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February 28, 2000

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

VIA HAND DELIVERY

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
The Portals, 445 12th Street, S.W.
Counter TW-A325
Washington, D.C. 20554

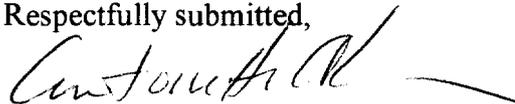
Re: Ex Parte Submission of Northpoint Technology, Ltd.
ET Docket No. 98-206, RM-9147, RM-9245

Dear Ms. Salas:

In accordance with Section 1.1206 of the Commission's rules (47 CFR § 1.1206), this letter is written to notify you that on Thursday, February 24, 2000, Sophia Collier and Linda Rickman of Northpoint Technology, Ltd. ("Northpoint"), Habib Riazi of Lucent Technologies, and I met with the individual listed below. The issues discussed are summarized in part, in Attachment 1 hereto. In addition, the parties discussed the rulemaking proceeding and Northpoint's pending license applications. The documents referenced in the discussions are also attached.

An original and six copies of this letter and attachments are submitted for inclusion in the public record for the above-captioned proceedings. Please direct any questions concerning this submission to the undersigned.

Respectfully submitted,



Antoinette Cook Bush
Counsel for Northpoint Technology, Ltd.

cc: Ari Fitzgerald

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Attachment 1

Presentation Overview

- Response to erroneous DirecTV claims on Northpoint testing
 - Harmful interference
 - Northpoint performance during rain events
 - Unavailability
- Methodology for calculating C/I contours
- Washington DC deployment conceptual design
- STA

Response To DirecTV Claims of Harmful Interference

- DirecTV's entire report rests primarily on a single location (Ericsson Memorial) where DirecTV claims to have recorded a signal strength meter depression of 8 ticks for Echostar 61.5
- The FCC Compliance and Information Bureau Report directly refutes DirecTV's claim of harmful interferences at this exact location
 - FCC CIB found a 1.18 tick change and “no harmful interference”
- How did DirecTV produce this 8 tick difference?
 - DirecTV simulated “Northpoint off” by shielding the DBS dish, thus blocking adjacent BSS interference of up to 20 dB C/I (p. 35, 39)
 - DirecTV used a modified DBS dish antenna (“removed from mount”) (p. 45)
 - Result: higher than actual initial reading combined with lower actual final reading = greater than actual difference
 - DirecTV, itself, admits the Ericsson data is higher than the signal meter readings predicted by its own propagation model (p. 49)

Response to DirecTV

Northpoint Performance in Rain

- DirecTV claims the Ericsson data is the basis of its New York rain test, yet in New York DirecTV used a “power level for Northpoint” that was **twice** as high as even the erroneous Ericsson Memorial readings (p. 25 - 26)
- In its single reported test, DirecTV injected artificial noise into its receiver and drove it down by at least 12 - 14 ticks - Even in this unrealistic case the resulting “rain outage” was minimal: only 1 minute and 40 seconds (p. 25 - 26)
- Had DirecTV used actual values from Northpoint’s Washington test, DirecTV would not have been able to show any outage whatsoever, just as no outage occurred in the real world during Northpoint operation during Hurricane Floyd
- DirecTV attempts to explain the lack of outage during Hurricane Floyd with a statement that Hurricane Floyd was a “moderate” rain event - despite the fact that Hurricane Floyd’s rain rates exceeded the critical 0.1% rain rate which is sufficient to cause outages to a system with 99.9% availability

Response to DirecTV

Northpoint Impact on DirecTV Unavailability

DirecTV Unavailability Claims in Summary:

- “The highest level of interference recorded by DirecTV was found at site 5...[where] DirecTV recorded a change in signal meter reading of 3 counts...equat[ing] to a 15% or higher degradation in unavailability.” (p. 41)
- “The calculated availability for this Washington, D.C. link is 99.9399%. When measured interference is included, this link availability is reduced to 99.9307%, which results in a 15.4% unavailability for the DirecTV service.” (p. 38)

