

***COMPREHENSIVE TECHNICAL EXHIBIT
AMENDMENT TO APPLICATION FOR
CONSTRUCTION PERMIT***

**FM TRANSLATOR STATION K296GK
SAN ANTONIO, TEXAS
107.1 MHz / 0.250 kW ND**

WILDCATTER WIRELESS, INC.

FEBRUARY, 2014

AMENDMENT TO APPLICATION FOR CONSTRUCTION PERMIT

The following engineering statement and attached exhibits have been prepared for **Wildcatter Wireless, Inc.** ("Wildcatter"), licensee of FM translator station K296GK at Pleasanton, Texas, and are in support of their amendment to application for construction permit for that facility.¹

This application seeks to amend the pending application that was originally filed to modify the K296GK construction permit. Under that modification application, Wildcatter sought authority to relocate the translator from Pleasanton, Texas to San Antonio, Texas. Under the proposed relocation, it was proposed that the primary station for the translator be changed to AM broadcast station KAHL at San Antonio, Texas.² At the time that the application was submitted, Wildcatter had not yet submitted a license application for the construction authorized in the original construction permit.

It was subsequently learned that the Staff would likely not view the *Mattoon Waiver* request in the original modification application favorably. Wildcatter then completed construction of the K296GK facility at the site authorized in the original construction permit, and filed a license application for that facility.³ Filed concurrently with that license application was an application for direct measurement of power for KWMF at Pleasanton, Texas.⁴ Both of these applications have been accepted for filing, but neither has yet been granted.

¹ The Facility ID for K296GK is 140646.

² The Facility ID for KAHL at San Antonio, Texas is 67070.

³ See FCC File No. BLFT-20140114AFX.

⁴ The Facility ID for KWMF at Pleasanton, Texas is 55415. See DM application under FCC File No. BZ-20140207ABL.

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Under the modification application that would have relocated K296GK to San Antonio, Wildcatter proposed the use of a directional antenna. This directional antenna was proposed in order to eliminate contour overlap with the construction permit for KHAV(FM) at Sabinal, TX that would have resulted had Wildcatter proposed a non-directional antenna.⁵ Since the submission of the Wildcatter modification application, the permittee of KHAV(FM) has modified that construction permit, and downgraded the facility to a Class A authorization. As a result, Wildcatter seeks to amend the current proposal by eliminating the directional characteristics of the antenna. All other parameters specified in the original application remain unchanged in this amendment.

This amendment continues to propose KAHL at San Antonio, Texas as the primary station for K296GK. KAHL is an AM station, therefore, Wildcatter proposes fill-in service with the translator. The map in Exhibit A-1 compares the proposed 60 dBu service contour of the translator to both the KAHL 2 mV/m daytime contour and a twenty-five mile radius centered on the KAHL transmitter site. As this map demonstrates, the 60 dBu contour of K296GK would be contained within both constructs.

The proposed facility complies with the provisions of Section 74.1204 of the Commission's Rules to relevant facilities in the region. Section 74.1205 is not applicable to the facility due to the channel of operation.

Exhibit A-2 is a tabular spacing study for the proposed facility. As this study demonstrates, the proposed facility would comply with the contour overlap provisions of Section 74.1204 of the

⁵ The Facility ID for KHAV(FM) at Sabinal, Texas is 171015.

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Commission's Rules to all relevant facilities with the exception of KXTN-FM at San Antonio, Texas, and KTKX(FM) at Terrell Hills, Texas. The Facility ID for KXTN-FM is 67064, while the Facility ID for KTKX(FM) is 70357. This tabular study is graphically illustrated in Exhibit A-3.

The removal of the directional characteristics of the proposed antenna would not affect the interference study for KTKX(FM) and KXTN-FM submitted in the original application. It will, however, be restated here for the benefit of the Staff.

Although there would be normally prohibited contour overlap between the proposed facility, and both KXTN-FM and KTKX(FM), there would be zero population affected by the potential interference area. Exhibit A-4 depicts the proposed K296GK transmitter site along with the 83.7 dBu service contour for KTKX(FM) and the 86.5 dBu service contour for KXTN-FM. As this map demonstrates, these two contours intersect the proposed translator site. Since these two facilities operate second adjacent on either side to the proposed translator, interference to either would potentially occur when the translator field strength is at least 40 dB above the full-power field strength. Specifically interference to KTKX(FM) may occur when the K296GK field strength is at least 123.7 dBu, and to KXTN-FM when at least 126.5 dBu. Since the requirement to KTKX(FM) is the more stringent of the two, it will be utilized in this study.

