

# FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for  
**MTN License Corp.**  
**PETALUMA, CA**  
**Satellite Earth Station**

Prepared By:  
COMSEARCH  
19700 Janelia Farm Boulevard  
Ashburn, VA 20147  
December 3, 2009

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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. The transmit band of the proposed earth station will be limited to avoid conflict with local 6 GHz terrestrial microwave receivers. 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, with the exception of those cases that were cleared by limiting the uplink band around their receive frequencies.

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 11/19/2009.

Company

AT&T California  
Alameda County of California  
American Tower, LLC  
CBS Broadcasting Inc  
CONTRA COSTA COUNTY COMMUNICATIONS DEPT.  
CRYSTAL SMR INC.  
CSC  
Cagal Cellular Communications Corp.  
California Rural Service Area #1, Inc.  
California, State of  
City & County of San Francisco PUC  
County of San Mateo  
EAST BAY MUNICIPAL UTILITY DISTRICT  
Edge Wireless LLC- Northern California  
GTE Mobilnet of California LTD Partnersh  
ICG Telecom Group, Inc. - Debtor in poss  
International Communications Group, Inc.  
KQED INC  
LB Tower Company LLC  
M.U.T. Licensing, LLC  
MCI Communication Services, Inc.  
MENDOCINO COUNTY OF  
METROPOLITAN AREA NETWORKS, INC.  
MODESTO IRRIGATION DISTRICT  
Marin County of California  
NORMAN A. JOHANNESSEN  
Napa, County of  
New Cingular Wireless PCS LLC - N CAL  
Pacific Gas and Electric Company  
ROMAN CATHOLIC COMMUNICATIONS CORP  
SAN FRANCISCO CITY & COUNTY CALIFORNIA  
SAN JOSE CITY OF (ECOMM)  
Sacramento County  
Sacramento Valley Limited Partnership  
San Joaquin County  
Santa Clara, County of  
Solano County Communications Division  
Sonoma County, California  
WATSON COMMUNICATION SYSTEMS, INC.  
Western Technical Services

Yolo Emergency Communications Agency  
Yolo, County of

## **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: 11/30/2009  
Job Number: 091119COMSGE02

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### Administrative Information

Status ENGINEER PROPOSAL  
Call Sign  
Licensee Code MRNINC  
Licensee Name MTN License Corp.

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### Site Information

**PETALUMA, CA**  
Venue Name  
Latitude (NAD 83) 38° 16' 12.0" N  
Longitude (NAD 83) 122° 39' 36.0" W  
Climate Zone A  
Rain Zone 3  
Ground Elevation (AMSL) 10.06 m / 33.0 ft

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### Link Information

Satellite Type Geostationary  
Mode TR - Transmit-Receive  
Modulation Digital  
Satellite Arc 116° W to 177° West Longitude  
Azimuth Range 169.3° to 246.0°  
Corresponding Elevation Angles 45.1° / 19.0°  
Antenna Centerline (AGL) 2.74 m / 9.0 ft

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### Antenna Information

		<b>Receive - FCC32</b>		<b>Transmit - FCC32</b>	
Manufacturer		Sea Tel Inc.		Sea Tel Inc	
Model		9797-11		9797-11	
Gain / Diameter		38.5 dBi / 2.4 m		41.7 dBi / 2.4 m	
3-dB / 15-dB Beamwidth		0.50° / 1.00°		0.75° / 1.50°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-10.2 13.8	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			31.5 55.5	
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%

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### Frequency Information

	<b>Receive 4.0 GHz</b>	<b>Transmit 6.1 GHz</b>
Emission / Frequency Range (MHz)	1M40G7W / 3700.0 - 4200.0	1M40G7W / 5925.0 - 6391.0 1M40G7W / 6414.0 - 6425.0
Max Great Circle Coordination Distance	285.3 km / 177.2 mi	142.5 km / 88.5 mi
Precipitation Scatter Contour Radius	370.1 km / 230.0 mi	100.0 km / 62.1 mi



