

Ka-Band Earth Station Frequency Coordination Report 29 GHz



Prepared on Behalf of
The Boeing Company

October 5, 2010



COMSEARCH
A CommScope Company

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1. Summary of Results

In support of Boeing's proposed earth station transmitting at 29 GHz¹, Comsearch performed a frequency search considering all existing and proposed incumbent licenses within the coordination contours of the proposed Ka-Band station. The search results identified licensees in the common carrier fixed point-to-point microwave service and local television transmission service. Prior notification letters were sent to the licensees and a copy of the notification data is provided in section three of this report. To date, we have received no objections to the deployment of the Kent, WA earth station. The earth station coordination will be finalized thirty days after the letters were sent out, on October 22, 2010.

¹ Boeing's earth station will operate in the 28.35 – 28.6 GHz and 29.25 – 30.0 GHz portion of the band.

2. Supplemental Showing

Pursuant to Part 25.203(c) of the FCC Rules and Regulations, a proposed Ka-Band earth station in Kent, WA was prior coordinated by Comsearch. The notification letters and datasheet for this earth station were sent to the following 29 GHz common carrier fixed microwave licensees on September 23, 2010. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

- GTE Southwest Inc. dba Verizon Southwest
- Metronet Communications
- Verizon West Virginia Inc.

A notification letter and datasheet for the Kent, WA earth station was also sent to the following 29 GHz local television transmission licensee on September 23, 2010. This licensee is authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a nationwide basis.

- Information Super Station, LLC

3. Earth Station Coordination Data

This section presents the data pertinent to the proposed Ka-Band earth station in Kent, WA. This data was circulated to all incumbent licensees in the 29 GHz shared frequency ranges.

COMSEARCH**Earth Station Data Sheet**

19700 Janelia Farm Boulevard, Ashburn, VA 20147
(703)726-5662 <http://www.comsearch.com>

Date: 09/22/2010

Administrative Information

Status ENGINEER PROPOSAL
Licensee Code S00114
Licensee Name The Boeing Company

Site Information**KENT, WA**

Venue Name
Latitude (NAD 83) 47° 25' 8.0" N
Longitude (NAD 83) 122° 15' 10.0" W
Climate Zone A
Rain Zone 3
Ground Elevation (AMSL) 8.11 m / 26.6 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 55° W to 180° West Longitude
Azimuth Range 107.2° to 245.1°
Corresponding Elevation Angles 6.5° / 12.7°
Antenna Centerline (AGL) 3.66 m / 12.0 ft

Antenna Information**Receive - FCC32****Transmit - FCC32**

Manufacturer		Vertex RSI 3.9 Meter		Vertex RSI 3.9 Meter	
Model		FMA		FMA	
Gain / Diameter		56.7 dBi / 3.9 m		59.3 dBi / 3.9 m	
3-dB / 15-dB Beamwidth		0.23° / 0.48°		0.17° / 0.36°	
Max Available RF Power	(dBW/4 kHz) (dBW/MHz)			-24.0 0.0	
Maximum EIRP	(dBW/4 kHz) (dBW/MHz)			35.3 59.3	
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%

Frequency Information**Receive 18.0 GHz****Transmit 29.0 GHz**

Emission / Frequency Range (MHz)	18M0G7D - 39M0G7D / 18300.0 - 18800.0	18M0G7D - 39M0G7D / 28350.0 - 28600.0
	18M0G7D - 39M0G7D / 19700.0 - 20200.0	18M0G7D - 39M0G7D / 29250.0 - 30000.0
Max Great Circle Coordination Distance	266.7 km / 165.7 mi	143.8 km / 89.3 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

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Coordination Values**KENT, WA**

Licensee Name	The Boeing Company		
Latitude (NAD 83)	47° 25' 8.0" N		
Longitude (NAD 83)	122° 15' 10.0" W		
Ground Elevation (AMSL)	8.11 m / 26.6 ft		
Antenna Centerline (AGL)	3.66 m / 12.0 ft		
Antenna Model	Vertex RSI 3.9 Meter		
Antenna Mode	Receive 18.0 GHz		Transmit 29.0 GHz
Interference Objectives: Long Term	-156.0 dBW/MHz	20%	-151.0 dBW/4 kHz
Short Term	-146.0 dBW/MHz	0.01%	-128.0 dBW/4 kHz
Max Available RF Power			-24.0 (dBW/4 kHz)
			0.0025%