Response to DirecTV Unavailability Discussion

- Northpoint believes that DirecTV's test procedures overstated Northpoint "interference" and that DirecTV has improperly extrapolated from the "worst case" to the "general case," but even accepting DirecTV's data and logic at face value, the DirecTV claim of harm from Northpoint is not compelling.
- The math for DirecTV's "highest level of interference":

DirecTV availability	99.9399%
After Northpoint	99.9307%
DirecTV claim of impact	00.0092%
DirecTV projected minutes per year of outage	48
Minutes per month	4
% of day when TV is on in the home (50 hrs/week)	30%
DirecTV consumer impact in minutes per month	1.2

Northpoint Network Design Methodology

- Northpoint has developed a detailed methodology for predicting interaction between DBS and Northpoint services – this will be used as a design tool to layout Northpoint terrestrial networks
- The methodology predicts the number of homes in various parts of its service area and the impact of its service on DBS. It is used iteratively to develop network designs that meet desired carrier to interference ratios (“C/I ratios”)
 - Uses an algorithm to calculate power levels for both services at given points including:
 - "RMD" propagation model (reflection plus multiple diffraction loss) to determine the signal strength at a receive location
 - DBS antenna characteristics
 - Integrates these points into contours and determines the area and population within a given C/I ratio contour.

Application of Methodology

Washington, D.C Conceptual Design

- Northpoint households served: 1,303,245
- Square miles: 1,700
- Sites: 23
- Average tower height: 330 feet

C/I Contour		
Households within contour	20 dB	15 dB
% total households	303	25
Households without natural shielding (14%)	0.02%	0.002%
DBS market share factor (10%)	42	4
	4	0

Based on a national survey of 400 DBS owners filed with the FCC in July 1999

Northpoint Technology February 9, 2000

General Northpoint Deployment

- General discussion
 - Each Northpoint cell will be individually engineered to provide coverage to its intended service area and to prevent harmful interference to DBS
 - As a terrestrial service Northpoint has a wide range of techniques available to customize individual cells
 - In order to maximize coverage areas and minimize interference to DBS Northpoint will use all of these techniques to meet its goals
 - Antenna height
 - Antenna pattern
 - Mechanical beam tilting
 - Beam forming
 - Reduced power in populated areas
 - Higher power in unpopulated areas
 - Pointing away from population
 - New technologies

Northpoint – NGSO Co-Sharing With DBS

- Taken together, the impact from the total increase in noise from the full deployment of NGSO (at current EPFD limits) and Northpoint will not exceed the larger of:
 - 10% increase in DBS unavailability or
 - 5 minutes per month
- Northpoint's contribution to increased unavailability is significantly less than the NGSO's because Northpoint's average C/I ratio - even before accounting for natural shielding - exceeds 41.6, a level at which the increase in DBS unavailability is less than .05%