# COMSEARCH

## Earth Station Data Sheet

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### Coordination Values

### PETALUMA, CA

Licensee Name MTN License Corp.  
Latitude (NAD 83) 38° 16' 12.0" N  
Longitude (NAD 83) 122° 39' 36.0" W  
Ground Elevation (AMSL) 10.06 m / 33.0 ft  
Antenna Centerline (AGL) 2.74 m / 9.0 ft  
Antenna Model Sea Tel Inc. 2.4 Meter  
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 -10.2 (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	1.57	112.80	-10.00	206.15	-10.00	100.00
5	1.24	117.46	-10.00	212.88	-10.00	100.00
10	1.17	122.13	-10.00	215.04	-10.00	100.00
15	1.01	126.73	-10.00	220.09	-10.00	100.00
20	1.23	128.31	-10.00	213.25	-10.00	100.00
25	1.50	126.02	-10.00	205.60	-10.00	100.00
30	2.10	123.68	-10.00	192.30	-10.00	100.00
35	2.36	120.87	-10.00	186.25	-10.00	100.00
40	2.98	118.03	-10.00	171.93	-10.00	100.00
45	3.02	114.74	-10.00	170.97	-10.00	100.00
50	3.13	111.35	-10.00	166.76	-10.00	100.00
55	2.85	107.75	-10.00	175.05	-10.00	100.00
60	2.57	104.11	-10.00	181.37	-10.00	100.00
65	2.15	100.43	-10.00	191.06	-10.00	100.00
70	2.11	96.81	-10.00	191.94	-10.00	100.00
75	2.01	93.16	-10.00	194.29	-10.00	100.00
80	1.64	89.51	-10.00	204.16	-10.00	100.00
85	1.25	85.91	-10.00	212.61	-10.00	100.00
90	0.85	82.38	-10.00	228.35	-10.00	102.76
95	0.76	78.86	-10.00	233.52	-10.00	106.81
100	0.33	75.49	-10.00	268.91	-10.00	132.26
105	0.21	72.13	-10.00	283.47	-10.00	141.17
110	0.00	68.90	-10.00	285.28	-10.00	142.50
115	0.00	65.70	-10.00	285.28	-10.00	142.50
120	0.00	62.62	-10.00	285.28	-10.00	142.50
125	0.00	59.68	-10.00	285.28	-10.00	142.50
130	0.00	56.92	-10.00	285.28	-10.00	142.50
135	0.00	54.36	-10.00	285.28	-10.00	142.50
140	0.00	52.03	-10.00	285.28	-10.00	142.50
145	0.84	49.28	-10.00	229.28	-10.00	103.50
150	0.77	47.56	-9.93	233.19	-9.93	106.45
155	0.67	46.24	-9.62	241.19	-9.62	112.07
160	0.95	44.94	-9.32	226.40	-9.32	100.16
165	0.80	44.48	-9.20	235.45	-9.20	107.08
170	1.01	44.11	-9.11	224.57	-9.11	100.00
175	1.22	44.19	-9.13	217.78	-9.13	100.00
180	1.39	44.28	-9.15	212.73	-9.15	100.00
185	1.29	44.12	-9.12	215.89	-9.12	100.00

# COMSEARCH

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### Coordination Values

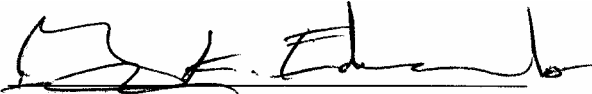
### PETALUMA, CA

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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 -10.2 (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	1.10	43.54	-8.97	222.23	-8.97	100.00
195	1.06	42.34	-8.67	225.31	-8.67	100.00
200	1.15	40.56	-8.20	224.67	-8.20	100.00
205	1.35	38.31	-7.58	221.87	-7.58	100.00
210	1.31	35.92	-6.88	226.84	-6.88	100.00
215	1.20	33.27	-6.05	234.94	-6.05	101.92
220	1.47	30.10	-4.97	232.34	-4.97	100.00
225	1.37	27.00	-3.78	242.48	-3.78	104.10
230	1.14	23.84	-2.43	259.78	-2.43	114.29
235	1.37	20.72	-0.91	261.21	-0.91	112.75
240	1.21	18.77	0.16	274.82	0.16	120.19
245	1.34	17.71	0.79	274.56	0.79	118.87
250	1.23	18.21	0.49	276.51	0.49	120.73
255	1.06	20.00	-0.53	275.67	-0.53	121.98
260	1.00	22.65	-1.88	268.84	-1.88	119.65
265	0.67	26.15	-3.44	279.84	-3.44	129.63
270	1.09	29.61	-4.78	246.29	-4.78	108.49
275	0.81	33.79	-6.22	252.76	-6.22	115.30
280	0.72	38.05	-7.51	250.42	-7.51	115.56
285	0.49	42.50	-8.71	258.53	-8.71	123.15
290	0.72	46.89	-9.78	237.47	-9.78	109.50
295	0.77	51.43	-10.00	233.35	-10.00	106.68
300	0.58	56.08	-10.00	244.81	-10.00	115.31
305	0.48	60.74	-10.00	252.36	-10.00	120.70
310	1.62	65.24	-10.00	204.78	-10.00	100.00
315	1.45	69.99	-10.00	207.13	-10.00	100.00
320	1.24	74.75	-10.00	213.07	-10.00	100.00
325	0.82	79.52	-10.00	230.05	-10.00	104.10
330	0.75	84.27	-10.00	234.39	-10.00	107.48
335	0.68	89.02	-10.00	238.49	-10.00	110.60
340	0.48	93.76	-10.00	251.53	-10.00	120.11
345	0.86	98.51	-10.00	228.02	-10.00	102.50
350	1.20	103.28	-10.00	214.24	-10.00	100.00
355	1.35	108.04	-10.00	209.86	-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: December 3, 2009