter of nomenclature that does not negate

Nor can the DBS Operators get much mileage from their erroneous claim that Astra 1G's channel 114 at 12.64 GHz carries Internet service. In fact, the current data indicates that channel 114 is carrying *Canal Satellite France*, a highly popular satellite television channel, offering French language programming (perhaps more consistent with the DBS Operators' sensibilities about Andorran television habits).¹¹ The desperation evinced by the DBS Operators in this vain effort to discredit MDS America is epitomized by their questioning the likelihood of an audience for Greek language programming in Macedonia.¹²

B. DBS Operators' Misunderstanding of MVDDS Engineering

The DBS Operators also demonstrate their inexperience in the MVDDS engineering area by questioning MDS America's recommendation that the Commission should reinstate and adopt the original proposal for higher EIRP in rural areas, and the related proposal for slightly higher EPFD limits that are more relaxed in rural areas.¹³ The key factor that the DBS Operators ignore is that the level of received interference is not a simple function of the EPFD levels, and there are a variety of mitigating factors not considered in the Commission's streamlined equation.¹⁴ Because additional mitigation can be even more readily implemented with respect to service to rural

MVDDS's ability to share frequencies without interfering with satellite reception. European satellite operators such as SES-Astra usually have licenses for both FSS and BSS frequencies, and offer their Direct-to-Home satellite television service over both bands, albeit at lower power than in the U.S., for reception via small earth stations mountable on, for example, balconies.

¹¹ See <http://www.lyngsat.com/astra1g.shtml>.

¹² See DBS Operators' Opposition at Exhibit 1.

¹³ MDS America has requested a limit of 39 dBm to allow full line-of-sight coverage to the horizon, which can be provided by its proprietary transmission system.

¹⁴ For example, as the MITRE Report recognizes, differences in polarization can play a significant role in allowing a DBS receiver to ignore MVDDS transmissions.¹⁴ The MITRE Corp., *Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band* (2001) ("MITRE Report") at 3.1.5, 4.3.4.

areas,¹⁵ which present more flexibility in equipment siting and fewer potential multipath concerns, MDS America submits that adoption of MDS America's proposed EPFD limits would not cause DBS to experience harmful interference as defined in the Commission's rules and that DBS would not experience outage increases that in practice exceeded the levels used in calculating the Commission's EPFD limits. Rather, the reverse would be true.¹⁶ At the same time, MVDDS service could be economically deployed in rural areas.¹⁷

Unfortunately, despite the Commission's intent of adopting MVDDS technical rules that would be technology-neutral and encourage innovative approaches to service deployment,¹⁸ the Commission's limitation of *rural* EIRP limits has the practical effect of precluding systems relying on vertical differentiation as a mitigation technique, and thus seriously limits the potential economic viability of MVDDS service in sparsely populated rural areas. The Commission's EIRP limit would restrict the transmitter coverage area of an MVDDS system to about 120 square miles.¹⁹ With implementation of vertical antenna discrimination, however, MDS America

¹⁵ Even assuming no change in the size or siting of a receive dish or its orientation, the accuracy of the receiver's LNB, and the presence of clip-on or natural shielding also affect whether MVDDS transmissions cause noticeable, much less harmful, interference to a given DBS receiver.

¹⁶ There is also substantial likelihood that a competitive spur from a new entrant would likely result in improved service to consumers by the DBS operators. *See Decision* at ¶ 92 (noting that for installations of DBS receivers made after the close of the "customer of record" special protection period DBS operators will have had an opportunity "to adjust their installation guidelines for future DBS customers to account for the presence of the MVDDS transmitting antenna"); *see also id.* at ¶ 93 (acknowledging the potential for "false claim reporting against the MVDDS licensee").

¹⁷ This is probably the real issue for the DBS Operators. Despite their protestations that they are concerned only about technical harm from MVDDS, it is apparent that they are most concerned with protecting their monopoly service to rural customers. *See DBS Operators' Opposition* at 8 (where it is in fact the DBS Operators that "wrap themselves in the mantle of rural service").

¹⁸ *Decision* at ¶¶ 202, 203.

¹⁹ To minimize multipath issues with respect to installations by less experienced MVDDS operators deploying transmitters within urban areas, MDS America does not request that power

can achieve service areas as large as 10,000 miles under certain conditions. Thus, the EIRP limit (combined with the EPFD limit) can either promote or preclude the deployment of MVDDS to bring a choice of service providers to consumers in rural America.

The Commission does, however, have the ability to make the choice in favor of new multichannel video and broadband data service to rural areas, while minimizing potential interference to DBS operations in urban areas. Leaving aside MDS America's proprietary know-how, even the MITRE Report recognizes at least two important techniques that provide significant means for optimizing MVDDS transmitter deployment so as to minimize the potential for harmful interference to DBS reception. They cannot be used effectively, however, unless MVDDS systems can operate in rural areas with EIRP of up to 39 dBw (and region-specific less stringent EPFD limits) so that transmitters located in rural areas can serve MVDDS receivers in urban areas with attenuated signals.

