

# *APPLICATION FOR CONSTRUCTION PERMIT*

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PROPOSED NEW FM TRANSLATOR STATION  
PORT LAVACA, TEXAS  
FACILITY ID: 148446  
98.1 MHz / 0.250 kW ERP / ND

WILDCATTER WIRELESS, LLC

AUGUST, 2013

## **APPLICATION FOR CONSTRUCTION PERMIT**

The following engineering statement and attached exhibits have been prepared for **Wildcatter Wireless, Inc.** ("Wildcatter"), applicant for a new FM translator station to serve Port Lavaca, Texas, and are in support of their application for construction permit.<sup>1</sup>

This application is the long-form application for the short-form engineering proposal first submitted by Wildcatter in 2003 during the Commission's Translator Auction 83 window. The original short-form proposal was assigned FCC File No. BNPFT-20030314AIM. The Wildcatter proposal was found to be mutually exclusive with one other application, and was assigned to MX Group 456. During the settlement window, Wildcatter amended the short-form engineering proposal to specify a different site and channel of operation. These changes to the original tech-box proposal were minor in nature. The long-form facility specifies identical technical parameters to those specified in the settlement amendment.

The proposed facility would operate on channel 247 with an effective radiated power of 99 Watts at a center of radiation of 127 meters AMSL.<sup>2</sup> A non-directional antenna is proposed for use by the translator. The primary station for the proposed facility would be KVNN at Victoria, Texas.<sup>3</sup> Exhibit E-1 demonstrates that the proposed 60 dBu service contour of the translator would be wholly contained within both the KVNN 2 mV/m daytime contour and a twenty-five mile (40.2 kilometer) radius centered on the KVNN transmitter site. Wildcatter holds a written retransmit agreement with Victoria Radioworks, LLC, the licensee of KVNN.

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<sup>1</sup> The Facility ID for the proposed translator facility is 148446.

<sup>2</sup> The average terrain for the facility is defined by the 90 degree true radial on which the average elevation is 7.9 meters AMSL. Terrain was sampled from the FCC 30-second terrain database.

<sup>3</sup> The Facility ID for KVNN at Victoria, Texas is 28474.

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jeremyruck.com

The proposed facility would not impact LPFM licensing opportunities within any of the Appendix A markets. Exhibit E-2 illustrates the proposed site location in relation to several of the Appendix A markets in the region. As this map demonstrates, the proposed facility would be located outside the grid buffer of all of these markets.

The proposed facility would comply with the provisions of Section 74.1204 of the Commission's Rules. Exhibit E-3 is a tabular allocation study for the proposed facility. This study demonstrates that the proposed facility would comply with all of the contour overlap provisions to other facilities in the region with the exception of KXBJ at El Campo, Texas.<sup>4</sup> The situation with that facility will be subsequently discussed pursuant to Section 73.1204(d). The tabular study is graphically depicted in the contour map in Exhibit E-4.

Although normally prohibited contour overlap between the proposed facility and KXBJ(FM) at El Campo would occur, no populated areas would be affected by the resulting interference region. Exhibit E-5 demonstrates that the KXBJ(FM) 66.6 dBu service contour intersects the proposed translator site. Thus, interference to KXBJ by Wildcatter would be confined to regions in the immediate vicinity of the translator site where the translator field strength is 106.6 dBu or greater.<sup>5</sup>

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<sup>4</sup> The Facility ID for KXBJ(FM) at El Campo, Texas is 36507.

<sup>5</sup> Interfering field strength is derived from a +40 dB U/D ratio.

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The power density for the translator at a field strength of 106.6 dBu is determined by the following equation:

$$S = \frac{E^2}{Z_0} = \frac{(0.2138)^2}{377} = 0.0001212$$

In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, which for 106.6 dBu is 0.2138 Volts per meter, and Z<sub>0</sub> is the characteristic impedance of free space of 377 ohms.

The power density is also given by:

$$S = \frac{P}{4\pi R^2}$$

Where S is the same units, P is the power in Watts (99 Watts in this case), and R is the distance from the antenna. Rearranging the terms in the equation, it can be solved for the distance to the desired power density as follows:

$$R^2 = \frac{P}{4\pi S}$$

The results of these calculations for depression angles of 0 degrees to 90 degrees are tabulated in Exhibit E-6. In addition to the tabular data in Exhibit E-6, several graphs are included, which graphically illustrate the interference situation for a given azimuth slice, assuming a non-directional antenna. As indicated on the form pages, a Shively 6812B-2 antenna is proposed for use by the facility. The relative field values in the vertical plane were obtained from their website.

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This tabulation and the associated graphs demonstrate that the closest point of approach to ground of the interference zone in the vicinity of the tower is 35.6 meters or 117 feet. The following street level indicates no structures of that height in this rural area.



It should be noted that this image looks back at the tower site; however, the tower is not visible in the image due to its collapse. The next image is an overhead image, taken before the collapsed tower was removed.

