

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Glacier Technologies, LLC**  
**FORT BRAGG, NC**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
June 15, 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.

The following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses are considered on the interfering paths, sufficient blockage exists to negate harmful interference from occurring with the proposed transmit-receive earth station.

### Company

Clearwire Spectrum Holdings LLC  
Conterra Ultra Broadband, LLC

No other carriers reported potential interference cases.

### 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 05/18/2010.

#### Company

Airband Communications Inc  
Bellsouth Telecommunications, Inc.  
Board of Trustees UNC at Chapel Hill  
Cellco Partnership - Southern Virginia  
City of Durham  
Clearwire Spectrum Holdings II, LLC  
Clearwire Spectrum Holdings III, LLC  
Clearwire Spectrum Holdings LLC  
Conterra Ultra Broadband, LLC  
County of Franklin, VA  
Farmers Telecommunications Cooperative  
Henry County School District  
Henry, County of  
METROPOLITAN AREA NETWORKS, INC.  
Microspace Communications Corporation  
National Radio Astronomy Observatory  
Network Dynamic  
North Carolina State Highway Patrol  
North Carolina Wireless, LLC  
Open Range Communications  
South Carolina Public Service Authority  
SunCom Wireless Company, LLC  
Time Warner NY Cable LLC  
Triad Telecom, Inc.  
WS/FC Interagency Communications  
Wilmington Cellular Telephone Company

## **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: 06/15/2010  
Job Number: 100518COMSGE01

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign  
Licensee Code GLATEC  
Licensee Name Glacier Technologies, LLC

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### Site Information FORT BRAGG, NC

Venue Name  
Latitude (NAD 83) 35° 8' 21.3" N  
Longitude (NAD 83) 78° 58' 56.6" W  
Climate Zone A  
Rain Zone 1  
Ground Elevation (AMSL) 80.47 m / 264.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 7°W to 143° West Longitude  
Azimuth Range 100.6° to 254.3°  
Corresponding Elevation Angles 6.0° / 12.5°  
Antenna Centerline (AGL) 5.49 m / 18.0 ft

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### Antenna Information

Manufacturer Vertex RSI  
Model 9.2 meter  
Gain / Diameter 58.0 dBi / 9.2 m  
3-dB / 15-dB Beamwidth 0.20° / 0.49°

### Receive - FCC32

Max Available RF Power (dBW/4 kHz)  
(dBW/MHz)

Vertex RSI  
9.2 meter  
58.0 dBi / 9.2 m  
0.20° / 0.49°

### Transmit - FCC32

Vertex RSI  
9.2 meter  
60.0 dBi / 9.2 m  
0.16° / 0.39°

Maximum EIRP (dBW/4 kHz)  
(dBW/MHz)

46.0  
70.0

Interference Objectives: Long Term -156.0 dBW/MHz 20%  
Short Term -146.0 dBW/MHz 0.01%

-154.0 dBW/4 kHz 20%  
-131.0 dBW/4 kHz 0.0025%

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### Frequency Information

Emission / Frequency Range (MHz)

### Receive 11.0 GHz

1K60G7D - 6M20G7D / 10950.0 - 11200.0  
1K60G7D - 6M20G7D / 11450.0 - 12700.0

### Transmit 14.0 GHz

1K60G7D - 6M20G7D / 14000.0 - 14500.0

Max Great Circle Coordination Distance 590.3 km / 366.8 mi  
Precipitation Scatter Contour Radius 648.6 km / 403.0 mi

286.2 km / 177.8 mi  
100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### FORT BRAGG, NC

