

From: Rozendaal, J. C.
To: James Burtle, Bryan Tramont, Barry Ohlson, Samuel Feder, Paul Margie, John Branscome, 'nkspooner@swidlaw.com'
Date: 12/18/02 3:49PM
Subject: Application for Review of OET's Decision Granting Modified Experimental License to MDS America, Inc

On November 18, 2002, pursuant to delegated authority, the OET granted an application by MDS America, Inc., for a modified experimental radio station license. Today, Northpoint Technology, Ltd., applies for review of this decision by the full Commission and for a stay pending review. The attached application will be filed with the Secretary this afternoon in the Matter of MDS America Inc. Application for Modified Radio Station Under Part 5 of FCC Rules -- Experimental Radio Service, File Nos. 0005-EX-ML-2002 and 0063-EX-RR-2002.

A hard copy for you is being delivered by hand this afternoon as well. This courtesy copy is being sent in electronic form to ensure its prompt arrival.

If you have any questions or desire further information, please contact me.

<<Application for Review and Stay.pdf>>

Yours sincerely,
J.C. Rozendaal
Kellogg, Huber, Hansen, Todd & Evans, P.L.L.C.
Sumner Square
1615 M Street, N.W., Suite 400
Washington, D.C., 20036
Main: (202) 326-7900
Direct: (202) 326-7985
Fax: (202) 326-7999

Counsel for Northpoint Technology, Ltd.

CC: Antoinette C. Bush [E-mail], Kellogg, Michael K.

**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
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**NORTHPOINT TECHNOLOGY, LTD.'S
APPLICATION FOR REVIEW
AND FOR STAY PENDING REVIEW**

Antoinette Cook Bush
Northpoint Technology, Ltd.
444 North Capitol Street, N.W.
Suite 645
Washington, D.C. 20001
(202) 737-5711

Michael K. Kellogg
J.C. Rozendaal
Kellogg, Huber, Hansen,
Todd & Evans, P.L.L.C.
1615 M Street, N.W., Suite 400
Washington, D.C. 20036
(202) 326-7900

Counsel for Northpoint Technology, Ltd.

December 18, 2002

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**NORTHPOINT TECHNOLOGY, LTD.'S
APPLICATION FOR REVIEW
AND FOR STAY PENDING REVIEW**

Northpoint Technology Ltd. ("Northpoint"), through its attorneys, hereby seeks review of a November 18, 2002, decision of the Commission's Office of Engineering and Technology ("OET") in the above-captioned matter to grant an application by MDS America, Inc. ("MDSA") for modification and extension of MDSA's experimental license to make terrestrial broadcasts in the 12.2-12.7 GHz spectrum (the "12 GHz band"), which is currently used chiefly for Direct Broadcast Satellite ("DBS") service.

Introduction and Summary

The Commission should reverse the OET's decision and rescind MDSA's modified experimental license because the OET has specifically required MDSA to use an antenna configuration that will infringe patents owned by Northpoint and because the OET failed to comply with the Administrative Procedure Act's requirement of reasoned decisionmaking.

I. In granting MDSA's application, the OET imposed a condition that the antenna shall be oriented so that the maximum ERP is directed southwards. This

condition in effect *requires* MDSA to infringe one or more patents owned by Northpoint, the company that first developed and demonstrated to this Commission the technology needed to make ubiquitous satellite-terrestrial sharing of spectrum feasible. In fact, Northpoint believes that *any* tests MDSA may carry out will infringe Northpoint's patents regardless of whether this condition is respected. But it is one thing for a private party to infringe a patent, and it is quite another for this Commission to *mandate* infringement as a condition of operation under an experimental license. As a matter of simple respect for the decision of the U.S. Patent and Trademark Office in granting Northpoint's patents, the Commission should not require other would-be terrestrial broadcasters to use Northpoint's proprietary technology in order to comply with the Commission's licensing conditions or service rules for Multichannel Video Distribution and Data Service ("MVDDS").