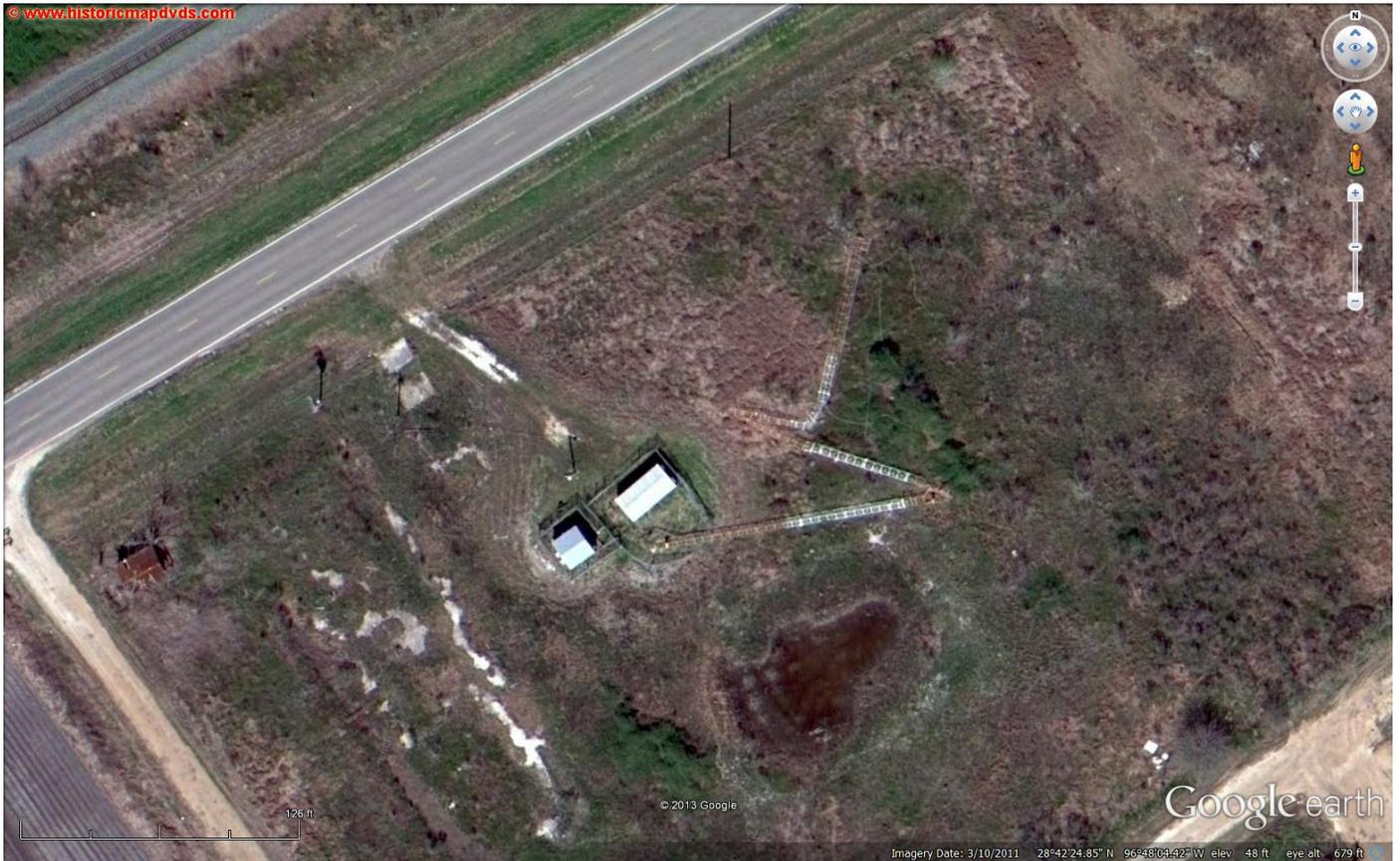
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**8.29.2013**

**5**



Reconstruction efforts for the tower are currently underway. Storm damage caused the collapse of the tower. Restoration of the site is expected to be completed later this year. Thus, the tower will be available for use by the translator during the period of the construction permit.

The proposed facility would not constitute a significant environmental impact, and is exempt from environmental processing. The proposed facility would utilize a site registered with the Commission. The addition of the translator antenna to this registered tower would not increase the environmental impact from the structure.

The Commission's *FM Model* software package predicts a maximum power density at ground level of  $0.07 \mu\text{W}/\text{cm}^2$  at a distance of 72 meters from the tower base. This value

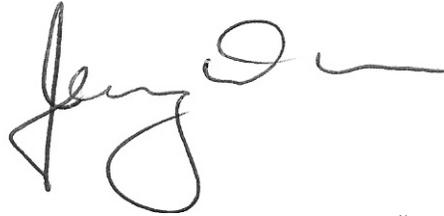
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categorically excludes the proposed facility. Wildcatter certifies that it will coordinate with all other users of the site to ensure that workers and other personnel are not exposed to levels of radiofrequency radiation in excess of the applicable safety standards. Such coordination will include, but is not necessarily limited to, a reduction in transmitter power or cessation of operation.

The preceding statement and attached exhibits have been prepared by me, or under my direction, and are true and accurate to the best of my belief and knowledge.



Above signature is digitized copy of actual signature  
License Expires November 30, 2013

Jeremy D. Ruck, PE  
August 29, 2013

JEREMY RUCK & ASSOCIATES, INC.

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8.29.2013

**1563166.A**  
BNPFT20030314AIM  
Latitude: 28-42-22 N  
Longitude: 096-48-03 W  
ERP: 0.099 kW  
Channel: 247  
Frequency: 97.3 MHz  
AMSL Height: 127.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

KVNN 2 mV/m  
Daytime Contour

KVNN 25 mile  
site radius

Jeremy Ruck & Associates, Inc.

