

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
RCN License Subsidiary, Inc.
HENDERSON, NV
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
October 15, 2018

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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

New Cingular Wireless PCS LLC- Las Vegas

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 12/26/2017.

Company

AT&T Mobility Spectrum LLC - Arizona
AT&T Mobility Spectrum LLC - Nevada
Arizona Nevada Tower Corp
Arizona Public Service Company (APS)
Arizona, State Of
Calvary Chapel of Costa Mesa
Central Telephone Company
Central Telephone Company of Nevada
Citizens Telecommunications of CA Inc.
Citizens Utilities Rural Company, Inc.
City of Los Angeles Dept Water & Power
City of North Las Vegas
Clark, County of
Commnet Four Corners, LLC
Global Telecom & Technology Americas, In
LasVegas.Net
Los Angeles SMSA Ltd. Partnership
Nevada Power Company dba NV Energy-South
New Cingular Wireless PCS LLC - AZ
New Cingular Wireless PCS - Los Angeles
New Cingular Wireless PCS LLC- Las Vegas
New Cingular Wireless PCS LLC-Reno, NV
Nye, County of
Pacific Bell Tel Com dba AT&T California
Ponderosa Telephone Company
San Bernardino County of California
Southern California Edison Company
Southern Nevada Area Communications Cncl
Sprint Telephony PCS, L.P.
State of Nevada, Enterprise IT Services
T-Mobile License LLC
Transworld Network Corp
VegasWiFi Communications LLC
Verizon Wireless - Arizona, Nevada
Verizon Wireless(VAW) LLC-AZ/CO/NM/NV/UT
Wecom, Inc.
Whittrio Inc

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: 10/15/2018
Job Number: 171226COMSTC09

Administrative Information

Licensee Code RCNJVZ
Licensee Name RCN License Subsidiary, Inc.

Site Information

HENDERSON, NV
Latitude (NAD 83) 35° 57' 39.9" N
Longitude (NAD 83) 115° 10' 1.5" W
Climate Zone A
Rain Zone 5
Ground Elevation (AMSL) 757.2 m / 2484.3 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 45° W to 139° West Longitude
Azimuth Range 102.0° to 216.9°
Corresponding Elevation Angles 7.3° / 41.2°
Antenna Centerline (AGL) 7.0 m / 23.0 ft

Antenna Information

Receive - A40937
Manufacturer ANDREW CORPORATION
Model ES93
Gain / Diameter 50.5 dBi / 9.3 m
3-dB / 15-dB Beamwidth 1.02° / 2.00°

Transmit - A60937

ANDREW CORPORATION
ES93
54.0 dBi / 9.3 m
1.02° / 2.00°

Max Available RF Power	(dBW/4 kHz)			51K2G7W - 36M0G7W	
	(dBW/MHz)			-14.0	-14.0
				10.0	10.0
Maximum EIRP	(dBW/4 kHz)			40.0	40.0
	(dBW/MHz)			64.0	64.0
	(dBW)			51.07	79.54
Interference Objectives:	Long Term	-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	20%
	Short Term	-146.0 dBW/MHz	0.01%	-131.0 dBW/4 kHz	0.0025%

Frequency Information

Receive 4.0 GHz
Emission / Frequency Range (MHz) 51K2G7W - 36M0G7W / 3700.0 - 4200.0

Transmit 6.1 GHz

51K2G7W - 36M0G7W / 5925.0 - 6425.0

Max Great Circle Coordination Distance 528.1 km / 328.1 mi 220.9 km / 137.3 mi
Precipitation Scatter Contour Radius 441.8 km / 274.5 mi 100.0 km / 62.1 mi

