

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**ESPN Inc.**  
**BRISTOL, CT**  
**(E070231)**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
September 01, 2015

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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 III, 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 08/11/2015.

Company

256Q Networks  
ALBANY, COUNTY OF  
ALGONQUIN GAS TRANSMISSION, LLC  
AMFM Radio Licenses, LLC  
AT&T Corporation  
AWC Networks  
Amherst, Town of  
Appalachian Broadcasting  
Archdiocese of New York Dept of Educatio  
Atlantic Telecommunications  
Auburn Data Systems, LLC  
BAE Systems  
BFI Licenses, LLC  
BJ'S Wholesale Club, Inc  
BOUNCELINX  
Bergen, County of  
Blueline Communications  
Business Only Broadband, LLC  
CBS Communication Services Inc  
CMEEC  
CONNECTICUT STATE OF  
Capital Communications of America  
Cellco Partnership - (W-NY)  
Cellco Partnership - CT, W-MA, VT  
Cellco Partnership - E-MA, NH, RI  
Cellco Partnership-Northern New Jersey  
Central Massachusetts Emergency Medical  
China Cat Productions LLC  
City of Albany  
City of Bristol Mayor's Office  
City of Jersey City  
City of New Haven Police Services  
City of New York  
City of Providence RI Public Safety Comm  
City of Springfield Police Department  
Clearwire Spectrum Holdings III, LLC  
Columbia, County  
Columbia, County of  
Community Products, LLC  
Comprehensive Wireless LLC

Connecticut State Police Department  
Conterra Ultra Broadband, LLC  
Coralinks  
County of Warren, NJ  
Direct Broadcast Services, Inc.  
EAST HAMPTON TOWN POLICE DEPARTMENT  
ECW Wireless, LLC  
East Brunswick, Township of, NJ  
Eastern MLG LLC  
Electric Railroad, LLC  
Essex County Sheriff's Office (NJ)  
Eversource Energy Service Company  
FORDHAM UNIVERSITY(WFUV)  
FiberTower Network Services Corp.-DIP  
Fishers Island Telephone  
Fundamental Broadcasting LLC  
GAW High Speed Internet  
Garden State Transmissions  
Geodesic Networks LLC  
Global Crossing Telecommunications, Inc.  
Goosetown Network Services, LLC  
Granite State Telephone, Inc.  
Greater Boston Police Council  
Green Line Networks  
Greenwich, Town of (CT)  
High Voltage Communications LLC (CFN)  
Highway Networks, LLC  
Hillsborough County Sheriff's Office  
Holy Name Hospital  
Hudson County MIS Department  
Hudson County Prosecutors Office  
Jefferson Microwave, LLC  
Kryptick Technologies  
LANline Communications, Inc.  
Limitless Mobile, LLC  
MB Microwave, LLC  
MONMOUTH, COUNTY OF  
Mahwah Communications  
Massachusetts Commonwealth of  
Massachusetts Water Resources Authority  
Massachusetts, Commonwealth of  
Metro Networks Communications, Inc.  
Mid-Hudson Data Corp  
Middlesex, County of  
Monroe County Control Center (PA)  
Morris, County of  
NBC Telemundo License LLC  
NH #1 Rural Cellular, Inc.  
NSTAR Electric Company  
NY Dept of Health and Mental Hygiene  
NYC DOT Staten Island Ferry  
Nashua City New Hampshire  
Nassau County Police Department  
National Grid USA Service Company, Inc  
National Tower Company LLC  
NeXXCom Wireless LLC

New Britain, City of  
New Cingular Wireless PCS LLC -NJ  
New Cingular Wireless PCS LLC - MA  
New Cingular Wireless PCS LLC-DE/NH/RI  
New Cingular Wireless PCS LLC-Vermont  
New Cingular Wireless PCS, LLC (NY)  
New Cingular Wireless PCS, LLC - PA  
New Hampshire Dept. of Safety  
New Hampshire Electric Cooperative  
New Jersey State Police  
New Jersey Transit Rail Operations, Inc.  
New Jersey Turnpike Authority-Pkwy Div  
New Jersey, State of -NJ Transit  
New Line Networks, LLC  
New York City Police Department TARU  
New York Communications Co., Inc  
New York RSA No. 2 Cellular Partnership  
New York SMSA LP (Northern NJ)  
New York SMSA Limited Partnership  
New York, City of (Police Department)  
Newark Police Department  
Norcom Communications Corp.  
Northrop Grumman Systems Corp.  
Northrop Grumman Systems Corporation Inc  
Northumberland, County of  
Norton, Douglas R  
Office of Emergency Telecom Services, NJ  
Orange Poughkeepsie SMSA LTD Partnership  
Orange and Rockland Utilities, Inc.  
Orangetown, Town of  
PEG Bandwidth, LLC  
PISCATAWAY, TOWNSHIP OF  
PSEG Services Corporation  
Pines Pantry, Inc.  
Pitt Power  
Port Authority of New York & New Jersey  
Qoncept Holdings LLC  
Radius North, LLC  
Rendezvous Communications LLC  
Rensselaer County  
Rockland, County of  
SANOFI PASTEUR  
SCHENECTADY COUNTY LAW ENF MOB RADIO  
SCS Networks  
STAMFORD, CITY OF  
STATE OF NEW JERSEY - OFFICE OF PUBLIC  
SUFFOLK, COUNTY OF  
SW Networks  
Saratoga County Office of Emergency Svcs  
Somerset, County of - Emergency Manageme  
Southwestern NH District Fire Mutual Aid  
Spot On Networks  
Sprint Spectrum L.P.  
Sprintcom, Inc  
Standard Backhaul Communications LLC  
State of New Jersey