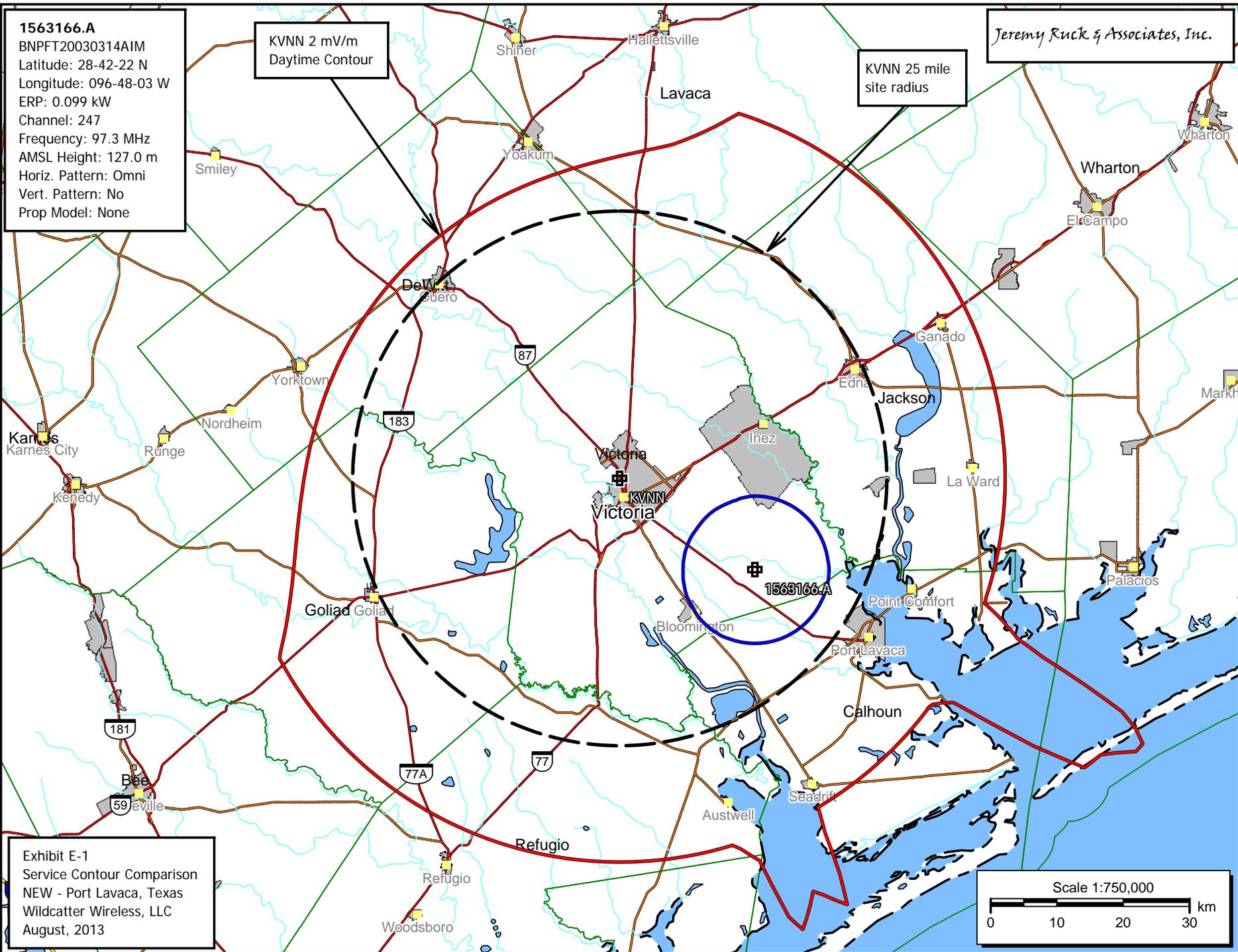
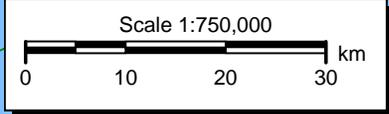


Exhibit E-1  
Service Contour Comparison  
NEW - Port Lavaca, Texas  
Wildcatter Wireless, LLC  
August, 2013



