Ka-Band Earth Station – Santa Clara, CA Frequency Coordination Report 28 GHz



Prepared on Behalf of HUGHES NETWORK SYSTEMS LIMITED

January 9, 2019





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1. Summary of Results

On behalf of HUGHES NETWORK SYSTEMS LIMITED, Comsearch performed a coordination notice for all existing and proposed terrestrial licenses within the coordination contours of their proposed Ka-Band earth station in Santa Clara, CA, which will transmit at 28 GHz¹. Priornotification letters were sent to the licensees and a copy of the notification data is provided in section four of this report. The earth station coordination was finalized on January 4, 2019.

No objections were received from any of the incumbent 28 GHz licensees. Our notification to the UMFUS incumbents was performed under the assumption that the earth station would be operating on a secondary basis to UMFUS L1 & L2 Block operations and a contact at Hughes Network Systems Limited has been provided in case any concerns may arise in the future.

2. 28 GHz Common Carrier and LTTS Coordination

In accordance with FCC Rules and Regulations, the Ka-Band earth station in Santa Clara, CA was prior-coordinated by Comsearch. A notification letter and datasheets for this earth station were sent to the following 28 GHz common carrier fixed microwave licensees. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis or local basis.

Licensee	Authorized Geographic Area
AT&T	CA, NV
Crosslink Networks	CA
Frontier Southwest Incorporated	Nationwide

A notification letter and datasheets for the Ka-Band earth station in Santa Clara, CA were also sent to the following 28 GHz local television transmission licensee. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

Licensee	Authorized Geographic Area
Information Super Station, LLC	Continental US

No objections were received from the common carrier or local television transmission service incumbents.

¹ The proposed earth station will operate in the 27.5 – 28.6 GHz portion of the Ka-Band.



3. 28 GHz UMFUS Coordination

A Notification letter was sent to the following 28 GHz UMFUS licensees. The proposed earth station will operate on frequencies that overlap Channel L1 & L2 of the UMFUS service. The total frequency allocation for Channels L1 & L2 of the UMFUS spectrum appears below.

Channel:	L1	27.500 - 27.925 GHz
	L2	27.925 - 28.350 GHz

Licensee	Channel	Area of Operation
Broadband One	L1, L2	County Based
T-Mobile	L1, L2	County Based
TPx Communications	L1, L2	County Based
Verizon	L1, L2	County Based

No objections were received from the UMFUS incumbents.



4. Earth Station Coordination Data

This section presents the data pertinent to the proposed Ka-Band earth station in Santa Clara, CA. This data was circulated to all incumbent licensees in the shared 28 GHz frequency ranges.



Administrative Information Call Sign Licensee Code Licensee Name			E170152 HUNESY HUGHES NETWORK SYSTEMS LIMITED		
Site Information Latitude (NAD 83) Longitude (NAD 83) Climate Zone Rain Zone Ground Elevation (AMSL)		SANTA CLARA, CA 37° 21' 54.3" N 121° 57' 41.2" W A 4 16.6 m / 54.5 ft			
Link Information Satellite Type Mode Modulation Satellite Arc Azimuth Range Corresponding Elevation Angles Antenna Centerline (AGL)		Geostationary TO - Transmit-Only Digital 95.2° W to 95.2° West Longitude 140.3° to 140.3° 38.4° / 38.4° 5.49 m / 18.0 ft			
Antenna Information Manufacturer Model Gain / Diameter 3-dB / 15-dB Beamwidth			Transmit SED 10.M 67.1 dBi / 10.0 m 0.08° / 0.16°		
Max Available RF Power	(dBW/4 k (dBW/MF		-35.0 -11.0		
Maximum EIRP (dBW/4 kł (dBW/MH			32.1 56.1		
Interference Objectives: Long Term Short Term			-151.0 dBW/4 kHz 20% -128.0 dBW/4 kHz 0.0025%		
Frequency Informa Emission / Frequency Ran			Transmit 28.0 GHz 450MG7W - 470MG7W / 27500.0 - 28600.0		
Max Great Circle Coordination Distance Precipitation Scatter Contour Radius			100.0 km / 62.1 mi 100.0 km / 62.1 mi		



