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September 23, 2002

VIA HAND DELIVERY

James R. Burtle
Chief, Experimental Licensing Branch
Office of Engineering and Technology
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

**Re: *MDS America Inc. Application for Modified Radio Station Under Part 5 of
FCC Rules -- Experimental Radio Service, Call Sign WC2XPU,
File No. 0005-EX-ML-2002; MDS America Inc. Application for Renewal of
Radio Station License in Specified Services, Call Sign WC2XPU, File No.
0063-EX-RR-2002***

Dear Mr. Burtle:

Enclosed for filing please find an original and one copy of the *Response of Northpoint Technology, Ltd. to MDS America, Inc.'s September 13, 2002 Supplement to Application Requesting Modification of Experimental License* in the above-captioned matters.

Copies are also being sent to you, to Paul Locke, and to counsel for MDS America via e-mail. Please contact me if you have any questions. Thank you for your assistance in this matter.

Yours truly,



J.C. Rozendaal

Counsel for Northpoint Technology, Ltd.

enclosures

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

In the Matter of)
)
)

MDS America Inc. Application for Modified)
Radio Station Under Part 5 of FCC Rules --)
Experimental Radio Service)
_____)

File No. 0005-EX-ML-2002

File No. 0063-EX-RR-2002

Call Sign WC2XPU

**RESPONSE OF NORTHPOINT TECHNOLOGY, LTD.
TO MDS AMERICA, INC.'S SEPTEMBER 13, 2002, SUPPLEMENT
TO APPLICATION REQUESTING MODIFICATION
OF EXPERIMENTAL LICENSE**

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Introduction

The September 13, 2002, Supplement of MDS America ("MDSA") fails to address the many defects in MDSA's application for modification and renewal of its experimental license. Northpoint is concerned that the DBS industry will seize on any harmful interference generated in the Clewiston tests, and any other deficiencies or problems associated with the testing, as a pretext to thwart the deployment of any MVDDS service. It is therefore in Northpoint's own interest as the chief proponent of MVDDS service to help the Commission ensure that MDSA's tests are conducted in a safe and scientifically valid way.

As Northpoint will demonstrate below, MDSA's proposed tests will almost certainly cause harmful interference to a substantial number of DBS subscribers in areas near the test site where MDSA's EPFD will far exceed the limits the Commission has established. MDSA has failed to explain how it would protect DBS subscribers from this predictable harmful interference, has failed to provide an adequate description of its test plan, and has failed to establish how its proposed experiment would advance the radio art. MDSA has refused to respond to specific requests for information from the Commission, and it has based its application largely upon claims about the supposed experience of its technology licensor, MDS International ("MDSI") – claims that have turned out to be either misleading, erroneous or undocumented. Moreover, MDSA's previous "experiment" under this license yielded no useful scientific information whatsoever.

In short, MDSA has not come close to fulfilling its obligation under commission regulations to describe "in detail the program of research and experimentation proposed, the specific objectives ought to be accomplished; and how the program of experimentation has a reasonable promise of contribution to the development, extension or expansion or utilization of the radio art." 47 C.F.R. § 5.63. Under these circumstances, granting MDSA's application for modification of its experimental license would expose numerous DBS subscribers to a grave risk of harmful interference without providing any corresponding engineering benefit. The standards of the Commission's experimental license program must not be allowed to sink that low. MDSA's application should be denied.

Argument

I. MDS Has Failed To Address The Central Concerns Raised By Commission Staff

A key concern raised at the September 4 meeting was that by operating at 39.8 watts ERP, with an omnidirectional antenna, on a 180-meter tall tower, in the rain, and without respecting the Commission's EPFD limits, MDSA risks causing harmful interference to existing DBS subscribers. Equally important, concerns were raised about MDSA's test plan and about whether the data to be gathered would be both valid and meaningful. MDSA's Supplement does nothing to allay these concerns.

A. MDSA Plans to Exceed FCC EIRP Limits Without Respecting EPFD Limits

Currently, the Commission has an EIRP limit of 14 dBm per 24 MHz. *See* 47 C.F.R. 101.113 n.10. MDSA initially sought permission to operate its transmitter at no less than 1000 Watts ERP, but subsequently lowered its request to 39.8 Watts ERP.¹ This would be equivalent to 48 dBm EIRP, or more than 34 dB greater than the FCC limit, and even 9 dB higher than the limit that MDS itself has proposed in ET Docket 98-206.²

For its part, Northpoint believes the Commission's 14 dBm limit is unduly restrictive and advocates the use of higher EIRP in MVDDS systems, *provided that the Commission's EPFD limits are respected*. The EPFD limits adequately protect DBS subscribers within the MVDDS service area. Even DBS operators agree that EPFD limits, and not EIRP limits, should be the primary means of protecting DBS subscribers.³ As long as the EPFD limits are observed, there is no need for a separate EIRP limit.