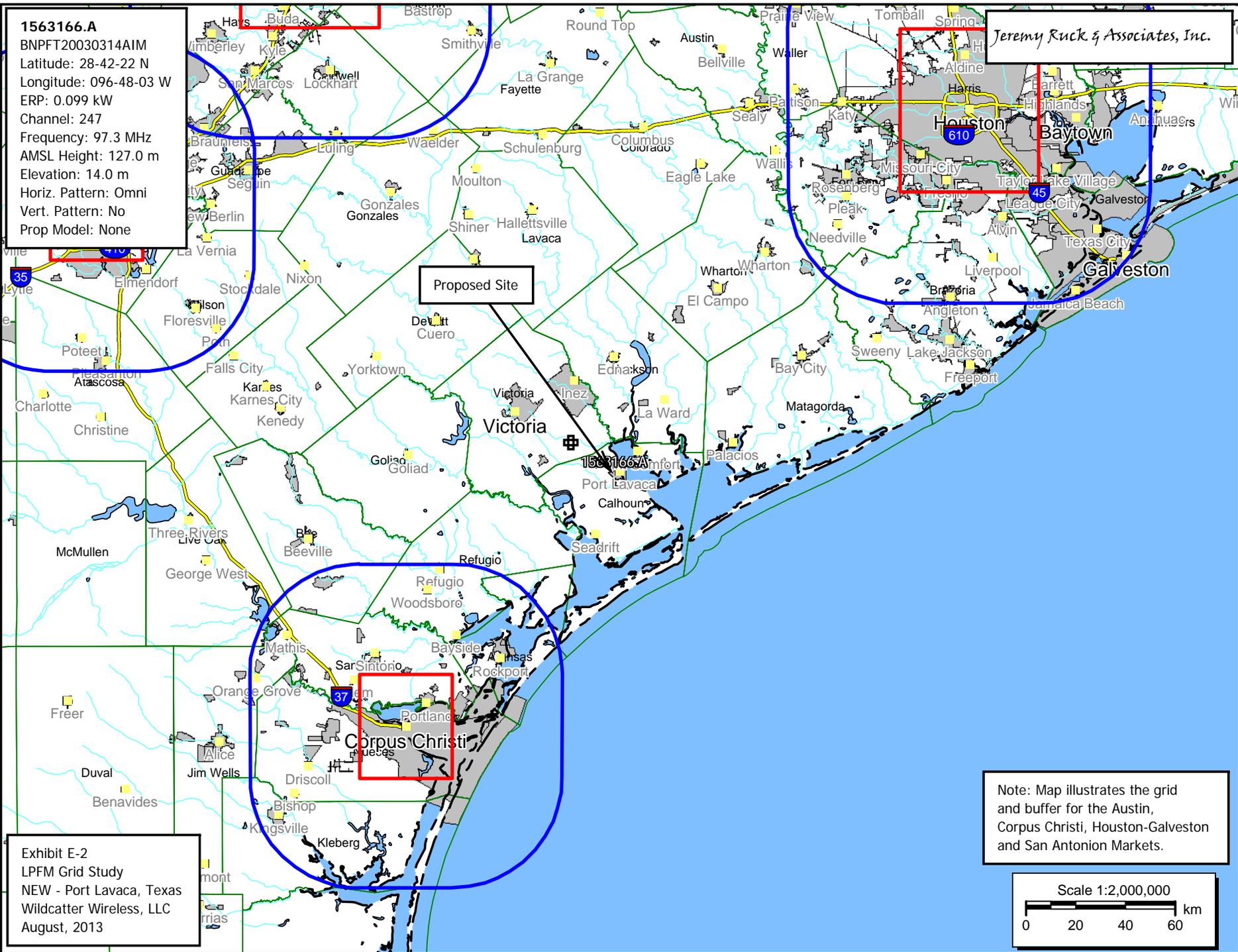
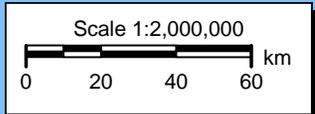
**1563166.A**  
BNPFT20030314AIM  
Latitude: 28-42-22 N  
Longitude: 096-48-03 W  
ERP: 0.099 kW  
Channel: 247  
Frequency: 97.3 MHz  
AMSL Height: 127.0 m  
Elevation: 14.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

Jeremy Ruck & Associates, Inc.

Proposed Site

Note: Map illustrates the grid and buffer for the Austin, Corpus Christi, Houston-Galveston and San Antonio Markets.

Exhibit E-2  
LPFM Grid Study  
NEW - Port Lavaca, Texas  
Wildcatter Wireless, LLC  
August, 2013



Jeremy Ruck & Associates, Inc.  
 Consulting Engineers - Canton, Illinois

Exhibit E-3 - Tabular Allocation Study  
 NEW - Port Lavaca, Texas  
 CH# 247D - 97.3 MHz, Pwr= 0.099 kW, HAAT= 0.0 M, COR= 127 M  
 Average Protected F(50-50)= 5.62 km  
 Omni-directional

DISPLAY DATES  
 DATA 08-29-13  
 SEARCH 08-29-13

REFERENCE  
 28 42 22.0 N.  
 96 48 03.0 W.

CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
247D Port Lavaca	1563166	APP_C_ TX		0.0 0.0	0.00 BNPFT20030314AIM	28 42 22.0 96 48 03.0	0.099 0.0	37.7 127	11.1 Wildcatter Wireless, Inc.	-48.8*	-48.8*
245C0 El Campo	KXBJ	LIC_CX TX		80.8 261.1	66.61 BMLH20130717AII	28 48 00.1 96 07 32.9	100.000 450	12.1 457	83.3 Ksbj Educational Foundatio	43.4	-17.4*
247C San Antonio	R10630	DEL_ TX		300.6 119.7	205.37	29 38 00.0 98 37 50.0	100.000 600	201.8 957	94.2 Capstar, Clear Channel, Ra	-7.2	74.5
247A Garwood	AL1059	VAC_ TX		17.8 197.9	99.51 RM11230	29 33 29.0 96 29 12.0	6.000 100	87.4 158	28.9 Charles Crawford	1.0	32.9
247C0 San Antonio	KAJA	LIC_CY TX		296.4 115.5	207.70 BMLH20010412AAK	29 31 25.0 98 43 25.0	100.000 300	178.7 612	76.5 Cc Licenses, Lic	18.2	94.5
247C1 Lakeway	R10630	ADD_ TX		330.3 149.8	206.36	30 18 51.0 97 51 58.0	100.000 299	175.7 537	74.7 Capstar, Clear Channel, Ra	19.9	94.4
248C1 Kingsville	KFTX	LIC_DCY TX		216.4 36.0	132.94 BLH19890130KC	27 44 28.0 97 36 08.0	100.000 291	100.5 307	68.8 Quality Broadcasting Corpo	21.5	47.2
249C1 Mcqueeney	KZAR	LIC_CX TX		311.6 131.2	111.59 BMLH20110826AAG	29 22 11.0 97 39 44.0	100.000 299	10.4 403	73.6 Educational Media Foundati	90.5	37.3

