

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**Sirius XM Radio LLC**  
**VERNON VALLEY, NJ**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
December 15, 2019

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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 11/08/2019.

Company

3G Wireless, LLC  
Aerial Video Systems  
Alascom Inc  
American Broadcasting Companies, Inc.  
Ascent Media Network Services, LLC  
BFI Licenses, LLC  
Bellsouth Telecommunications, Inc.  
Bloomberg, L.P.  
Borgeson, Tom R.  
Broadcast Sports Inc.  
CBS Broadcasting Inc  
Carolina Telephone and Telegraph Co  
Casper, John  
CenturyTel of the Southwest, Inc.  
Chicago Comnet Corp  
Cincinnati Bell Wireless LLC  
Citywide News Network, Inc.  
Connecticut Public Broadcasting Inc  
Cowboys Stadium LP  
DCI II, INC.  
Direct Broadcast Services, Inc.  
Fox Television Stations Inc (MTVA LLC)  
Fox Television Stations LLC - WNYW TV  
Fox Television Stations, LLC  
Fox Television Stations, LLC  
Frontier California Inc.  
Global Telecom & Technology Americas, In  
HF Enterprises, Inc  
Hallco Unlimited, Inc.  
Hawaiian Telcom, Inc.  
Hearst Properties Inc.  
Heiden, William  
Illinois Bell Telephone Company  
Indiana 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  
MERCURY COMMUNICATIONS

Maranatha Broadcasting Company  
Michigan Bell Telephone Company  
Moreen, Steven K  
NBC Telemundo License LLC  
NEW ENGLAND DIGITAL DISTRIBUTION, INC.  
NSM Surveillance  
Navajo Communications Company  
New Jersey Public Broadcasting Authority  
NorthWest Suburbs Community Access Corp  
Ohio Bell GTelephone Company  
Onboard Images  
Pacific Bell Tel Com dba AT&T California  
Penn Service Microwave Co., Inc.  
Plateau Telecommunications, Inc.  
Plum TV, LLC  
Production & Satellite Services, Inc.  
Quick Link Connections Inc.  
Qwest Corporation  
RCC Minnesota Inc. - MN NE ND SD  
REMOTE FACILITIES CONSULTING SERVICES  
RF Central, LLC  
RF Film, Inc  
Radiofone, Inc.  
Rainbow News 12 Company  
Randy Hermes Production  
Remote Broadcasts, Inc.  
SBE Coordinator  
Scripps Media, Inc.  
Southwestern Bell Telephone L.P.  
Speedshotz, Inc  
TEGNA Broadcast Holdings, LLC  
TTWN Networks, LLC  
Time Warner Entertainment Company L.P.  
Unisat, Inc.  
United Telephone - Southeast  
Univision New York LLC  
VERIZON SOUTH 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.  
Vyvx, LLC  
WNET  
WPMT, LLC  
WRNN License Company, LLC  
WXTV License Partnership, G.P.  
Westar Satellite Services LP  
Winged Vision Inc  
Wisconsin Bell Telephone Company  
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: 12/15/2019  
Job Number: 191108COMSGE09

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E080185  
Licensee Code SIRSAT  
Licensee Name Sirius XM Radio LLC

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### Site Information

**VERNON VLY, NJ**  
Venue Name  
Latitude (NAD 83) 41° 12' 45.0" N  
Longitude (NAD 83) 74° 29' 39.0" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 128.63 m / 422.0 ft

---

### Link Information

Satellite Type Geostationary  
Mode TO - Transmit-Only  
Modulation Digital  
Satellite Arc 80° W to 120° West Longitude  
Azimuth Range 188.3° to 237.1°  
Corresponding Elevation Angles 42.0° / 23.9°  
Antenna Centerline (AGL) 3.66 m / 12.0 ft

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### Antenna Information

**Transmit - FCC32**  
Manufacturer ViaSat  
Model 7.3 meter  
Gain / Diameter 52.4 dBi / 7.3 m  
3-dB / 15-dB Beamwidth 0.40° / 0.84°

Max Available RF Power (dBW/4 kHz) 9.4  
(dBW/MHz) 33.4

Maximum EIRP (dBW/4 kHz) 61.8  
(dBW/MHz) 85.8

Interference Objectives: Long Term -154.0 dBW/4 kHz 20%  
Short Term -131.0 dBW/4 kHz 0.0025%

