

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Harte Satellite Consultants
MERCURY, NV
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
August 26, 2021

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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 05/12/2021.

Company

3G Wireless, LLC
AccessParks LLC
Aerial Video Systems
Agreserves, Inc
Alascom Inc
Ascent Media Network Services, LLC
AT&T Mobility Spectrum LLC - N CA
AT&T Mobility Spectrum LLC - Nevada
AT&T Mobility Spectrum LLC - Southern CA
Bakersfield, City of
Beasley Media Group Licenses, LLC
Bel Air Internet, LLC
Bellsouth Telecommunications, Inc.
Borgeson, Tom R.
Broadcast Sports Inc.
Cal.net, Inc.
California Internet, L.P
California, State of
Carolina Telephone and Telegraph Co
Casper, John
Castle Mountain Venture
Cellco Partnership - N CA/NV
Cellco Partnership - Southern California
Cellco Partnership-AZ/CO/NM/NV/UT
Central Telephone Company of Nevada
CenturyTel of Eagle, Inc.
CenturyTel of the Southwest, Inc.
Channel 33, Inc.
Chicago Comnet Corp
Christian Television Corporation, Inc.
City of Lindsay PD
Cincinnati Bell Wireless LLC
City of California City Police Depart
City of Exeter
City of Los Angeles Dept Water & Power
City of North Las Vegas
Citywide News Network, Inc.
Clark County School Dist., Vegas PBS
Clark, County of
Clearwire Spectrum Holdings III, LLC

Commnet Four Corners, LLC
 Commnet of Nevada, LLC
 Conterra Ultra Broadband, LLC
 Copper Mountain Solar 3, LLC
 County of Fresno
 Cowboys Stadium LP
 DCI II, INC.
 Digis LLC
 Direct Broadcast Services, Inc.
 Elementis Global LLC
 Entercom License, LLC
 Entravision Holdings, LLC
 Fireline Network Solutions Inc.
 Fresno MSA Limited Partnership
 Frontier California Inc.
 Frontier Radio, Inc
 Ggb Las Vegas, LLC
 Gilcomm, LLC
 Global Telecom & Technology Americas, In
 Hallco Unlimited, Inc.
 Hawaiian Telecom Inc.
 Heiden, William
 Henderson, City of (Nevada)
 HF Enterprises, Inc
 High Wire Ops, Inc.
 Illinois Bell Telephone Company
 Indian Wells Valley ISP
 Indiana Bell Telephone Company
 Information & Display Systems, Inc.
 Information Super Station, LLC
 InfoWest, Inc
 Integrity Networks, LLC
 International Communications Group, Inc.
 J G BOSWELL COMPANY
 Kemp Broadcasting, Inc.
 Kentucky RSA #3 Cellular General Partner
 Kentucky RSA #4 Cellular General Partner
 Kern Community College District
 Kern County Superintendent of Schools
 Kern Ed Telecom Consortium
 Kern River Gas Transmission Co
 Kern Valley Dispatch
 Kern, County of
 Kings Canyon Unified School District
 Kingsburg Media Foundation
 Kliewer, Jerin
 KUPN Licensee, LLC
 Kvvu Broadcasting Corporation
 Las Vegas Metropolitan Police Department
 Las Vegas Valley Water District
 LasVegas.Net
 Lincoln County Telephone System, Inc.
 Lindsay Unified School District
 Lone Pine Communications
 Los Angeles SMSA Ltd. Partnership
 LVR Real Property, LLC

Mediacom California LLC
 MERCURY COMMUNICATIONS
 Metropolitan Water Dist of So California
 Michigan Bell Telephone Company
 Moreen, Steven K
 Natural State Wireless,
 Navajo Communications Company
 Nevada Bell Tel dba AT&T Nevada
 Nevada Power Co dba NV Energy
 Nevada Power Company dba NV Energy-South
 New Cingular Wireless PCS - Los Angeles
 New Cingular Wireless PCS LLC - N CAL
 New Cingular Wireless PCS LLC- Las Vegas
 New Cingular Wireless PCS, LLC - S/E CAL
 NEW ENGLAND DIGITAL DISTRIBUTION, INC.
 Nextweb Inc
 Niles Radio Communications
 NorthWest Suburbs Community Access Corp
 NSM Surveillance
 Nye, County of
 OACYS Technology
 Ohio Bell GTelephone Company
 Olympic Wireless, LLC
 Onboard Images
 Pacific Bell Tel Com dba AT&T California
 Pacific Gas and Electric Company
 Penn Service Microwave Co., Inc.
 Planet Networks CA LLC
 Plateau Telecommunications, Inc.
 Plum TV, LLC
 Production & Satellite Services, Inc.
 Quick Link Connections Inc.
 Qwest Corporation
 Radiofone, Inc.
 Randy Hermes Production
 RCC Minnesota Inc. - MN NE ND SD
 Remote Broadcasts, Inc.
 REMOTE FACILITIES CONSULTING SERVICES
 RF Central, LLC
 RF Film, Inc
 San Bernardino County of California
 SBC-Wireless, Inc.
 Schatt, Aaron I
 Scripps Broadcasting Holdings, LLC
 Sidewinder Networks
 Skybeam Acquisition Corporation
 SmartSky Microwave, LLC
 Southern California Edison Company
 Southern California Gas Company
 Southern Nevada Area Communications Cncl
 Southern Nevada Water Authority
 Southwestco Wireless L P -(AZ/NV)
 Southwestern Bell Telephone L.P.
 Sparkplug Southwest, LLC
 Speedshotz, Inc
 Sprint Spectrum LLC

