

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for
Atlas Space Operations, Inc.
MOJAVE, CA
Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, VA 20147
April 12, 2019

TABLE OF CONTENTS

1. CONCLUSIONS	3
2. SUMMARY OF RESULTS	4
3. SUPPLEMENTAL SHOWING	5
4. EARTH STATION COORDINATION DATA.....	7
5. CERTIFICATION.....	11

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 SBE coordinator for the region where the earth station is located expressed concern on receive locations that did not appear in the interference study of this site. Atlas Space Operations has agreed to perform joint testing with the SBE coordinator after the earth station has been placed into operation and was granted conditional clearance from the SBE coordinator pending successful results from the proposed testing.

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 03/06/2019.

Company

3G Wireless, LLC
ABC Holding Company Inc.
AERIAL VIDEO SYSTEMS
Alascom Inc
Borgeson, Tom R.
Broadcast Sports Inc.
CBS Broadcasting Inc
Casper, John
Chicago Comnet Corp
Citywide News Network, Inc.
Cowboys Stadium LP
CP Communications, LLC
DCI II, INC.
Direct Broadcast Services, Inc.
Ellis Communications Kdoc Licensee, LLC
Entravision Holdings, LLC
Fox Television Stations, LLC
Fox Television Stations, LLC (KTTV)
Frontier California Inc.
Heiden, William
Im360 Entertainment
Interlink Network Corp
Information Super Station, LLC
International Electronic Information Services, Inc.
KFSN Television, LLC
KFTV License Partnership GP
KMEX License Partnership GP
KMPH Licensee, LLC
KRCA License LLC
KTLA, LLC
Ksby Communications, LLC
Loop Inc.
Los Angeles Television Station Kcal LLC
Microwave Video Systems, LLC
NBC Telemundo License LLC
NEXSTAR BROADCASTING, INC.
NPG of California, LLC
NSM Surveillance
Onboard Images
Pacific Television Center
REMOTE FACILITIES CONSULTING SERVICES

RF Film, Inc
Randy Hermes Production
SBE Coordinator
Scripps Broadcasting Holdings LLC
Sinclair Bakersfield Licensee, LLC
Speedshotz, Inc
TTWN Networks, LLC, as debtor in possession
Trinity Christian Center of Santa Ana
Unisat, Inc.
Univision Bakersfield LLC
Vistawest California, LLC
Vitec Broadcast Services, Inc.
Winged Vision Inc
Wolfe Air Aviation

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: 04/12/2019
Job Number: 190306COMSGE04

Administrative Information

Status	ENGINEER PROPOSAL
Call Sign	MOJAVE
Licensee Code	ATLSPC
Licensee Name	Atlas Space Operations, Inc.

Site Information

MOJAVE, CA

Venue Name	
Latitude (NAD 83)	35° 3' 51.0" N
Longitude (NAD 83)	118° 9' 44.0" W
Climate Zone	A
Rain Zone	4
Ground Elevation (AMSL)	849.71 m / 2787.8 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)	2.74 m / 9.0 ft

Antenna Information

Transmit - FCC32

Manufacturer	Orbital Systems
Model	3.0 meter
Gain / Diameter	34.0 dBi / 3.0 m
3-dB / 15-dB Beamwidth	1.00° / 2.00°

Max Available RF Power	(dBW/4 kHz)	6.3
	(dBW/MHz)	30.3

Maximum EIRP	(dBW/4 kHz)	40.3
	(dBW/MHz)	64.3

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

Frequency Information

Transmit 2.0 GHz

Emission / Frequency Range (MHz)	10K0G7W / 2109.75
----------------------------------	-------------------

Max Great Circle Coordination Distance	220.0 km / 136.7 mi
Precipitation Scatter Contour Radius	209.2 km / 130.0 mi