II. The experimental license at issue allows MDSA to broadcast over populated areas in and around Clewiston, Florida, from a 181-meter tower, in the rain, without respecting the Commission's recently adopted limits on equivalent isotropically radiated power ("EIRP") or equivalent power flux density ("EPFD") for terrestrial broadcasts in the 12 GHz band. As a result, MDSA's operations pose a serious threat of harmful interference to DBS operations. In an apparent effort to reduce this threat, the OET limited MDSA to transmitting at a maximum power of 23.8 watts ERP. The 23.8-watt figure was not advocated by any party to the proceeding; the OET appears to have picked it out of thin air. Indeed, the record is devoid of any basis for the OET's choice of this power level, which, in the absence of any EPFD limit, still leaves thousands of

Clewiston residents at risk of harmful interference. The lack of any explanation for its decision renders the OET's grant of MDSA's license arbitrary and capricious.

III. MDSA has previously used its experimental license to conduct tests in Clewiston ostensibly designed to demonstrate MDSA's ability to share the 12 GHz band with DBS operators without causing harmful interference. In fact, however, the resulting test report not only revealed methodological errors and unexplained anomalies in the test data but also failed to make any attempt to quantify the effect of MDSA's transmissions on DBS reception. Consequently, the report did not support MDSA's claims. Despite the lack of any evidence that MDSA could avoid or mitigate harmful interference to DBS, the OET modified the terms of MDSA's experimental license to permit operations from a much higher elevation and in the rain, thus dramatically increasing the interference potential. This action was arbitrary and capricious, as was the OET's decision to grant the modified license without obtaining adequate assurances that MDSA will generate usable data in future tests.

For all these reasons, the Commission should reverse the OET's grant of the extension and modification of MDSA's experimental license. The effect of OET's order should be stayed pending review by the full Commission pursuant to 47 C.F.R. § 1.102.

Argument

I. The OET Wrongly Conditioned MDSA's License On an Antenna Configuration That Will Infringe Northpoint's Patents

Northpoint first approached the Commission more than eight years ago, seeking permission to test and then deploy its revolutionary but proprietary and patented technology to make terrestrial use of spectrum already being used by satellite services.

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), Northpoint has demonstrated that, with appropriate technology, a terrestrial operator can ubiquitously share spectrum with satellite operators. Through Northpoint's patient efforts, the Commission has moved from an initial position of skepticism and disbelief to the creation of a new MVDDS service based entirely on Northpoint's technology – the only technology actually submitted to the MITRE Corporation for the independent technical demonstration required by law.¹

Among the techniques, Northpoint's technology takes advantage of the directionality of satellite receiving antennas. For example, it is well known that the geostationary satellites used for DBS broadcasts are located over the equator; accordingly, DBS receiving antennas in the northern hemisphere must point towards the south. Northpoint's founders had the insight that the DBS frequencies could be re-used by terrestrial broadcasters coming from another direction. Accordingly, if a terrestrial transmitter were broadcasting southwards from a location to the north of some DBS receiving antennas, then those same antennas could pick up signals from the terrestrial transmitter if they were pointed north. This example provided the inspiration for the company's name, Northpoint.

The use of directionally oriented transmitting and receiving antennas to minimize interference is an important feature of certain of Northpoint's patents, including U.S. Pat.

¹ See 47 U.S.C. § 1110; The MITRE Corp., MITRE Technical Report, *Analysis of Potential MVDDS Interference to DBS in the 12.2-12.7 GHz Band* (FCC sponsored report, Project No. 1201 FCC2-01, Apr. 2001) ("MITRE Report").

No. 6,169,878 and 5,761,605.² OET relied upon this patented feature of Northpoint's technology in granting MDSA's experimental license. Specifically, OET imposed a condition that "the antenna shall be oriented so that the maximum ERP is directed towards 180 degrees."³ This condition in effect *requires* MDSA to infringe Northpoint's patents by orienting its transmission directionally towards the south.

As a practical matter, Northpoint believes that *any* tests MDSA may carry out will infringe Northpoint's patents in various ways. In fact, MDSA has already carried out experimental broadcasts in Clewiston under the previous terms of its experimental license, and Northpoint has sued MDSA for patent infringement as a result of those tests.⁴ But this time around, the OET has directly incorporated a specific, patented feature of Northpoint's technology into its grant of a license to another company. This is tantamount to an FCC mandate for MDSA to infringe.

