

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Sirius XM Radio Inc.
ELLENWOOD, GA
(7.2 Meter)
E080168
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
January 05, 2012

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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-only earth station.

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Pacific and Southern Company, Inc.

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 11/30/2011.

Company

3G Wireless, LLC
AERIAL VIDEO SYSTEMS
ALABAMA EDUCATIONAL TELEVISION COMMISSIO
ALABAMA HERITAGE COMMUNICATIONS, L.L.C.
ALASCOM, INC.
AT&T California
ATLANTA TELEVISION STATION WUPA INC
American Broadcasting Companies, Inc.
Ascent Media Network Services, LLC
BIRMINGHAM (WABM-TV) LICENSEE, INC.
BROADCAST COMMUNICATIONS INC
Bellsouth Telecommunications, Inc.
Board of Trustees University of Alabama
Borgeson, Tom R.
Broadcast Sports Inc.
CNG Communications, Inc.
COMMUNITY TELEVISION, INC.
Carolina Telephone and Telegraph Co
Casper, John
CenturyTel of the Southwest, Inc.
Chicago Comnet Corp
Cincinnati Bell Wireless LLC
Citywide News Network, Inc.
Cohen, Elana
Cowboys Stadium LP
DCI II, INC.
Direct Broadcast Services, Inc.
Fox24 of Macon License LLC
GEORGIA EAGLE MEDIA, INC.
GOODYEAR TIRE AND RUBBER COMPANY
GRAY TELEVISION LICENSEE, INC (WRDW)
GSN New, Inc
Georgia Public Telecomm. Commission
Georgia Television Company
HF Enterprises, Inc
Hallco Unlimited, Inc.
Hawaiian Telcom, Inc.
Heiden Mr., William
INDIANA BELL TELEPHONE COMPANY INC
ION MEDIA ATLANTA LICENSE, INC.

ION MEDIA LICENSE COMPANY, LLC
Illinois Bell Telephone Company
Information & Display Systems, Inc.
Information Super Station, LLC
International Communications Group, Inc.
Kentucky RSA #3 Cellular General Partner
Kentucky RSA #4 Cellular General Partner
MEDIA GENERAL COMMUNICATIONS HOLDINGS, L
MERCURY COMMUNICATIONS
MEREDITH CORPORATION
MEREDITH CORPORATION - WGCL-TV
MORRIS NETWORK INC
Metro Networks Communications, Inc.
Michigan Bell Telephone Company
Moreen, Steven K
NEW ENGLAND DIGITAL DISTRIBUTION, INC.
NEW ENGLAND SATELLITE SYSTEMS INC
NSM Surveillance
NVT Birmingham Licensee, LLC
Navajo Communications Company
New World Communications of Atlanta, Inc
NorthWest Suburbs Community Access Corp
Ohio Bell Telephone Company
On Scene Video Production
Onboard Images
Pacific and Southern Company, Inc.
Penn Service Microwave Co., Inc.
Plateau Telecommunications, Inc.
Plum TV, LLC
Production & Satellite Services, Inc.
Public Television Communications Center
QUICK LINK CONNECTIONS INC
QWEST CORPORATION
RADIO PERRY INC
RCC Minnesota Inc. - MN NE ND SD
REMOTE FACILITIES CONSULTING SERVICES
RF Central, LLC
RF Film, Inc
Radiofone, Inc.
Randy Hermes Production
Regulus Media Services, Inc.
Remote Broadcasts, Inc.
Sagamorehill Broadcasting of Georgia,LLC
South Carolina ETV Comm
Southwestern Bell Telephone L.P.
Speedshotz, Inc
TCCSA, Inc -Trinity Broadcasting Network
TV ALABAMA, INC. - WCFT-TV
Total RF Marketing Inc
Trinity Broadcasting Network Inc
UNIVERSITY OF GEORGIA
UNIVISION ATLANTA, LLC
Unisat, Inc.
United Telephone - Southeast
VERIZON SOUTH INC.
Verizon California Inc.

