

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**ENTERPRISE PRODUCTS OPERATING LLC
PORT ARTHUR (Keystone), TEXAS**

Satellite Earth Station

Prepared By:
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Virginia 20147
March 18, 2011

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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, based upon the restrictions noted in the Summary of Results (Section 2).

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 following companies reported potential great circle interference conflicts that did not meet the objectives on a line-of-sight basis. When over-the-horizon losses and frequency offset are considered on the interfering paths, sufficient losses exist to negate harmful interference from occurring with the proposed transmit-receive earth station. Further, the receive spectrum will be limited to frequencies 3922 to 3942 MHz, and the transmit spectrum will be limited to frequencies 6147 to 6167 MHz.

Company

None

No 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.

Expedited coordination data for this earth station was sent to the below listed carriers with a letter dated March 7, 2011.

Company

AT&T COMM. OF THE SOUTH CENTRAL STATES
American National Insurance Company
Bell Atlantic Mobile Allentown-Verizon W
CENTERPOINT ENERGY INC
Calcasieu Parish Sheriff's Office
Centennial Southeast License Company LLC
Central Telephone Company of Texas
ENTERPRISE PRODUCTS OPERATING LLC
ERF Wireless Bundled Services, Inc.
Equistar Chemicals, LP
GTE Mobilnet of South Texas LTD Partners
GTE Mobilnet of Texas RSA #17 LTD Prtnsh
Great Western Communications, LLC
Greater Harris County 911 Emergency Net
Harris County ITC
Houston, City of
International Communications Group, Inc.
JASPER NEWTON ELECTRIC COOPERATIVE
Lake Charles Harbor Police
Louisiana Dept. of Transportation and Dev
MCI Communications Services Inc.
METROPOLITAN AREA NETWORKS, INC.
Sam Houston Electric Cooperative
San Antonio MTA, L.P.
Southern & Central Wireless, LLC
Stratos Offshore Services Company
TEXAS NEW MEXICO POWER COMPANY
Texas Eastern Communications, Inc.
Transcontinental Gas Pipeline Corp.
Trunkline Gas Company, LLC
Union Pacific Railroad Company
Verizon Wireless Louisiana LLC
Verizon Wireless Texas, LLC

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: 03/18/2011
Job Number: 110307COMSGE03

Administrative Information

Status ENGINEER PROPOSAL
Call Sign E040163
Licensee Code ENPROD
Licensee Name ENTERPRISE PRODUCTS OPERATING LLC

Site Information

PORT ARTHUR, TX

Venue Name KEYSTONE
Latitude (NAD 83) 29° 41' 13.3" N
Longitude (NAD 83) 93° 58' 51.5" W
Climate Zone B
Rain Zone 1
Ground Elevation (AMSL) 1.0 m / 3.3 ft

Link Information

Satellite Type Geostationary
Mode TR - Transmit-Receive
Modulation Digital
Satellite Arc 72° W to 87° West Longitude
Azimuth Range 140.8° to 166.1°
Corresponding Elevation Angles 47.8° / 54.5°
Antenna Centerline (AGL) 4.57 m / 15.0 ft

Antenna Information

Receive

Transmit

Manufacturer	Andrew Corp.	Andrew Corp.	
Model	2.4 Meter	2.4 Meter	
Gain / Diameter	38.0 dBi / 2.4 m	42.0 dBi / 2.4 m	
3-dB / 15-dB Beamwidth	2.20° / 3.90°	1.30° / 2.46°	
Max Available RF Power (dBW/4 kHz)		-14.1	
(dBW/MHz)		9.9	
Maximum EIRP (dBW/4 kHz)		27.9	
(dBW/MHz)		51.9	
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%

Frequency Information

Receive 4.0 GHz

Transmit 6.1 GHz

Emission / Frequency Range (MHz)	205KG7W - 512KG7W / 3922.0 - 3942.0	205KG7W - 512KG7W / 6147.0 - 6167.0
Max Great Circle Coordination Distance	412.2 km / 256.1 mi	145.7 km / 90.5 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

