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SKADDEN, ARPS, SLATE, MEAGHER & FLOM LLP

1440 NEW YORK AVENUE, N.W.
WASHINGTON, D.C. 20005-2111

TEL. (202) 371-7000
FAX: (202) 393-5760

DIRECT DIAL
(202) 371-7230
DIRECT FAX
(202) 371-7996

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

September 20, 1999

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

Re: Diversified Communications Engineering and Northpoint Technology's **Notice of *Ex Parte* Presentation** Meeting Regarding ET Docket No. 98-206, RM-9147, RM-9245 and Northpoint's Washington Testing

Dear Ms. Salas:

Diversified Communications Engineering, Inc. ("DCE") and Northpoint Technology, Ltd. ("Northpoint") hereby submit for filing in the above-referenced proceeding notice of an *ex parte* meeting on Monday, September 20, 1999. Sophia Collier, Katherine Reynolds, Robert Combs, Roger Thurston, Floyd Nelson, Stacy Hatcher, Jonathan Vorhis and Adura Adekunjo of Northpoint, Saleem Tawil and Carmen Tawil of DCE, Dr. Darrell Word and the undersigned met with Douglas Webbink, Peter Pappas and Linda Haller of the International Bureau, and Robert Calaff legal advisor to Commissioner Harold Furchtgott-Roth. At the meeting, Northpoint demonstrated its technology. The materials discussed during the presentation are attached hereto.

Pursuant to Section 1.1206(b) of the Commission's rules, an original and one copy of this notice are being filed with the Secretary, and an additional copy is being served on the parties to the discussion.

Please date-stamp the attached duplicate upon receipt and return it via the messenger for our records. If any questions arise concerning this matter, kindly contact the undersigned.

Respectfully submitted,

Antoinette Cook Bush
Counsel for Diversified Engineering, Inc.
and Northpoint Technologies, Ltd.

cc: Douglas Webbink, IB
Peter Pappas, IB
Linder Haller, IB
Robert Calaff, OC
Sophia Collier, Northpoint
Saleem Tawil, DCE
Pantelis Michalopoulos, EchoStar
James Barker, DIRECTV

Sample of Demodulator Output Log

Time	Received level (dBm)	Eb/No (dB)	Symbol rate	Byte error rate before RS decoder	BER after decoding	Link margin (dB)	Lock indication
3:05:28 PM	-39.77	10.24	11.00	-	<1.0E-25	6.19	LOCKED
3:05:38 PM	-40.29	10.12	13.40	-	<1.0E-25	6.07	LOCKED
3:05:48 PM	-40.29	10.02	13.00	-	<1.0E-25	6.01	LOCKED

Sample Test Data

		SSP Meter (Northpoint Off) *			SSP Meter (Northpoint On) *		
Phase I Test No.	Site Name	DTV	ES1	ES2	DTV	ES1	ES2
Phase I 3	Kennedy Center	82.0	91.0	98.0	81.4	90.5	97.1
Phase I 3R	Kennedy Center	80.6	92.1	88.7	78.9	91.8	87.0
Phase I 3R2	Kennedy Center	82.7	91.8	88.7	81.1	91.1	88.1
Phase I 3R3	Kennedy Center	80.4	93.4	81.7	80.5	94.3	81.7
Phase III 3R4	Kennedy Center	82.9	91.5	84.3	81.4	91.5	83.2
	Average **	81.7	92.0	88.3	80.7	91.8	87.4
	Standard deviation	1.16	0.90	6.20	1.05	1.46	6.02
	Difference				-1.1	-0.1	-0.9

* Each value represents the average of 10 individual readings
** This is an average of fifty values

Sample Test Data

			SSP Meter (Northpoint Off) *			SSP Meter (Northpoint On) *		
Phase I	Test No.	Site Name	DTV	ES1	ES2	DTV	ES1	ES2
Phase I	3	Kennedy Center	82.0	91.0	98.0	81.4	90.5	97.1
Phase I	3R	Kennedy Center	80.6	92.1	88.7	78.9	91.8	87.0
Phase I	3R2	Kennedy Center	82.7	91.8	88.7	81.1	91.1	88.1
Phase I	3R3	Kennedy Center	80.4	93.4	81.7	80.5	94.3	81.7
Phase III	3R4	Kennedy Center	82.9	91.5	84.3	81.4	91.5	83.2
		Average **	81.7	92.0	88.3	80.7	91.8	87.4
		Standard deviation	1.16	0.90	6.20	1.05	1.46	6.02
		Difference				-1.1	-0.1	-0.9
Today's Value								
Today's Difference								

* Each value represents the average of 10 individual readings
** This is an average of fifty values

Sample Test Data

		SSP Meter (Northpoint Off) *		
Test No.	Site Name	DTV	ES1	ES2
3	Kennedy Center	82.0	91.0	98.0
3R	Kennedy Center	80.6	92.1	88.7
3R2	Kennedy Center	82.7	91.8	88.7
3R3	Kennedy Center	80.4	93.4	81.7
3R4	Kennedy Center	82.9	91.5	84.3
	Average **	81.7	92.0	88.3
	Standard deviation	1.16	0.90	6.20
Today's value				

* Each value represents the average of 10 individual readings
** This is an average of fifty values

Extract from Methodology for Predicting Terrestrial Impact on BSS Transmissions in the Band 12.2 - 12.7 GHz - Northpoint Technology Source Document

2.0 Interference Geometry

It is useful to define a coordinate system with origin at the ground level below the transmitter, and the Y axis in the direction of transmission (South), as shown in Figure 1.