Because this concept was apparently impossible for the DBS Operators to understand,²⁰ the following explanation may clarify how increasing the permitted signal strength in rural areas allows the MVDDS engineer to minimize interference to DBS in the urban areas where multipath problems can arise.²¹ In its report, MITRE recognized that the use of tall towers could be a significant mitigating factor.²² If a signal originates at a higher level and is beamed horizontally to deliver signal to a large area, then very little signal reaches the ground in the vicinity of

levels also be increased in urban areas. MDS America would certainly not object, however, if the Commission were to raise EIRP limits universally, as advocated by Northpoint in its Consolidated Opposition to Petitions for Reconsideration (filed Sept. 3, 2002).

²⁰ See DBS Operators' Opposition at 6-7.

²¹ The existence of the multipath phenomenon in "urban canyons" is well-known, and, where siting or the retention of overly stringent rural EIRP or EPFD limits would require service to an urban area from an urban-based transmitter, then strict EIRP limits on transmitters in such areas may be the simplest approach to minimizing multipath problems.

²² MITRE Report at 5-8, 6-2.

the transmitter, and there is no harmful interference to DBS service in that vicinity. (While the area in the vicinity of the transmitter is in an “exclusion zone” which receives very little radiated RF output from the MVDDS main beam and therefore does not receive service directly from the MVDDS transmitter, the zone can be served by strategically-placed reflectors²³ that can provide fill in service to this area of main beam exclusion.) As MITRE recognized, siting such tall towers could be a problem, because of zoning and similar concerns. If the tower can be located in a rural area, however, these concerns are significantly reduced.²⁴ Thus, service to a broad area of rural America is feasible with far fewer transmitters.

In addition, by siting a higher-power antenna on a tall tower in a rural area, the MVDDS operator can take advantage of another interference-mitigation technique recognized by MITRE.

²³ Such reflectors are simple metal sheets that reflect the signal, at a much lower strength, at an almost horizontal direction into the area surrounding the transmitter.

²⁴ Because the DBS Operators do not understand the relevant geometry, and apparently have no familiarity with the use of reflectors to provide fill-in service, they devote substantial attention to a chart purporting to demonstrate that with higher power the MVDDS service areas would be uneconomically constricted if they complied with current EPFD limits. Given the use of reflectors, however, this analysis is irrelevant. Moreover, it is predicated on the use of an emission mask that, although ignored by the DBS Operators, is *not* part of the Region 2 DBS plan and was recently rejected by the Commission in the recent DBS rules order, which permits non-conforming antennas but requires them to accept the interference they would not have experienced with conforming antennas. *Report and Order, Policies and Rules for the Direct Broadcast Satellite Service*, FCC 02-110, IB Docket No. 98-21 (2002) (“*DBS Rules Order*”) at ¶¶ 126 – 128. Thus, the analysis relates to non-conforming DBS operations not entitled to protection from co-primary services such as MVDDS. *See Decision* at ¶¶ 87 n.216. The Commission’s domestic EPFD limits were calculated on the basis of the reference antenna patterns contained in Annex 1 to Recommendation ITU-R BO.1443, not those contained in the cited Recommendation ITU-R BO.1213.

When an area is served by a distant MVDDS signal, as on the fringes of the signal strength contour, the potential for interference with DBS operations in that area is small.²⁵ Thus, an urban area can be served from an MVDDS tower sited outside its vicinity, but the MVDDS signal would be so attenuated as to raise minimal potential for multipath and other interference to DBS operations. Therefore, despite the DBS Operators' skepticism, allowing higher power levels in rural areas provides a critical flexibility in manipulating transmitter locations and received MVDDS power levels at DBS receive sites.

Given the additional protection available to "qualified" existing DBS receivers for "customers of record," and the non-conformance of the DBS Operators' systems with the Region 2 Plan that calls into question their entitlement to interference-protection priority *vis-à-vis* co-primary services such as MVDDS,²⁶ MDS America submits that higher EIRP limits are appropriate and, in combination with higher rural EIRP limits, will in fact minimize potential interference to DBS operations.

²⁵ MITRE Report at 5-6.

²⁶ *Decision* at ¶ 87 n.216.

III. CONCLUSION

By raising its permitted EPFD and EIRP limits, particularly in rural areas, the Commission can allow MVDDS operators to achieve the twin goals of minimizing potential interference to DBS operations and maximizing opportunities for service deployment in under-served rural areas. The Commission should, therefore, adopt its original proposal to permit EPFD limits to be less stringent in rural areas, and it should also allow higher EIRP outside the Top 50 Television Markets.

Respectfully submitted,

MDS AMERICA, INCORPORATED



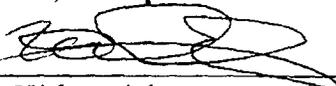
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September 13, 2002

CERTIFICATION

On behalf of MDS America, Incorporated, I hereby certify that the statements in the foregoing Reply are true, complete, and correct to the best of my knowledge, and are made in good faith.

MDS America, Incorporated

By: 

Name: Kirk Kirkpatrick

Title: President

Date: September 13, 2002

CERTIFICATE OF SERVICE

I hereby certify that on this 3rd day of September, 2002, a true and correct copy of the foregoing was served via electronic filing (denoted by †), e-mail (denoted by *) or first class United States mail, postage prepaid, on the following individuals:

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