The power density for the proposed facility at the interfering field strength is given by the following equation:

$$S = \frac{E^2}{Z_0}$$

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In this equation, S represents the calculated power density in Watts per square meter, E is the electric field intensity, and Z_0 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, and R is the distance. 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 A-5 based on a non-directional antenna. In addition to the tabular data, Exhibit A-5 also provides several graphs illustrating the interference situation for a given azimuth slice. As the form pages indicate, the proposed antenna type is an Electronics Research, Inc. (ERI) LPX-2H, which is a half-wave spaced roto-tiller style antenna with two bays. The relative field values listed in the tabulation were obtained from published data from the manufacturer.

The resulting radii values indicate the three-dimensional region in which interference may potentially occur relative to the elevation of the antenna radiation center. As the values and the tables indicate, this region is confined to a volume located an elevation of 165.6 meters, or greater, above ground level. Since the proposed center of radiation is 186 meters AGL, the greatest vertical distance from the center of radiation is 20 meters. The following street level image illustrates the structure on which the antenna would be mounted.

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The proposed antenna would be roof mounted on the platform on the Tower of the Americas depicted in the photograph. The closest structure to the Tower of any substantial height is the Hyatt hotel, depicted to the right of the Tower in the photograph. The closest point of the Hyatt is at least 250 meters from the Tower, and as such would be unaffected by the potential interference region.

Although the antenna utilized by the proposed translator would be roof mounted, the publicly accessible spaces within the Tower would not experience interference. The large depression angle from the antenna necessary to impact the habited areas combined with the attenuation of the roof construction would prevent the translator field strength within the structure from reaching levels that would cause interference to the reception of either full-power facility.

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Exhibit A-6 illustrates the authorized 60 dBu service contour for K296GK along with the proposed 60 dBu service contour. As this map demonstrates, these two contours do not overlap, and as such, the proposed change would normally be considered major. Wildcatter, however, respectfully requests a waiver of Section 74.1233(a)(1) of the Commission's Rules to effect the proposed change at this time. The proposed changes are similar to those granted under BPFT-20101025ABR, which has informally come to be known as a *Mattoon Waiver*.

The proposed K296GK facility would be mutually exclusive with the authorized K296GK facility. Exhibit A-7 illustrates the proposed and authorized 60 dBu F(50,50) service contours along with the proposed and authorized 40 dBu F(50,10) interference contours. As this exhibit demonstrates, there would be areas of prohibited contour overlap between the proposed and authorized facilities. Because of this mutual exclusivity, the proposal would qualify as a minor change under the less restrictive full-service processing rules.

Wildcatter does not have a history of serial hops to relocate translators. In particular, there have been no hops for K296GK as well, since the modification proposed is to the license issued for that facility. As a result, Wildcatter has not engaged in this problematic process.

Finally, as was previously discussed, the primary facility for K296GK would be changed to AM station KAHL at San Antonio, Texas. Wildcatter is not the licensee of KAHL, nor does Wildcatter have any interest in any other translator rebroadcasting KAHL, where there would be a majority amount of contour overlap with the proposed K296GK facility. A grant of this application would be in the public interest, as it would enhance the coverage of KAHL at nighttime in

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particular, where the facility is authorized nominally with 280 Watts, and has an interference-free field strength value of 15.27 mV/m.

The proposed facility is exempt from environmental processing, as it would not constitute a substantial environmental impact. The proposed facility would utilize an existing tower that is registered with the Commission. The addition of the K296GK antenna to this structure would not increase the existing environmental impact already present.

In addition, the proposed addition of K296GK to the structure would not result in an RF exposure hazard to persons in the vicinity of the Tower. The Commission's *FM Model* software package predicts a maximum human exposure power density of $0.044 \mu\text{W}/\text{cm}^2$. This value is well within the uncontrolled environment condition of the safety standard, and in fact, categorically excludes the facility due to its magnitude.

The structure is utilized by several other broadcast facilities. As a result, cooperation between the facilities occurs when maintenance or access is required. 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.