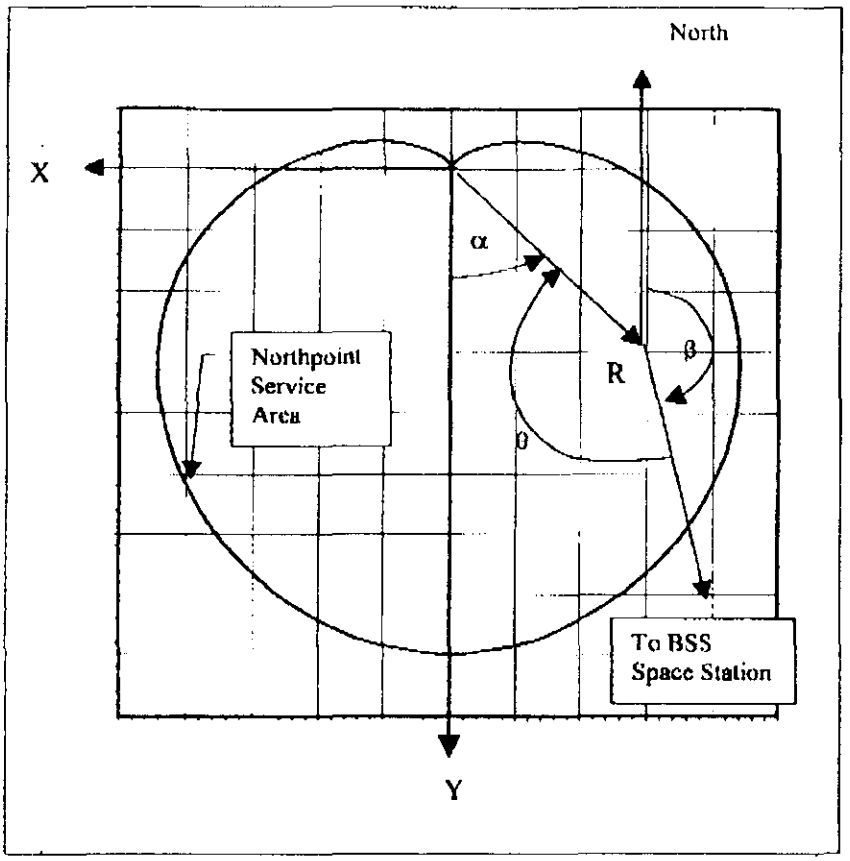

Figure 1. Coordinate System

In Figure 1, the Northpoint transmission is due south. A point R within the service area is at a given angle alpha relative to the boresight of the Northpoint transmitter. The EIRP of the Northpoint transmitter in the direction of R is a function of the free space loss, and the transmitter antenna patterns in elevation and azimuth (see annex). Atmospheric losses are negligible within a few kilometers of the transmitter, and can be ignored. Attenuation, due to either buildings or foliage in the propagation path, can be significant, and will be taken into account at a later point.

Northpoint transmitters are typically installed on hills, towers or buildings. The geometry is presented in Figure 2. The transmitter is installed at a height above average terrain h_t. The receiver can also have a height relative to average terrain (h_r), although the average height variation among BSS receivers will be equal to the average terrain, and therefore these variations can be ignored in the general case. The direction of maximum EIRP may have a tilt t relative to the horizon plane (in order to minimize the power level near the transmitter). The relationship among the geometric variables follows Figure 2, presented in Table 1.

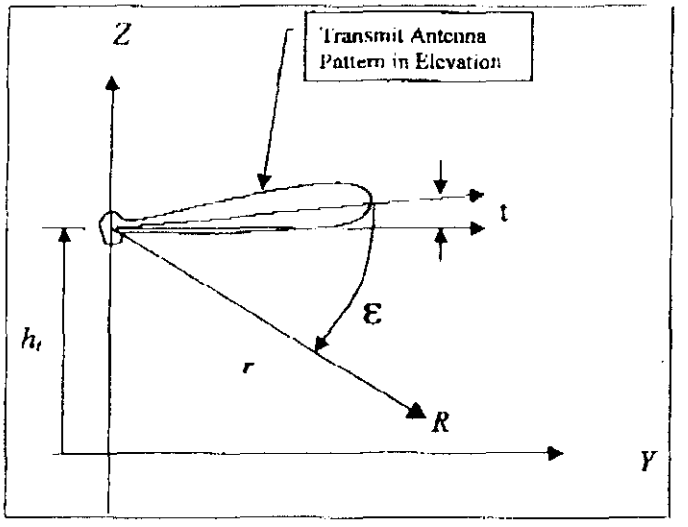

Figure 2. Elevation Geometry

It is assumed that the earth station look angle, β (relative to true north) to the satellite is known. The calculation of ε takes into account a possible tilt angle t of the fixed transmitter by the factor $t * cos(\alpha)$, which determines the variation in tilt according to the azimuth angle.

Earth Station Antenna Pattern

In North America, the most commonly used and most sensitive, DBS antenna is the 45 cm offset feed parabolic reflector antenna. This antenna has a gain towards the horizon of between -2 and -16 dBi, with the average gain about -10 dBi. This gain is largely unchanged for satellite elevation angles between 20 and 50 degrees for the 45 cm offset feed parabolic reflector.[1] Thus, it is important to correctly determine the earth station gain towards the fixed transmitter, and this can be done using only the relative azimuth of the antenna bore sight and the fixed transmitter.

[1] Terrestrial Interference in the DBS Downlink Band, DIRECTV, 1994, and confirmed by recent and thorough studies, presented in ITU-R study groups, of the 45 cm offset feed most commonly used in North America.