Sprint Telephony PCS, L.P.
Sprintcom, Inc
State of Nevada, Enterprise IT Services
Telecom North America, Inc
Telemundo Las Vegas License LLC
T-Mobile License LLC
Towerstream Corp.
TTWN Networks, LLC
Tulare, County of
Ultimate Internet Access, Inc
Union Pacific Railroad Company
Unisat, Inc.
United Telephone - Southeast
University and Community College Syst NV
University of Nevada, Las Vegas
University of Nevada, Reno
unWired Broadband, Inc
Valley Electric Association, Inc
VegasWiFi Communications LLC
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 SOUTH INC.
Verizon Virginia, Inc.
Verizon Washington DC, Inc.
Verizon Wireless - Arizona, Nevada
Verizon Wireless (VAW) LLC-N CA/NV
VetBand LLC
VYVX, LLC
Wecom, Inc.
Westar Satellite Services LP
Whittrio Inc
Winged Vision Inc
Wireless Internet Services, Inc.
Wisconsin Bell Telephone Company
Wolfe Air Aviation
WWC License 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: 05/12/2021
Job Number: 210512COMSGE01

Administrative Information

Status: ENGINEER PROPOSAL
Call Sign:
Licensee Code: HARSAT
Licensee Name: Harte Satellite Consultants

Site Information

Venue Name: MERCURY, NV
Latitude (NAD 83): 36° 39' 23.4" N
Longitude (NAD 83): 115° 59' 45.6" W
Climate Zone: A
Rain Zone: 5
Ground Elevation (AMSL): 1143.5 m / 3751.6 ft

Link Information

Satellite Type: Geostationary
Mode: TR - Transmit-Receive
Modulation: Digital
Satellite Arc: 44° W to 188° West Longitude
Azimuth Range: 101.0° to 259.0°
Corresponding Elevation Angles: 5.7° / 5.7°
Antenna Centerline (AGL): 1.49 m / 4.9 ft

Antenna Information

		Receive - FCC32	Transmit - FCC32
Manufacturer		TTI	TTI
Model		27E01-1000-A	27E01-1000-A
Gain / Diameter		30.1 dBi / 0.45 m	30.6 dBi / 0.45 m
3-dB / 15-dB Beamwidth		4.40° / 9.00°	3.9° / 7.6°
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)		-20.1 3.9
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)		10.5 34.5
Interference Objectives:	Long Term Short Term	-156.0 dBW/MHz 20% -146.0 dBW/MHz 0.01%	-151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025%

Frequency Information

	Receive 11.0 GHz	Transmit 13.0 GHz
Emission / Frequency Range (MHz)	25M0G7W / 10700.0 - 10950.0 25M0G7W / 11200.0 - 11450.0	7M00G7W / 12750.0 - 13250.0
Max Great Circle Coordination Distance	376.7 km / 234.0 mi	189.9 km / 118.0 mi
Precipitation Scatter Contour Radius	413.2 km / 256.7 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

