

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
CACI Technologies, Inc.
ABERDEEN PROVING GROUND, MD
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
April 26, 2011

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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

Airband Communications Inc
Clearwire Spectrum Holdings III, LLC
FiberTower Network Services Corp.

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 03/04/2011.

Company

ACCELACOM-BALTIMORE LLC
ALLEGANY COLLEGE OF MARYLAND
AMFM RADIO LICENSES, LLC
ART Licensing Corp.
AT&T COMMUNICATIONS OF MARYLAND INC
AT&T COMMUNICATIONS OF VIRGINIA INC
AT&T CORP
Airband Communications Inc
Albermarle, County of, Virginia
Allegheny Power Service Corporation
Allentown SMSA Limited Partnership
Alltel Communications LLC - Verizon SOVA
Alltel Communications of Petersburg Inc
Archdiocese of New York Dept of Educatio
Atlantic Broadband (Delmar), LLC
Atlantic Broadband (Penn), LLC
Auburn Data Systems, LLC
BALTIMORE CITY DEPARTMENT OF PUBLIC WORK
BAY BROADBAND COMMUNICATIONS LLC
BFI Licenses, LLC
Baltimore County of Maryland
Baltimore Gas and Electric Company
Bedford, County of
Believe Wireless, LLC
Berks, County of
Blaze Broadband
Bucks, County of
Business Only Broadband, LLC
CHESTER, COUNTY OF
COUNTY OF MORRIS
Cambria, County of
Cape May County Municipal Utilities Auth
Cape May County, MIS Department
Cellco Partnership - Southern Virginia
Cellco Partnership- PA Region
Cellco Partnership-Newark-Dallas Verizon
Cellco Prtnrshp - Phil. Tri-State Rgn
City of Laurel
City of Ocean City, MD
Clearwire Spectrum Holdings III, LLC

Clearwire Spectrum Holdings LLC
Commonwealth of Pennsylvania-Radio Proj.
Conterra Ultra Broadband, LLC
County of Bergen, Bergen Cnty Police Dep
County of Burlington
County of Stafford
County of Warren
Cricket Communications, Inc
Cumberland, County of
D&E Communications, Inc.
DELAWARE STATE - DTI
Direct Broadcast Services, Inc.
Eduro Networks LLC
Enoch Pratt Free Library
Essex County Sherrif's Office
Exelon Generation Company, L.L.C
FELHC, Inc.
FORDHAM UNIVERSITY
FiberTower Network Services Corp.
Franklin County Dept. of Emergency Servi
Frederick County
GEORGE MASON UNIVERSITY INSTR FNDTION
GETWIRELESS.NET
Gannett Company, Inc.
Globecomm Systems, Inc.
HANOVER COUNTY
HENRICO COUNTY
Hardy Cellular Telephone Company
Harrisonburg-Rockingham ECC
Hopewell Radiology Group
Hudson County MIS Department
Hudson County Prosecutor's Office
Huntingdon County of
International Communications Group, Inc.
Juniata County Emergency Services
Kent County Levy Court
King George County
LACKAWANNA COUNTY
LANCASTER COUNTY OF
LB Tower Company LLC
LOWER SHORE BROADBAND COOPERATIVE
LYCOMING COUNTY
Last Mile Inc.
Lehigh, County of
Loudoun County Public Schools
Loudoun Wireless LLC
Loudoun, County of
M&T Bank
METRO NETWORKS COMMUNICATIONS INC
METROPOLITAN AREA NETWORKS, INC.
MIT LINCOLN LABORATORY
Manchester, Township of
Maryland Port Administration
Maryland Public Broadcasting Commission
Maryland State Highway Administration
Maryland, State of - Dept.of Info & Tech

