

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Strung from the Moon, LLC  
Chandler, Arizona  
(Call Sign: E010255)**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
February 17, 2014

## TABLE OF CONTENTS

1. CONCLUSIONS .....	3
2. SUMMARY OF RESULTS .....	4
3. SUPPLEMENTAL SHOWING .....	5
4. EARTH STATION COORDINATION DATA.....	6
5. CERTIFICATION.....	10

## 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

Alltel Communications Southwest Holdings Inc.  
Mesa, City of – Communications Center  
New Cingular Wireless PCS LLC – AZ  
Verizon Wireless (VAW) LLC – AZ/CO/NM/NV/UT

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 January 3, 2014.

#### Company

AT&T Corporation  
Accipiter Communications, Inc  
Alltel Comm Southwest Holdings Inc.  
Alltel Communications LLC-AZ/CO/NM/NV/UT  
Arizona Public Service Company (APS)  
Arizona, State Of  
CNG Communications, Inc.  
Calvary Chapel of Casa Grande / KVNG  
Central Arizona Water Conservation Distr  
City of Casa Grande  
City of Yuma  
Commnet Four Corners, LLC  
Fisher Wireless Services, Inc.  
Gila River Cellular General Partnership  
GovNET Licenses, LLC  
Maricopa County Wireless Systems  
Mesa, City of  
New Cingular Wireless PCS LLC - AZ  
PHOENIX , CITY OF  
Pima County Information Technology  
Qwest Corporation  
Salt River Pima-Maricopa Indian Communit  
Salt River Project AI & PD  
Sander Operanting Co. II LLC  
Scottsdale, City of  
Smith Bagley Inc  
Southern California Edison Company  
Southwest Transmission Cooperative, Inc  
Sparkplug Southwest, LLC  
Sprint Spectrum L.P  
T-Mobile License LLC  
Table Top Telephone Company  
Telink Networks SW, LLC  
Transworld Network Corp  
Tucson Electric Power  
Verizon Wireless - Arizona, Nevada  
Verizon Wireless(VAW) LLC-AZ/CO/NM/NV/UT

## **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: 02/17/2014  
Job Number: 140103COMSJC02

---

### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E010255  
Licensee Code STRMOO  
Licensee Name Strung from the Moon, LLC

---

### Site Information CHANDLER, ARIZONA

Venue Name  
Latitude (NAD 83) 33° 18' 40.0" N  
Longitude (NAD 83) 111° 57' 12.0" W  
Climate Zone A  
Rain Zone 5  
Ground Elevation (AMSL) 352.0 m / 1154.9 ft

---

### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 39° W to 175° West Longitude  
Azimuth Range 99.6° to 254.4°  
Corresponding Elevation Angles 5.5° / 13.8°  
Antenna Centerline (AGL) 4.57 m / 15.0 ft

---

### Antenna Information

	Receive	Transmit
Manufacturer	Andrew Corp.	Andrew Corp.
Model	ESA76	ESA76
Gain / Diameter	58.0 dBi / 7.6 m	59.4 dBi / 7.6 m
3-dB / 15-dB Beamwidth	0.23° / 0.40°	0.18° / 0.50°
Max Available RF Power (dBW/4 kHz)		-20.95
(dBW/MHz)		3.05
Maximum EIRP (dBW/4 kHz)		38.45
(dBW/MHz)		62.45
(dBW)		78.00
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 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	36M0G7D / 3700.0 - 4200.0	36M0G7D / 5925.0 - 6425.0
Max Great Circle Coordination Distance	727.2 km / 451.8 mi	251.8 km / 156.4 mi
Precipitation Scatter Contour Radius	462.8 km / 287.5 mi	100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

