

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**Universal Space Network, Inc.
Green River, Wyoming**

Satellite Earth Station

Prepared By:
COMSEARCH

19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
November 3, 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, based upon the restrictions noted in the Summary of Results (Section 2).

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 those cases that were reported.

Although no companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis, representatives from the SBE and broadcast community voiced concern over shared operations with their systems. However, at the time of this report, no actual cases had been reported that could be analyzed.

The proposed earth station will be limited to a single frequency of 2085.6875 MHz and operate at a low power level. The applicant is open to conducting tests with any shared users that operate receive systems within the contours of this site in order to abate any concerns of interference to their systems. The applicant will also provide access to 24/7 emergency contacts in the event that interference is noted while the earth station is in operation.

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.

Expedited coordination data for this earth station was sent to the below listed carriers with a letter dated September 26, 2011.

Company

AIRWAVES, INC
Aspen Television, LLC
BONNEVILLE HOLDING COMPANY (KSL-TV)
Bonneville Holding Company
CBS Television Stations
CENTRAL WYOMING COLLEGE/PUBLIC TELEVISIO
CLEAR CHANNEL BROADCASTING LICENSES INC
Community Television of Utah License, LL
Compass Commuications of Idaho, Inc.
DESTINY LICENSES, LLC
DUHAMEL BROADCASTING ENTERPRISES (KOTA)
ENTRAVISION HOLDINGS, LLC
FISHER BROADCASTING - S.E. IDAHO TV, LLC
GRAY TELEVISION LICENSEE, INC. (KKCO)
Gray Television Licensee, Inc.
Gray Television Licensee, Inc. (KKTU)
IRON COUNTY UTAH
KRCA License Corporation
LARRY H MILLER COMMUNICATIONS CORP.
MCGRAW-HILL BROADCASTING COMP - KMGH
MESA COUNTY (BROADCASTING)
MISSION BROADCASTING, INC.
Multimedia Holdings Corporation
NEUHOFF FAMILY LIMITED PARTNERSHIP
NEXSTAR BROADCASTING, INC.
NPG OF IDAHO, INC.
OREGON TRAIL BROADCASTING
Park County, Wyoming
Pikes Peak Broadcasting Company Inc.
ROCKY MOUNTAIN PUBLIC BROADCASTING
Qwest Corporation
Region 10 League for Assist/Planning
Rio Blanco County TV Association
SILVERTON BROADCASTING COMPANY, LLC
SLC TV LICENSEE CORP.
Sagamorehill Broadcasting of WY N CO LLC

Company (Continued)

WASHINGTON COUNTY TELEVISION DEPT
WESTERN BROADCASTING, LS, LLC

LTTS Licensees

Village Video Production Inc.
NSM Surveillance
Information Super Station, LLC
Metrosat Communications Inc
Fishman Brothers Enterprises
Randy Hermes Productions
Global Microwave Systems, Inc.
Broadcast Sports Inc.
RF Central, LLC
Metro Networks Communications, Inc.
Borgeson, Tom R.
UniSat, Inc.
John Casper
Alltel Communications, LLC
Regulus Media Services, Inc.
Kentucky RSA 3 Cellular General Partnership
Kentucky RSA 4 Cellular General Partnership
Winged Vision Inc.
Centurytel of the Southwest Inc,
Goodyear tire & Rubber Company
CP Communications PA LLC
Telemovil Del Caribe Inc.
Western Technical Services
DCI II Inc.
Christine Steinert
3G Wireless, LLC
Elena Cohen
Express Lane Traffic LLC
Anthony J. Ryan
Lancellotti, Inc.
Total Video Houston, LLC
Remote Facilities Consulting Inc.
RF Film, Inc.
Citywide News Network, Inc.
Mr. William Heiden
Wolfe Air Aviation
RF Technology, LLC
Onboard Images
GSN News, Inc.
Cowboys Stadium LP

Society of Broadcast Engineers (SBE)

Nebraska – Western Area Region (Mr. Jerry Fueher)
Utah – SLC Region (Mr. John Dehnel)
Wyoming – Entire State (Mr. Robert Spain)
Idaho - SW Region (Mr. Jeff Hoffert)
Idaho – SE Region (Mr. David Turnmire)
Idaho – So. Central Region (Mr. Thomas Lowther)
Colorado – Front Range (Mr. James Schoedler)
Colorado – Western Slope (Mr. Robert Bowe)
Nevada – Reno Region (Mr. Steve Weber)
Montana – Billings Area (Mr. Randall Rocks)

Mr. Christopher Imlay SBE Attorney

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: 11/03/2011
Job Number: 110926COMSJC02

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code UNSPNE
Licensee Name Universal Space Network, Inc.

Administrative Information

Status ENGINEER PROPOSAL
Call Sign
Licensee Code UNSPNE
Licensee Name Universal Space Network, Inc.