Metropolitan Broadband Systems, LLC
Middle East Broadcasting Networks, Inc.
Mifflin County
Millersburg Area School District
Monroe County Control Center (PA)
Montgomery, County of
NEW JERSEY STATE POLICE
NEW JERSEY TRANSIT RAIL OPERATIONS,INC
NEW YORK CITY POLICE DEPARTMENT
NOROC Broadband LLC
NY Dept of Health and Mental Hygiene
National Radio Astronomy Observatory
Netrepid, Inc.
New Cingular Wireless PCS LLC -NJ
New Cingular Wireless PCS - VA/DC/MD
New Cingular Wireless PCS LLC - DC
New Cingular Wireless PCS of PA LLC
New Cingular Wireless PCS, LLC - PA
New Cingular Wireless PCS, LLC - WV/VA
New Jersey Turnpike Authority
New Jersey Turnpike Authority-Pkwy Div
New Jersey, State of -NJ Transit
New Kent County
New York SMSA LP (NY Metro Region)
New York, City of
Nextlink Wireless, Inc
Northeast Pennsylvania SMSA LTD Prtnrsh
Northern Virginia Electric Cooperative
Northrop Grumman Information Technology
Ocean, County of-Div of Wireless Tech.
Open Range Communications
PENNSYLVANIA MICROWAVE NETWORK INC.
PENNSYLVANIA TURNPIKE COMMISSION
PSEG Services Corporation
Philly Sports Wireless
Pontis Communications, Inc.
Port Authority of New York & New Jersey
Port Networks, LLC
Public Broadcasting Service
QUALCOMM INC.
QUICK LINK CONNECTIONS INC
RAYTHEON COMPANY
RapidDSL & Wireless, Inc.
Roadstar Internet, Inc.
Rural Broadband Network Services LLC
SANOFI PASTEUR
SCHUYLKILL, COUNTY OF
SCTF NET
SECOM NET
SOUTHEASTERN PENNSYLVANIA TRANSIT AUTH
Salem County Information Technology
Shenandoah Personal Communications Co
Somerset County, Maryland
State of Maryland, MIEMSS
State of WV DHHR/BPH STECS
Stevens Institute of Technology

Synergy Telecommunications Corp
TELEMARK NETWORKS, INC
THE HERSHEY COMPANY
Telecom Transport Management, Inc
Thacher, Proffitt & Wood LLP
Towerstream Corp
Town of Woodbridge, Police Department
Township of Jackson
UNION, COUNTY OF
UNIVERSITY OF MARYLAND
USCOC of Cumberland, Inc.
Verizon New Jersey, Inc.
Verizon Virginia, Inc.
Virginia Broadband, LLC
Virginia Electric & Power Company
WASHINGTON SUBURBAN SANITARY COMMISSION
WEST VIRGINIA RADIO CORPORATION
WHYY, INC.
WICOMICO BOARD OF EDUCATION
Warrenton Fauquier Joint Communications
Washington Gas Light Company
Wayne, Township of
Western PA Internet Access, Inc.
York County Dept of Emergency Services

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: 04/26/2011
Job Number: 110304COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code CACII
Licensee Name CACI Technologies, Inc.

Site Information

ABERDEEN PROVING GROUND, MD
Venue Name OBJECTIVE SITE
Latitude (NAD 83) 39° 28' 34.2" N
Longitude (NAD 83) 76° 7' 32.8" W
Climate Zone A
Rain Zone 2
Ground Elevation (AMSL) 8.84 m / 29.0 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 5° W to 143° West Longitude
Azimuth Range 102.3° to 254.8°
Corresponding Elevation Angles 5.8° / 9.1°
Antenna Centerline (AGL) 4.88 m / 16.0 ft

Antenna Information

| | | Receive - FCC32 | | Transmit - FCC32 | |
|--------------------------|--------------------------|----------------------------------|--------------|--------------------------------------|----------------|
| Manufacturer | | General Dynamics | | General Dynamics | |
| Model | | 9.2 Meter | | 9.2 Meter | |
| Gain / Diameter | | 58.0 dBi / 9.2 m | | 60.1 dBi / 9.2 m | |
| 3-dB / 15-dB Beamwidth | | 0.20° / 0.49° | | 0.16° / 0.39° | |
| Max Available RF Power | (dBW/4 kHz) (dBW/MHz) | | | -14.0 10.0 | |
| Maximum EIRP | (dBW/4 kHz) (dBW/MHz) | | | 46.1 70.1 | |
| Interference Objectives: | Long Term Short Term | -156.0 dBW/MHz -146.0 dBW/MHz | 20% 0.01% | -151.0 dBW/4 kHz -128.0 dBW/4 kHz | 20% 0.0025% |

Frequency Information

| | Receive 11.0 GHz | Transmit 14.0 GHz |
|----------------------------------|--|---------------------------------------|
| Emission / Frequency Range (MHz) | 250KG7D - 36M0F8W / 10950.0 - 11200.0 250KG7D - 36M0F8W / 11450.0 - 12700.0 | 250KG7D - 36M0F8W / 14000.0 - 14500.0 |

| | | |
|--|---------------------|---------------------|
| Max Great Circle Coordination Distance | 600.8 km / 373.3 mi | 271.7 km / 168.8 mi |
| Precipitation Scatter Contour Radius | 591.9 km / 367.7 mi | 100.0 km / 62.1 mi |