MDSA, however, not only plans to disregard the EPFD limit, it affirmatively "cautions Commission staff that a core purpose of its proposed demonstrations is to prove that the precise EPFD limits established by the Commission for MVDDS are not necessary to prevent harmful interference to DBS systems." Supp. at 4. As is typical of its filings to date, however, MDSA's Supplement does not even hint at how it proposes to do this. MDSA does not say what data it will collect or how it plans to show that the EPFD limits are not needed. It is apparent, however, that MDSA plans to exceed the EPFD limit in order to show that the limit is overprotective. As discussed in the following section, MDSA plans to exceed the allowable EPFD limits by a level that virtually guarantees harmful interference to DBS operations. Commission staff should proceed with caution indeed before allowing MDSA to conduct such tests.

B. MDSA Would Cause Harmful Interference to Many DBS Subscribers

In an apparent effort to assuage FCC concerns about harmful interference to DBS subscribers, MDSA emphasized the rural character of the sugar cane fields immediately surrounding its transmitter in Clewiston at the September 4 meeting with Commission staff. In fact, however, MDSA's signal will extend far beyond the sugar cane fields into populated areas. Even MDSA has acknowledged that the intended service area of the transmitter would be some 60 kilometers in diameter – an area that indisputably would cover populated areas of downtown Clewiston. MDSA owes it to these Clewiston

¹ See Ex Parte Letter from Nancy K. Spooner, Swidler, Berlin, Shereff, Friedman, LLP, to Marlene H. Dortch, Secretary, FCC, File No. 00005-EX-ML-2002 (FCC filed July 19, 2002).

² See MDSA Petition for Reconsideration of Second Report and Order, at 6, ET Docket No. 98-206 (FCC Filed July 19, 2002) (proposing 39 dBm EIRP limit).

³ See Comments of DirecTV in response to Further Notice of Proposed Rulemaking, at 27, ET Docket 98-206 (FCC filed March 12, 2001) ("The Commission should not rely on transmit e.i.r.p. levels *per se* but on the proposed sharing criteria and calculated EPFD levels... as the primary means of protecting DBS service.").

residents to explain to the Commission how it intends to protect them. This MDSA has singularly failed to do.

As attachment B to its supplement, MDSA provides two charts purporting to show PFD contours. Those charts do not accurately depict the PFD levels that will be generated by MDSA's antenna: MDSA's antenna pattern (attachment A to its supplement) varies with azimuth up to 11 dB. Such a transmit antenna would not generate the circular PFD contours MDS provided but instead would generate a cloverleaf shape.⁴ The true PFD contours are attached hereto as Figure 1 of Attachment A. Nor is it true, as MDSA asserts, that Commission staff could, as a practical matter, calculate EPFD levels solely from the PFD chart MDSA provided. Supp. at 4. In order to calculate EPFD from the PFD chart, one would need to take into account, at each data point, the specific information regarding the DBS receive antenna gain towards the emitter. MDSA did not provide this information, and even if it had done so, to perform the required calculations based on a paper record, without having the data in computer-manipulable form, is impracticable.

By using the antenna pattern information provided in MDSA's supplement, however, Northpoint has been able to calculate the EPFD levels of MDSA's proposed operations. (Northpoint's assumptions and methods are described in Attachment A.) The results are disturbing.

As shown in figures 2 and 3 of Attachment A, MDSA's proposal to transmit at 39.8 Watts would exceed the FCC's EPFD limits over a huge, populated area, thus posing a grave risk of harmful interference to many DBS subscribers. Based on MDSA's application and supplement, Northpoint estimates that thousands of residents near the proposed transmitter would receive harmful interference up to and including a complete loss of DBS signal.

The EPFD limit in Florida is -168.4 dB. At 6 dB over the EPFD limit, the DBS link is sufficiently degraded for a noticeable drop in signal strength. At 12 dB over the EPFD limit, nearly all of the DBS clear sky margin would be eliminated. Any interference 12 dB over the EPFD limit would probably prevent reception of a DBS signal in clear air. The following table summarizing the data shows that thousands of homes would be adversely affected by the proposed tests.