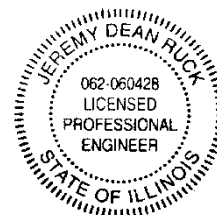
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2.24.2014

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, 2015

Jeremy D. Ruck, PE
February 24, 2014

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2.24.2014

Latitude: 29-25-06.46 N
Longitude: 098-29-01 W
ERP: 0.25 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 384.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Proposed K269GK 60 dBu
Service Contour

KAHL 25 mile
Site Radius


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Exhibit A-1
Service Contour Comparison
K296GK - San Antonio, Texas
Wildcatter Wireless, Inc.
February, 2014

Kahl Transmitter Site

KAHL 2 mV/m Daytime
Service Contour

Scale 1:1,000,000



0 10 20 30 km

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

Exhibit A-2 - Tabulation Interference Study
K296GK - Pleasanton/San Antonio, Texas
CH# 296D - 107.1 MHz, Pwr= 0.25 kW, HAAT= 0.0 M, COR= 384 M
Average Protected F(50-50)= 7.09 km
Omni-directional

REFERENCE
29 25 06.0 N.
98 29 01.0 W.

DISPLAY DATES
DATA 02-24-14
SEARCH 02-24-14

CH CITY	CALL	TYPE ANT STATE	AZI <--	DI ST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
296D K296GK San Antonio		APP_DC_ TX	0.0 0.0	0.00 BMPFT20131203AGJ	29 25 06.0 98 29 01.0	0.250	52.4 384	16.2 Wildcatter Wireless, Inc.	-68.5*	-68.5*
298C0 KXTN-FM San Antonio		LIC_C_ TX	126.9 307.0	26.57 BLH20060612AAY	29 16 29.0 98 15 52.0	98.000 453	12.1 611	83.2 Tichenor License Corporati	-4.1	-57.8*
294C0 KTKX Terrell Hills		LIC_CN TX	186.4 6.4	26.19 BLH19850508KY	29 11 03.0 98 30 49.0	100.000 310	10.4 486	73.7 Cox Radio, Inc.	-3.1	-48.6*
296C2 KLZT Bastrop		LIC_CX TX	47.9 228.4	117.18 BMLH20080527ABP	30 07 18.0 97 34 45.0	49.000 152	134.1 304	48.8 Emmis Austin Radio Broadca	-33.9*	14.0
296D K296GK Pleasanton		CP_C_ TX	185.6 5.6	46.70 BNPFT20130830A0I	29 00 01.0 98 31 50.0	0.250 68	33.3 206	9.5 Wildcatter Wireless, Inc.	-4.8	-22.2
296A KHAV Sabinal		CP_CX TX	263.7 83.2	95.30 BMPH20140210ACB	29 19 14.0 99 27 39.0	0.100 8	18.6 299	5.6 Jose Antonio Agui lar	59.6	35.2
296A KRXB Beeville		LIC NCX TX	147.1 327.4	126.38 BLH20100615ACW	28 27 45.0 97 46 50.0	1.500 103	62.3 185	18.7 Shaffer Communi cations Gro	45.6	49.1