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
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Coordination Values

ABERDEEN PG, MD

Licensee Name CACI Technologies, Inc.
Latitude (NAD 83) 39° 28' 34.2" N
Longitude (NAD 83) 76° 7' 32.8" W
Ground Elevation (AMSL) 8.84 m / 29.0 ft
Antenna Centerline (AGL) 4.88 m / 16.0 ft
Antenna Model General Dynamics 9.2 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 | 0.33 | 102.21 | -10.00 | 219.12 | -10.00 | 105.82 |
| 5 | 0.28 | 97.23 | -10.00 | 223.80 | -10.00 | 109.70 |
| 10 | 0.00 | 92.25 | -10.00 | 231.37 | -10.00 | 115.80 |
| 15 | 0.00 | 87.28 | -10.00 | 231.37 | -10.00 | 115.80 |
| 20 | 0.00 | 82.30 | -10.00 | 231.37 | -10.00 | 115.80 |
| 25 | 0.00 | 77.33 | -10.00 | 231.37 | -10.00 | 115.80 |
| 30 | 0.00 | 72.36 | -10.00 | 231.37 | -10.00 | 115.80 |
| 35 | 0.00 | 67.39 | -10.00 | 231.37 | -10.00 | 115.80 |
| 40 | 0.00 | 62.42 | -10.00 | 231.37 | -10.00 | 115.80 |
| 45 | 0.00 | 57.45 | -10.00 | 231.37 | -10.00 | 115.80 |
| 50 | 0.00 | 52.49 | -10.00 | 231.37 | -10.00 | 115.80 |
| 55 | 0.00 | 47.54 | -9.93 | 231.69 | -9.93 | 115.99 |
| 60 | 0.00 | 42.59 | -8.73 | 237.00 | -8.73 | 118.97 |
| 65 | 0.00 | 37.65 | -7.39 | 243.15 | -7.39 | 122.34 |
| 70 | 0.00 | 32.73 | -5.87 | 250.52 | -5.87 | 126.22 |
| 75 | 0.00 | 27.83 | -4.11 | 259.23 | -4.11 | 129.52 |
| 80 | 0.00 | 22.97 | -2.03 | 269.96 | -2.03 | 135.19 |
| 85 | 0.00 | 18.19 | 0.51 | 283.68 | 0.51 | 142.81 |
| 90 | 0.00 | 13.55 | 3.70 | 299.07 | 3.70 | 153.50 |
| 95 | 0.00 | 9.29 | 7.80 | 327.10 | 7.80 | 170.29 |
| 100 | 0.00 | 6.23 | 12.14 | 600.85 | 12.14 | 271.68 |
| 105 | 0.00 | 6.42 | 11.82 | 451.89 | 11.82 | 210.66 |
| 110 | 0.00 | 9.63 | 7.41 | 324.17 | 7.41 | 168.81 |
| 115 | 0.00 | 13.32 | 3.89 | 300.21 | 3.89 | 154.16 |
| 120 | 0.00 | 16.94 | 1.27 | 287.98 | 1.27 | 145.27 |
| 125 | 0.00 | 20.48 | -0.78 | 276.61 | -0.78 | 138.84 |
| 130 | 0.00 | 23.90 | -2.46 | 267.70 | -2.46 | 133.97 |
| 135 | 0.00 | 27.19 | -3.86 | 260.49 | -3.86 | 130.17 |
| 140 | 0.00 | 30.31 | -5.04 | 254.60 | -5.04 | 128.36 |
| 145 | 0.00 | 33.24 | -6.04 | 249.71 | -6.04 | 125.79 |
| 150 | 0.00 | 35.92 | -6.88 | 245.68 | -6.88 | 123.64 |
| 155 | 0.00 | 38.32 | -7.58 | 242.26 | -7.58 | 121.86 |
| 160 | 0.00 | 40.38 | -8.15 | 239.63 | -8.15 | 120.42 |
| 165 | 0.00 | 42.05 | -8.59 | 237.62 | -8.59 | 119.31 |
| 170 | 0.00 | 43.29 | -8.91 | 236.20 | -8.91 | 118.52 |
| 175 | 0.00 | 44.06 | -9.10 | 235.35 | -9.10 | 118.05 |
| 180 | 0.00 | 44.31 | -9.16 | 235.06 | -9.16 | 117.89 |
| 185 | 0.00 | 44.05 | -9.10 | 235.35 | -9.10 | 118.05 |