Northpoint has long made it clear that it does not seek to be the exclusive provider of terrestrial broadcast services in the 12 GHz band. Others may create and use their own technologies, if they are ingenious enough to do so without infringing Northpoint's patent rights in the process. But Northpoint's patents give Northpoint the exclusive rights to the technology claimed in the patents. Having been duly issued by the U.S. Patent and Trademark Office, Northpoint's patents enjoy a legal presumption of validity that the OET should have respected.

² For example, claim 18 of U.S. Pat. No. 6,169,878 is directed to a terrestrial transmitter that broadcasts on a common frequency with DBS satellite signals from a direction outside the directional reception range of receivers pointed to receive the DBS satellite signals.

³ Experimental Radio Station Construction Permit and License, Special Condition 13, File No. 0005-EX-ML-2002, at 2, (OET rel. Nov. 18, 2002).

⁴ *Northpoint Technology, Ltd. v. MDS America, Inc.*, No. 01-14207-C IV (S.D. Fla.) (pending).

Northpoint has often expressed concern that the Commission might, either intentionally or inadvertently, so enshrine Northpoint's technology into its MVDDS regulations or other regulatory requirements that third parties like MDSA would be *obliged* to infringe in order to make use of their FCC licenses.⁵ That is one reason why Northpoint has consistently advocated that the Commission should refrain from creating an MVDDS service and should instead authorize deployment of terrestrial operations in the 12 GHz band on a case-by-case basis using its waiver authority.⁶ This most recent action by OET, which expressly requires infringement as a condition of an FCC license, confirms Northpoint's worst fears in this regard.

The Commission should refuse to encourage or require infringement of Northpoint's duly issued patent rights through the terms of the broadcast licenses that it issues. The OET's grant of an experimental license conditioned upon the use of southward-oriented antennas should be reversed.

II. The OET Arbitrarily and Capriciously Set an Inadequate ERP Limit and Failed To Provide Any Explanation of Its Decision in the Record

Currently, the Commission has an EIRP limit of 14 dBm per 24 MHz for terrestrial operations in the 12 GHz band.⁷ MDSA initially sought permission to operate its transmitter at no less than 1000 Watts ERP, but subsequently lowered its request to

⁵ See, e.g., Ex parte letter from J.C. Rozendaal (representing Northpoint) to Magalie Roman Salas, Secretary, FCC, ET Docket 98-206, at 2 (FCC filed Sept. 19, 2001); Ex parte Letter from Walter E. Hanley, Jr. (representing Northpoint) to Jane E. Mago, General Counsel, FCC, ET Docket 98-206, at 1-2 (FCC filed Sept. 19, 2001); Ex parte letter from Michael K. Kellogg (representing Northpoint) to Jane E. Mago, General Counsel, FCC, ET Docket 98-206, at 2-3 (FCC filed Oct. 12, 2001).

⁶ See, e.g., Comments of Northpoint Technology, Ltd., ET Docket 98-206, at 31 (FCC filed Mar. 12, 2001); Reply Comments of Northpoint Technology, Ltd., ET Docket 98-206, at 7-8 (FCC filed Apr. 5, 2001).

⁷ See 47 C.F.R. § 101.113 n.10.

39.8 Watts ERP.⁸ 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 98-206.⁹

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.¹⁰ 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 "caution[ed] 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."¹¹ MDSA provided no information whatsoever regarding how it proposes to do this, however. MDSA never said what data it will collect or how it intends to show that the EPFD limits are not needed. It is clear, however, that MDSA plans to exceed the EPFD limit.

⁸ See Ex Parte letter from Nancy K. Spooner, Swidler, Berlin, Shereff, Friedman, LLP, to Marlene H. Dortch, Secretary, FCC, File No. 0005-EX-M L-2002 (FCC filed July 19, 2002).

⁹ See MDSA Petition for Reconsideration of Second Report and Order, ET Docket No. 98-206, at 6 (FCC filed July 19, 2002) (proposing 39 dBm EIRP limit).

¹⁰ See Comments of DirecTV in response to Further Notice of Proposed Rulemaking, ET Docket 98-206, at 27 (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.").

