

# Ka-Band Earth Station – Vernon, TX

## Frequency Coordination Report - Revised

### 28 GHz



Prepared on Behalf of  
O3b Networks USA, LLC

January 22, 2013



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## 1. Summary of Results

On behalf of O3B Networks USA, LLC's proposed earth station transmitting at 28 GHz<sup>1</sup>, Comsearch performed a revised coordination notice for all existing and proposed terrestrial licenses within the coordination contours of the Ka-Band station in Vernon, Texas. The revision was performed due to a minor coordinate change in the location of the proposed earth station. Prior notification 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 20, 2013.

No objections were received from any of the incumbent 28 GHz licensees. Our notification to the LMDS incumbents was performed under the assumption that the earth station would be operating on a secondary basis to LMDS Block A operations and a contact at O3b Networks 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, a Ka-Band earth station in Vernon, TX was prior coordinated by Comsearch. The notification letters and datasheet for this earth station were sent to the following 28 GHz common carrier fixed microwave licensees on December 20, 2012. These licensees are authorized to operate temporary fixed operations from 27.5 – 29.5 GHz on a statewide or nationwide basis.

Licensee	Authorized Geographic Area
GTE Southwest Inc. dba Verizon Southwest	Continental US

A notification letter and datasheet for the Ka-Band earth station in Vernon, TX was also sent to the following 28 GHz local television transmission licensee on December 20, 2012. 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.

<sup>1</sup> The proposed earth station will operate in the 27.6 – 29.1 GHz portion of the Ka-Band.

### 3. 28 GHz LMDS Coordination

Notification letters were sent to the following 28 GHz LMDS licensees and lessees on December 20, 2012. The proposed earth station will operate on frequencies that overlap Block A of the LMDS service. The total frequency allocation for Block A of the LMDS spectrum appears below.

**Block A:** 27.500-28.350 GHz  
29.100-29.250 GHz  
31.075-31.225 GHz

Licensee	Market	Market Name
2 Lightspeed LP	BTA013	Amarillo, TX
Central Texas Telephone Coop (CTTC)	BTA057	Brownwood, TX
Clearwire <sup>2</sup>	BTA101	Dallas-Fort Worth, TX
Nextlink / XO	BTA101	Dallas-Fort Worth, TX
MetroPCS <sup>3</sup>	BTA101	Dallas-Fort Worth, TX
Nextlink / XO	BTA248	Lawton - Duncan, OK
Plateau Wireless	BTA264	Lubbock, TX
Nextlink / XO	BTA329	Oklahoma City, OK
Central Texas Telephone Coop (CTTC)	BTA400	San Angelo, TX
2 Lightspeed LP	BTA473 <sup>4</sup>	Wichita Falls, TX

No objections were received from the LMDS incumbents. Their responses remain the same as in the November 28, 2012 Frequency Coordination Report issued by Comsearch.

<sup>2</sup> NSAC, LLC d/b/a Clearwire is leasing LMDS spectrum from Nextlink Wireless in the Dallas-Fort Worth Basic Trading Area (BTA).

<sup>3</sup> MetroPCS is authorized to use disaggregated spectrum from Nextlink Wireless on the following frequencies: 27.8 – 27.9 GHz and 28.25 – 28.35 GHz.

<sup>4</sup> The proposed Vernon, TX earth station will be located inside BTA473.



## **4. Earth Station Coordination Data**

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

# COMSEARCH

## Earth Station Data Sheet

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

Date: 12/20/2012

### Administrative Information

Status ENGINEER PROPOSAL  
Licensee Code O3BNET  
Licensee Name O3b Networks USA, LLC.