Terrain database is FCC NGDC 30 Sec , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM  
 In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.  
 All separation margins (if shown) include rounding.  
 Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
 "\*"affixed to 'IN' or 'OUT' values = site inside protected contour.  
 Reference station has protected zone issue:

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Channel: 247  
Frequency: 97.3 MHz  
AMSL Height: 127.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

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- 60 dBu F(50,50) Service Contour
- 40 dBu F(50,10) Interference Contour
- 54 dBu F(50,10) Interference Contour
- 100 dBu F(50,10) Interference Contour

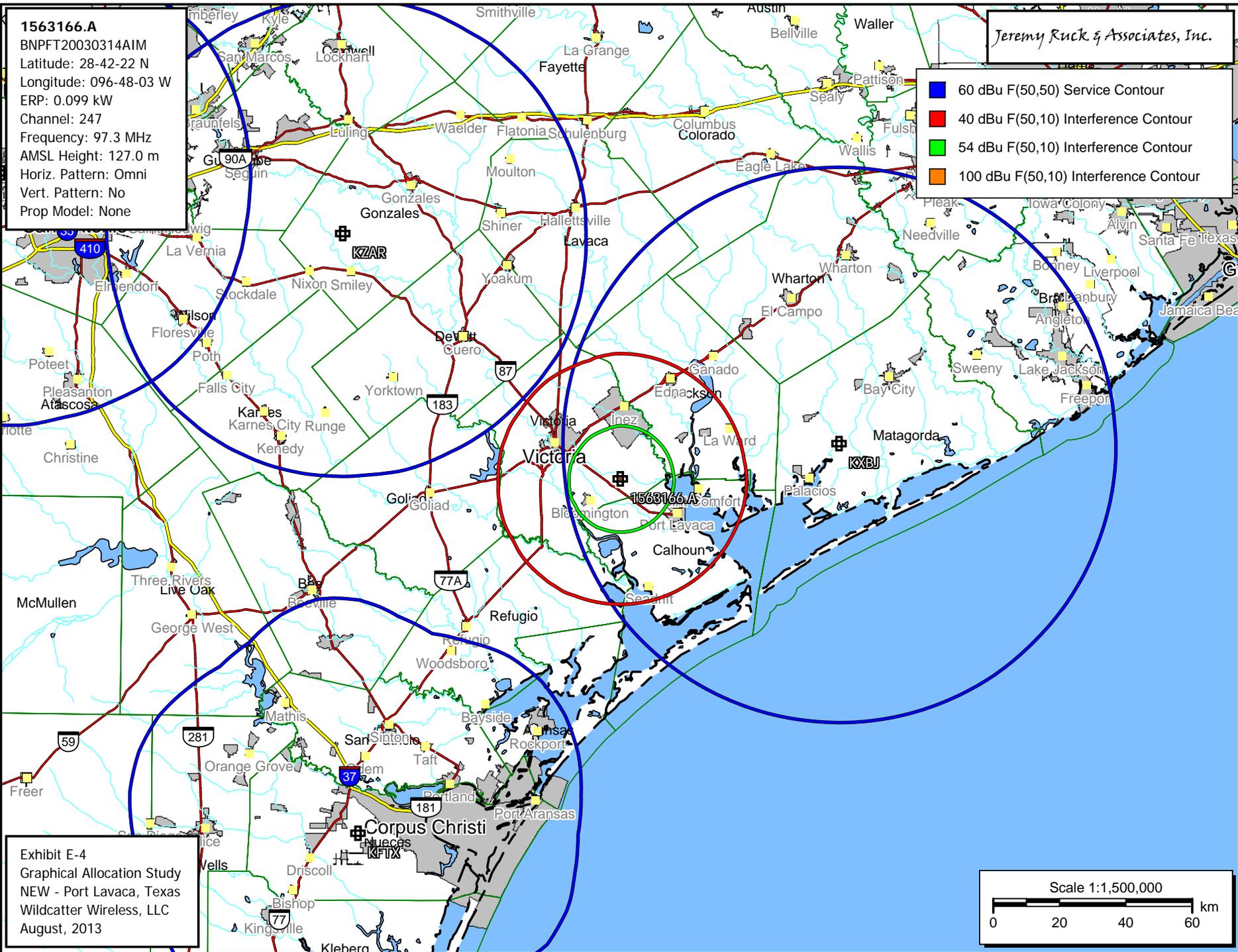
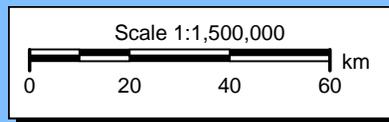


