

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**THE INSPIRATIONAL NETWORK, INC.**  
**CHARLOTTE, NC**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
April 20, 2010

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## 1. CONCLUSIONS

An interference study considering all existing, proposed and prior coordinated microwave facilities within the coordination contours of the proposed earth station demonstrates that this site will operate satisfactorily with the common carrier microwave environment. Further, there will be no restrictions of its operation due to interference considerations.

## **2. SUMMARY OF RESULTS**

A number of great circle interference cases were identified during the interference study of the proposed earth station. Each of the cases, which exceeded the interference objective on a line-of-sight basis, was profiled and the propagation losses estimated using NBS TN101 (Revised) techniques. The losses were found to be sufficient to reduce the signal levels to acceptable magnitudes in every case.

### 3. SUPPLEMENTAL SHOWING

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, the satellite earth station proposed in this application was coordinated by Comsearch using computer techniques and in accordance with Part 25 of the FCC Rules and Regulations.

Coordination data for this earth station was sent to the below listed carriers with a letter dated 03/29/2010.

Company

ALLTEL Communications of NC, LP  
ALLTEL Communications, LLC  
AT&T COMM. OF THE SOUTHERN STATES  
Bellsouth Telecommunications, Inc.  
Carolina Power & Light Company  
Cellco Partnership - North Carolina  
Cellco Partnership-Newark-Dallas Verizon  
Conterra Ultra Broadband, LLC  
Duke Energy Carolinas LLC  
General Dynamics Armament & Technical  
MCNC  
METROPOLITAN AREA NETWORKS, INC.  
National Radio Astronomy Observatory  
Norfolk Southern Railway  
North Carolina State Highway Patrol  
South Carolina Public Service Authority  
Time Warner NY Cable LLC  
UNIVERSITY OF NORTH CAROLINA  
USCOC of South Carolina RSA 4, Inc.

## **4. EARTH STATION COORDINATION DATA**

This section presents the data pertinent to frequency coordination of the proposed earth station that was circulated to all carriers within its coordination contours.

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
(703)726-5500 <http://www.comsearch.com>

Date: 04/20/2010  
Job Number: 100329COMSGE01

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign  
Licensee Code PTL  
Licensee Name THE INSPIRATIONAL NETWORK, INC.

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### Site Information CHARLOTTE, NC

Venue Name  
Latitude (NAD 83) 35° 7' 54.5" N  
Longitude (NAD 83) 80° 55' 2.8" W  
Climate Zone A  
Rain Zone 1  
Ground Elevation (AMSL) 173.74 m / 570.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 60° W to 143° West Longitude  
Azimuth Range 146.4° to 253.0°  
Corresponding Elevation Angles 43.5° / 14.1°  
Antenna Centerline (AGL) 4.88 m / 16.0 ft

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### Antenna Information

#### Receive - FCC32

#### Transmit - FCC32

Manufacturer	ASC Signal	ASC Signal	
Model	6.5 Meter	6.5 Meter	
Gain / Diameter	47.4 dBi / 6.5 m	50.9 dBi / 6.5 m	
3-dB / 15-dB Beamwidth	0.74° / 1.46°	0.45° / 0.87°	
Max Available RF Power (dBW/4 kHz)		-21.1	
(dBW/MHz)		2.9	
Maximum EIRP (dBW/4 kHz)		29.8	
(dBW/MHz)		53.8	
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%	-154.0 dBW/4 kHz 20%
	Short Term	-146.0 dBW/MHz 0.01%	-131.0 dBW/4 kHz 0.0025%

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### Frequency Information

#### Receive 4.0 GHz

#### Transmit 6.1 GHz

Emission / Frequency Range (MHz)	4M50G7W / 3700.0 - 4200.0	4M50G7W / 5925.0 - 6425.0
Max Great Circle Coordination Distance	318.0 km / 197.6 mi	109.6 km / 68.1 mi
Precipitation Scatter Contour Radius	603.4 km / 374.9 mi	100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### CHARLOTTE, NC