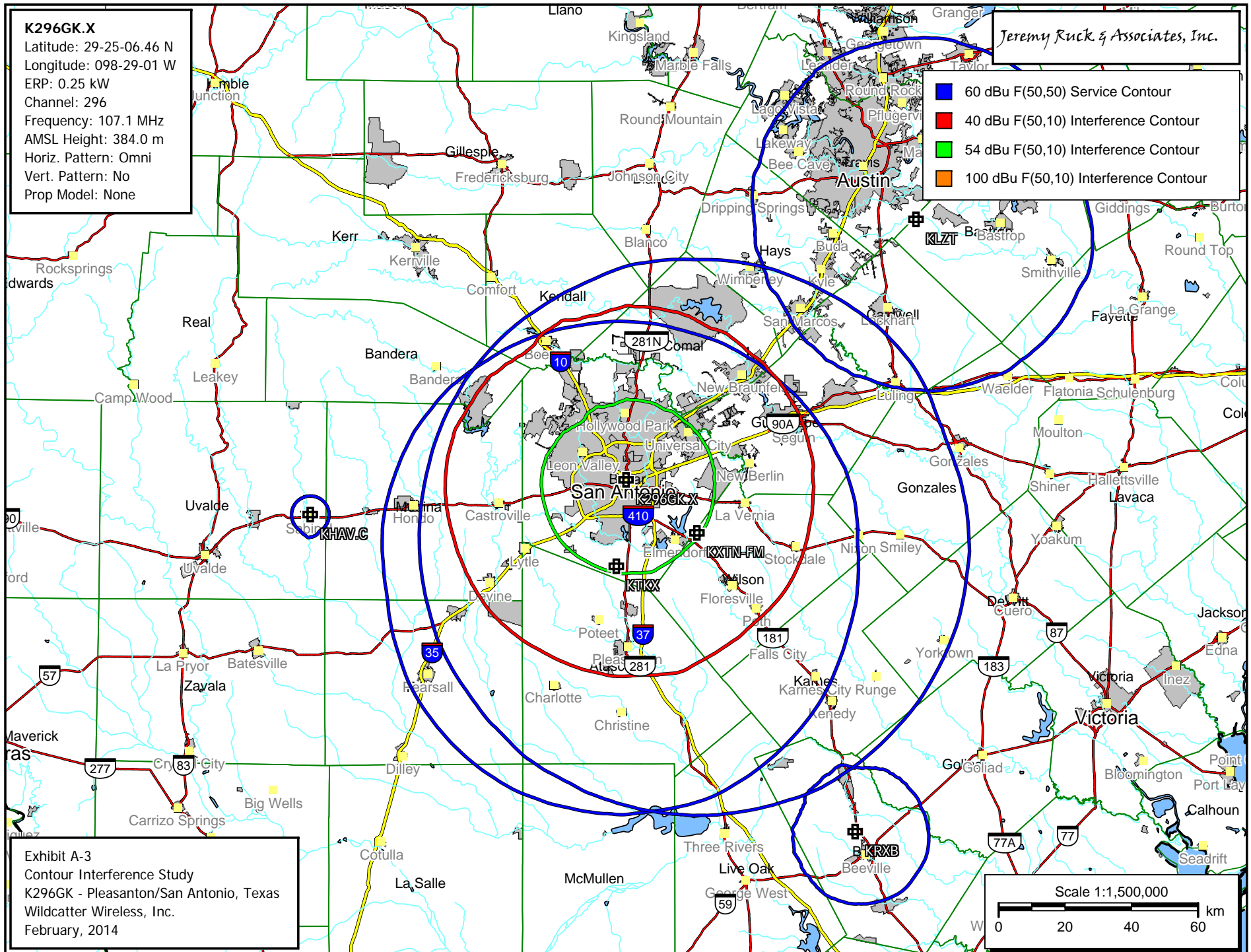
Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
***affixed to 'IN' or 'OUT' values = site inside protected contour.
Reference station has protected zone issue:

K296GK.X

Latitude: 29-25-06.46 N
Longitude: 098-29-01 W
ERP: 0.25 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 384.0 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