¹¹ Supplement to Application of MDS America, Inc., Requesting Modification of Experimental License, File No. 0005-EX-M L-2002, at 4 (OET filed Sept. 13, 2002) ("Sept. 13 Supplement").

The Commission's EPFD limit in Florida is $-168.4 \text{ dBW/m}^2/4\text{kHz}$.¹² 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.

In the proceedings before the OET, Northpoint submitted calculations showing that, by operating at an ERP of 39.8 watts, from a 181-meter-high tower (and to do so in the rain, when the DBS operators claim that interference is more likely to occur), MDSA planned to exceed the allowable EPFD limits by a level that would have put more than 18,000 Clewiston residents at risk of harmful interference and more than 3,000 at risk of losing their DBS signal entirely.¹³ Further review of the data reveals that these numbers significantly understate the scope of the problem. Due to a previously undetected error in the modeling software, one of the parameters was inverted. As a result of this error, one of the interference lobes was inverted 180-degrees and thus appeared to the south of the transmitter rather than to the (more populous) north, where it belongs.

Without providing any explanation, the OET trimmed MDSA's allowed power level by 16 watts, thus reducing the EIRP from 48 dBm to 46 dBm – a reduction of only 2 dB. The new EIRP is still 32 dB in excess of the EIRP limit that the Commission recently established from MVDDS operators and 7 dB higher than MDSA itself advocated as a limit for MVDDS operations.

¹² See 47 C.F.R. § 101.105 (a)(4)(ii)(B)(1).

¹³ Response of Northpoint Technology Ltd. to MDS America Inc.'s September 13, 2002, Supplement to Application Requesting Modification of Experimental License, File No. 0005-EX-M L-2002, at 3-4 (OET filed Sep. 23, 2002) ("Northpoint Response to Supplement").

Using MDSA's most recent supplemental filing regarding its antenna pattern,¹⁴ the reduced EIRP, and the corrected parameter in the modeling software, Northpoint has modeled the interference environment in Clewiston that will result from MDSA's proposed tests. As shown in attached Figures 1 and 2, even with OET's reduced power level, the interference is more severe than previously anticipated.

Northpoint estimates that, under the terms of the modified experimental license, MDSA will put approximately 40,000 persons at risk of harmful interference and more than 7,000 at risk of losing their DBS signal entirely, even in clear air. There may be some scenarios in which such risks are justified, but OET did not explain why the present situation is one of them.

No party to the proceedings below ever advocated the 23.8-watt figure, nor did the OET provide any reasons in the record of how and why it chose that figure. It is black-letter administrative law that an agency "must examine the relevant data and articulate a satisfactory explanation for its action." *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). Where the agency has failed to provide a reasoned explanation, or where the record belies the agency's conclusion, a reviewing court must undo its action. *Petroleum Communications, Inc. v. FCC*, 22 F.3d 1164, 1172 (D.C. Cir.1994). These principles require that the Commission undo OET's unreasoned, unsupported decision to allow MDSA to ignore not only the Commission's recently established EPFD limit but also its recently established EIRP limit. This is

¹⁴ *See generally* Further Supplement to Application of MDS America, Inc., Requesting Modification of Experimental License File No. 0005-EX-M L-2002 (OET filed Oct. 29, 2002).

especially important because the interference risks involved are not counterbalanced by any reliable plan to collect useful data, as discussed below.

III. OET Lacked Sufficient Data to Conclude That MDSA Could Operate Without Causing Harmful Interference to DBS and Failed to Ensure That Any Future Tests Would Yield 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. MDSA's basic plan is to repeat the tests it did under its first experimental license.¹⁵ In the proceedings below and in ET Docket 98-206, Northpoint has already detailed the many flaws in MDSA's first test report.¹⁶ That catalog of problems will not be repeated in full here, but OET's failure even to acknowledge the criticisms Northpoint has raised bodes ill 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. 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, even though these problems with the data have been large enough to mask any change in DBS performance and render it unrecognizable.¹⁷ MDSA has yet to explain how it plans to fix the problem.

¹⁵ Sept. 13 Supplement at 3-4.