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Coordination Values

HENDERSON, NV

Licensee Name RCN License Subsidiary, Inc.
Latitude (NAD 83) 35° 57' 39.9" N
Longitude (NAD 83) 115° 10' 1.5" W
Ground Elevation (AMSL) 757.2 m / 2484.3 ft
Antenna Centerline (AGL) 7.0 m / 23.0 ft
Antenna Model Andrew Corporation ES93
Antenna Mode Receive 4.0 GHz Transmit 6.1 GHz
Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -14.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	101.86	-10.00	285.28	-11.00	130.16
5	0.00	96.90	-10.00	285.28	-11.00	130.16
10	0.00	91.94	-10.00	285.28	-11.00	130.16
15	0.00	86.99	-10.00	285.28	-11.00	130.16
20	0.00	82.03	-10.00	285.28	-11.00	130.16
25	0.00	77.07	-10.00	285.28	-11.00	130.16
30	0.00	72.11	-10.00	285.28	-11.00	130.16
35	0.00	67.16	-10.00	285.28	-11.00	130.16
40	0.00	62.21	-10.00	285.28	-10.37	131.86
45	0.00	57.26	-10.00	285.28	-10.00	132.84
50	0.00	52.32	-10.00	285.28	-10.00	132.84
55	0.00	47.39	-10.00	285.28	-10.00	132.84
60	0.00	42.48	-9.00	291.72	-10.00	132.84
65	0.27	37.53	-9.00	283.26	-10.00	127.36
70	0.00	32.70	-9.00	291.72	-10.00	132.84
75	0.28	27.80	-9.00	281.95	-9.98	126.55
80	0.42	22.96	-8.99	264.57	-9.30	116.67
85	0.61	18.20	-7.06	260.35	-8.40	107.93
90	0.76	13.62	-4.62	266.29	-6.73	105.71
95	0.89	9.46	1.43	299.73	-2.50	111.16
100	1.03	6.58	6.00	528.08	7.00	220.95
105	1.20	6.83	6.00	343.65	7.00	138.60
110	1.20	10.08	0.58	278.09	-2.50	101.15
115	1.12	14.03	-5.00	244.06	-7.01	100.00
120	1.20	17.80	-6.80	230.90	-8.24	100.00
125	1.04	21.63	-8.38	227.48	-9.16	100.00
130	1.07	25.24	-9.00	223.23	-9.55	100.00
135	0.98	28.81	-9.00	226.48	-10.00	100.00
140	1.10	32.06	-9.00	222.09	-10.00	100.00
145	1.30	35.05	-9.00	216.00	-10.00	100.00
150	1.71	37.62	-9.00	204.60	-10.00	100.00
155	2.65	39.41	-9.00	184.58	-10.00	100.00
160	2.72	41.51	-9.00	182.85	-10.00	100.00
165	2.75	43.22	-9.00	182.29	-10.00	100.00
170	1.83	45.36	-10.00	199.04	-10.00	100.00
175	1.46	46.53	-10.00	206.79	-10.00	100.00
180	1.57	46.69	-10.00	206.00	-10.00	100.00
185	1.77	46.22	-10.00	200.64	-10.00	100.00

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Coordination Values

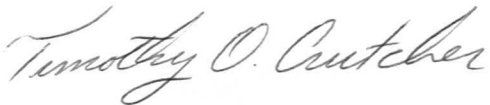
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Interference Objectives: Long Term -156.0 dBW/MHz 20% -154.0 dBW/4 kHz 20%
Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -14.0 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 4.0 GHz		Transmit 6.1 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	2.61	44.62	-9.62	182.38	-10.00	100.00
195	2.22	43.71	-9.00	194.31	-10.00	100.00
200	2.04	42.15	-9.00	198.18	-10.00	100.00
205	1.84	40.88	-9.00	203.38	-10.00	100.00
210	1.05	40.68	-9.00	223.91	-10.00	100.00
215	1.05	40.23	-9.00	223.93	-10.00	100.00
220	1.24	40.09	-9.00	217.77	-10.00	100.00
225	1.61	40.30	-9.00	207.12	-10.00	100.00
230	2.89	40.18	-9.00	179.10	-10.00	100.00
235	3.07	41.62	-9.00	174.98	-10.00	100.00
240	5.02	42.06	-9.00	137.40	-10.00	100.00
245	4.69	44.84	-9.84	138.33	-10.00	100.00
250	4.82	47.58	-10.00	135.97	-10.00	100.00
255	4.58	50.82	-10.00	139.22	-10.00	100.00
260	4.13	54.35	-10.00	145.94	-10.00	100.00
265	3.78	57.95	-10.00	152.36	-10.00	100.00
270	3.33	61.69	-10.00	162.09	-10.28	100.00
275	2.77	65.52	-10.00	176.89	-11.00	100.00
280	1.91	69.48	-10.00	197.06	-11.00	100.00
285	1.28	73.35	-10.00	211.85	-11.00	100.00
290	1.01	77.14	-10.00	220.09	-11.00	100.00
295	1.03	80.90	-10.00	219.36	-11.00	100.00
300	0.00	84.78	-10.00	285.28	-11.00	130.16
305	0.00	88.53	-10.00	285.28	-11.00	130.16
310	0.52	92.31	-10.00	248.64	-11.00	105.35
315	0.00	96.05	-10.00	285.28	-11.00	130.16
320	0.00	99.78	-10.00	285.28	-11.00	130.16
325	0.00	103.47	-10.00	285.28	-11.00	130.16
330	0.00	107.12	-10.00	285.28	-11.00	130.16
335	0.00	110.71	-11.71	274.64	-11.57	128.65
340	0.00	114.21	-14.21	259.91	-14.37	121.28
345	0.00	116.72	-15.00	255.48	-15.00	119.65
350	0.00	111.77	-12.39	270.56	-12.42	126.40
355	0.00	106.82	-10.00	285.28	-11.00	130.16

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.

A handwritten signature in cursive script that reads "Timothy O. Crutcher".

Timothy O. Crutcher
Frequency Planner
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147

DATED: October 15, 2018