### Site Information

#### VERNON, TX

Venue Name  
Latitude (NAD 83) 34° 13' 4.7" N  
Longitude (NAD 83) 99° 23' 46.5" W  
Climate Zone A  
Rain Zone 2  
Ground Elevation (AMSL) 390.47 m / 1281.1 ft

### Link Information

Satellite Type Low Earth Orbit  
Mode TR - Transmit-Receive  
Modulation Digital  
Minimum Elevation Angle 3.0°  
Azimuth Range 0.0° to 360°  
Antenna Centerline (AGL) 3.66 m / 12.0 ft

### Antenna Information

#### Receive - FCC32

#### Transmit - FCC32

Manufacturer	ViaSat	ViaSat
Model	8073	8073
Gain / Diameter	61.2 dBi / 7.3 m	65.0 dBi / 7.3 m
3-dB / 15-dB Beamwidth	0.02° / 0.04°	0.01° / 0.02°
Max Available RF Power (dBW/4 kHz)		15.7
	(dBW/MHz)	39.7
Maximum EIRP (dBW/4 kHz)		80.7
	(dBW/MHz)	104.7
Interference Objectives:	Long Term	-156.0 dBW/MHz 20%
	Short Term	-146.0 dBW/MHz 0.01%
		-151.0 dBW/4 kHz 20%
		-128.0 dBW/4 kHz 0.0025%

### Frequency Information

#### Receive 18.0 GHz

#### Transmit 28.0 GHz

Emission / Frequency Range (MHz)	24K0G7D - 720MG7D / 17852.0 - 18068.0	24K0G7D - 720MG7D / 27652.0 - 27868.0
	24K0G7D - 720MG7D / 18112.0 - 18328.0	24K0G7D - 720MG7D / 27912.0 - 28128.0
	24K0G7D - 720MG7D / 18372.0 - 18588.0	24K0G7D - 720MG7D / 28172.0 - 28388.0
	24K0G7D - 720MG7D / 18801.0 - 19017.0	24K0G7D - 720MG7D / 28601.0 - 28817.0
	24K0G7D - 720MG7D / 19055.0 - 19271.0	24K0G7D - 720MG7D / 28855.0 - 29071.0
	24K0G7D - 720MG7D / 19296.6 - 19299.6	24K0G7D - 720MG7D / 29088.5
Max Great Circle Coordination Distance	348.2 km / 216.3 mi	484.9 km / 301.3 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	541.4 km / 336.4 mi

**COMSEARCH****Earth Station Data Sheet**

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**Coordination Values****VERNON, TX**

Licensee Name O3b Networks USA, LLC.  
 Latitude (NAD 83) 34° 13' 4.7" N  
 Longitude (NAD 83) 99° 23' 46.5" W  
 Ground Elevation (AMSL) 390.47 m / 1281.1 ft  
 Antenna Centerline (AGL) 3.66 m / 12.0 ft  
 Antenna Model ViaSat 7.3 Meter  
 Antenna Mode Receive 18.0 GHz Transmit 28.0 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 15.7 (dBW/4 kHz)

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
0	0.00	84.90	-10.00	130.20	-10.00	169.60
5	0.00	80.10	-10.00	133.20	-10.00	172.60
10	0.00	75.30	-10.00	136.20	-10.00	175.50
15	0.00	70.52	-10.00	136.20	-10.00	175.50
20	0.00	65.75	-10.00	136.20	-10.00	175.50
25	0.00	60.99	-10.00	136.20	-10.00	175.50
30	0.00	56.27	-10.00	136.20	-10.00	175.50
35	0.00	51.57	-10.00	136.20	-10.00	175.50
40	0.00	46.92	-10.00	136.20	-10.00	175.50
45	0.00	42.33	-10.00	136.20	-10.00	175.50
50	0.00	37.82	-10.00	136.20	-10.00	175.50
55	0.00	33.42	-8.95	139.10	-8.95	178.60
60	0.00	29.20	-7.63	142.90	-7.63	182.60
65	0.00	25.24	-6.12	147.40	-6.12	185.10
70	0.00	21.67	-4.38	152.80	-4.38	191.00
75	0.00	18.73	-2.31	160.10	-2.31	198.70
80	0.00	16.76	0.24	168.70	0.24	209.20
85	0.00	16.12	3.55	180.20	3.55	227.10
90	0.00	16.94	8.17	196.90	8.17	247.90
95	0.00	19.06	15.13	224.60	15.13	273.90
100	0.00	22.09	17.68	343.10	17.68	477.90
105	0.00	25.71	10.32	205.10	10.32	257.10
110	0.00	29.72	5.57	187.50	5.57	236.40
115	0.00	33.97	2.32	175.90	2.32	218.50
120	0.00	38.38	-0.16	167.30	-0.16	207.50
125	0.00	42.90	-2.13	160.70	-2.13	199.40
130	0.00	47.50	-3.76	154.80	-3.76	193.30
135	0.00	52.16	-5.13	150.40	-5.13	188.40
140	0.00	56.86	-6.30	146.80	-6.30	184.60
145	0.00	61.59	-7.30	143.90	-7.30	181.40
150	0.00	66.34	-8.16	141.40	-8.16	181.00
155	0.00	71.12	-8.87	139.30	-8.87	178.90
160	0.00	75.90	-9.46	137.70	-9.46	177.10
165	0.00	80.70	-9.92	136.40	-9.92	175.70
170	0.00	85.50	-10.00	136.20	-10.00	175.50
175	0.00	90.30	-10.00	136.20	-10.00	175.50
180	0.00	95.10	-10.00	136.20	-10.00	175.50
185	0.00	99.90	-10.00	136.20	-10.00	175.50