### CHANDLER, AZ

Licensee Name Strung from the Moon, LLC  
Latitude (NAD 83) 33° 18' 40.0" N  
Longitude (NAD 83) 111° 57' 12.0" W  
Ground Elevation (AMSL) 352.0 m / 1154.9 ft  
Antenna Centerline (AGL) 4.57 m / 15.0 ft  
Antenna Model Andrew Corporation ESA76  
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 -20.95 (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	0.59	99.52	-10.00	244.12	-10.00	100.00
5	0.56	94.54	-10.00	245.66	-10.00	100.00
10	0.56	89.56	-10.00	245.91	-10.00	100.00
15	0.53	84.58	-10.00	247.99	-10.00	100.00
20	0.48	79.60	-10.00	251.78	-10.00	100.00
25	0.48	74.62	-10.00	251.79	-10.00	100.00
30	0.43	69.64	-10.00	257.19	-10.00	100.00
35	0.40	64.67	-10.00	260.87	-10.00	100.00
40	0.40	59.70	-10.00	260.88	-10.00	100.00
45	0.36	54.73	-10.00	265.11	-10.00	101.43
50	0.32	49.76	-10.00	270.40	-10.00	104.91
55	0.30	44.80	-9.28	277.33	-9.28	108.31
60	0.26	39.85	-8.01	290.09	-8.01	114.46
65	0.26	34.91	-6.57	299.72	-6.57	118.18
70	0.24	29.99	-4.92	315.04	-4.92	124.50
75	0.24	25.09	-2.99	329.01	-2.99	129.65
80	0.24	20.23	-0.65	346.41	-0.65	134.74
85	0.24	15.47	2.26	369.02	2.26	143.41
90	0.23	10.91	6.05	399.78	6.05	156.68
95	0.00	7.16	10.63	444.72	10.63	179.70
100	0.00	5.54	13.41	727.17	13.41	251.79
105	0.00	7.75	9.77	436.93	9.77	176.38
110	0.00	11.71	5.29	398.05	5.29	157.58
115	0.23	15.61	2.16	369.86	2.16	144.25
120	0.22	19.59	-0.30	351.78	-0.30	137.49
125	0.22	23.50	-2.28	336.95	-2.28	133.25
130	0.24	27.30	-3.90	322.36	-3.90	127.21
135	0.24	30.98	-5.28	311.89	-5.28	123.56
140	0.24	34.52	-6.45	303.72	-6.45	120.48
145	0.24	37.86	-7.46	296.91	-7.46	117.87
150	0.24	40.97	-8.31	291.21	-8.31	115.66
155	0.28	43.75	-9.02	281.48	-9.02	110.58
160	0.29	46.19	-9.61	276.24	-9.61	108.12
165	0.29	48.21	-10.00	273.84	-10.00	107.16
170	0.32	49.69	-10.00	269.92	-10.00	104.60
175	0.36	50.59	-10.00	266.07	-10.00	102.06
180	0.36	50.90	-10.00	265.59	-10.00	101.75



# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

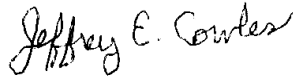
### CHANDLER, AZ

Licensee Name Strung from the Moon, LLC  
Latitude (NAD 83) 33° 18' 40.0" N  
Longitude (NAD 83) 111° 57' 12.0" W  
Ground Elevation (AMSL) 352.0 m / 1154.9 ft  
Antenna Centerline (AGL) 4.57 m / 15.0 ft  
Antenna Model Andrew Corporation ESA76  
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 -20.95 (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)
185	0.40	50.55	-10.00	261.35	-10.00	100.00
190	0.40	49.62	-10.00	260.88	-10.00	100.00
195	0.44	48.08	-10.00	256.28	-10.00	100.00
200	0.45	46.07	-9.59	258.28	-9.59	100.00
205	0.47	43.60	-8.99	258.68	-8.99	100.00
210	0.50	40.78	-8.26	260.05	-8.26	100.00
215	0.52	37.67	-7.40	264.02	-7.40	100.00
220	0.54	34.32	-6.39	269.59	-6.39	100.00
225	0.56	30.78	-5.21	275.36	-5.21	100.09
230	0.60	27.08	-3.81	282.49	-3.81	102.21
235	0.60	23.27	-2.17	293.43	-2.17	106.14
240	0.64	19.42	-0.20	304.95	-0.20	109.49
245	0.64	16.13	1.81	321.12	1.81	114.91
250	0.69	13.83	3.48	331.45	3.48	117.70
255	0.69	13.14	4.03	335.97	4.03	119.29
260	0.73	14.22	3.18	326.10	3.18	114.99
265	0.73	16.79	1.38	311.20	1.38	110.02
270	0.74	20.25	-0.66	294.60	-0.66	103.84
275	0.74	24.25	-2.62	280.49	-2.62	100.00
280	1.14	28.38	-4.33	247.41	-4.33	100.00
285	0.95	32.96	-5.95	245.79	-5.95	100.00
290	1.25	37.48	-7.34	226.15	-7.34	100.00
295	2.44	41.90	-8.56	191.47	-8.56	100.00
300	2.49	46.69	-9.73	184.66	-9.73	100.00
305	2.35	51.54	-10.00	186.45	-10.00	100.00
310	2.34	56.38	-10.00	186.67	-10.00	100.00
315	1.85	61.30	-10.00	198.49	-10.00	100.00
320	1.31	66.22	-10.00	210.92	-10.00	100.00
325	1.43	71.07	-10.00	207.48	-10.00	100.00
330	0.78	75.98	-10.00	232.52	-10.00	100.00
335	0.73	80.85	-10.00	235.66	-10.00	100.00
340	0.68	85.72	-10.00	238.61	-10.00	100.00
345	0.68	90.59	-10.00	238.37	-10.00	100.00
350	0.64	95.46	-10.00	240.59	-10.00	100.00
355	0.62	100.32	-10.00	242.34	-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.



Jeffrey E. Cowles  
Engineer III, Telecommunications  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Va. 20147

DATED: February 17, 2014

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Strung from the Moon, LLC  
Chandler, Arizona  
(Call Sign: E010255)**

**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Virginia 20147  
February 17, 2014

## TABLE OF CONTENTS

1. CONCLUSIONS .....	3
2. SUMMARY OF RESULTS .....	4
3. SUPPLEMENTAL SHOWING .....	5
4. EARTH STATION COORDINATION DATA.....	6
5. CERTIFICATION.....	10

## 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

New Cingular Wireless PCS LLC – AZ  
Telink Networks SW LLC  
Verizon Wireless (VAW) LLC – AZ/CO/NM/NV/UT

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 December 27, 2013.

#### Company

Accipiter Communications, Inc  
Alltel Comm Southwest Holdings Inc.  
Arizona Public Service Company (APS)  
Arizona, State Of  
CNG Communications, Inc.  
Calvary Chapel of Casa Grande / KVNG  
Central Arizona Water Conservation Distr  
City of Casa Grande  
Fisher Wireless Services, Inc.  
Gila River Cellular General Partnership  
GovNET Licenses, LLC  
Maricopa County Wireless Systems  
Mesa, City of  
New Cingular Wireless PCS LLC - AZ  
PHOENIX , CITY OF  
Qwest Corporation  
Salt River Pima-Maricopa Indian Communit  
Salt River Project AI & PD  
Sander Operanting Co. II LLC  
Scottsdale, City of  
Southern California Edison Company  
Sparkplug Southwest, LLC  
Sprint Spectrum L.P  
T-Mobile License LLC  
Table Top Telephone Company  
Telink Networks SW, LLC  
Tucson Electric Power  
Verizon Wireless - Arizona, Nevada  
Verizon Wireless(VAW) LLC-AZ/CO/NM/NV/UT

## **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: 02/17/2014  
Job Number: 131227COMSJC09

### Administrative Information

Status: ENGINEER PROPOSAL  
Call Sign: E010255  
Licensee Code: STRMOO  
Licensee Name: Strung from the Moon, LLC