¹⁶ Petition to Deny of Northpoint Technology, Ltd., File No. 0005-EX -ML-2002, at 5-7 (OET filed Sep. 23, 2002) ("Petition to Deny"); Ex Parte Letter from J.C. Rozendaal (representing Northpoint) to Magalie Roman Salas, Secretary, FCC, ET Docket 98-206 (FCC filed Nov. 2, 2001), at 3-6 (copy also included as attachment to Petition to Deny).

¹⁷ For instance, the LCC report on MDSA's tests acknowledges an unquantified "almost constant bias in received power levels between the observations of DBS signal" and suggests that the cause might be "changes in the weather" that just happened to be correlated with the MDS transmitter state. See LCC Report at 15 (attached as exhibit to current MDSA application for modification of experimental license terms). As a result of this bias, in examining any set of data points in the LCC Report, it is impossible to determine whether the data shown reflect the bias or portray an actual change in DBS performance that resulted from MDSA's operations. In addition, MDSA has never

More fundamentally, however, the LCC Report on MDSA's first round of tests says nothing about MDSA's ability to coexist with DBS without causing harmful interference. That is because the LCC Report *makes no attempt to quantify the effect of MDSA's transmissions on DBS reception*. The report is simply devoid of any 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.

Repeating the same flawed tests would be pointless. Repeating the tests from a higher tower in the rain is potentially harmful. Yet despite the absence of adequate data from the first test to suggest that MDSA could operate without causing harmful interference to DBS, and despite the lack of any plan to collect meaningful data in future tests, the OET granted MDSA's application to modify its license so as to increase the risks without providing any corresponding benefit. The Commission should require that MDSA develop and implement a plan to collect meaningful data under the previous terms of its experimental license before increasing the tower height and operating in the rain.

The Commission can take no comfort in MDSA's empty promise "to provide a more detailed test report no later than 1 week before testing is to commence *after grant of*

provided any adequate explanation for how a carrier that was supposedly 27 MHz wide impacted the DBS system across at least 100 MHz of bandwidth. *Compare* LCC Report at 9 (claiming 27-MHz carrier) *with id.* at 26, Fig. 7 (showing impact in the form of a saw-tooth pattern over 100 MHz, the full frame shown in the figure).

authority.”¹⁸ 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.

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 protection of its patent rights but also about the potential for harmful interference posed by MDSA’s proposed tests and 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. The OET should have required MDSA to provide more and better data before modifying the terms of its experimental license.

¹⁸ Sept. 13 Supplement at 4 (emphasis added).

Conclusion

The OET has erroneously mandated that MDSA infringe Northpoint's duly issued U.S. Patents in order to comply with the terms of MDSA's experimental license. In addition, the OET has erroneously failed to require that MDSA provide some reasonable assurance that it will avoid harmful interference to DBS and gather useful data during its proposed tests. In view of these errors, the OET's grant of MDSA's application should be reversed, and the application for modification of MDSA's license should be denied. In addition, the effect of the OET's decision should be immediately stayed pursuant to 47 C.F.R. § 1.102 pending review by the full Commission.

Dated: December 18, 2002

Respectfully submitted,

/s/ J.C. Rozendaal

Antoinette Cook Bush
Northpoint Technology, Ltd.
444 North Capitol Street, N.W.
Suite 645
Washington, D.C. 20001
(202) 737-5711

Michael K. Kellogg
J.C. Rozendaal
Kellogg, Huber, Hansen,
Todd & Evans, P.L.L.C.
1615 M Street, N.W., Suite 400
Washington, D.C. 20036
(202) 326-7900

Counsel for Northpoint Technology, Ltd.