Exhibit E-4  
Graphical Allocation Study  
NEW - Port Lavaca, Texas  
Wildcatter Wireless, LLC  
August, 2013



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Longitude: 096-48-03 W  
ERP: 0.099 kW  
Channel: 247  
Frequency: 97.3 MHz  
AMSL Height: 127.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

**KXBJ**  
BMLED20130717AIL  
Latitude: 28-48-00.10 N  
Longitude: 096-07-32.90 W  
ERP: 100.00 kW  
Channel: 245  
Frequency: 96.9 MHz  
AMSL Height: 457.0 m  
Horiz. Pattern: Omni  
Vert. Pattern: No  
Prop Model: None

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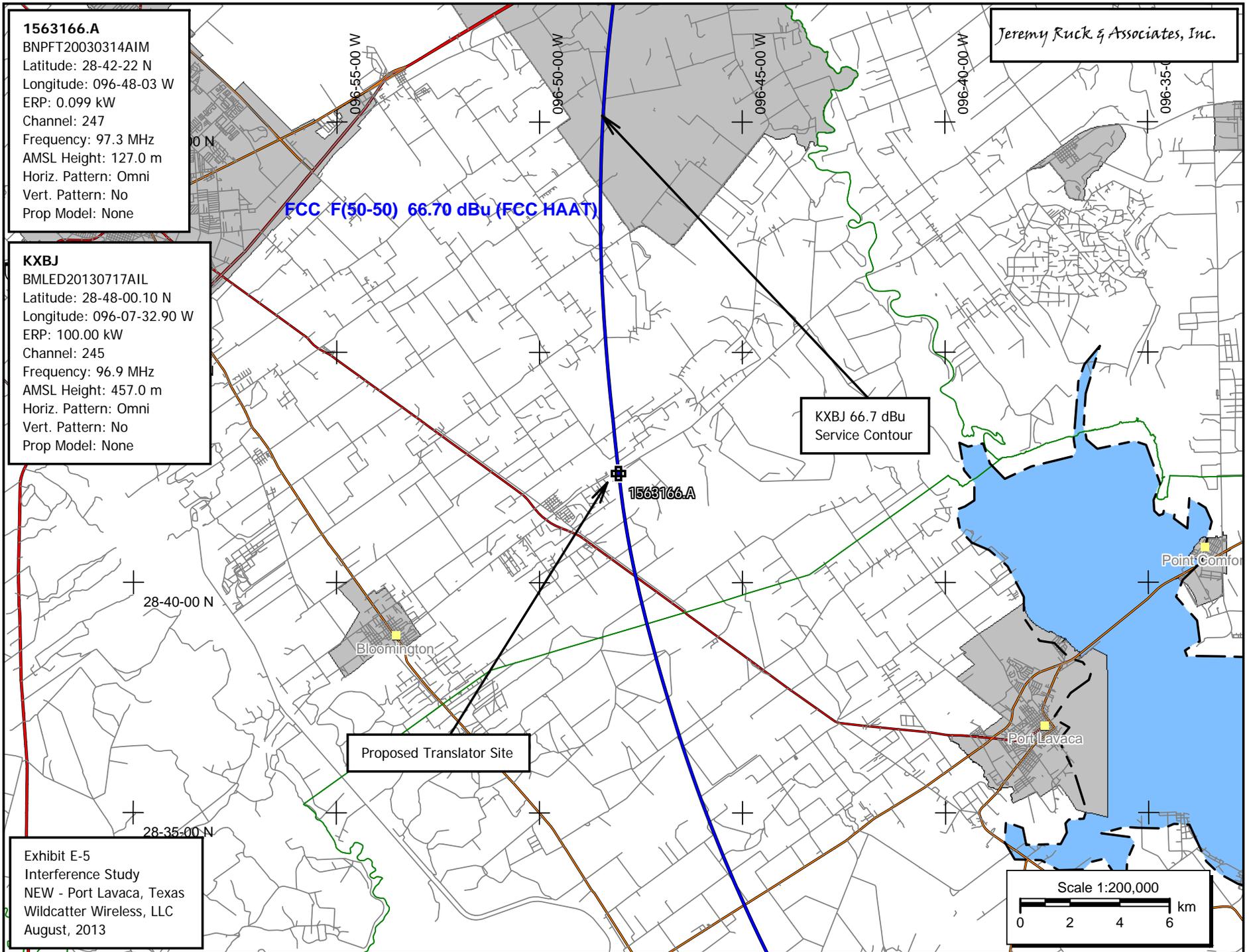
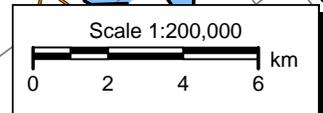
**FCC F(50-50) 66.70 dBu (FCC HAAT)**