Licensee Name: Glacier Technologies, LLC  
Latitude (NAD 83): 35° 8' 21.3" N  
Longitude (NAD 83): 78° 58' 56.6" W  
Ground Elevation (AMSL): 80.47 m / 264.0 ft  
Antenna Centerline (AGL): 5.49 m / 18.0 ft  
Antenna Model: Vertex RSI 9.2 meter  
Antenna Mode: Receive 11.0 GHz      Transmit 14.0 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:      -14.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.21	100.55	-10.00	230.84	-10.00	122.91
5	0.00	95.58	-10.00	231.37	-10.00	123.34
10	0.00	90.60	-10.00	231.37	-10.00	123.34
15	0.00	85.63	-10.00	231.37	-10.00	123.34
20	0.00	80.66	-10.00	231.37	-10.00	123.34
25	0.36	75.68	-10.00	216.40	-10.00	110.92
30	0.38	70.70	-10.00	214.69	-10.00	109.45
35	0.40	65.73	-10.00	212.95	-10.00	107.93
40	0.46	60.76	-10.00	207.62	-10.00	103.21
45	0.35	55.80	-10.00	217.16	-10.00	111.57
50	0.36	50.83	-10.00	216.65	-10.00	111.13
55	0.49	45.86	-9.54	206.70	-9.54	101.88
60	0.44	40.92	-8.30	216.43	-8.30	109.12
65	0.46	35.98	-6.90	220.78	-6.90	111.25
70	0.44	31.06	-5.30	229.40	-5.30	116.55
75	0.36	26.18	-3.45	245.79	-3.45	127.36
80	0.33	21.34	-1.23	260.87	-1.23	135.22
85	0.32	16.58	1.51	275.91	1.51	144.00
90	0.23	12.06	4.97	302.96	4.97	167.22
95	0.00	8.20	9.15	337.60	9.15	186.81
100	0.00	6.03	12.49	590.31	12.49	286.16
105	0.00	7.43	10.22	353.50	10.22	192.63
110	0.00	11.10	5.87	313.17	5.87	174.35
115	0.00	15.04	2.57	295.37	2.57	160.32
120	0.00	18.92	0.08	281.31	0.08	151.31
125	0.00	22.72	-1.91	270.60	-1.91	144.67
130	0.00	26.42	-3.55	262.09	-3.55	139.55
135	0.00	29.99	-4.93	255.16	-4.93	135.49
140	0.00	33.41	-6.10	249.44	-6.10	132.22
145	0.00	36.63	-7.10	244.68	-7.10	129.56
150	0.00	39.62	-7.95	240.59	-7.95	128.60
155	0.00	42.31	-8.66	237.32	-8.66	126.77
160	0.00	44.65	-9.24	234.70	-9.24	125.27
165	0.00	46.57	-9.70	232.67	-9.70	124.10
170	0.00	48.00	-10.00	231.37	-10.00	123.34
175	0.00	48.89	-10.00	231.37	-10.00	123.34
180	0.00	49.19	-10.00	231.37	-10.00	123.34
185	0.00	48.89	-10.00	231.37	-10.00	123.34



# COMSEARCH

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### Coordination Values

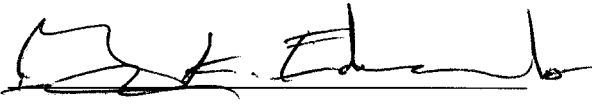
### FORT BRAGG, NC

Licensee Name	Glacier Technologies, LLC			
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Longitude (NAD 83)	78° 58' 56.6" W			
Ground Elevation (AMSL)	80.47 m / 264.0 ft			
Antenna Centerline (AGL)	5.49 m / 18.0 ft			
Antenna Model	Vertex RSI 9.2 meter			
Antenna Mode	Receive 11.0 GHz		Transmit 14.0 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			-14.0 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 14.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	48.00	-10.00	231.37	-10.00	123.34
195	0.00	46.57	-9.70	232.67	-9.70	124.10
200	0.00	44.65	-9.24	234.70	-9.24	125.27
205	0.00	42.31	-8.66	237.32	-8.66	126.77
210	0.00	39.62	-7.95	240.58	-7.95	128.60
215	0.23	36.47	-7.05	242.11	-7.05	128.84
220	0.36	33.16	-6.02	234.13	-6.02	121.30
225	0.51	29.66	-4.80	226.16	-4.80	113.21
230	0.48	26.11	-3.42	234.76	-3.42	118.53
235	0.42	22.46	-1.78	249.13	-1.78	127.80
240	0.64	18.52	0.31	243.72	0.31	120.84
245	0.61	15.07	2.55	257.41	2.55	128.47
250	0.59	12.66	4.44	269.04	4.44	133.55
255	0.61	11.91	5.10	271.68	5.10	134.63
260	0.50	13.26	3.94	271.61	3.94	136.41
265	0.50	16.01	1.89	260.37	1.89	130.42
270	0.65	19.56	-0.28	240.45	-0.28	119.00
275	0.77	23.64	-2.34	224.06	-2.34	108.06
280	0.73	28.07	-4.21	217.25	-4.21	104.78
285	0.61	32.68	-5.86	215.85	-5.86	105.71
290	0.41	37.40	-7.32	222.83	-7.32	113.47
295	0.31	42.15	-8.62	227.13	-8.62	118.49
300	0.22	46.94	-9.79	230.06	-9.79	122.08
305	0.20	51.74	-10.00	231.15	-10.00	123.16
310	0.00	56.59	-10.00	231.37	-10.00	123.34
315	0.00	61.43	-10.00	231.37	-10.00	123.34
320	0.00	66.28	-10.00	231.37	-10.00	123.34
325	0.00	71.15	-10.00	231.37	-10.00	123.34
330	0.00	76.02	-10.00	231.37	-10.00	123.34
335	0.00	80.89	-10.00	231.37	-10.00	123.34
340	0.23	85.77	-10.00	228.84	-10.00	121.30
345	0.29	90.66	-10.00	223.02	-10.00	116.51
350	0.29	95.54	-10.00	223.02	-10.00	116.52
355	0.25	100.43	-10.00	226.22	-10.00	119.16

## 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: June 15, 2010