### Site Information

**CHANDLER, ARIZONA**  
Venue Name  
Latitude (NAD 83): 33° 18' 40.0" N  
Longitude (NAD 83): 111° 57' 12.0" W  
Climate Zone: A  
Rain Zone: 5  
Ground Elevation (AMSL): 352.0 m / 1154.9 ft

### Link Information

Satellite Type: Geostationary  
Mode: TR - Transmit-Receive  
Modulation: Digital  
Satellite Arc: 60° W to 143° West Longitude  
Azimuth Range: 113.3° to 227.6°  
Corresponding Elevation Angles: 23.0° / 39.0°  
Antenna Centerline (AGL): 1.83 m / 6.0 ft

### Antenna Information

	Receive	Transmit
Manufacturer	Prodelin	Prodelin
Model	2.4 Meter	2.4 Meter
Gain / Diameter	38.0 dBi / 2.4 m	42.0 dBi / 2.4 m
3-dB / 15-dB Beamwidth	2.16° / 4.02°	1.36° / 2.57°

8M00G7W to 36M0G7W

Max Available RF Power	(dBW/4 kHz)	-21.0	-21.0		
	(dBW/MHz)	3.0	3.0		
Maximum EIRP	(dBW/4 kHz)	21.0	21.0		
	(dBW/MHz)	45.0	45.0		
	(dBW)	54.0	60.5		
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 4.0 GHz	Transmit 6.1 GHz
Emission / Frequency Range (MHz)	8M00G7W - 36M0G7W / 3700.0 - 4200.0	8M00G7W - 36M0G7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance	259.4 km / 161.2 mi	100.0 km / 62.1 mi
Precipitation Scatter Contour Radius	392.7 km / 244.0 mi	100.0 km / 62.1 mi

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

### CHANDLER, AZ

Licensee Name Strung from the Moon, LLC  
Latitude (NAD 83) 33° 18' 40.0" N  
Longitude (NAD 83) 111° 57' 12.0" W  
Ground Elevation (AMSL) 352.0 m / 1154.9 ft  
Antenna Centerline (AGL) 1.83 m / 6.0 ft  
Antenna Model Prodelin 2.4 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 -21.0 (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	1.70	111.59	-10.00	202.65	-10.00	100.00
5	1.67	106.97	-10.00	203.30	-10.00	100.00
10	1.67	102.34	-10.00	203.41	-10.00	100.00
15	1.64	97.69	-10.00	204.28	-10.00	100.00
20	1.59	93.03	-10.00	205.47	-10.00	100.00
25	1.59	88.38	-10.00	205.48	-10.00	100.00
30	1.55	83.73	-10.00	204.41	-10.00	100.00
35	1.51	79.09	-10.00	205.27	-10.00	100.00
40	1.51	74.45	-10.00	205.27	-10.00	100.00
45	1.48	69.84	-10.00	206.27	-10.00	100.00
50	1.43	65.26	-10.00	207.49	-10.00	100.00
55	1.41	60.71	-10.00	208.06	-10.00	100.00
60	1.38	56.21	-10.00	209.09	-10.00	100.00
65	1.38	51.76	-10.00	209.09	-10.00	100.00
70	1.35	47.40	-9.89	210.28	-9.89	100.00
75	1.35	43.13	-8.87	215.19	-8.87	100.00
80	1.35	38.99	-7.77	220.73	-7.77	100.00
85	1.35	35.05	-6.62	226.90	-6.62	100.00
90	1.35	31.36	-5.41	233.79	-5.41	100.00
95	1.31	28.06	-4.20	242.16	-4.20	100.00
100	1.31	25.25	-3.06	249.26	-3.06	100.00
105	1.31	23.14	-2.11	255.51	-2.11	100.00
110	1.31	21.92	-1.52	259.38	-1.52	100.00
115	1.34	21.73	-1.42	258.99	-1.42	100.00
120	1.33	22.64	-1.87	256.31	-1.87	100.00
125	1.33	24.51	-2.73	250.73	-2.73	100.00
130	1.35	27.12	-3.83	243.03	-3.83	100.00
135	1.35	30.30	-5.04	235.80	-5.04	100.00
140	1.35	33.78	-6.22	229.08	-6.22	100.00
145	1.35	37.10	-7.23	223.57	-7.23	100.00
150	1.35	40.17	-8.10	219.06	-8.10	100.00
155	1.39	42.90	-8.81	214.28	-8.81	100.00
160	1.40	45.29	-9.40	211.09	-9.40	100.00
165	1.40	47.24	-9.86	208.95	-9.86	100.00
170	1.44	48.65	-10.00	207.38	-10.00	100.00
175	1.47	49.50	-10.00	206.49	-10.00	100.00
180	1.47	49.79	-10.00	206.38	-10.00	100.00