Verizon Maryland, Inc.
Verizon New England Inc.
Verizon New Jersey, Inc.
Verizon New York, Inc.
Verizon North Inc.
Verizon Northwest Inc.
Verizon Pennsylvania, Inc.
Verizon Virginia, Inc.
Verizon Washington DC, Inc.
Village Video Productions Inc
Vyvx, LLC
WAGT TELEVISION INC
WBRC License Subsidiary, LLC
WCSC INC
WDBB-TV, Inc
WFXG License Subsidiary, LLC
WMMP LICENSEE LP
WTAT Licensee, LLC
WTTO INC.
WYFF Hearst Television Inc.
Westar Satellite Services LP
Western Technical Services
Wexler Video, Inc.
Winged Vision
Wisconsin Bell, Inc.
Wolfe Air Aviation

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: 01/04/2012
Job Number: 111130COMSGE02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E080168
Licensee Code SIRSAT
Licensee Name Sirius XM Radio Inc.

Site Information ELLENWOOD, GA

Venue Name
Latitude (NAD 83) 33° 39' 51.0" N
Longitude (NAD 83) 84° 16' 24.0" W
Climate Zone A
Rain Zone 1
Ground Elevation (AMSL) 242.32 m / 795.0 ft

Link Information

Satellite Type Low Earth Orbit
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 80° W to 120° West Longitude
Azimuth Range 172.3° to 232.4°
Corresponding Elevation Angles 50.6° / 35.4°
Antenna Centerline (AGL) 3.66 m / 12.0 ft

Antenna Information

		Receive - FCC32		Transmit - FCC32	
Manufacturer		General Dynamics		General Dynamics	
Model		7.2 Meter		7.2 Meter	
Gain / Diameter		42.1 dBi / 7.2 m		50.5 dBi / 7.2 m	
3-dB / 15-dB Beamwidth		1.30° / 2.60°		0.40° / 0.84°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			5.5 29.5	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			56.0 80.0	
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%

Frequency Information

	Receive 2.0 GHz	Transmit 7.0 GHz
Emission / Frequency Range (MHz)	1M00F1D - 4M00G7E / 2320.0 - 2332.5 2320.0 - 2345.0	1M00F1D - 4M00G7E / 7040.0 - 7075.0
Max Great Circle Coordination Distance	303.0 km / 188.3 mi	211.0 km / 131.1 mi
Precipitation Scatter Contour Radius	556.0 km / 345.4 mi	339.8 km / 211.1 mi

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

ELLENWOOD, GA

Licensee Name Sirius XM Radio Inc.
Latitude (NAD 83) 33° 39' 51.0" N
Longitude (NAD 83) 84° 16' 24.0" W
Ground Elevation (AMSL) 242.32 m / 795.0 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model General Dynamics 7.2 Meter
Antenna Mode Receive 2.0 GHz Transmit 7.0 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 5.5 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 2.0 GHz		Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	4.68	121.64	-10.00	137.89	-10.00	100.00
5	4.68	125.59	-10.00	137.89	-10.00	100.00
10	3.77	128.96	-10.00	152.52	-10.00	100.00
15	2.42	127.98	-10.00	184.90	-10.00	110.80
20	1.79	125.68	-10.00	200.30	-10.00	124.26
25	1.10	123.15	-10.00	217.30	-10.00	140.54
30	0.45	120.49	-10.00	254.92	-10.00	177.12
35	0.22	117.97	-10.00	282.84	-10.00	200.35
40	0.29	115.47	-10.00	274.22	-10.00	193.52
45	0.35	112.82	-10.00	266.98	-10.00	187.56
50	0.38	110.01	-10.00	263.16	-10.00	184.33
55	0.44	107.11	-10.00	256.13	-10.00	178.19
60	0.43	104.09	-10.00	257.10	-10.00	179.06
65	0.43	101.00	-10.00	257.76	-10.00	179.64
70	0.31	97.84	-10.00	271.08	-10.00	190.97
75	0.30	94.67	-10.00	273.02	-10.00	192.55
80	0.00	91.48	-10.00	285.28	-10.00	202.24
85	0.43	88.29	-10.00	258.05	-10.00	179.89
90	0.69	85.07	-10.00	237.83	-10.00	159.62
95	0.76	81.86	-10.00	233.73	-10.00	155.75
100	0.58	78.75	-10.00	244.49	-10.00	165.95
105	0.73	75.61	-10.00	235.31	-10.00	157.24
110	0.84	72.54	-10.00	229.23	-10.00	151.53
115	0.88	69.57	-10.00	226.78	-10.00	149.25
120	1.03	66.64	-10.00	219.23	-10.00	142.29
125	1.07	63.89	-10.00	218.06	-10.00	141.23
130	1.02	61.35	-10.00	219.79	-10.00	142.80
135	1.30	58.76	-10.00	211.27	-10.00	135.10
140	1.88	56.11	-10.00	197.88	-10.00	122.08
145	1.71	54.25	-10.00	202.45	-10.00	126.20
150	1.23	52.95	-10.00	213.36	-10.00	136.98
155	1.15	51.63	-10.00	215.77	-10.00	139.15
160	1.08	50.62	-10.00	217.71	-10.00	140.91
165	1.23	49.76	-10.00	213.25	-10.00	136.87
170	0.99	49.64	-10.00	220.96	-10.00	143.88
175	0.73	49.91	-10.00	235.43	-10.00	157.35
180	0.70	50.16	-10.00	237.32	-10.00	159.13
185	0.52	50.03	-10.00	248.20	-10.00	171.09