MERCURY, NV

Licensee Name	Harte Satellite Consultants				
Latitude (NAD 83)	36° 39' 23.4" N				
Longitude (NAD 83)	115° 59' 45.6" W				
Ground Elevation (AMSL)	1143.5 m / 3751.6 ft				
Antenna Centerline (AGL)	1.49 m / 4.9 ft				
Antenna Model	TTI 0.45 meter				
Antenna Mode	Receive 11.0 GHz		Transmit 13.0 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			-20.1 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	4.93	100.98	-10.00	100.00	-10.00	100.00
5	4.73	95.98	-10.00	101.26	-10.00	100.00
10	4.68	90.98	-10.00	101.78	-10.00	100.00
15	3.94	85.98	-10.00	111.22	-10.00	100.00
20	2.65	81.00	-10.00	132.50	-10.00	100.00
25	2.29	76.01	-10.00	139.83	-10.00	100.00
30	3.37	71.00	-10.00	120.82	-10.00	100.00
35	5.30	65.98	-10.00	100.00	-10.00	100.00
40	4.58	60.99	-10.00	103.09	-10.00	100.00
45	4.86	55.99	-10.00	100.00	-10.00	100.00
50	3.89	51.01	-10.00	112.10	-10.00	100.00
55	3.91	46.01	-9.57	113.29	-9.57	100.00
60	5.43	40.98	-8.32	100.00	-8.32	100.00
65	4.65	36.00	-6.91	113.12	-6.91	100.00
70	3.37	31.06	-5.31	137.65	-5.31	100.00
75	3.38	26.08	-3.41	146.41	-3.41	100.00
80	4.45	21.02	-1.06	137.44	-1.06	100.00
85	5.57	15.98	1.91	136.50	1.91	100.00
90	5.06	11.00	5.96	167.18	5.96	100.00
95	4.45	6.11	12.35	209.66	12.35	100.00
100	5.22	1.10	30.10	317.23	30.60	123.46
105	5.40	3.33	18.93	238.39	18.93	100.00
110	4.82	7.55	10.05	194.50	10.05	100.00
115	5.07	11.21	5.76	163.05	5.76	100.00
120	4.20	15.51	2.24	158.14	2.24	100.00
125	3.86	19.40	-0.19	152.00	-0.19	100.00
130	2.99	23.53	-2.29	161.33	-2.29	100.00
135	3.39	26.67	-3.65	145.00	-3.65	100.00
140	2.11	30.83	-5.23	170.72	-5.23	100.00
145	1.86	34.08	-6.31	172.15	-6.31	100.00
150	2.30	36.55	-7.07	153.31	-7.07	100.00
155	1.17	39.97	-8.04	185.30	-8.04	100.00
160	0.24	42.95	-8.82	232.29	-8.82	115.33
165	0.00	44.99	-9.33	234.33	-9.33	117.48
170	0.00	46.35	-9.65	232.90	-9.65	116.67
175	0.00	47.19	-9.85	232.04	-9.85	116.18
180	0.00	47.48	-9.91	231.75	-9.91	116.02
185	0.00	47.19	-9.85	232.04	-9.85	116.18

COMSEARCH

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Coordination Values

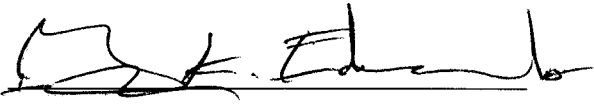
MERCURY, NV

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Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz	0.0025%	
Max Available RF Power			-20.1 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 11.0 GHz		Transmit 13.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	46.35	-9.65	232.90	-9.65	116.67
195	0.00	44.99	-9.33	234.33	-9.33	117.48
200	0.00	43.16	-8.88	236.35	-8.88	118.60
205	0.00	40.92	-8.30	238.97	-8.30	120.06
210	0.00	38.33	-7.59	242.24	-7.59	121.85
215	0.00	35.46	-6.74	246.35	-6.74	124.00
220	0.00	32.34	-5.74	251.15	-5.74	126.55
225	0.00	29.03	-4.57	256.94	-4.57	129.58
230	0.00	25.55	-3.19	263.95	-3.19	131.98
235	0.00	21.95	-1.54	272.58	-1.54	136.62
240	0.00	18.24	0.48	283.51	0.48	142.71
245	0.00	14.45	3.00	294.88	3.00	151.05
250	0.00	10.59	6.38	316.70	6.38	164.88
255	0.00	6.97	10.92	352.39	10.92	182.15
260	0.00	5.78	12.96	376.70	12.96	189.88
265	0.00	8.25	9.09	337.14	9.09	175.19
270	0.00	12.35	4.71	305.41	4.71	157.12
275	0.00	16.94	1.28	288.00	1.28	145.28
280	0.21	21.65	-1.39	272.01	-1.39	135.93
285	1.01	26.37	-3.53	207.07	-3.53	100.00
290	1.80	31.20	-5.35	178.93	-5.35	100.00
295	2.42	36.11	-6.94	150.83	-6.94	100.00
300	2.46	41.08	-8.34	143.30	-8.34	100.00
305	2.54	46.06	-9.58	136.35	-9.58	100.00
310	3.49	51.01	-10.00	118.76	-10.00	100.00
315	4.04	55.99	-10.00	109.77	-10.00	100.00
320	4.35	60.99	-10.00	105.89	-10.00	100.00
325	4.92	65.98	-10.00	100.00	-10.00	100.00
330	4.89	70.98	-10.00	100.00	-10.00	100.00
335	4.42	75.98	-10.00	105.04	-10.00	100.00
340	4.12	80.98	-10.00	108.74	-10.00	100.00
345	3.94	85.98	-10.00	111.23	-10.00	100.00
350	4.61	90.98	-10.00	102.69	-10.00	100.00
355	4.88	95.98	-10.00	100.00	-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: August 26, 2021