EPFD Level (dBW/m ² - 4 kHz)	Exceedence Level	Citizens Affected
> -168.4	Exceeds EPFD	18,298
> -162.4	Exceeds EPFD by at least 6 dB	7,582
> -156.4	Exceeds EPFD by at least 12 dB	3,122

⁴ MDSA's charts are also inadequate because they fail to indicate the bandwidth in which the PFD is being measured.

More than 18,000 citizens are at risk of harmful interference, and more than 3,000 are at risk of losing their DBS signal entirely. Many of the affected citizens are located to the north of MDSA's transmitter and are therefore unlikely to have significant natural shielding in front of their DBS dishes. Yet MDSA has presented no plan to mitigate this interference. Until it does so, the Commission must not authorize the broadcasts MDSA has proposed.

C. MDSA Has No Plan To Collect Useful Data

Not only are MDSA's tests likely to cause harm to DBS subscribers in Clewiston, they are likely to yield no meaningful engineering information whatsoever. The *only* identifiable proposal MDSA makes regarding its testing methodology is grievously flawed. MDSA says it plans to use "two identical DBS receiver sets where the antenna from one of the DBS receiver sets is shielded from the MDS signal while the antenna for the other receiver set is not." Supp. at 4. This proposal suffers from the problem that any attempt to shield one dish would also shield out other sources of noise, such as adjacent DBS satellites, thus rendering the proposed test data useless. Until MDSA provides *some* information about how interference is to be avoided and meaningful data is to be gathered from its two-dish test setup, the Commission must not allow the testing to proceed.

Remarkably, beyond its flawed proposal to use shielding on one DBS receiver, MDSA has nothing to offer other than to repeat the tests it did under its first experimental license. See Supp. at 3-4. In its Petition to Deny and the attachment thereto, Northpoint has already detailed the flaws in MDSA's first test report, and the catalog of problems will not be repeated in full here. MDSA's utter refusal to address the criticisms Northpoint has raised bodes ill, however, for MDSA's ability to collect meaningful data the second time around – especially if MDSA wishes to attempt to invalidate the Commission's carefully considered EPFD limits.

Nor is it clear that MDSA will be capable of carrying out any test plan it ultimately deigns to propose. For instance, MDSA claims that, in its first test, "the demodulator provided BER updates at approximately 1 second intervals." Supp. 3. MDSA neglects to mention, however, that the resulting files became inadvertently corrupted and unusable. See LCC Report § 7.2, at 13. Further, MDSA has failed to explain how it plans to avoid the unexplained biases and other anomalies that crept into its data the first time around. So far, the biases have been large enough to mask any change in DBS performance and render it unrecognizable. MDSA has yet to explain how it plans to fix the problem.

Perhaps most fundamentally, however, MDSA is simply wrong when it claims that the LCC Report demonstrated MDSA's ability to coexist with DBS without causing harmful interference. Supp. 3-4. That is because the LCC Report *makes no attempt to quantify the effect of MDSA's transmissions on DBS reception*. The report simply contains no data that would actually answer the question whether MDSA can co-exist with DBS. For instance, MDSA did not attempt to calculate the C/I ratio from its data, and that ratio cannot be derived from the C/(N+I) data MDSA did collect. There was no

effort to isolate the effect of the MDSA signal from the data or estimate the increase in unavailability of DBS reception attributable to MDSA's signal. Unless MDSA announces a plan to collect meaningful data, repeating the exercise with a higher tower is pointless.

MDSA claims to want to take measurements in the rain, but it has not yet announced what measurements it will make or how they will be of use to the Commission. Rain cells are like snowflakes: each is unique. It is dangerous for MDSA to attempt to generalize from observations made in a given rain cell, especially because MDSA will not have complete information about the characteristics of the rain cells in which it is operating. In the absence of anything more than MDSA's wishful thinking (and, so far, MDSA has provided nothing more in the record), allowing MDSA to operate in the rain promises increased risk of harmful interference to DBS with no countervailing benefit.

The Commission can take no comfort in MDSA's promise "to provide a more detailed test report no later than 1 week before testing is to commence *after grant of authority*." Supp. 4 (emphasis supplied). There is no reason for the Commission to buy MDSA's pig in a poke. Let MDSA demonstrate to the Commission now, in public, that there is at least some prospect of gathering useful data that might justify the risks MDSA is inviting the Commission to take.

D. MDSA Has Failed To Respond To Legitimate Requests for Information by Commission Staff

MDSA has been unduly and inexplicably reluctant to provide information in response to specific requests by Commission staff. This reluctance alone justifies denial of the present application. See 47 C.F.R. § 5.65 ("If an applicant is requested by the Commission to file any documents or information not included in the prescribed application form, a failure to comply with such request will constitute a defect in the application.")