COMSEARCH

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Coordination Values

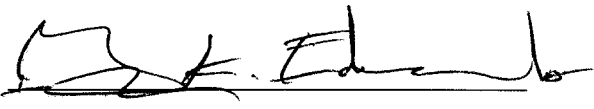
ELLENWOOD, GA

Licensee Name Sirius XM Radio Inc.
Latitude (NAD 83) 33° 39' 51.0" N
Longitude (NAD 83) 84° 16' 24.0" W
Ground Elevation (AMSL) 242.32 m / 795.0 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model General Dynamics 7.2 Meter
Antenna Mode Receive 2.0 GHz Transmit 7.0 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 5.5 (dBW/4 kHz)

Azimuth (°)	Receive 2.0 GHz		Transmit 7.0 GHz			
	Horizon Elevation (°)	Antenna Discrimination (°)	Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.61	49.04	-10.00	242.88	-10.00	164.42
195	0.59	47.58	-9.94	244.55	-9.94	165.95
200	1.01	45.26	-9.39	223.20	-9.39	145.48
205	1.17	42.75	-8.77	221.24	-8.77	143.26
210	0.68	40.55	-8.20	248.64	-8.20	169.75
215	0.52	38.50	-7.64	262.59	-7.64	181.49
220	0.48	36.81	-7.15	269.02	-7.15	186.42
225	0.42	35.68	-6.81	279.07	-6.81	194.17
230	0.40	35.09	-6.63	281.77	-6.63	196.10
235	0.35	35.16	-6.65	287.83	-6.65	200.74
240	0.28	35.86	-6.87	295.77	-6.87	205.21
245	0.00	37.33	-7.30	303.02	-7.30	211.04
250	0.21	38.86	-7.74	298.42	-7.74	208.07
255	0.34	40.95	-8.31	278.43	-8.31	195.14
260	0.45	43.45	-8.95	261.78	-8.95	182.08
265	0.41	46.39	-9.66	262.05	-9.66	183.02
270	0.72	49.37	-10.00	235.83	-10.00	157.73
275	0.91	52.68	-10.00	224.95	-10.00	147.55
280	1.16	56.15	-10.00	215.39	-10.00	138.80
285	1.52	59.75	-10.00	204.97	-10.00	130.69
290	2.15	63.40	-10.00	191.03	-10.00	116.06
295	1.95	67.45	-10.00	195.87	-10.00	120.30
300	2.88	71.28	-10.00	174.22	-10.00	101.95
305	4.09	75.22	-10.00	146.44	-10.00	100.00
310	4.09	79.45	-10.00	146.44	-10.00	100.00
315	5.49	83.61	-10.00	130.15	-10.00	100.00
320	6.65	87.92	-10.00	118.12	-10.00	100.00
325	6.91	92.30	-10.00	115.32	-10.00	100.00
330	7.15	96.71	-10.00	112.76	-10.00	100.00
335	8.24	101.21	-10.00	101.64	-10.00	100.00
340	7.31	105.49	-10.00	111.04	-10.00	100.00
345	6.41	109.66	-10.00	120.75	-10.00	100.00
350	6.55	113.95	-10.00	119.21	-10.00	100.00
355	5.58	117.88	-10.00	129.19	-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: January 05, 2012