Attachment 2

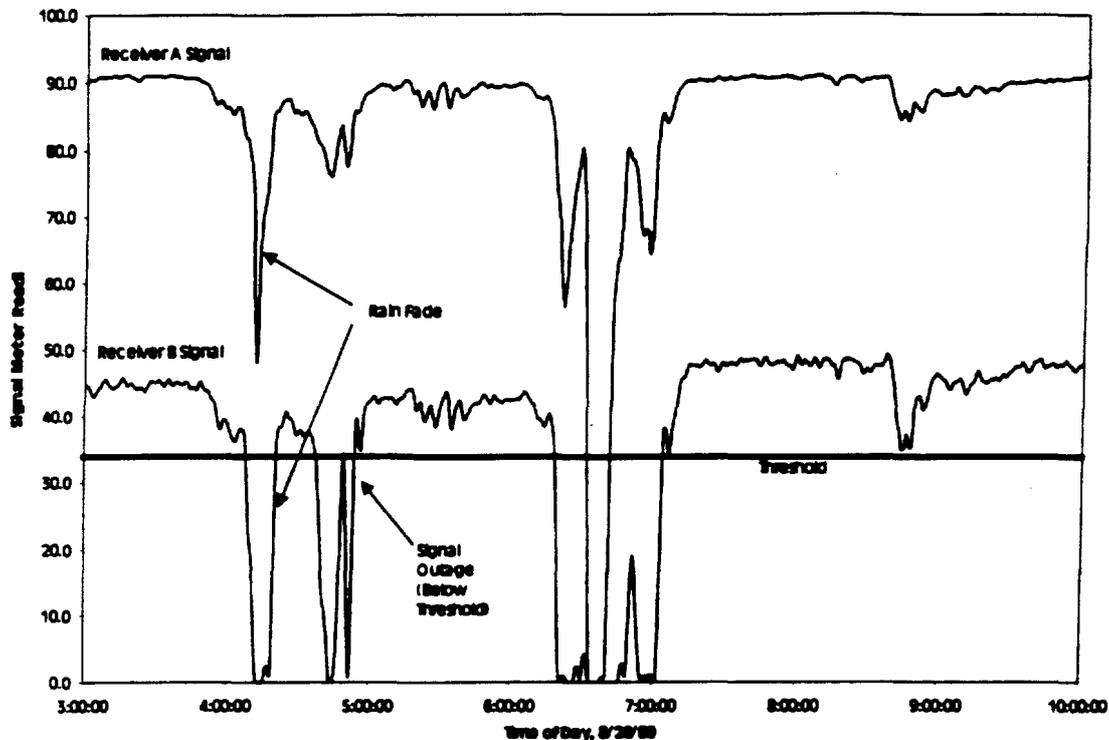


Figure 3.4.1.1-1: New York Rain Event, August 26, 1999

Later the same day, the rain rate reaches a sufficiently high level to cause even Receiver A to lose lock. This occurs near 6:30 on the time line. Note, however, that Receiver B with its significantly reduced clear-sky margin loses lock much earlier than Receiver A, and recovers much later.

In summary, Receiver B has suffered both more frequent and longer rain outages than Receiver A because of the added interference.

3.4.1.2 New York Rain Event of October 4, 1999

After a clear case of interference was observed at the Ericsson Memorial/Polo Field site in the Northpoint Washington, D.C. demonstration, DIRECTV went to its New York site with the goal of testing a similar interference level in rain conditions. The C/I level of the New York test equipment was set at 16.6 dB under clear-sky conditions (slightly higher than the C/I of 16 dB measured at the Ericsson Memorial / Polo Field site in Washington, D.C.). Results from one rain event after this interference level readjustment are discussed below and shown in Figure 3.4.1.2-1.