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 29.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.71	107.07	-10.00	105.38	-10.00	100.00
5	0.99	102.10	-10.00	100.00	-10.00	100.00
10	0.77	97.12	-10.00	102.96	-10.00	100.00
15	0.70	92.15	-10.00	105.87	-10.00	100.00
20	0.00	87.18	-10.00	136.18	-10.00	100.00
25	0.00	82.21	-10.00	136.18	-10.00	100.00
30	0.24	77.24	-10.00	132.60	-10.00	100.00
35	0.79	72.25	-10.00	101.78	-10.00	100.00
40	0.94	67.27	-10.00	100.00	-10.00	100.00
45	1.21	62.29	-10.00	100.00	-10.00	100.00
50	1.22	57.32	-10.00	100.00	-10.00	100.00
55	1.25	52.35	-10.00	100.00	-10.00	100.00
60	1.56	47.36	-9.88	100.00	-9.88	100.00
65	1.70	42.38	-8.68	100.00	-8.68	100.00
70	1.69	37.43	-7.33	100.00	-7.33	100.00
75	1.70	32.48	-5.79	100.00	-5.79	100.00
80	1.79	27.54	-4.00	100.00	-4.00	100.00
85	1.77	22.64	-1.87	100.00	-1.87	100.00
90	1.77	17.79	0.75	103.95	0.75	100.00
95	1.87	13.01	4.14	112.04	4.14	100.00
100	1.87	8.53	8.72	127.05	8.72	100.00
105	1.74	5.25	14.01	266.67	14.01	143.76
110	1.55	5.73	13.05	196.76	13.05	112.40
115	1.56	8.80	8.38	132.09	8.38	100.00
120	1.48	11.97	5.05	123.86	5.05	100.00
125	1.37	15.05	2.56	118.40	2.56	100.00
130	1.38	17.92	0.67	112.64	0.67	100.00
135	1.48	20.58	-0.84	106.23	-0.84	100.00
140	1.23	23.35	-2.21	108.29	-2.21	100.00
145	0.98	25.93	-3.35	111.32	-3.35	100.00
150	0.85	28.19	-4.25	114.13	-4.25	100.00
155	0.81	30.12	-4.97	113.94	-4.97	100.00
160	0.22	32.27	-5.72	146.61	-5.72	100.00
165	0.00	33.79	-6.22	147.10	-6.22	100.00
170	0.00	34.74	-6.52	146.19	-6.52	100.00
175	0.00	35.32	-6.70	145.65	-6.70	100.00
180	0.00	35.51	-6.76	145.47	-6.76	100.00
185	0.00	35.32	-6.70	145.65	-6.70	100.00

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Antenna Model	Vertex RSI 3.9 Meter				
Antenna Mode	Receive 18.0 GHz			Transmit 29.0 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				-24.0 (dBW/4 kHz)	

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 29.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.69	34.06	-6.31	115.57	-6.31	100.00
195	0.97	32.85	-5.91	105.01	-5.91	100.00
200	1.01	31.53	-5.47	104.66	-5.47	100.00
205	1.26	29.71	-4.82	100.50	-4.82	100.00
210	1.39	27.71	-4.07	100.00	-4.07	100.00
215	1.42	25.55	-3.18	101.00	-3.18	100.00
220	1.70	22.95	-2.02	100.00	-2.02	100.00
225	1.56	20.50	-0.80	104.38	-0.80	100.00
230	1.82	17.56	0.89	103.11	0.89	100.00
235	2.00	14.55	2.93	105.22	2.93	100.00
240	2.22	11.61	5.38	108.97	5.38	100.00
245	2.46	10.22	6.76	109.29	6.76	100.00
250	2.55	11.25	5.72	104.17	5.72	100.00
255	2.46	14.21	3.19	100.00	3.19	100.00
260	2.28	18.12	0.54	100.00	0.54	100.00
265	2.10	22.46	-1.78	100.00	-1.78	100.00
270	2.25	26.89	-3.74	100.00	-3.74	100.00
275	2.41	31.48	-5.45	100.00	-5.45	100.00
280	2.58	36.18	-6.96	100.00	-6.96	100.00
285	2.69	40.95	-8.31	100.00	-8.31	100.00
290	2.47	45.83	-9.53	100.00	-9.53	100.00
295	2.59	50.67	-10.00	100.00	-10.00	100.00
300	2.77	55.52	-10.00	100.00	-10.00	100.00
305	2.82	60.41	-10.00	100.00	-10.00	100.00
310	2.74	65.33	-10.00	100.00	-10.00	100.00
315	2.48	70.25	-10.00	100.00	-10.00	100.00
320	2.48	75.17	-10.00	100.00	-10.00	100.00
325	2.48	80.08	-10.00	100.00	-10.00	100.00
330	2.12	85.01	-10.00	100.00	-10.00	100.00
335	1.72	89.93	-10.00	100.00	-10.00	100.00
340	1.31	94.83	-10.00	100.00	-10.00	100.00
345	1.00	99.72	-10.00	100.00	-10.00	100.00
350	0.40	104.57	-10.00	121.50	-10.00	100.00
355	0.71	109.47	-10.00	105.12	-10.00	100.00



4. Contact Information

For questions or information regarding the 29 GHz Frequency Coordination Report, please contact:

Contact person:	Joanna Lynch
Title:	Manager, Spectrum & Data Solutions
Company:	Comsearch
Address:	19700 Janelia Farm Blvd., Ashburn, VA 20147
Telephone:	703-726-5711
Fax:	703-726-5599
Email:	jlynch@comsearch.com
Web site:	www.comsearch.com