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

MOJAVE, CA

Licensee Name Atlas Space Operations, Inc.
Latitude (NAD 83) 35° 3' 51.0" N
Longitude (NAD 83) 118° 9' 44.0" W
Ground Elevation (AMSL) 849.71 m / 2787.8 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model Orbital Systems 3.0 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 6.3 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 2.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
0	1.03	75.45	4.50	220.00
5	0.97	71.24	4.50	220.00
10	0.89	67.05	4.50	220.00
15	0.78	62.91	4.50	220.00
20	0.65	58.83	4.50	220.00
25	0.52	54.83	4.50	220.00
30	0.43	50.95	4.50	220.00
35	0.32	47.20	4.50	220.00
40	0.22	43.64	4.50	220.00
45	0.00	40.23	4.50	220.00
50	0.00	37.27	4.50	220.00
55	0.00	34.70	4.50	220.00
60	0.00	32.63	4.50	220.00
65	0.00	31.16	4.50	220.00
70	0.00	30.36	4.50	220.00
75	0.00	30.30	4.50	220.00
80	0.00	30.98	4.50	220.00
85	0.00	32.35	4.50	220.00
90	0.00	34.33	4.50	220.00
95	0.00	36.82	4.50	220.00
100	0.00	39.72	4.50	220.00
105	0.00	42.95	4.50	220.00
110	0.00	46.44	4.50	220.00
115	0.00	50.12	4.50	220.00
120	0.00	53.97	4.50	220.00
125	0.00	57.94	4.50	220.00
130	0.00	62.01	4.50	220.00
135	0.00	66.15	4.50	220.00
140	0.00	70.35	4.50	220.00
145	0.00	74.59	4.50	220.00
150	0.00	78.87	4.50	220.00
155	0.00	83.17	4.50	220.00
160	0.00	87.49	4.50	220.00
165	0.00	91.81	4.50	220.00
170	0.00	96.12	4.50	220.00
175	0.00	100.43	4.50	220.00
180	0.00	104.71	4.50	220.00
185	0.00	108.96	4.50	220.00

COMSEARCH

Earth Station Data Sheet

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5500 <http://www.comsearch.com>

Coordination Values

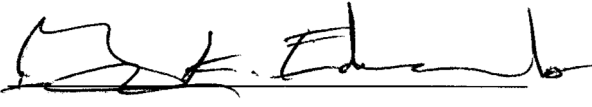
MOJAVE, CA

Licensee Name Atlas Space Operations, Inc.
Latitude (NAD 83) 35° 3' 51.0" N
Longitude (NAD 83) 118° 9' 44.0" W
Ground Elevation (AMSL) 849.71 m / 2787.8 ft
Antenna Centerline (AGL) 2.74 m / 9.0 ft
Antenna Model Orbital Systems 3.0 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 6.3 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Transmit 2.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)
190	0.78	112.98	4.50	220.00
195	0.00	117.32	4.50	220.00
200	0.00	121.40	4.50	220.00
205	0.00	125.39	4.50	220.00
210	0.00	129.26	4.50	220.00
215	0.00	132.98	4.50	220.00
220	0.26	136.34	4.50	220.00
225	0.34	139.54	4.50	220.00
230	0.40	142.43	4.50	220.00
235	0.45	144.92	4.50	220.00
240	0.52	146.90	4.50	220.00
245	0.56	148.30	4.50	220.00
250	0.72	148.92	4.50	220.00
255	0.92	148.79	4.50	220.00
260	1.03	148.02	4.50	220.00
265	1.23	146.52	4.50	220.00
270	1.41	144.46	4.50	220.00
275	1.60	141.92	4.50	220.00
280	1.75	139.04	4.50	220.00
285	1.95	135.81	4.50	220.00
290	2.10	132.38	4.50	220.00
295	2.07	128.84	4.50	220.00
300	2.26	125.05	4.50	220.00
305	2.90	120.96	4.50	220.00
310	2.82	117.09	4.50	220.00
315	2.57	113.17	4.50	220.00
320	1.71	109.29	4.50	220.00
325	1.52	105.16	4.50	220.00
330	1.44	100.96	4.50	220.00
335	1.43	96.72	4.50	220.00
340	1.34	92.48	4.50	220.00
345	1.26	88.22	4.50	220.00
350	1.14	83.95	4.50	220.00
355	1.09	79.69	4.50	220.00

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 12, 2019