

FREQUENCY COORDINATION AND INTERFERENCE ANALYSIS REPORT

Prepared for

**ENTERPRISE PRODUCTS OPERATING LLC
SAN ANTONIO, 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

ALLTEL Communications, LLC
Austin Energy
Austin, City of
BLUEBONNET ELECTRIC COOPERATIVE INC
BorderCOMM Partners LP (XC)
CGKC&H Rural Cellular Partnership
City Public Service
Dobson Cellular Systems LLC - S Texas
ENTERPRISE PRODUCTS OPERATING LLC
GUADALUPE VALLEY ELECTRIC COOPERATIVE
Guadalupe Valley Telephone Coop., Inc.
International Communications Group, Inc.
LOWER COLORADO RIVER AUTHORITY
METROPOLITAN AREA NETWORKS, INC.
New Cingular Wireless PCS LLC - S Texas
Pedernales Electric Cooperative Inc
SOUTH TEXAS ELECTRIC COOPERATIVE
San Antonio MTA, L.P.
Stelera Wireless, LLC
T-Mobile License LLC
TEXAS ELECTRONIC TRANSPORT COMPANY
Texas RSA 18 Limited Partnership
Texas RSA 18 Limited Partnership
Texas RSA 19 Ltd Partnership
Texas RSA 20B1 Ltd Partnership
UNIVISION RADIO LICENSE CORPORATION
Windstream Kerrville Long Distance, 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: 110307COMSGE01

Administrative Information

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

Site Information **SAN ANTONIO, TEXAS**

Venue Name	
Latitude (NAD 83)	29° 32' 10.8" N
Longitude (NAD 83)	98° 29' 24.0" W
Climate Zone	A
Rain Zone	2
Ground Elevation (AMSL)	256.9 m / 842.9 ft

Link Information

Satellite Type	Geostationary
Mode	TR - Transmit-Receive
Modulation	Digital
Satellite Arc	72° W to 87° West Longitude
Azimuth Range	134.7° to 157.6°
Corresponding Elevation Angles	45.0° / 53.3°
Antenna Centerline (AGL)	2.74 m / 9.0 ft

Antenna Information

Manufacturer	Prodelin
Model	3.8 Meter
Gain / Diameter	40.0 dBi / 3.8 m
3-dB / 15-dB Beamwidth	2.20° / 3.90°

Receive

Prodelin
3.8 Meter
40.0 dBi / 3.8 m
2.20° / 3.90°

Transmit

Prodelin
3.8 Meter
46.2 dBi / 3.8 m
1.30° / 2.50°

Max Available RF Power	(dBW/4 kHz)	-14.1
	(dBW/MHz)	9.9

Maximum EIRP	(dBW/4 kHz)	32.1
	(dBW/MHz)	56.1

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

Emission / Frequency Range (MHz)	Receive 4.0 GHz
	205KG7W - 2M67G7W / 3922.0 - 3942.0

Transmit 6.1 GHz

205KG7W - 2M67G7W / 6147.0 - 6167.0

Max Great Circle Coordination Distance	289.6 km / 179.9 mi	134.2 km / 83.4 mi
Precipitation Scatter Contour Radius	100.0 km / 62.1 mi	100.0 km / 62.1 mi