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

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Chicago Comnet Corp
Cincinnati Bell Wireless LLC
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Public Television Communications Center
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Total RF Marketing Inc
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UNIVISION ATLANTA, LLC
Unisat, Inc.
United Telephone - Southeast
VERIZON SOUTH INC.
Verizon California Inc.

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Verizon New England Inc.
Verizon New Jersey, Inc.
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Verizon North Inc.
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Climate Zone A
Rain Zone 1
Ground Elevation (AMSL) 242.32 m / 795.0 ft

Link Information

Satellite Type Inclined and Elliptical
Mode TR - Transmit-Receive
Modulation Digital
Minimum Elevation Angle 8.0°
Azimuth Range 0.0° to 360°
Antenna Centerline (AGL) 5.49 m / 18.0 ft

Antenna Information

Receive - FCC32
Manufacturer General Dynamics
Model 8 Meter
Gain / Diameter 43.0 dBi / 8.0 m
3-dB / 15-dB Beamwidth 1.30° / 2.60°

Transmit - FCC32

General Dynamics
8 Meter
52.8 dBi / 8.0 m
0.30° / 0.74°

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

3.2
27.2

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

56.0
80.0

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%

Frequency Information

Receive 2.0 GHz
Emission / Frequency Range (MHz) 300KG1D - 4M50G7E / 2320.0 - 2332.5
2320.0 - 2345.0

Transmit 7.0 GHz

1M00F1D - 4M50G7E / 7040.0 - 7075.0

Max Great Circle Coordination Distance 438.1 km / 272.2 mi
Precipitation Scatter Contour Radius 659.2 km / 409.6 mi

438.1 km / 272.2 mi
284.9 km / 177.0 mi

COMSEARCH

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Coordination Values

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Antenna Model General Dynamics 8 Meter
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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 3.2 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 2.0 GHz		Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	93.18	-10.00	100.00	-10.00	100.00
5	0.00	88.19	-10.00	100.00	-10.00	100.00
10	0.00	83.20	-10.00	100.00	-10.00	100.00
15	0.00	78.21	-10.00	107.80	-10.00	107.80
20	0.00	73.22	-10.00	122.50	-10.00	122.50
25	0.00	68.24	-10.00	141.10	-10.00	141.10
30	0.00	63.25	-10.00	193.70	-10.00	193.70
35	0.00	58.27	-10.00	193.70	-10.00	193.70
40	0.00	53.28	-10.00	186.60	-10.00	186.60
45	0.00	48.30	-10.00	180.50	-10.00	180.50
50	0.00	43.33	-10.00	180.90	-10.00	180.90
55	0.00	38.35	-9.09	180.00	-9.09	180.00
60	0.00	33.39	-7.79	185.10	-7.79	185.10
65	0.00	28.43	-6.31	190.90	-6.31	190.90
70	0.00	23.49	-4.61	205.80	-4.61	205.80
75	0.00	18.59	-2.60	212.60	-2.60	212.60
80	0.00	13.74	-0.17	231.10	-0.17	231.10
85	0.00	9.07	2.99	243.10	2.99	243.10
90	0.00	5.04	7.44	231.00	7.44	231.00
95	0.00	4.31	13.81	262.50	13.81	262.50
100	0.00	7.86	16.92	421.10	16.92	421.10
105	0.00	12.44	10.64	245.00	10.64	245.00
110	0.00	17.25	5.82	214.60	5.82	214.60
115	0.00	22.15	2.51	199.60	2.51	199.60
120	0.00	27.08	0.03	181.70	0.03	181.70
125	0.00	32.03	-1.97	169.60	-1.97	169.60
130	0.00	36.99	-3.65	164.30	-3.65	164.30
135	0.00	41.97	-4.97	147.00	-4.97	147.00
140	0.00	46.94	-6.03	129.30	-6.03	129.30
145	0.00	51.92	-7.09	136.50	-7.09	136.50
150	0.00	56.90	-8.05	135.70	-8.05	135.70
155	0.00	61.89	-8.79	135.70	-8.79	135.70
160	0.00	66.87	-9.38	134.20	-9.38	134.20
165	0.00	71.86	-9.82	132.30	-9.82	132.30
170	0.00	76.85	-10.00	137.80	-10.00	137.80
175	0.00	81.84	-10.00	148.80	-10.00	148.80
180	0.00	86.82	-10.00	150.70	-10.00	150.70
185	0.00	91.81	-10.00	160.50	-10.00	160.50