KXBJ 66.7 dBu  
Service Contour

1563166.A

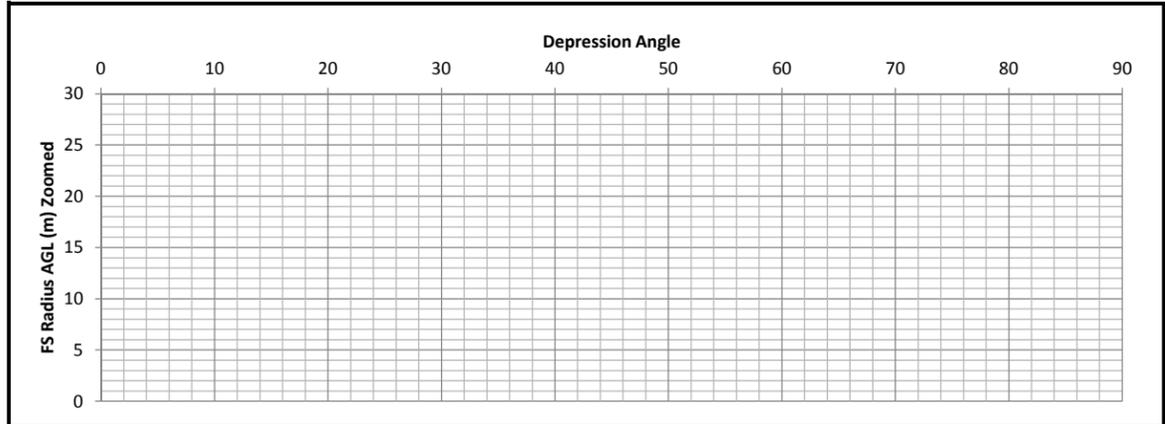
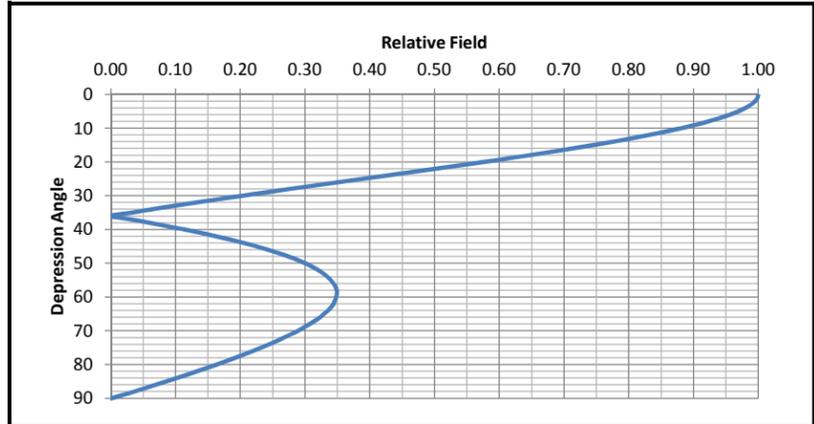
Proposed Translator Site

Exhibit E-5  
Interference Study  
NEW - Port Lavaca, Texas  
Wildcatter Wireless, LLC  
August, 2013



**Exhibit E-6**  
**Translator Proximity Interference Analysis**  
 NEW - Port Lavaca, Texas

Antenna No:	70	Center of Radiation:	113 m AGL
Manufacturer:	Shively	Effective Radiated Power:	99 Watts
Model:	6812-2	FS Contour:	106.6 dBu
Number of Bays:	2	E Field Strength:	0.21380 V/m
Bay Spacing:	Lambda	Z0 (Ohms):	377 Ohms
		Power Density:	0.000121244 W/m^2



Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
0	1.0000	1.0000	99.00	254.91	254.91	0.00	113.00
1	0.9990	0.9980	98.80	254.65	254.61	4.44	108.56
2	0.9950	0.9900	98.01	253.63	253.48	8.85	104.15
3	0.9890	0.9781	96.83	252.10	251.76	13.19	99.81
4	0.9800	0.9604	95.08	249.81	249.20	17.43	95.57
5	0.9690	0.9390	92.96	247.01	246.07	21.53	91.47
6	0.9560	0.9139	90.48	243.69	242.36	25.47	87.53
7	0.9400	0.8836	87.48	239.61	237.83	29.20	83.80
8	0.9230	0.8519	84.34	235.28	232.99	32.74	80.26
9	0.9030	0.8154	80.73	230.18	227.35	36.01	76.99
10	0.8810	0.7762	76.84	224.57	221.16	39.00	74.00
11	0.8570	0.7344	72.71	218.46	214.44	41.68	71.32
12	0.8320	0.6922	68.53	212.08	207.45	44.09	68.91
13	0.8040	0.6464	64.00	204.95	199.69	46.10	66.90
14	0.7750	0.6006	59.46	197.55	191.69	47.79	65.21
15	0.7450	0.5550	54.95	189.91	183.44	49.15	63.85
16	0.7130	0.5084	50.33	181.75	174.71	50.10	62.90
17	0.6800	0.4624	45.78	173.34	165.76	50.68	62.32
18	0.6460	0.4173	41.31	164.67	156.61	50.89	62.11
19	0.6110	0.3733	36.96	155.75	147.26	50.71	62.29
20	0.5750	0.3306	32.73	146.57	137.73	50.13	62.87
21	0.5380	0.2894	28.65	137.14	128.03	49.15	63.85
22	0.5010	0.2510	24.85	127.71	118.41	47.84	65.16
23	0.4640	0.2153	21.31	118.28	108.87	46.21	66.79
24	0.4260	0.1815	17.97	108.59	99.20	44.17	68.83
25	0.3880	0.1505	14.90	98.90	89.64	41.80	71.20
26	0.3510	0.1232	12.20	89.47	80.42	39.22	73.78
27	0.3130	0.0980	9.70	79.79	71.09	36.22	76.78
28	0.2760	0.0762	7.54	70.35	62.12	33.03	79.97
29	0.2390	0.0571	5.65	60.92	53.28	29.54	83.46
30	0.2020	0.0408	4.04	51.49	44.59	25.75	87.25
31	0.1660	0.0276	2.73	42.31	36.27	21.79	91.21
32	0.1310	0.0172	1.70	33.39	28.32	17.70	95.30
33	0.0970	0.0094	0.93	24.73	20.74	13.47	99.53
34	0.0630	0.0040	0.39	16.06	13.31	8.98	104.02
35	0.0310	0.0010	0.10	7.90	6.47	4.53	108.47
36	0.0000	0.0000	0.00	0.00	0.00	0.00	113.00
37	0.0310	0.0010	0.10	7.90	6.31	4.76	108.24
38	0.0600	0.0036	0.36	15.29	12.05	9.42	103.58
39	0.0870	0.0076	0.75	22.18	17.23	13.96	99.04
40	0.1140	0.0130	1.29	29.06	22.26	18.68	94.32
41	0.1390	0.0193	1.91	35.43	26.74	23.25	89.75
42	0.1630	0.0266	2.63	41.55	30.88	27.80	85.20
43	0.1850	0.0342	3.39	47.16	34.49	32.16	80.84
44	0.2060	0.0424	4.20	52.51	37.77	36.48	76.52
45	0.2250	0.0506	5.01	57.35	40.56	40.56	72.44