MDSA acknowledges that staff inquired about how its proposed demonstrations will be conducted "in order to (a) protect DBS from harmful interference and valid customer complaints, and (b) demonstrate under rainy conditions that the MDS America transmitter is not causing harmful interference." Supp. 3. MDSA answers that the LCC report was favorable and that it may "as just one possible testing configuration" use two DBS receivers and shield one of them. Supp. 3-4. Northpoint submits that MDSA's answer is nonresponsive. It neither provides any assurance that DBS will be protected (especially given the special complications of the proposed omnidirectional antenna and increased height), nor does it say anything about rain. The Commission should insist upon, at the very least, getting answers to the questions it asks before it makes a decision on the present application.

In response to the Commission staff's request for more information about MDSA's supposed proprietary mitigation techniques, MDSA brazenly responded that it

“does not believe the Commission staff should need such information.” Supp. 5. MDSA claims that the LCC report and the alleged “real-world experience” of MDSI make such information superfluous. *Id.* As noted above, the LCC report does not even attempt to quantify the impact of MDSA’s signal on DBS, and, as noted below the record is devoid of specific, reliable data regarding MDSI’s overseas activities. Commission staff’s inquiry is thus entirely appropriate and deserves an answer. Indeed, MDSA’s talk of unnamed, magical mitigation techniques is inherently suspicious. The Commission should require careful documentation of the efficacy of these supposed techniques – preferably through tests in a laboratory setting – before allowing them to be unleashed on an unsuspecting public through a risky experimental license.

MDSA claims that it does not want to share what it considers to be proprietary business information with Northpoint, but its professed concerns are overblown. The Commission routinely makes decisions that depend in part on confidential business data and is more than capable of crafting appropriate protective orders to protect the parties’ interests. For the Commission’s convenience, Attachment B hereto is a proposed protective order, based on a protective order entered by the Wireline Competition Bureau in WC docket No. 02-214 just last month. The text is essentially unchanged, except that provisions dealing with treatment of documents submitted by the Department of Justice have been eliminated as unnecessary. The entry of a protective order along these lines should alleviate any confidentiality concerns MDSA may have.

II. MDSA’s Application Relies on Misleading, Erroneous, or Undocumented Statements

Throughout its presentations before the Commission, again at the September 4, 2002, meeting with Commission staff, and also in its Supplement, MDSA breezily asserts that its technology has already been used on a commercial basis at some unspecified number of places around the world by its “technology licensor,” MDSI, without causing harmful interference to DBS operations. Yet whenever MDSA is called on to provide specifics, it cannot provide evidence to support its claims. A particular site was not a commercial installation but an experimental one, or the frequencies were not the same as those used by DBS, or the site relied on geographic separation between the terrestrial and the DBS signals to avoid interference. MDSA has yet to come forward with even a single documented instance of a commercial system using exactly the same frequencies, at the same time, in the same place as DBS.

Two recent examples of MDSA’s penchant for exaggeration came at the September 4 meeting. First, MDSA trumpeted at the meeting that MDSI was serving an entire emirate in the United Arab Emirates (“UAE”) with a single broadcasting tower. MDSA’s representatives stated that this UAE transmitter was operating on or about the frequency 10.7 GHz, and they implied that these frequencies are in use by at least one UAE DBS operator. In reality, however, no DBS operator in the UAE is using this

frequency and MDS International's system appears to be an ordinary wireless cable transmitter. No terrestrial satellite sharing technology is present.⁵

Northpoint has also been able to determine that MDSA's claims of covering an entire emirate are false. The map at Attachment C hereto shows the location and approximate service area of MDSI's UAE tower, which serves a tiny, virtually unpopulated fraction of the emirate in which it is located. In fact, the very press article MDSA supplies as attachment D to its Supplement says that the initial tower serves a mere 50 households on a test basis, and that the location was chosen because of the "topology and the limited geographical base." Supp., Attach. D, at 1.

Second, MDSA theatrically emphasized that the DBS industry was not in the room at the September 4 meeting and had not objected to its activities in Clewiston. MDSA glossed over the fact that the DBS operators had jointly filed an Emergency Petition for a Cease and Desist Order and for a Freeze Order on June 15, 2001, seeking to block the Clewiston testing. MDSA goes so far as to claim that the Satellite Broadcasting Communications Association "has signed off on the frequency coordination plan that MDS America has submitted." Supp. at 3. In support of this statement, MDSA offers, as attachment C to its Supplement, a truncated copy of an e-mail *from MDSA to the SBCA* discussing the proposal. Nothing in the record shows assent by the SBCA to anything.⁶

The point of these examples is to illustrate once again that, if MDSA is not actually trying to mislead, it is, at best, careless with the details. MDSA's blithe assertions of non-interference cannot be taken at face value; the FCC must dig deeper if it is to fulfill its obligations to protect the public interest. The information in Attachments A and C hereto is provided to assist the Commission's efforts in this regard.