Site Information GREEN RIVER, WYOMING

Venue Name
Latitude (NAD 83) 41° 32' 12.0" N
Longitude (NAD 83) 109° 21' 11.0" W
Climate Zone A
Rain Zone 5
Ground Elevation (AMSL) 1889.76 m / 6200.0 ft

Link Information

Satellite Type Low Earth Orbit
Mode TO - Transmit-Only
Modulation Digital
Minimum Elevation Angle 5.0°
Azimuth Range 0.0° to 360°
Antenna Centerline (AGL) 4.88 m / 16.0 ft

Antenna Information

Manufacturer ViaSat
Model 7.3 Meter
Gain / Diameter 41.0 dBi / 7.3 m
3-dB / 15-dB Beamwidth 1.54° / 2.90°

Transmit

Max Available RF Power (dBW/4 kHz) -13.2
(dBW/MHz) 10.8

Maximum EIRP (dBW/4 kHz) 27.8
(dBW/MHz) 51.8

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

Frequency Information

Emission / Frequency Range (MHz) Transmit 2.0 GHz
1M32G1D / 2085.6875

Max Great Circle Coordination Distance 470.8 km / 292.5 mi
Precipitation Scatter Contour Radius 100.0 km / 62.1 mi

COMSEARCH

Earth Station Data Sheet

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Coordination Values

GREEN RIVER, WY

Licensee Name Universal Space Network, Inc.
Latitude (NAD 83) 41° 32' 12.0" N
Longitude (NAD 83) 109° 21' 11.0" W
Ground Elevation (AMSL) 1889.76 m / 6200.0 ft
Antenna Centerline (AGL) 4.88 m / 16.0 ft
Antenna Model ViaSat 7.3 Meter
Antenna Mode Transmit 2.0 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.2 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 2.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	77.90	9.00	470.80
5	0.00	73.30	9.00	470.80
10	0.00	68.72	9.00	470.80
15	0.00	64.18	9.00	470.80
20	0.00	59.67	9.00	470.80
25	0.00	55.21	9.00	470.80
30	0.00	50.82	9.00	470.80
35	0.00	46.51	9.00	470.80
40	0.00	42.32	9.00	470.80
45	0.00	38.28	9.00	470.80
50	0.00	34.46	9.00	470.80
55	0.00	30.92	9.00	470.80
60	0.00	27.79	9.00	470.80
65	0.00	25.22	9.00	470.80
70	0.00	23.39	9.00	470.80
75	0.00	22.48	9.00	470.80
80	0.00	22.60	9.00	470.80
85	0.00	23.75	9.00	470.80
90	0.00	25.78	9.00	470.80
95	0.00	28.51	9.00	470.80
100	0.00	31.75	9.00	470.80
105	0.00	35.36	9.00	470.80
110	0.00	39.25	9.00	470.80
115	0.00	43.33	9.00	470.80
120	0.00	47.55	9.00	470.80
125	0.00	51.88	9.00	470.80
130	0.00	56.29	9.00	470.80
135	0.00	60.76	9.00	470.80
140	0.00	65.28	9.00	470.80
145	0.00	69.84	9.00	470.80
150	0.00	74.42	9.00	470.80
155	0.00	79.02	9.00	470.80
160	0.00	83.63	9.00	470.80
165	0.00	88.25	9.00	470.80
170	0.00	92.87	9.00	470.80
175	0.00	97.49	9.00	470.80
180	0.00	102.10	9.00	470.80
185	0.00	106.70	9.00	470.80

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Antenna Mode Transmit 2.0 GHz
Interference Objectives: Long Term -154.0 dBW/4 kHz 20%
Short Term -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -13.2 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 2.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	111.28	9.00	470.80
195	0.00	115.82	9.00	470.80
200	0.00	120.33	9.00	470.80
205	0.00	124.79	9.00	470.80
210	0.00	129.18	9.00	470.80
215	0.00	133.49	9.00	470.80
220	0.00	137.68	9.00	470.80
225	0.00	141.72	9.00	470.80
230	0.00	145.54	9.00	470.80
235	0.00	149.08	9.00	470.80
240	0.00	152.21	9.00	470.80
245	0.00	154.78	9.00	470.80
250	0.00	156.62	9.00	470.80
255	0.00	157.52	9.00	470.80
260	0.00	157.40	9.00	470.80
265	0.00	156.25	9.00	470.80
270	0.00	154.22	9.00	470.80
275	0.00	151.49	9.00	470.80
280	0.00	148.25	9.00	470.80
285	0.00	144.64	9.00	470.80
290	0.00	140.75	9.00	470.80
295	0.00	136.68	9.00	470.80
300	0.00	132.45	9.00	470.80
305	0.00	128.12	9.00	470.80
310	0.00	123.71	9.00	470.80
315	0.00	119.24	9.00	470.80
320	0.00	114.72	9.00	470.80
325	0.00	110.16	9.00	470.80
330	0.00	105.58	9.00	470.80
335	0.00	100.98	9.00	470.80
340	0.00	96.37	9.00	470.80
345	0.00	91.75	9.00	470.80
350	0.00	87.13	9.00	470.80
355	0.00	82.51	9.00	470.80

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: November 3, 2011