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

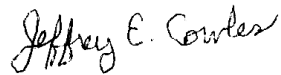
### CHANDLER, AZ

Licensee Name Strung from the Moon, LLC  
Latitude (NAD 83) 33° 18' 40.0" N  
Longitude (NAD 83) 111° 57' 12.0" W  
Ground Elevation (AMSL) 352.0 m / 1154.9 ft  
Antenna Centerline (AGL) 1.83 m / 6.0 ft  
Antenna Model Prodelin 2.4 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 -21.0 (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)
185	1.51	49.46	-10.00	205.39	-10.00	100.00
190	1.51	48.57	-10.00	205.27	-10.00	100.00
195	1.55	47.10	-9.83	204.96	-9.83	100.00
200	1.56	45.16	-9.37	206.91	-9.37	100.00
205	1.59	42.83	-8.79	208.80	-8.79	100.00
210	1.61	40.75	-8.25	210.56	-8.25	100.00
215	1.63	39.12	-7.81	212.15	-7.81	100.00
220	1.65	37.98	-7.49	213.36	-7.49	100.00
225	1.68	37.38	-7.31	213.41	-7.31	100.00
230	1.71	37.33	-7.30	212.57	-7.30	100.00
235	1.72	37.88	-7.46	211.56	-7.46	100.00
240	1.76	38.94	-7.76	208.99	-7.76	100.00
245	1.76	40.53	-8.20	206.94	-8.20	100.00
250	1.80	42.54	-8.72	205.83	-8.72	100.00
255	1.80	44.96	-9.32	203.11	-9.32	100.00
260	1.84	47.68	-9.96	199.12	-9.96	100.00
265	1.84	50.69	-10.00	198.93	-10.00	100.00
270	1.85	53.91	-10.00	198.49	-10.00	100.00
275	1.85	57.32	-10.00	198.49	-10.00	100.00
280	1.88	60.86	-10.00	197.83	-10.00	100.00
285	1.89	64.53	-10.00	197.60	-10.00	100.00
290	1.90	68.29	-10.00	197.28	-10.00	100.00
295	2.46	71.99	-10.00	184.03	-10.00	100.00
300	2.51	75.91	-10.00	182.88	-10.00	100.00
305	2.37	79.90	-10.00	185.97	-10.00	100.00
310	2.37	83.89	-10.00	186.16	-10.00	100.00
315	1.88	87.91	-10.00	197.87	-10.00	100.00
320	1.88	91.90	-10.00	197.82	-10.00	100.00
325	1.86	95.88	-10.00	198.37	-10.00	100.00
330	1.85	99.84	-10.00	198.71	-10.00	100.00
335	1.80	103.77	-10.00	199.81	-10.00	100.00
340	1.79	107.66	-10.00	200.24	-10.00	100.00
345	1.79	111.49	-10.00	200.13	-10.00	100.00
350	1.76	115.24	-10.00	201.12	-10.00	100.00
355	1.73	116.18	-10.00	201.88	-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.



Jeffrey E. Cowles  
Engineer III, Telecommunications  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, Va. 20147

DATED: February 17, 2014