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### Frequency Information

**Transmit 7.0 GHz**  
Emission / Frequency Range (MHz) 800KF2D - 12M5G1E / 7025.0 - 7075.0

Max Great Circle Coordination Distance 206.5 km / 128.3 mi  
Precipitation Scatter Contour Radius 444.5 km / 276.1 mi

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

### VERNON VLY, NJ

Licensee Name Sirius XM Radio LLC  
Latitude (NAD 83) 41° 12' 45.0" N  
Longitude (NAD 83) 74° 29' 39.0" W  
Ground Elevation (AMSL) 128.63 m / 422.0 ft  
Antenna Centerline (AGL) 3.66 m / 12.0 ft  
Antenna Model ViaSat 7.3 meter  
Antenna Mode Transmit 7.0 GHz  
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%  
Short Term -131.0 dBW/4 kHz 0.0025%  
Max Available RF Power 9.4 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.94	120.27	-10.00	135.14
5	2.26	124.84	-10.00	130.61
10	2.52	129.36	-10.00	125.73
15	1.49	133.34	-10.00	146.95
20	0.94	137.28	-10.00	167.78
25	1.56	136.78	-10.00	144.84
30	1.62	135.03	-10.00	143.38
35	1.94	133.12	-10.00	135.11
40	2.12	130.74	-10.00	133.22
45	2.23	128.03	-10.00	131.18
50	2.40	125.11	-10.00	127.88
55	2.73	122.06	-10.00	121.88
60	3.25	118.90	-10.00	112.44
65	3.68	115.51	-10.00	104.74
70	3.12	111.66	-10.00	114.83
75	2.63	107.81	-10.00	123.74
80	2.32	103.99	-10.00	129.46
85	3.27	100.35	-10.00	112.10
90	3.75	96.52	-10.00	103.45
95	4.20	92.62	-10.00	100.00
100	4.30	88.67	-10.00	100.00
105	4.30	84.72	-10.00	100.00
110	4.76	80.73	-10.00	100.00
115	5.41	76.68	-10.00	100.00
120	5.44	72.75	-10.00	100.00
125	4.81	69.05	-10.00	100.00
130	5.02	65.21	-10.00	100.00
135	5.41	61.36	-10.00	100.00
140	5.36	57.77	-10.00	100.00
145	4.83	54.59	-10.00	100.00
150	4.45	51.56	-10.00	100.00
155	4.72	48.35	-10.00	100.00
160	4.48	45.74	-9.51	100.00
165	3.81	43.84	-9.05	106.26
170	3.87	41.73	-8.51	107.31
175	3.54	40.40	-8.16	114.36
180	3.86	38.94	-7.76	110.15
185	4.36	37.81	-7.44	104.00

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
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### Coordination Values

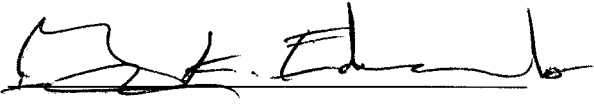
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Max Available RF Power 9.4 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	4.39	37.14	-7.25	104.31
195	4.33	36.15	-6.95	106.16
200	4.11	34.92	-6.58	110.57
205	2.97	34.11	-6.32	130.97
210	2.23	32.55	-5.81	145.58
215	1.79	30.41	-5.08	160.50
220	0.63	28.55	-4.39	206.54
225	0.72	25.96	-3.36	206.55
230	0.83	24.05	-2.53	205.02
235	1.26	22.70	-1.90	194.14
240	1.70	22.35	-1.73	181.89
245	1.86	23.32	-2.19	174.68
250	2.22	25.05	-2.97	158.91
255	3.17	27.12	-3.83	134.82
260	3.03	30.59	-5.14	132.51
265	3.90	33.85	-6.24	115.11
270	4.25	37.75	-7.42	105.53
275	4.07	42.08	-8.60	103.66
280	3.69	46.58	-9.70	105.60
285	5.40	50.53	-10.00	100.00
290	5.60	55.07	-10.00	100.00
295	5.74	59.68	-10.00	100.00
300	5.80	64.35	-10.00	100.00
305	5.41	69.11	-10.00	100.00
310	5.25	73.84	-10.00	100.00
315	5.76	78.53	-10.00	100.00
320	5.60	83.28	-10.00	100.00
325	4.95	88.03	-10.00	100.00
330	4.82	92.76	-10.00	100.00
335	5.05	97.49	-10.00	100.00
340	4.73	102.19	-10.00	100.00
345	4.66	106.89	-10.00	100.00
350	3.15	111.36	-10.00	114.15
355	2.98	115.94	-10.00	117.30