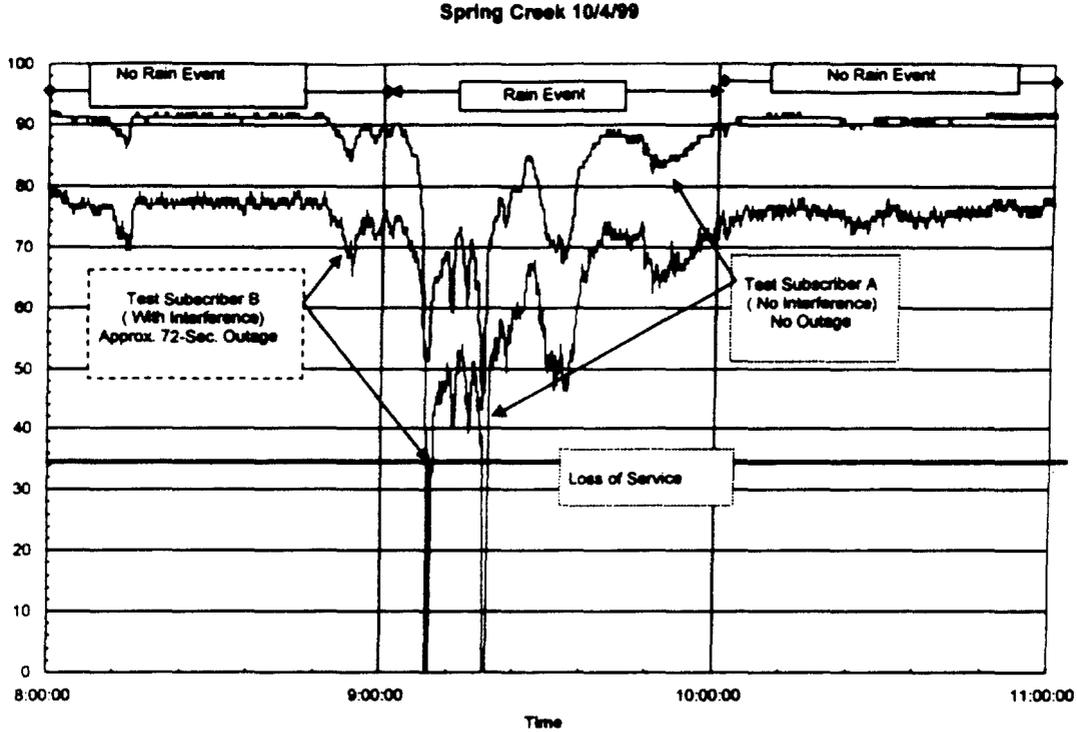


Figure 3.4.1.2-1: New York Rain Event, October 4, 1999

Figure 3.4.1.2-1 shows the recorded performance of a rain event (with and without interference) during a three-hour rain event on October 4, 1999. From observations of the clear-sky signal meter readings and from the calibration figures for this receiver, it appears however that the C/I ratio was near 13.7 dB on this day. As before, test Subscriber A receiver (IRD1) was identical to test Subscriber B receiver (IRD2). Test subscriber A receiver (IRD1) had no interference. Test subscriber B receiver (IRD2) had added noise equivalent to a C/I of about 13.7 dB

Here, Receiver A again has a nominal clear-sky signal meter value of approximately 92, corresponding to a C/(N+I) of about 16 db. Again note that the added interference has degraded the clear-sky C/(N+I) of Receiver B, whose signal meter level is now around 78.

An outage (loss of signal) again occurs when the signal meter drops below approximately 34, corresponding to a C/N below about 6 dB. As clearly demonstrated Receiver B (with added interference) suffered rain fades in this event while Receiver A suffered no rain fades.

3.4.1.3 Summary of New York Rain Observations

Attachment 3

ROUTING AND TRANSMITTAL SLIP

Date 10/06/99

TO: (Name, office symbol, room number, building, Agency/Post)

Initials

Date

1. James Burtie

2.

3.

4.

5.

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As Requested	For Correction	Prepare Reply
Circulate	For Your Information	See Me
Comment	Investigate	Signature
Coordination	Justify	

REMARKS

Attached is CIB's final report regarding the test conducted on Diversified's system.

DO NOT use this form as a RECORD of approvals, concurrences, disposes, clearances, and similar actions

FROM: (Name, org. symbol, Agency/Post)

George R. Dillon

George R. Dillon

Room

Phone

5941-102

U.S. GPO: 1990-251-781

OPTIONAL FORM 41 (Rev. 7-78)

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FFPMR (41 CFR) 101-11.208

FEDERAL COMMUNICATIONS COMMISSION

COMPLIANCE AND INFORMATION BUREAU

BACKGROUND

On September 28, 1999, the Compliance and Information Bureau received a request from the Office of Engineering and Technology to investigate an allegation that Diversified Communications Engineering (licensee of experimental station WA2XMY), Northpoint Communications, and Broadwave Communications, hereafter Diversified, was causing harmful interference to the operation of EchoStar and DirectTV.

Harmful interference is defined in the Commission's Rules as interference which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with the (international) Radio Regulations. 47 C.F.R. § 2.1.

OET noted that Diversified was testing its system in the Washington D.C. area and that DirecTV and EchoStar have alleged that the test is causing harmful interference to their operations. Further, according to OET, DirecTV and EchoStar have submitted test results showing that harmful interference exists. According to OET, Diversified has set up a test at the same site used by DirecTV and EchoStar and they have concluded that no harmful interference exists.

OET stated that a condition attached to the Diversified grant provides that the FCC shall determine if harmful interference exists in the case of a dispute and requested assistance from CIB to resolve the issue.

TEST procedure

On September 29, 1999, George Dillon, James Higgins and James Walker met with Dr. Darrell Word, Saleem Tawil, Sofia Collier, Katherine Reynolds and others representing Diversified.