CERTIFICATION REGARDING TECHNICAL MATERIAL

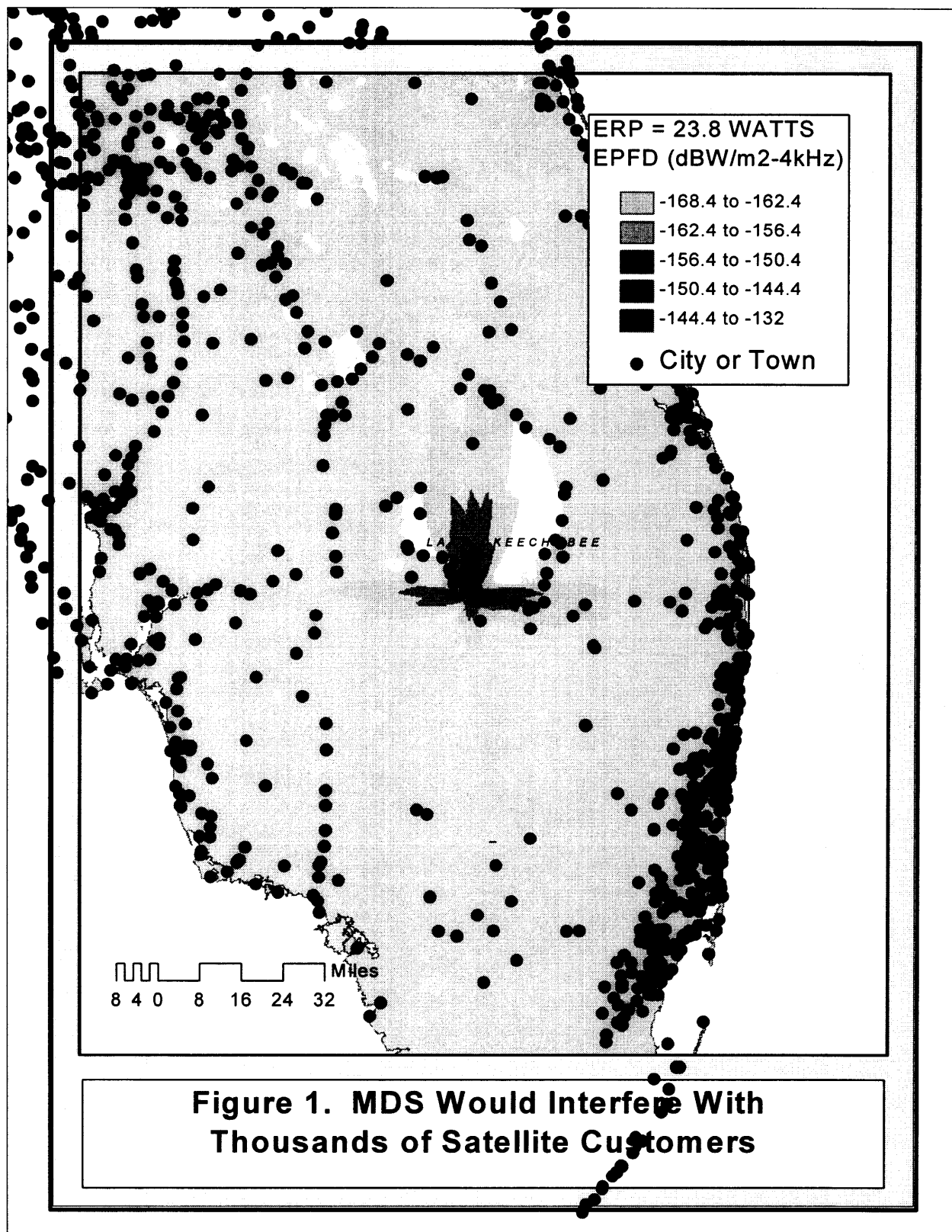
I, Robert A. Combs, am Director of System Development for Broadwave USA, Inc. I have a master's degree in Communication Systems Engineering from the University of Virginia and a bachelor's degree in Aerospace Engineering from the University of Texas at Austin. I am familiar with the technical and operational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