## 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: December 15, 2019

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
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**VERNON VALLEY, NJ**  
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Carolina Telephone and Telegraph Co  
Casper, John  
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Cowboys Stadium LP  
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Fox Television Stations Inc (MTVA LLC)  
Fox Television Stations LLC - WNYW TV  
Fox Television Stations, LLC  
Fox Television Stations, LLC  
Frontier California Inc.  
Global Telecom & Technology Americas, In  
HF Enterprises, Inc  
Hallco Unlimited, Inc.  
Harrisburg License, LLC  
Hawaiian Telcom, Inc.  
Hearst Properties Inc.  
Heiden, William  
Illinois Bell Telephone Company  
Indiana Bell Telephone Company  
Information & Display Systems, Inc.  
Information Super Station, LLC  
International Communications Group, Inc.  
Ion Media Scranton License, Inc.  
Kentucky RSA #3 Cellular General Partner

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Mission Broadcasting, Inc.  
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Navajo Communications Company  
New Jersey Public Broadcasting Authority  
NorthWest Suburbs Community Access Corp  
Northeastern Pennsylvania Ed TV Assn  
Ohio Bell GTelephone Company  
Onboard Images  
Pacific Bell Tel Com dba AT&T California  
Palm Television, L.P.  
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Qwest Corporation  
RCC Minnesota Inc. - MN NE ND SD  
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RF Film, Inc  
Radiofone, Inc.  
Rainbow News 12 Company  
Randy Hermes Production  
Remote Broadcasts, Inc  
SBE Coordinator.  
Scripps Media, Inc.  
Southwestern Bell Telephone L.P.  
Speedshotz, Inc  
TEGNA Broadcast Holdings, LLC  
THE PENNSYLVANIA STATE UNIVERSITY  
TTWN Networks, LLC  
Time Warner Entertainment Company L.P.  
Unisat, Inc.  
United Telephone - Southeast  
Univision New York LLC  
VERIZON SOUTH 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.  
Vyvx, LLC  
WCWB Licensee L.L.C.

WJAC Licensee, LLC  
WMHT Educational Telecommunications  
WNET  
WNYT-TV, LLC  
WPGH Licensee, LLC  
WPMT, LLC  
WPXI, LLC  
WRNN License Company, LLC  
WXTV License Partnership, G.P.  
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## **4. EARTH STATION COORDINATION DATA**

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# COMSEARCH

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

Date: 12/15/2019  
Job Number: 191108COMSGE10

---

### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E080185  
Licensee Code SIRSAT  
Licensee Name Sirius XM Radio LLC

---

### Site Information

**VERNON VLY, NJ**  
Venue Name  
Latitude (NAD 83) 41° 12' 45.0" N  
Longitude (NAD 83) 74° 29' 39.0" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 128.63 m / 422.0 ft

---

### Link Information

Satellite Type Geostationary  
Mode TO - Transmit-Only  
Modulation Digital  
Satellite Arc 4° W to 146° West Longitude  
Azimuth Range 103.1° to 257.6°  
Corresponding Elevation Angles 5.9° / 5.1°  
Antenna Centerline (AGL) 5.49 m / 18.0 ft

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### Antenna Information

**Transmit - FCC32**  
Manufacturer ViaSat  
Model 11.3 meter  
Gain / Diameter 56.4 dBi / 11.3 m  
3-dB / 15-dB Beamwidth 0.14° / 0.28°

Max Available RF Power (dBW/4 kHz) 10.8  
(dBW/MHz) 34.8

Maximum EIRP (dBW/4 kHz) 67.2  
(dBW/MHz) 91.2

Interference Objectives: Long Term -154.0 dBW/4 kHz 20%  
Short Term -131.0 dBW/4 kHz 0.0025%

---

### Frequency Information

**Transmit 7.0 GHz**  
Emission / Frequency Range (MHz) 800KF2D - 12M5G1E / 7025.0 - 7075.0

Max Great Circle Coordination Distance 594.4 km / 369.3 mi  
Precipitation Scatter Contour Radius 582.2 km / 361.7 mi