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Earth Station Data Sheet

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Coordination Values

SAN ANTONIO, TX

Licensee Name	ENTERPRISE PRODUCTS OPERATING LLC				
Latitude (NAD 83)	29° 32' 10.8" N				
Longitude (NAD 83)	98° 29' 24.0" W				
Ground Elevation (AMSL)	256.9 m / 842.9 ft				
Antenna Centerline (AGL)	2.74 m / 9.0 ft				
Antenna Model	Prodelin 3.8 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	0.39	120.04	-10.00	261.89	-10.00	116.93
5	0.40	117.04	-10.00	261.34	-10.00	116.55
10	0.33	113.87	-10.00	269.60	-10.00	122.19
15	0.27	110.60	-10.00	276.16	-10.00	126.57
20	0.22	107.25	-10.00	282.37	-10.00	130.68
25	0.00	103.78	-10.00	285.28	-10.00	132.57
30	0.00	100.33	-10.00	285.28	-10.00	132.57
35	0.00	96.84	-10.00	285.28	-10.00	132.57
40	0.00	93.31	-10.00	285.28	-10.00	132.57
45	0.00	89.78	-10.00	285.28	-10.00	132.57
50	0.00	86.25	-10.00	285.28	-10.00	132.57
55	0.00	82.73	-10.00	285.28	-10.00	132.57
60	0.00	79.24	-10.00	285.28	-10.00	132.57
65	0.00	75.79	-10.00	285.28	-10.00	132.57
70	0.00	72.41	-10.00	285.28	-10.00	132.57
75	0.00	69.09	-10.00	285.28	-10.00	132.57
80	0.00	65.88	-10.00	285.28	-10.00	132.57
85	0.00	62.78	-10.00	285.28	-10.00	132.57
90	0.00	59.82	-10.00	285.28	-10.00	132.57
95	0.00	57.04	-10.00	285.28	-10.00	132.57
100	0.00	54.45	-10.00	285.28	-10.00	132.57
105	0.00	52.10	-10.00	285.28	-10.00	132.57
110	0.00	50.03	-10.00	285.28	-10.00	132.57
115	0.00	48.26	-10.00	285.28	-10.00	132.57
120	0.00	46.85	-9.77	286.76	-9.77	133.20
125	0.00	45.82	-9.53	288.32	-9.53	133.85
130	0.00	45.20	-9.38	289.27	-9.38	133.00
135	0.00	45.01	-9.33	289.57	-9.33	133.13
140	0.00	45.25	-9.39	289.19	-9.39	134.22
145	0.00	45.92	-9.55	288.16	-9.55	133.79
150	0.00	47.00	-9.80	286.54	-9.80	133.10
155	0.00	48.46	-10.00	285.28	-10.00	132.57
160	0.00	50.27	-10.00	285.28	-10.00	132.57
165	0.00	52.35	-10.00	285.28	-10.00	132.57
170	0.00	54.09	-10.00	285.28	-10.00	132.57
175	0.00	55.24	-10.00	285.28	-10.00	132.57
180	0.00	56.47	-10.00	285.28	-10.00	132.57
185	0.00	57.97	-10.00	285.28	-10.00	132.57

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Earth Station Data Sheet

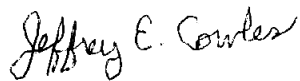
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Coordination Values		SAN ANTONIO, TX			
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Antenna Model		Prodelin 3.8 Meter			
Antenna Mode		Receive 4.0 GHz		Transmit 6.1 GHz	
Interference Objectives: Long Term		-156.0 dBW/MHz	20%	-154.0 dBW/4 kHz	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)
190	0.00	59.71	-10.00	285.28	-10.00	132.57
195	0.00	61.67	-10.00	285.28	-10.00	132.57
200	0.00	63.82	-10.00	285.28	-10.00	132.57
205	0.00	66.15	-10.00	285.28	-10.00	132.57
210	0.00	68.62	-10.00	285.28	-10.00	132.57
215	0.25	71.11	-10.00	278.86	-10.00	128.37
220	0.22	73.85	-10.00	282.63	-10.00	130.84
225	0.00	76.73	-10.00	285.28	-10.00	132.57
230	0.00	79.60	-10.00	285.28	-10.00	132.57
235	0.27	82.47	-10.00	275.89	-10.00	126.40
240	0.56	85.41	-10.00	245.94	-10.00	105.76
245	0.56	88.43	-10.00	245.95	-10.00	105.77
250	0.75	91.46	-10.00	234.23	-10.00	100.00
255	0.94	94.51	-10.00	223.52	-10.00	100.00
260	1.03	97.55	-10.00	219.50	-10.00	100.00
265	1.08	100.56	-10.00	217.97	-10.00	100.00
270	1.10	103.51	-10.00	217.12	-10.00	100.00
275	1.27	106.44	-10.00	212.23	-10.00	100.00
280	1.74	109.45	-10.00	201.67	-10.00	100.00
285	2.06	112.35	-10.00	193.15	-10.00	100.00
290	1.22	114.47	-10.00	213.66	-10.00	100.00
295	1.09	116.80	-10.00	217.51	-10.00	100.00
300	0.97	118.95	-10.00	222.02	-10.00	100.00
305	1.72	121.56	-10.00	202.22	-10.00	100.00
310	1.72	123.40	-10.00	202.21	-10.00	100.00
315	1.03	124.38	-10.00	219.50	-10.00	100.00
320	0.57	125.25	-10.00	245.11	-10.00	105.16
325	0.66	126.30	-10.00	239.62	-10.00	101.12
330	0.52	126.82	-10.00	248.54	-10.00	107.64
335	0.48	127.12	-10.00	252.27	-10.00	110.20
340	0.30	126.94	-10.00	273.41	-10.00	124.74
345	0.26	126.59	-10.00	277.30	-10.00	127.34
350	0.35	125.49	-10.00	266.59	-10.00	120.15
355	0.32	122.83	-10.00	270.33	-10.00	122.67

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