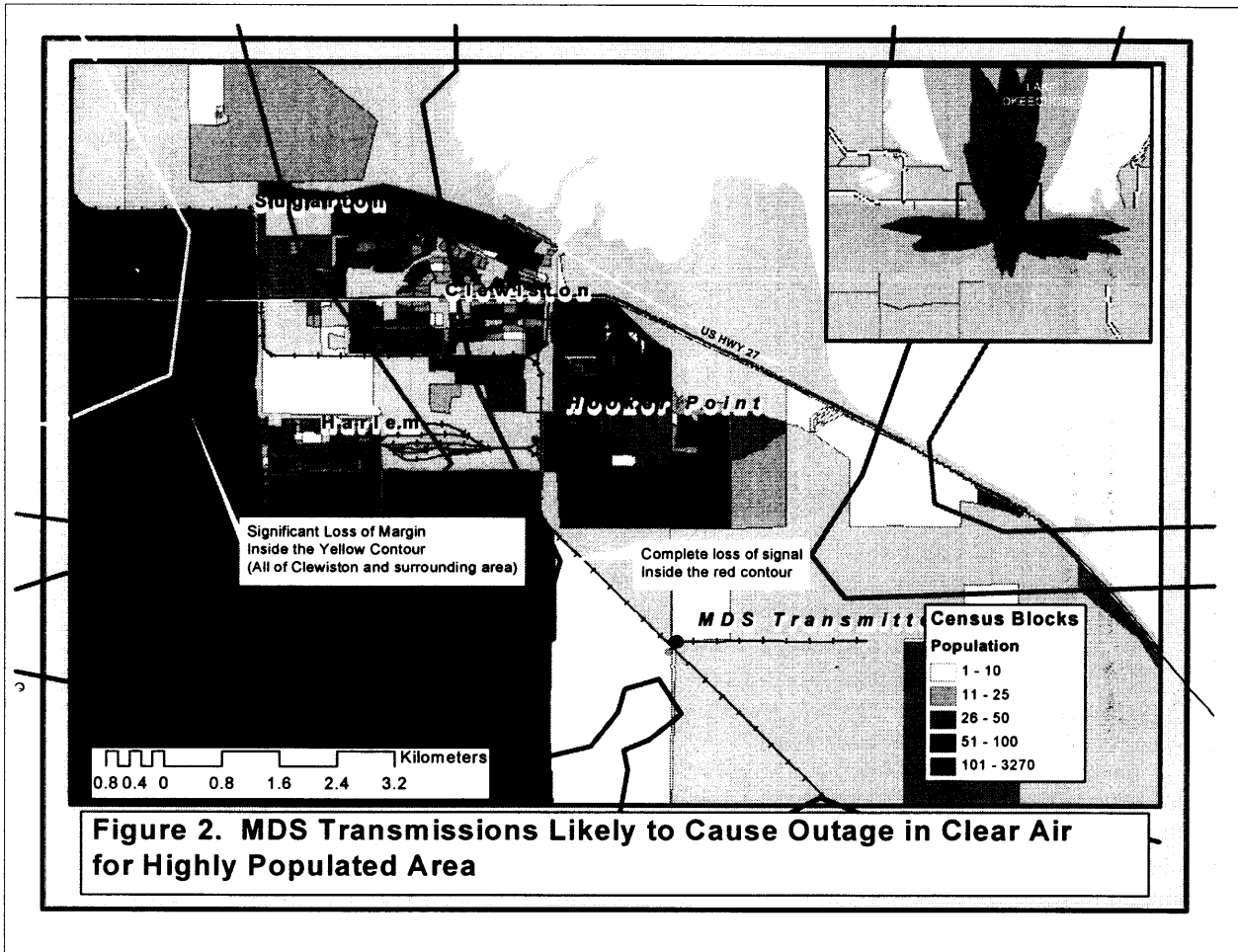
I certify that I am the technically qualified person responsible for the preparation of the technical material in this filing. The contents are complete and accurate to the best of my knowledge.

Dated: December 18, 2002.

/s/ Robert A. Combs

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





CERTIFICATE OF SERVICE

I hereby certify that, on this 18th day of December, 2002, I caused copies of the foregoing *Northpoint Technology Ltd.'s Application for Review and for Stay Pending Review* to be served upon the parties on the attached service list by e-mail (indicated by asterisk) and by hand-delivery.

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

James R. Burtie*
Chief, Experimental Licensing Branch
Office of Engineering & Technology
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Bryan Tramont*
Office of Chairman Powell
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Barry Ohlson*
Office of Commissioner Adelstein
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Sam Feder*
Office of Commissioner Martin
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Paul Margie*
Office of Commissioner Copps
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

John Branscome*
Office of Commissioner Abernathy
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Nancy K. Spooner*
Swidler Berlin Shereff Friedman, LLP
The Washington Harbor
3000 K Street N.W., Suite 300
Washington, D.C. 20007-5116

/s/ Shonn Dyer

Shonn Dyer