Idense Name HUGHES NETWORK SYSTEMS LIMITED atitude (NAD 83) 37° 21° 54.3" N conditude (NAD 83) 121° 57′ 41.2" W Ground Elevation (AMSL) 16.6 m / 54.5 ft Interna Centerline (AGL) 5.49 m / 18.0 ft Antenna Mode Transmit 28.0 GHz Interference Objectives: Long Term -128.0 dBW/4 kHz 20% Short Term -128.0 dBW/4 kHz 0.0025% Atax Available RF Power -35.0 (dBW/4 kHz 0.000 1 Discrimination (°) Gain (MB) Distance (km) 0 0.00 130.26 -10.00 100.00 15 0.00 132.42 -10.00 100.00 16 0.00 137.29 -10.00 100.00 20 0.00 137.40 -10.00 100.00 25 0.00 137.29 -10.00 100.00 26 0.00 133.28 -10.00 100.00 26 0.00 133.29 -10.00 100.00 25 0.00 132.25 -	Coordination Values		SANTA CLARA, CA			
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$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	90	0.00	110.67	-10.00	100.00	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	95	0.00	107.17	-10.00	100.00	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	100	0.00	103.61	-10.00	100.00	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	105	0.00	100.00	-10.00	100.00	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	110	0.00	96.35	-10.00	100.00	
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	115	0.00	92.68	-10.00	100.00	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	120	0.00	89.00	-10.00	100.00	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	125	0.00	85.32	-10.00	100.00	
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	165					
75 0.23 52.03 -10.00 100.00	170					
	175	0.23	52.03	-10.00	100.00	

Comsearch Proprietary

180

185

0.24

0.25

-10.00

-9.89

100.00

100.00

49.56

47.37



Coordination Values		SANTA CLARA, CA			
Licensee Nan		HUGHES NETWORK		MITED	
Latitude (NAD		37° 21' 54.3" N	2 TH 2 HOU D T		
Longitude (N/		121° 57' 41.2" W			
Ground Eleva		16.6 m / 54.5 ft			
Antenna Cent		5.49 m / 18.0 ft			
Antenna Mod		Transmit 28.0	GH7		
	Objectives: Long Te				
interiorence v	Short T		kHz 0.0025%	6	
Max Available		-35.0 (dBW/4)			
		Transmit 28.0 GHz			
	Horizon	Antenna	Horizon	Coordination	
Azimuth (°)	Elevation (°)	Discrimination (°)	Gain (dBi)	Distance (km)	
190	0.28	45.51	-9.45	100.00	
195	0.31	44.02	-9.09	100.00	
200	0.33	42.97	-8.83	100.00	
205	0.34	42.37	-8.68	100.00	
210	0.33	42.27	-8.65	100.00	
215	0.36	42.61	-8.74	100.00	
220	0.34	43.47	-8.95	100.00	
225	0.32	44.75	-9.27	100.00	
230	0.33	46.42	-9.67	100.00	
235	0.36	48.43	-10.00	100.00	
240	0.37	50.77	-10.00	100.00	
245	0.35	53.40	-10.00	100.00	
250	0.32	56.26	-10.00	100.00	
255	0.28	59.31	-10.00	100.00	
260	0.22	62.52	-10.00	100.00	
265	0.21	65.84	-10.00	100.00	
270	0.00	69.33	-10.00	100.00	
275	0.00	72.83	-10.00	100.00	
280	0.00	76.39	-10.00	100.00	
285	0.00	80.00	-10.00	100.00	
290	0.00	83.65	-10.00	100.00	
295	0.00	87.32	-10.00	100.00	
300	0.00	91.00	-10.00	100.00	
305	0.36	94.71	-10.00	100.00	
310	0.00	98.34	-10.00	100.00	
315	0.00	101.97	-10.00	100.00	
320	0.00	105.56	-10.00	100.00	
325	0.00	109.08	-10.00	100.00	
320	0.00	112.53	-10.00	100.00	
335	0.00		-10.00	100.00	
340		115.88			
	0.00	119.11	-10.00	100.00	
345	0.00	122.20	-10.00	100.00	
350	0.00	125.11	-10.00	100.00	
355	0.00	127.81	-10.00	100.00	



5. Contact Information

For questions or information regarding the 28 GHz Frequency Coordination Report, please contact:

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