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Coordination Values

PORT ARTHUR, TX

Licensee Name ENTERPRISE PRODUCTS OPERATING LLC
Latitude (NAD 83) 29° 41' 13.3" N
Longitude (NAD 83) 93° 58' 51.5" W
Ground Elevation (AMSL) 1.0 m / 3.3 ft
Antenna Centerline (AGL) 4.57 m / 15.0 ft
Antenna Model Andrew 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 -14.1 (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	0.00	121.35	-10.00	412.20	-10.00	145.67
5	0.00	118.77	-10.00	412.20	-10.00	145.67
10	0.00	116.02	-10.00	412.20	-10.00	145.67
15	0.00	113.13	-10.00	412.20	-10.00	145.67
20	0.00	110.11	-10.00	412.20	-10.00	145.67
25	0.00	107.00	-10.00	412.20	-10.00	145.67
30	0.00	103.80	-10.00	412.20	-10.00	145.67
35	0.00	100.54	-10.00	412.20	-10.00	145.67
40	0.00	97.24	-10.00	412.20	-10.00	145.67
45	0.00	93.90	-10.00	412.20	-10.00	145.67
50	0.00	90.55	-10.00	412.20	-10.00	145.67
55	0.00	87.20	-10.00	412.20	-10.00	145.67
60	0.00	83.85	-10.00	412.20	-10.00	145.67
65	0.00	80.54	-10.00	412.20	-10.00	145.67
70	0.00	77.26	-10.00	412.20	-10.00	145.67
75	0.00	74.04	-10.00	412.20	-10.00	145.67
80	0.00	70.90	-10.00	412.20	-10.00	145.67
85	0.00	67.85	-10.00	412.20	-10.00	145.67
90	0.00	64.91	-10.00	412.20	-10.00	145.67
95	0.00	62.11	-10.00	412.20	-10.00	145.67
100	0.00	59.48	-10.00	412.20	-10.00	145.67
105	0.00	57.03	-10.00	412.20	-10.00	145.67
110	0.00	54.80	-10.00	412.20	-10.00	145.67
115	0.00	52.83	-10.00	412.20	-10.00	145.67
120	0.00	51.15	-10.00	412.20	-10.00	145.67
125	0.00	49.78	-10.00	412.20	-10.00	145.67
130	0.00	48.76	-10.00	412.20	-10.00	145.67
135	0.00	48.11	-10.00	412.20	-10.00	145.67
140	0.00	47.85	-10.00	412.24	-10.00	145.68
145	0.00	47.98	-10.00	412.20	-10.00	145.67
150	0.00	48.50	-10.00	412.20	-10.00	145.67
155	0.00	49.40	-10.00	412.20	-10.00	145.67
160	0.00	50.66	-10.00	412.20	-10.00	145.67
165	0.00	52.24	-10.00	412.20	-10.00	145.67
170	0.00	53.93	-10.00	412.20	-10.00	145.67
175	0.00	55.02	-10.00	412.20	-10.00	145.67
180	0.00	55.73	-10.00	412.20	-10.00	145.67
185	0.00	56.71	-10.00	412.20	-10.00	145.67

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Coordination Values

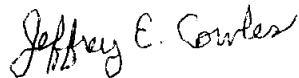
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Short Term -146.0 dBW/MHz 0.01% -131.0 dBW/4 kHz 0.0025%
Max Available RF Power -14.1 (dBW/4 kHz)

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	0.00	57.97	-10.00	412.20	-10.00	145.67
195	0.00	59.48	-10.00	412.20	-10.00	145.67
200	0.00	61.21	-10.00	412.20	-10.00	145.67
205	0.00	63.16	-10.00	412.20	-10.00	145.67
210	0.00	65.29	-10.00	412.20	-10.00	145.67
215	0.00	67.58	-10.00	412.20	-10.00	145.67
220	0.00	70.01	-10.00	412.20	-10.00	145.67
225	0.00	72.56	-10.00	412.20	-10.00	145.67
230	0.00	75.21	-10.00	412.20	-10.00	145.67
235	0.00	77.94	-10.00	412.20	-10.00	145.67
240	0.00	80.73	-10.00	412.20	-10.00	145.67
245	0.00	83.58	-10.00	412.20	-10.00	145.67
250	0.00	86.46	-10.00	412.20	-10.00	145.67
255	0.00	89.35	-10.00	412.20	-10.00	145.67
260	0.00	92.25	-10.00	412.20	-10.00	145.67
265	0.00	95.14	-10.00	412.20	-10.00	145.67
270	0.00	98.00	-10.00	412.20	-10.00	145.67
275	0.00	100.82	-10.00	412.20	-10.00	145.67
280	0.00	103.58	-10.00	412.20	-10.00	145.67
285	0.00	106.27	-10.00	412.20	-10.00	145.67
290	0.00	108.87	-10.00	412.20	-10.00	145.67
295	0.00	111.35	-10.00	412.20	-10.00	145.67
300	0.00	113.71	-10.00	412.20	-10.00	145.67
305	0.00	115.91	-10.00	412.20	-10.00	145.67
310	0.00	117.94	-10.00	412.20	-10.00	145.67
315	0.00	119.78	-10.00	412.20	-10.00	145.67
320	0.00	121.39	-10.00	412.20	-10.00	145.67
325	0.00	122.76	-10.00	412.20	-10.00	145.67
330	0.00	123.87	-10.00	412.20	-10.00	145.67
335	0.00	124.69	-10.00	412.20	-10.00	145.67
340	0.00	125.22	-10.00	412.20	-10.00	145.67
345	0.00	125.45	-10.00	412.20	-10.00	145.67
350	0.00	125.36	-10.00	412.20	-10.00	145.67
355	0.00	123.73	-10.00	412.20	-10.00	145.67

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.



Jeffrey E. Cowles
Engineer III, Telecommunications
COMSEARCH
19700 Janelia Farm Boulevard
Ashburn, Va. 20147

DATED: March 18, 2011