# COMSEARCH

## Earth Station Data Sheet

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

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<b>Coordination Values</b>	<b>VERNON VLY, NJ</b>
Licensee Name	Sirius XM Radio LLC
Latitude (NAD 83)	41° 12' 45.0" N
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Antenna Centerline (AGL)	5.49 m / 18.0 ft
Antenna Model	ViaSat 11.3 meter
Antenna Mode	Transmit 7.0 GHz
Interference Objectives: Long Term	-154.0 dBW/4 kHz 20%
Short Term	-131.0 dBW/4 kHz 0.0025%
Max Available RF Power	10.8 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.92	102.41	-10.00	141.15
5	2.21	98.12	-10.00	134.99
10	2.48	93.13	-10.00	131.70
15	1.46	88.14	-10.00	154.21
20	0.79	83.17	-10.00	182.73
25	1.42	78.18	-10.00	155.45
30	1.47	73.19	-10.00	153.83
35	1.70	68.20	-10.00	147.25
40	1.87	63.21	-10.00	142.59
45	1.98	58.22	-10.00	139.78
50	2.16	53.23	-10.00	136.09
55	2.48	48.23	-10.00	131.64
60	3.00	43.22	-8.89	126.21
65	3.49	38.20	-7.55	122.39
70	2.87	33.26	-6.05	137.25
75	2.44	28.33	-4.31	153.80
80	2.29	23.40	-2.23	170.05
85	3.24	18.33	0.42	158.95
90	3.73	13.31	3.89	168.18
95	4.17	8.32	9.00	186.82
100	4.27	3.53	18.29	236.96
105	4.27	2.47	22.18	417.46
110	4.73	5.76	12.99	199.76
115	5.37	8.84	8.34	162.00
120	5.41	12.27	4.78	143.26
125	4.77	16.08	1.84	137.94
130	4.99	19.14	-0.05	129.42
135	5.38	21.92	-1.52	119.86
140	5.33	24.84	-2.88	114.99
145	4.80	27.94	-4.15	115.76
150	4.42	30.69	-5.17	116.93
155	4.69	32.58	-5.82	110.78
160	4.46	34.60	-6.48	111.47
165	3.78	36.67	-7.11	119.04
170	3.84	37.68	-7.40	116.97
175	3.50	38.66	-7.68	121.80
180	3.83	38.55	-7.65	116.19
185	4.32	37.84	-7.45	109.62

# COMSEARCH

## Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147  
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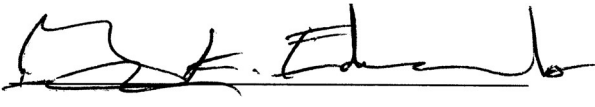
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<b>Coordination Values</b>	<b>VERNON VLY, NJ</b>
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Antenna Mode	Transmit 7.0 GHz
Interference Objectives: Long Term	-154.0 dBW/4 kHz 20%
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Max Available RF Power	10.8 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 7.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	4.36	37.17	-7.26	109.90
195	4.30	36.18	-6.96	111.74
200	4.09	34.94	-6.58	116.08
205	2.95	34.13	-6.33	134.75
210	2.21	32.57	-5.82	152.15
215	1.77	30.43	-5.08	170.15
220	0.58	28.60	-4.41	215.37
225	0.59	25.59	-3.20	220.45
230	0.78	22.29	-1.70	217.47
235	1.24	18.66	0.23	208.43
240	1.68	14.94	2.64	207.38
245	1.74	11.40	5.57	220.11
250	2.19	7.52	10.09	232.73
255	3.14	3.26	19.18	420.13
260	2.99	3.24	19.22	594.43
265	3.86	7.54	10.07	198.12
270	4.21	12.46	4.61	159.83
275	4.03	17.46	0.95	144.89
280	3.66	22.48	-1.79	139.82
285	5.34	27.43	-3.96	110.60
290	5.54	32.43	-5.77	101.56
295	5.69	37.43	-7.33	100.00
300	5.74	42.43	-8.69	100.00
305	5.35	47.43	-9.90	100.00
310	5.19	52.43	-10.00	100.00
315	5.70	57.43	-10.00	100.00
320	5.54	62.43	-10.00	100.00
325	4.89	67.43	-10.00	100.00
330	4.76	72.43	-10.00	100.00
335	5.00	77.43	-10.00	100.00
340	4.68	82.43	-10.00	100.00
345	4.61	87.43	-10.00	100.00
350	3.10	92.43	-10.00	120.46
355	2.93	97.42	-10.00	123.60

## 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: December 15, 2019