The test was conducted at a traffic circle at the entrance to West Potomac Park (river side) southwest of intersection of Ohio Drive SW and Independence Ave SW, Washington, DC. The testing took place from approximately 10:00 a.m. to 12:00 noon. The test consisted of turning the Diversified transmitter on and off while observing television monitors tuned to EchoStar's and DirecTV's programming. The location was selected by Diversified and Diversified stated that it was the same location at which EchoStar and Direct TV reported the interference.

Mr. James T. Higgins accompanied Ms. Reynolds to the transmitter site, which was located on the rooftop of the USA Today building in Rosslyn, VA. Also at the transmitter was operator Floyd Nelson.

Mr. Dillon and Mr. Walker observed Diversified's monitors at Potomac Park. Diversified's transmitter was switched on and off while observations were made at the Potomac Park receive site of; a receiver "s-meter"; and of the TV picture.

Power levels at the transmitter during this testing were observed to be in the range (-0.5 dBm to -1.61 dBm), as indicated by a Hewlett Packard Power meter connected to the drop side of a directional coupler at the output of the transmitter. The transmitter operator in most cases adjusted levels to keep them nominally around -1.1 to -1.3 dBm range. Mr. Tawil stated that a reading of -1.5 dBm at the drop side of the directional coupler corresponds to an effective radiated power of +12.5 dBm. Testing was conducted on 12.47 GHz, then repeated on 12.4135 GHz. According to Mr. Tawil, the modulating signal was digital video with a 24 MHz bandwidth.

The results of the "s-meter" observations are shown in the following tables. Table 1 shows the predominant "s-meter" readings. Table 2 shows the number of samples, the average value of the samples and the standard deviation of the samples. We recognize that the sample size is small.

Table 1.

Diversified transmitter	EchoStar 61.5° (transponder 18)	EchoStar 61.5° (transponder 14)	EchoStar 119° (transponder 18)	Direct TV 101° (transponder 18)
	"s-meter" readings	"s-meter" readings	"s-meter" readings	"s-meter" readings
off	91 to 92	89 to 90	86 to 87	84 to 87
on	87 to 88	87 to 89	86 to 87	83 to 87.

Table 2

EchoStar 119 Transponder 18 channel 171		Echostar 61.5 Transponder 14 Channel 218		DirecTV Transponder 18 Channel 371	
Average "s-meter" reading when Diversified transmitter was on. Ten samples.	86.30	Average "s-meter" reading when Diversified transmitter was on. Twenty-nine samples.	88.34	Average "s-meter" reading when Diversified transmitter was on. Fifteen samples.	84.47
Average "s-meter" reading when Diversified transmitter was off. Fourteen samples.	86.21	Average "s-meter" reading when Diversified transmitter was off. Twenty-nine samples.	89.52	Average "s-meter" readings when Diversified transmitter was off. Twenty-five samples.	84.88
Standard deviation of "s-meter" readings when Diversified transmitter was on	0.48	Standard deviation of "s-meter" readings when Diversified transmitter was on.	0.86	Standard deviation of "s-meter" readings when Diversified transmitter was on.	1.92
Standard deviation of "s-meter" readings when Diversified transmitter was off	0.43	Standard deviation of "s-meter" readings when Diversified transmitter was off.	0.83	Standard deviation of "s-meter" readings when Diversified transmitter was off.	1.67

Test Results.

Diversified contends that the receiver "s-meter" is a relative indication of the signal or carrier to noise ratio and ranges from "0" to "100", "100" being the most desirable. We do not know what the variation in "s-meter" readings is between different receivers. We do know, however, that for the values of "s-meter" reading that we observed that we had a very good TV picture, TASO Grade 5.

Observations of TV programming showed no detectable degradation of the picture on EchoStar 119° channel 171 or Direct TV channel 317 when Diversified turned its transmitter on. As programming was not accessible on any EchoStar 61.5° channel operating on transponder 18, the tests were repeated on transponder 14 (channel 218) and again no degradation of the picture was noted.

We did not observe any harmful interference as defined in § 2.1 during this testing.