MDSA's sloppy generalities contrast sharply with Northpoint's record of painstaking detail in the more than eight years since Northpoint first approached the Commission seeking permission to test a technology that would allow ubiquitous terrestrial sharing of spectrum already allocated to satellite use. Over the years, in repeated tests conducted by Northpoint (and evaluated by Lucent), by the DBS industry, and by the MITRE Corporation (on behalf of the FCC),⁷ Northpoint has demonstrated

⁵ The MDS installation in the UAE operates on the frequencies 10.7 to 10.9 GHz and 11.1 to 11.4 GHz, while the BSS allocation is from 11.7 to 12.5 GHz. See attachment C.

⁶ Indeed, far from providing confidence in SBCA's agreement, MDSA's truncated e-mail suggests a possible attempt to mislead the SBCA by acting as if tower height were the only matter of interest. MDSA's e-mail neglects to mention that MDSA plans to broadcast at a power level substantially above what the Commission approved in ET Docket 98-206 but does not plan to respect the EPFD limits set in that docket. See Supp., Attach. C.

⁷ MDSA attempts to blame Commission staff for MDSA's own failure to participate in the MITRE tests. Supp. at 1-2. Yet there is no record evidence of any effort by MDSA to participate in the MITRE tests. MDSA's comments on the MITRE report make no complaint about the fact that it was not included, and the record reveals no written request by MDSA to participate in any FCC-sponsored testing at any time. The record does reveal that, months after MITRE's testing had been completed, MDSA approached the Commission with oral requests that the FCC underwrite a second, belated round of testing for MDSA alone. See Ex parte letter from James W. Olson, Howrey, Simon, Arnold & White, to Magalie Roman

that such sharing is feasible. Through Northpoint's patient efforts, the Commission has moved from an initial position of skepticism and disbelief to the creation of a new Multichannel Video Distribution and Data Service based on Northpoint's revolutionary technology.

Having staked out a position as the creator and leader of the nascent MVDDS industry in the United States, Northpoint is legitimately concerned not only about the potential for harmful interference posed by MDSA's proposed tests but also about the quality of the data to be gathered. The DBS operators are continuing their efforts to strangle MVDDS in its crib, and they are pressing their claims both before the Commission and in federal court. The DBS industry will seize on any harmful interference generated in the Clewiston tests, any infelicities in the test plan, and any anomalies in the data gathered (or the analysis thereof) as a pretext to thwart the deployment of any MVDDS service. Northpoint therefore has a strong incentive to help vindicate the public interest in seeing that any tests are conducted in a safe and scientifically valid way.

Conclusion

Northpoint is legitimately concerned that MDSA's proposed test risks tarnishing the reputation of the entire MVDDS industry just as the industry is getting off the ground. The public interest requires that, before MDSA's application is approved, MDSA must provide some reasonable assurance that it will avoid harmful interference to DBS and gather useful data during its proposed tests. This it has failed to do. MDSA's application should therefore be denied.

Dated: September 23, 2002

Respectfully submitted,

/s/ J.C. Rozendaal

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Counsel for Northpoint Technology, Ltd.

Salas, Secretary, FCC, ET Docket 98-206 (FCC filed Aug. 3, 2001). Evidently, the FCC rejected these requests.

CERTIFICATION REGARDING TECHNICAL MATERIAL

I, Robert A. Combs, am Director of System Development for Broadwave USA, Inc. I have a master's degree in Communication Systems Engineering from the University of Virginia and a bachelor's degree in Aerospace Engineering from the University of Texas at Austin. I am familiar with the technical and operational characteristics of the Northpoint system.

I certify that I am the technically qualified person responsible for the preparation of the technical material in this filing. The contents are complete and accurate to the best of my knowledge.

/s/ Robert A. Combs

Robert A. Combs
Director of System Development
Broadwave USA, Inc.

CERTIFICATE OF SERVICE

I hereby certify that, on this 23rd day of September 2002, I caused copies of the foregoing *Response of Northpoint Technology, Ltd. to MDS America, Inc.'s September 13, 2002 Supplement to Application Requesting Modification of Experimental License* to be served upon the parties on the attached service list by e-mail and by hand-delivery.

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