COMSEARCH

Earth Station Data Sheet

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

Coordination Values

ELLENWOOD, GA

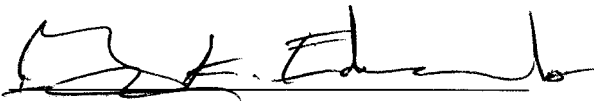
Licensee Name Sirius XM Radio Inc.
Latitude (NAD 83) 33° 39' 51.0" N
Longitude (NAD 83) 84° 16' 24.0" W
Ground Elevation (AMSL) 242.32 m / 795.0 ft
Antenna Centerline (AGL) 5.49 m / 18.0 ft
Antenna Model General Dynamics 8 Meter
Antenna Mode Receive 2.0 GHz Transmit 7.0 GHz
Interference Objectives: Long 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 3.2 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 2.0 GHz		Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	96.80	-10.00	155.40	-10.00	155.40
195	0.00	101.79	-9.95	158.20	-9.95	158.20
200	0.00	106.78	-9.42	141.70	-9.42	141.70
205	0.00	111.76	-8.80	137.20	-8.80	137.20
210	0.00	116.75	-8.17	164.80	-8.17	164.80
215	0.00	121.73	-7.33	174.50	-7.33	174.50
220	0.00	126.72	-6.33	182.70	-6.33	182.70
225	0.00	131.70	-5.16	193.20	-5.16	193.20
230	0.00	136.67	-3.78	199.40	-3.78	199.40
235	0.00	141.65	-2.16	207.40	-2.16	207.40
240	0.00	146.61	-0.20	224.90	-0.20	224.90
245	0.00	151.57	2.16	242.20	2.16	242.20
250	0.00	156.51	5.51	257.40	5.51	257.40
255	0.00	161.41	10.33	276.00	10.33	276.00
260	0.00	166.26	18.74	438.10	18.74	438.10
265	0.00	170.93	16.58	310.40	16.58	310.40
270	0.00	174.96	8.89	100.00	8.89	100.00
275	0.00	175.69	3.96	100.00	3.96	100.00
280	0.00	172.14	0.52	100.00	0.52	100.00
285	0.00	167.56	-2.10	100.00	-2.10	100.00
290	0.00	162.75	-4.20	100.00	-4.20	100.00
295	0.00	157.85	-5.98	100.00	-5.98	100.00
300	0.00	152.92	-7.50	100.00	-7.50	100.00
305	0.00	147.97	-8.84	100.00	-8.84	100.00
310	0.00	143.01	-10.00	100.00	-10.00	100.00
315	0.00	138.03	-10.00	100.00	-10.00	100.00
320	0.00	133.06	-10.00	100.00	-10.00	100.00
325	0.00	128.08	-10.00	100.00	-10.00	100.00
330	0.00	123.10	-10.00	100.00	-10.00	100.00
335	0.00	118.11	-10.00	100.00	-10.00	100.00
340	0.00	113.13	-10.00	100.00	-10.00	100.00
345	0.00	108.14	-10.00	100.00	-10.00	100.00
350	0.00	103.15	-10.00	100.00	-10.00	100.00
355	0.00	98.16	-10.00	100.00	-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: January 05, 2012