Licensee Name THE INSPIRATIONAL NETWORK, INC.  
Latitude (NAD 83) 35° 7' 54.5" N  
Longitude (NAD 83) 80° 55' 2.8" W  
Ground Elevation (AMSL) 173.74 m / 570.0 ft  
Antenna Centerline (AGL) 4.88 m / 16.0 ft  
Antenna Model ASC Signal 6.5 Meter  
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz  
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%  
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power -21.1 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.73	106.49	-10.00	235.56	-10.00	100.00
5	0.58	111.32	-10.00	244.83	-10.00	100.00
10	0.58	116.16	-10.00	244.48	-10.00	100.00
15	0.40	118.87	-10.00	261.29	-10.00	100.00
20	0.52	115.73	-10.00	248.32	-10.00	100.00
25	0.60	112.44	-10.00	243.17	-10.00	100.00
30	0.68	109.04	-10.00	238.61	-10.00	100.00
35	0.73	105.54	-10.00	235.48	-10.00	100.00
40	0.70	101.96	-10.00	237.23	-10.00	100.00
45	0.81	98.36	-10.00	230.80	-10.00	100.00
50	0.85	94.71	-10.00	228.31	-10.00	100.00
55	0.85	91.04	-10.00	228.34	-10.00	100.00
60	0.75	87.37	-10.00	234.15	-10.00	100.00
65	0.90	83.69	-10.00	225.46	-10.00	100.00
70	0.84	80.05	-10.00	229.00	-10.00	100.00
75	0.80	76.46	-10.00	231.39	-10.00	100.00
80	0.79	72.91	-10.00	232.14	-10.00	100.00
85	0.77	69.43	-10.00	232.93	-10.00	100.00
90	0.91	65.97	-10.00	225.42	-10.00	100.00
95	1.17	62.55	-10.00	215.15	-10.00	100.00
100	1.21	59.34	-10.00	213.91	-10.00	100.00
105	1.43	56.18	-10.00	207.50	-10.00	100.00
110	1.19	53.49	-10.00	214.44	-10.00	100.00
115	1.08	50.96	-10.00	217.69	-10.00	100.00
120	1.09	48.62	-10.00	217.65	-10.00	100.00
125	1.13	46.56	-9.70	217.86	-9.70	100.00
130	1.13	44.89	-9.30	219.83	-9.30	100.00
135	1.13	43.62	-8.99	221.41	-8.99	100.00
140	0.92	42.98	-8.83	230.51	-8.83	100.00
145	1.41	42.12	-8.61	214.65	-8.61	100.00
150	1.50	42.15	-8.62	212.18	-8.62	100.00
155	1.49	42.73	-8.77	211.56	-8.77	100.00
160	1.50	43.77	-9.03	210.18	-9.03	100.00
165	1.66	45.09	-9.35	206.65	-9.35	100.00
170	1.66	46.44	-9.67	205.20	-9.67	100.00
175	1.33	47.58	-9.94	210.57	-9.94	100.00
180	1.33	47.86	-10.00	210.27	-10.00	100.00
185	1.09	47.82	-9.99	217.57	-9.99	100.00



# COMSEARCH

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### Coordination Values

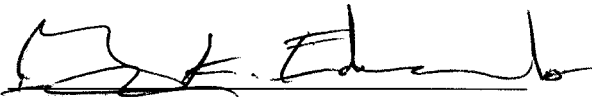
### CHARLOTTE, NC

Licensee Name	THE INSPIRATIONAL NETWORK, INC.		
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Antenna Centerline (AGL)	4.88 m / 16.0 ft		
Antenna Model	ASC Signal 6.5 Meter		
Antenna Mode	Receive 4.0 GHz		Transmit 6.1 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz
Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz
Max Available RF Power			-21.1 (dBW/4 kHz)
			20%
			0.0025%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.80	47.25	-9.86	231.82	-9.86	100.00
195	0.44	46.18	-9.61	258.91	-9.61	100.00
200	0.52	44.22	-9.14	253.87	-9.14	100.00
205	0.81	41.68	-8.50	238.95	-8.50	100.00
210	0.65	39.14	-7.81	253.10	-7.81	100.00
215	0.86	36.03	-6.92	245.44	-6.92	100.00
220	0.53	33.05	-5.98	272.75	-5.98	100.00
225	0.85	29.43	-4.72	259.22	-4.72	100.00
230	0.63	26.02	-3.38	283.20	-3.38	101.68
235	0.90	22.15	-1.64	276.61	-1.64	100.00
240	0.95	18.42	0.37	287.66	0.37	100.00
245	0.99	15.33	2.36	300.43	2.36	100.71
250	0.98	13.44	3.79	312.93	3.79	105.08
255	0.92	13.30	3.90	318.01	3.90	108.04
260	0.87	14.90	2.67	310.82	2.67	106.64
265	0.69	17.88	0.69	308.49	0.69	109.63
270	0.64	21.51	-1.32	296.75	-1.32	106.39
275	0.64	25.57	-3.19	283.43	-3.19	101.47
280	0.60	29.91	-4.90	274.74	-4.90	100.00
285	0.75	34.35	-6.40	255.42	-6.40	100.00
290	0.48	39.04	-7.79	265.17	-7.79	100.00
295	0.50	43.71	-9.01	255.37	-9.01	100.00
300	0.50	48.44	-10.00	250.01	-10.00	100.00
305	0.45	53.21	-10.00	255.34	-10.00	100.00
310	0.44	58.00	-10.00	256.43	-10.00	100.00
315	0.41	62.82	-10.00	260.38	-10.00	100.00
320	0.48	67.64	-10.00	251.75	-10.00	100.00
325	0.56	72.48	-10.00	245.63	-10.00	100.00
330	0.78	77.32	-10.00	232.59	-10.00	100.00
335	0.85	82.17	-10.00	228.63	-10.00	100.00
340	0.76	87.04	-10.00	233.95	-10.00	100.00
345	0.84	91.91	-10.00	228.93	-10.00	100.00
350	0.91	96.78	-10.00	225.09	-10.00	100.00
355	0.75	101.63	-10.00	234.35	-10.00	100.00

## 5. CERTIFICATION

I HEREBY CERTIFY THAT I AM THE TECHNICALLY QUALIFIED PERSON RESPONSIBLE FOR THE PREPARATION OF THE FREQUENCY COORDINATION DATA CONTAINED IN THIS APPLICATION, THAT I AM FAMILIAR WITH PARTS 101 AND 25 OF THE FCC RULES AND REGULATIONS, THAT I HAVE EITHER PREPARED OR REVIEWED THE FREQUENCY COORDINATION DATA SUBMITTED WITH THIS APPLICATION, AND THAT IT IS COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

BY: 

Gary K. Edwards  
Senior Manager  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147

DATED: April 20, 2010