COMSEARCH

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Coordination Values

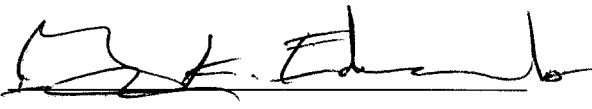
ABERDEEN PG, MD

| | | | | |
|------------------------------------|----------------------------|-------|-------------------|---------|
| Licensee Name | CACI Technologies, Inc. | | | |
| Latitude (NAD 83) | 39° 28' 34.2" N | | | |
| Longitude (NAD 83) | 76° 7' 32.8" W | | | |
| Ground Elevation (AMSL) | 8.84 m / 29.0 ft | | | |
| Antenna Centerline (AGL) | 4.88 m / 16.0 ft | | | |
| Antenna Model | General Dynamics 9.2 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 | 43.29 | -8.91 | 236.20 | -8.91 | 118.52 |
| 195 | 0.00 | 42.05 | -8.59 | 237.62 | -8.59 | 119.31 |
| 200 | 0.00 | 40.38 | -8.15 | 239.63 | -8.15 | 120.42 |
| 205 | 0.00 | 38.32 | -7.58 | 242.26 | -7.58 | 121.86 |
| 210 | 0.00 | 35.92 | -6.88 | 245.68 | -6.88 | 123.64 |
| 215 | 0.00 | 33.24 | -6.04 | 249.71 | -6.04 | 125.79 |
| 220 | 0.00 | 30.32 | -5.04 | 254.59 | -5.04 | 128.36 |
| 225 | 0.00 | 27.19 | -3.86 | 260.50 | -3.86 | 130.17 |
| 230 | 0.00 | 23.90 | -2.46 | 267.70 | -2.46 | 133.98 |
| 235 | 0.00 | 20.48 | -0.78 | 276.62 | -0.78 | 138.84 |
| 240 | 0.00 | 16.95 | 1.27 | 287.96 | 1.27 | 145.25 |
| 245 | 0.00 | 13.32 | 3.89 | 300.22 | 3.89 | 154.16 |
| 250 | 0.00 | 10.25 | 6.74 | 319.27 | 6.74 | 166.25 |
| 255 | 0.00 | 9.06 | 8.07 | 426.77 | 8.07 | 200.31 |
| 260 | 0.00 | 10.43 | 6.54 | 317.88 | 6.54 | 165.51 |
| 265 | 0.00 | 13.60 | 3.66 | 298.81 | 3.66 | 153.35 |
| 270 | 0.00 | 17.63 | 0.84 | 285.55 | 0.84 | 143.87 |
| 275 | 0.00 | 22.05 | -1.59 | 272.31 | -1.59 | 136.47 |
| 280 | 0.00 | 26.67 | -3.65 | 261.57 | -3.65 | 130.73 |
| 285 | 0.00 | 31.40 | -5.42 | 252.72 | -5.42 | 127.38 |
| 290 | 0.00 | 36.19 | -6.97 | 245.29 | -6.97 | 123.43 |
| 295 | 0.00 | 41.03 | -8.33 | 238.84 | -8.33 | 119.98 |
| 300 | 0.30 | 45.85 | -9.53 | 224.11 | -9.53 | 109.45 |
| 305 | 0.28 | 50.75 | -10.00 | 223.96 | -10.00 | 109.83 |
| 310 | 0.31 | 55.65 | -10.00 | 220.51 | -10.00 | 106.98 |
| 315 | 0.45 | 60.56 | -10.00 | 208.19 | -10.00 | 100.00 |
| 320 | 0.44 | 65.49 | -10.00 | 209.72 | -10.00 | 100.00 |
| 325 | 0.44 | 70.43 | -10.00 | 209.35 | -10.00 | 100.00 |
| 330 | 0.38 | 75.37 | -10.00 | 214.15 | -10.00 | 101.61 |
| 335 | 0.47 | 80.30 | -10.00 | 207.24 | -10.00 | 100.00 |
| 340 | 0.47 | 85.25 | -10.00 | 206.53 | -10.00 | 100.00 |
| 345 | 0.68 | 90.19 | -10.00 | 198.08 | -10.00 | 100.00 |
| 350 | 0.52 | 95.13 | -10.00 | 203.34 | -10.00 | 100.00 |
| 355 | 0.45 | 100.08 | -10.00 | 208.19 | -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: April 26, 2011