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
45	0.2250	0.0506	5.01	57.35	40.56	40.56	72.44
46	0.2430	0.0590	5.85	61.94	43.03	44.56	68.44
47	0.2600	0.0676	6.69	66.28	45.20	48.47	64.53
48	0.2750	0.0756	7.49	70.10	46.91	52.09	60.91
49	0.2880	0.0829	8.21	73.41	48.16	55.41	57.59
50	0.3000	0.0900	8.91	76.47	49.16	58.58	54.42
51	0.3110	0.0967	9.58	79.28	49.89	61.61	51.39
52	0.3200	0.1024	10.14	81.57	50.22	64.28	48.72
53	0.3280	0.1076	10.65	83.61	50.32	66.77	46.23
54	0.3350	0.1122	11.11	85.39	50.19	69.09	43.91
55	0.3400	0.1156	11.44	86.67	49.71	70.99	42.01
56	0.3440	0.1183	11.72	87.69	49.03	72.70	40.30
57	0.3470	0.1204	11.92	88.45	48.17	74.18	38.82
58	0.3490	0.1218	12.06	88.96	47.14	75.44	37.56
59	0.3490	0.1218	12.06	88.96	45.82	76.26	36.74
60	0.3480	0.1211	11.99	88.71	44.35	76.82	36.18
61	0.3460	0.1197	11.85	88.20	42.76	77.14	35.86
62	0.3440	0.1183	11.72	87.69	41.17	77.42	35.58
63	0.3400	0.1156	11.44	86.67	39.35	77.22	35.78
64	0.3350	0.1122	11.11	85.39	37.43	76.75	36.25
65	0.3290	0.1082	10.72	83.86	35.44	76.01	36.99
66	0.3230	0.1043	10.33	82.34	33.49	75.22	37.78
67	0.3150	0.0992	9.82	80.30	31.37	73.91	39.09
68	0.3070	0.0942	9.33	78.26	29.32	72.56	40.44
69	0.2980	0.0888	8.79	75.96	27.22	70.92	42.08
70	0.2890	0.0835	8.27	73.67	25.20	69.23	43.77
71	0.2780	0.0773	7.65	70.86	23.07	67.00	46.00
72	0.2670	0.0713	7.06	68.06	21.03	64.73	48.27
73	0.2560	0.0655	6.49	65.26	19.08	62.41	50.59
74	0.2440	0.0595	5.89	62.20	17.14	59.79	53.21
75	0.2320	0.0538	5.33	59.14	15.31	57.12	55.88
76	0.2190	0.0480	4.75	55.82	13.51	54.17	58.83
77	0.2050	0.0420	4.16	52.26	11.76	50.92	62.08
78	0.1910	0.0365	3.61	48.69	10.12	47.62	65.38
79	0.1770	0.0313	3.10	45.12	8.61	44.29	68.71
80	0.1630	0.0266	2.63	41.55	7.22	40.92	72.08
81	0.1480	0.0219	2.17	37.73	5.90	37.26	75.74
82	0.1330	0.0177	1.75	33.90	4.72	33.57	79.43
83	0.1170	0.0137	1.36	29.82	3.63	29.60	83.40
84	0.1010	0.0102	1.01	25.75	2.69	25.60	87.40
85	0.0850	0.0072	0.72	21.67	1.89	21.58	91.42
86	0.0690	0.0048	0.47	17.59	1.23	17.55	95.45
87	0.0520	0.0027	0.27	13.26	0.69	13.24	99.76
88	0.0360	0.0013	0.13	9.18	0.32	9.17	103.83
89	0.0180	0.0003	0.03	4.59	0.08	4.59	108.41
90	0.0000	0.0000	0.00	0.00	0.00	0.00	113.00