State of New York, Div of State Police  
Suffolk County Police Department  
Sullivan County DPW  
Sussex County Sheriffs Office  
T-Mobile License LLC  
THE BROOKLYN HOSPITAL CENTER  
Thacher, Proffitt & Wood LLP  
Towerstream Corp.  
Town of Colonie Police Department  
Town of Holden  
Town of Narragansett, Rhode Island  
Town of Thomaston  
Town of Wethersfield  
Town of Woodbridge, Police Department  
Township of Middletown  
Transcontinental Gas Pipeline Corp.  
Turtle Networks 6562  
Union County New Jersey  
Union, County Of  
VTel Wireless, Inc.  
Verizon New Jersey, Inc.  
Verizon Wireless (VAW) LLC - NJ  
Verizon Wireless (VAW) LLC-Pennsylvania  
Vermont Transco, LLC  
Vivint Wireless, Inc.  
WESTCHESTER, COUNTY OF  
WORCESTER, CITY OF  
Warren County (NY)  
Wayne, Township of  
Weblin Holdings LLC  
West Haven, City of  
White Rabbit Networks  
Wireless Holdings Network, LLC  
Wireless Internetwork LLC  
World Class Wireless, LLC  
Zen Networks, Inc  
iSignal  
xWave Engineering LLC



## **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: 09/01/2015  
Job Number: 150811COMSGE04

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign E070231  
Licensee Code ESPN  
Licensee Name ESPN Inc.

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### Site Information

**BRISTOL, CT**  
Venue Name  
Latitude (NAD 83) 41° 38' 51.6" N  
Longitude (NAD 83) 72° 53' 51.6" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 89.0 m / 292.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 12° W to 139° West Longitude  
Azimuth Range 110.3° to 253.6°  
Corresponding Elevation Angles 12.8° / 9.0°  
Antenna Centerline (AGL) 3.66 m / 12.0 ft

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### Antenna Information

|                                    | <b>Receive - FCC32</b> | <b>Transmit - FCC32</b>  |
|------------------------------------|------------------------|--------------------------|
| Manufacturer                       | ViaSat                 | ViaSat                   |
| Model                              | 8060                   | 8060                     |
| Gain / Diameter                    | 56.1 dBi / 6.1 m       | 57.3 dBi / 6.1 m         |
| 3-dB / 15-dB Beamwidth             | 0.30° / 0.60°          | 0.25° / 0.50°            |
| Max Available RF Power (dBW/4 kHz) |                        | -14.0                    |
| (dBW/MHz)                          |                        | 10.0                     |
| Maximum EIRP (dBW/4 kHz)           |                        | 43.3                     |
| (dBW/MHz)                          |                        | 67.3                     |
| Interference Objectives:           |                        |                          |
| Long Term                          | -156.0 dBW/MHz 20%     | -151.0 dBW/4 kHz 20%     |
| Short Term                         | -146.0 dBW/MHz 0.01%   | -128.0 dBW/4 kHz 0.0025% |

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### Frequency Information

|  | <b>Receive 11.0 GHz</b>  | <b>Transmit 14.0 GHz</b>              |
|--|--|---------------------------------------|
| Emission / Frequency Range (MHz)       | 10M0G7D - 54M0G7F / 10950.0 - 11200.0<br>10M0G7D - 54M0G7F / 11450.0 - 12200.0 | 10M0G7D - 54M0G7F / 13750.0 - 14500.0 |
| Max Great Circle Coordination Distance | 365.0 km / 226.8 mi  | 151.8 km / 94.3 mi                    |
| Precipitation Scatter Contour Radius   | 541.9 km / 336.7 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