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Licensee Name	O3b Networks USA, LLC.		
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Ground Elevation (AMSL)	390.47 m / 1281.1 ft		
Antenna Centerline (AGL)	3.66 m / 12.0 ft		
Antenna Model	ViaSat 7.3 Meter		
Antenna Mode	Receive 18.0 GHz		Transmit 28.0 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	15.7 (dBW/4 kHz)		

Azimuth (°)	Horizon Elevation (°)	Antenna Discrimination (°)	Receive 18.0 GHz		Transmit 28.0 GHz	
			Horizon Gain (dBi)	Coordination Distance (km)	Horizon Gain (dBi)	Coordination Distance (km)
190	0.00	104.70	-10.00	136.20	-10.00	175.70
195	0.00	109.48	-9.92	136.40	-9.92	177.10
200	0.00	114.25	-9.46	137.70	-9.46	178.90
205	0.00	119.01	-8.87	139.30	-8.87	181.00
210	0.00	123.73	-8.16	141.40	-8.16	181.40
215	0.00	128.43	-7.30	143.80	-7.30	184.60
220	0.00	133.08	-6.30	146.80	-6.30	188.40
225	0.00	137.67	-5.13	150.40	-5.13	193.30
230	0.00	142.18	-3.76	154.80	-3.76	199.40
235	0.00	146.58	-2.13	160.70	-2.13	207.50
240	0.00	150.80	-0.16	167.30	-0.16	218.50
245	0.00	154.76	2.31	175.90	2.31	236.40
250	0.00	158.33	5.57	187.50	5.57	254.60
255	0.00	161.27	10.51	202.10	10.51	484.90
260	0.00	163.24	18.86	348.20	18.86	264.50
265	0.00	163.88	16.35	208.30	16.35	228.70
270	0.00	163.06	8.56	177.60	8.56	196.80
275	0.00	160.94	3.76	152.80	3.76	185.50
280	0.00	157.91	0.38	143.30	0.38	179.60
285	0.00	154.29	-2.21	136.00	-2.21	173.10
290	0.00	150.28	-4.31	130.50	-4.31	169.40
295	0.00	146.03	-6.07	128.70	-6.07	163.70
300	0.00	141.62	-7.58	124.00	-7.58	159.20
305	0.00	137.10	-8.91	120.50	-8.91	157.40
310	0.00	132.50	-10.00	119.40	-10.00	158.70
315	0.00	127.84	-10.00	120.60	-10.00	157.50
320	0.00	123.14	-10.00	119.50	-10.00	164.90
325	0.00	118.41	-10.00	126.40	-10.00	172.40
330	0.00	113.66	-10.00	133.00	-10.00	172.40
335	0.00	108.88	-10.00	133.00	-10.00	167.50
340	0.00	104.10	-10.00	128.90	-10.00	162.50
345	0.00	99.30	-10.00	124.20	-10.00	160.50
350	0.00	94.50	-10.00	122.30	-10.00	166.10
355	0.00	89.70	-10.00	127.60	-10.00	166.10





## **5. Contact Information**

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

Contact person:	Joanna Lynch
Title:	Manager, Spectrum & Data Solutions
Company:	Comsearch
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Web site:	<a href="http://www.comsearch.com">www.comsearch.com</a>