### BRISTOL, CT

Licensee Name ESPN Inc.  
Latitude (NAD 83) 41° 38' 51.6" N  
Longitude (NAD 83) 72° 53' 51.6" W  
Ground Elevation (AMSL) 89.0 m / 292.0 ft  
Antenna Centerline (AGL) 3.66 m / 12.0 ft  
Antenna Model ViaSat 6.1 Meter  
Antenna Mode Receive 11.0 GHz Transmit 14.0 GHz  
Interference Objectives: Long Term -156.0 dBW/MHz 20% -151.0 dBW/4 kHz 20%  
Short Term -146.0 dBW/MHz 0.01% -128.0 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           | 0.00                  | 106.20                     | -10.00             | 231.37                     | -10.00             | 115.80                     |
| 5           | 0.35                  | 104.93                     | -10.00             | 217.63                     | -10.00             | 104.57                     |
| 10          | 0.53                  | 100.06                     | -10.00             | 203.21                     | -10.00             | 100.00                     |
| 15          | 0.74                  | 95.18                      | -10.00             | 195.15                     | -10.00             | 100.00                     |
| 20          | 0.61                  | 90.30                      | -10.00             | 201.45                     | -10.00             | 100.00                     |
| 25          | 0.49                  | 85.41                      | -10.00             | 205.25                     | -10.00             | 100.00                     |
| 30          | 0.75                  | 80.52                      | -10.00             | 194.70                     | -10.00             | 100.00                     |
| 35          | 0.86                  | 75.63                      | -10.00             | 188.90                     | -10.00             | 100.00                     |
| 40          | 1.12                  | 70.73                      | -10.00             | 177.70                     | -10.00             | 100.00                     |
| 45          | 1.43                  | 65.82                      | -10.00             | 167.39                     | -10.00             | 100.00                     |
| 50          | 1.59                  | 60.93                      | -10.00             | 159.33                     | -10.00             | 100.00                     |
| 55          | 1.84                  | 56.03                      | -10.00             | 151.25                     | -10.00             | 100.00                     |
| 60          | 2.19                  | 51.12                      | -10.00             | 142.06                     | -10.00             | 100.00                     |
| 65          | 2.32                  | 46.25                      | -9.63              | 140.87                     | -9.63              | 100.00                     |
| 70          | 2.63                  | 41.36                      | -8.41              | 139.32                     | -8.41              | 100.00                     |
| 75          | 2.71                  | 36.54                      | -7.07              | 143.62                     | -7.07              | 100.00                     |
| 80          | 2.93                  | 31.73                      | -5.54              | 145.83                     | -5.54              | 100.00                     |
| 85          | 3.13                  | 26.98                      | -3.78              | 150.03                     | -3.78              | 100.00                     |
| 90          | 3.24                  | 22.37                      | -1.74              | 158.21                     | -1.74              | 100.00                     |
| 95          | 3.34                  | 17.95                      | 0.65               | 171.65                     | 0.65               | 100.00                     |
| 100         | 3.54                  | 13.84                      | 3.47               | 182.39                     | 3.47               | 100.00                     |
| 105         | 3.74                  | 10.52                      | 6.45               | 193.70                     | 6.45               | 100.00                     |
| 110         | 3.69                  | 9.15                       | 7.97               | 202.15                     | 7.97               | 100.00                     |
| 115         | 3.60                  | 10.35                      | 6.63               | 197.24                     | 6.63               | 100.00                     |
| 120         | 3.39                  | 13.50                      | 3.74               | 186.99                     | 3.74               | 100.00                     |
| 125         | 3.20                  | 16.98                      | 1.25               | 178.19                     | 1.25               | 100.00                     |
| 130         | 3.00                  | 20.37                      | -0.72              | 172.55                     | -0.72              | 100.00                     |
| 135         | 2.74                  | 23.65                      | -2.34              | 170.05                     | -2.34              | 100.00                     |
| 140         | 2.19                  | 27.00                      | -3.79              | 176.24                     | -3.79              | 100.00                     |
| 145         | 1.84                  | 30.01                      | -4.93              | 180.04                     | -4.93              | 100.00                     |
| 150         | 1.63                  | 32.67                      | -5.85              | 181.85                     | -5.85              | 100.00                     |
| 155         | 1.54                  | 34.95                      | -6.59              | 180.87                     | -6.59              | 100.00                     |
| 160         | 1.20                  | 37.13                      | -7.24              | 187.97                     | -7.24              | 100.00                     |
| 165         | 1.00                  | 38.85                      | -7.73              | 191.86                     | -7.73              | 100.00                     |
| 170         | 0.82                  | 40.15                      | -8.09              | 199.35                     | -8.09              | 100.00                     |
| 175         | 0.63                  | 41.03                      | -8.33              | 204.79                     | -8.33              | 100.00                     |
| 180         | 0.32                  | 41.56                      | -8.47              | 226.06                     | -8.47              | 109.90                     |
| 185         | 0.26                  | 41.40                      | -8.42              | 232.86                     | -8.42              | 115.36                     |

# COMSEARCH

## Earth Station Data Sheet

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

### Coordination Values

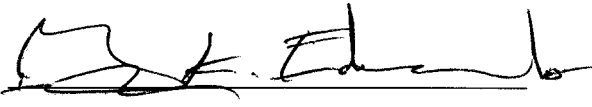
### BRISTOL, CT

Licensee Name: ESPN Inc.  
Latitude (NAD 83): 41° 38' 51.6" N  
Longitude (NAD 83): 72° 53' 51.6" W  
Ground Elevation (AMSL): 89.0 m / 292.0 ft  
Antenna Centerline (AGL): 3.66 m / 12.0 ft  
Antenna Model: ViaSat 6.1 Meter  
Antenna Mode: Receive 11.0 GHz / Transmit 14.0 GHz  
Interference Objectives: Long Term: -156.0 dBW/MHz 20% / -151.0 dBW/4 kHz 20%  
Short Term: -146.0 dBW/MHz 0.01% / -128.0 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                  | 40.94                      | -8.30              | 238.94                     | -8.30              | 120.04                     |
| 195         | 0.00                  | 39.79                      | -7.99              | 240.37                     | -7.99              | 120.82                     |
| 200         | 0.21                  | 38.04                      | -7.50              | 241.57                     | -7.50              | 121.23                     |
| 205         | 0.48                  | 35.88                      | -6.87              | 219.40                     | -6.87              | 102.48                     |
| 210         | 1.26                  | 32.98                      | -5.96              | 192.22                     | -5.96              | 100.00                     |
| 215         | 1.62                  | 30.18                      | -4.99              | 186.12                     | -4.99              | 100.00                     |
| 220         | 1.98                  | 27.17                      | -3.85              | 181.18                     | -3.85              | 100.00                     |
| 225         | 2.08                  | 24.16                      | -2.58              | 185.09                     | -2.58              | 100.00                     |
| 230         | 2.47                  | 20.76                      | -0.93              | 184.19                     | -0.93              | 100.00                     |
| 235         | 2.44                  | 17.54                      | 0.90               | 193.59                     | 0.90               | 100.00                     |
| 240         | 2.87                  | 13.87                      | 3.45               | 196.66                     | 3.45               | 100.00                     |
| 245         | 3.11                  | 10.24                      | 6.74               | 204.99                     | 6.74               | 100.00                     |
| 250         | 3.38                  | 6.69                       | 11.37              | 223.52                     | 11.37              | 100.00                     |
| 255         | 2.81                  | 6.38                       | 11.88              | 365.02                     | 11.88              | 151.83                     |
| 260         | 2.88                  | 8.88                       | 8.29               | 217.43                     | 8.29               | 100.00                     |
| 265         | 2.76                  | 13.00                      | 4.15               | 202.22                     | 4.15               | 100.00                     |
| 270         | 3.03                  | 17.44                      | 0.96               | 180.69                     | 0.96               | 100.00                     |
| 275         | 3.08                  | 22.18                      | -1.65              | 162.54                     | -1.65              | 100.00                     |
| 280         | 2.93                  | 27.06                      | -3.81              | 154.48                     | -3.81              | 100.00                     |
| 285         | 2.65                  | 31.99                      | -5.62              | 151.80                     | -5.62              | 100.00                     |
| 290         | 2.14                  | 36.97                      | -7.20              | 156.61                     | -7.20              | 100.00                     |
| 295         | 1.30                  | 42.00                      | -8.58              | 178.59                     | -8.58              | 100.00                     |
| 300         | 0.81                  | 46.97                      | -9.79              | 192.21                     | -9.79              | 100.00                     |
| 305         | 0.88                  | 51.87                      | -10.00             | 188.14                     | -10.00             | 100.00                     |
| 310         | 0.80                  | 56.80                      | -10.00             | 191.84                     | -10.00             | 100.00                     |
| 315         | 0.68                  | 61.74                      | -10.00             | 198.12                     | -10.00             | 100.00                     |
| 320         | 0.74                  | 66.67                      | -10.00             | 195.13                     | -10.00             | 100.00                     |
| 325         | 0.92                  | 71.60                      | -10.00             | 185.91                     | -10.00             | 100.00                     |
| 330         | 0.69                  | 76.56                      | -10.00             | 197.49                     | -10.00             | 100.00                     |
| 335         | 0.33                  | 81.51                      | -10.00             | 218.90                     | -10.00             | 105.64                     |
| 340         | 0.00                  | 86.45                      | -10.00             | 231.37                     | -10.00             | 115.80                     |
| 345         | 0.00                  | 91.39                      | -10.00             | 231.37                     | -10.00             | 115.80                     |
| 350         | 0.00                  | 96.33                      | -10.00             | 231.37                     | -10.00             | 115.80                     |
| 355         | 0.20                  | 101.27                     | -10.00             | 231.22                     | -10.00             | 115.69                     |

## 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: September 01, 2015