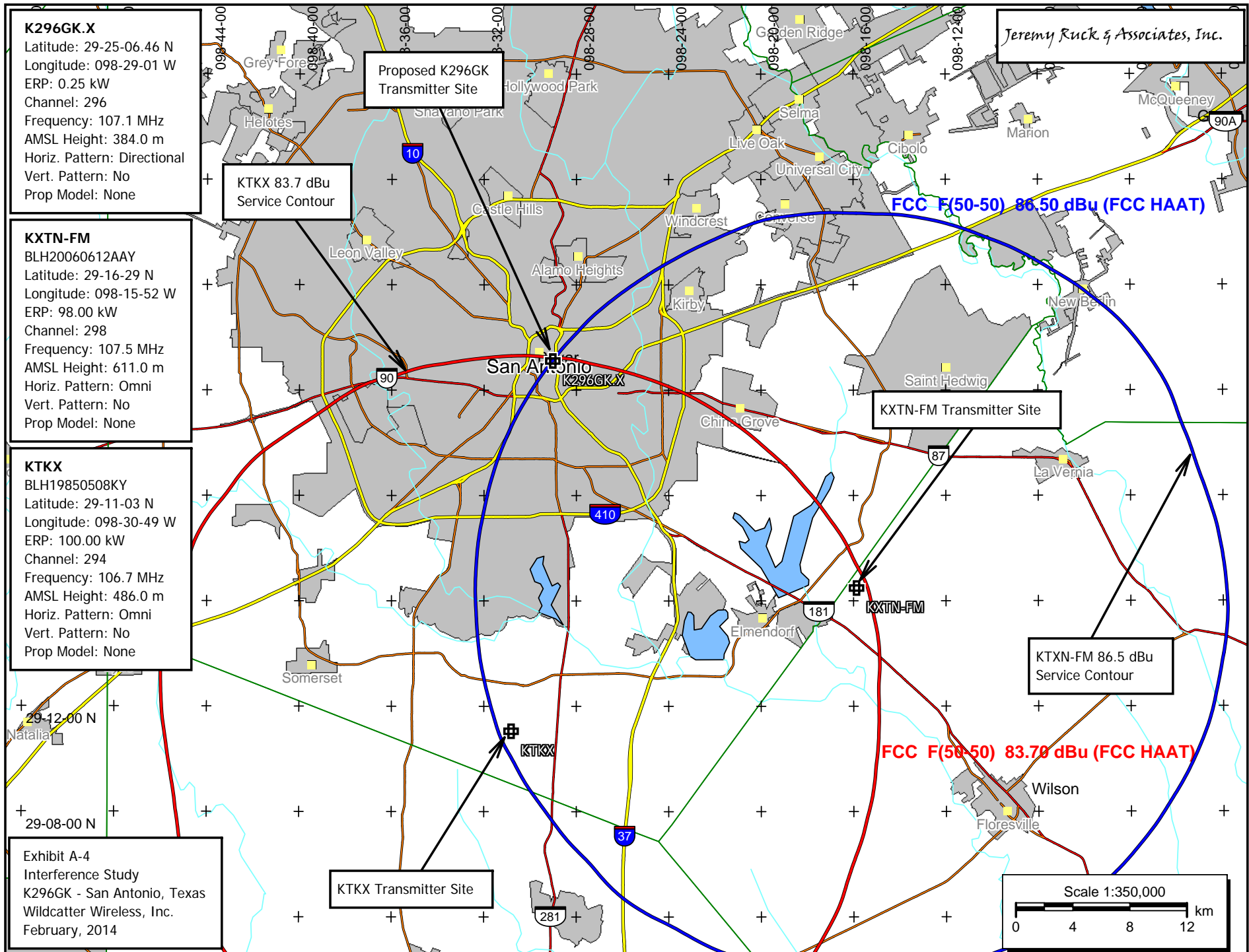
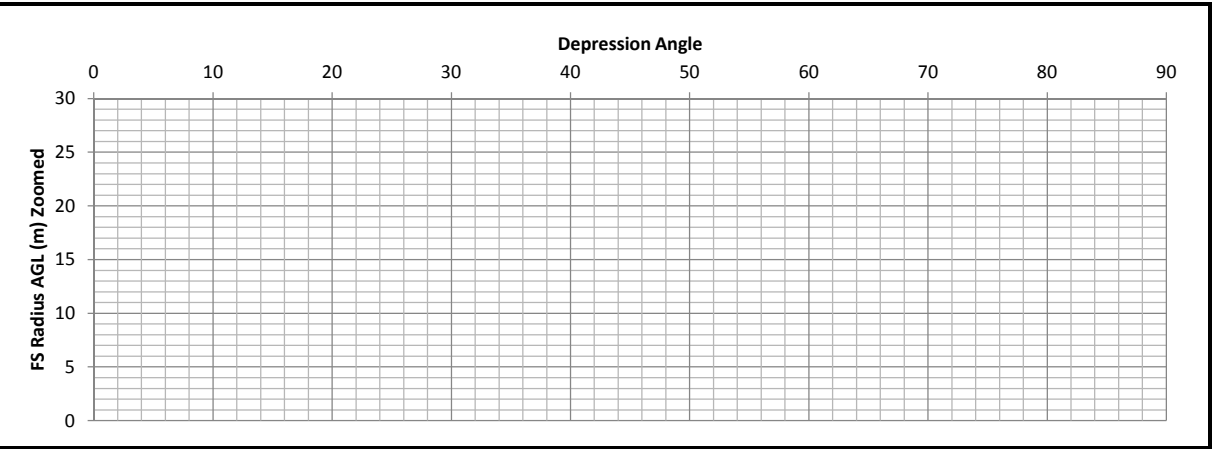
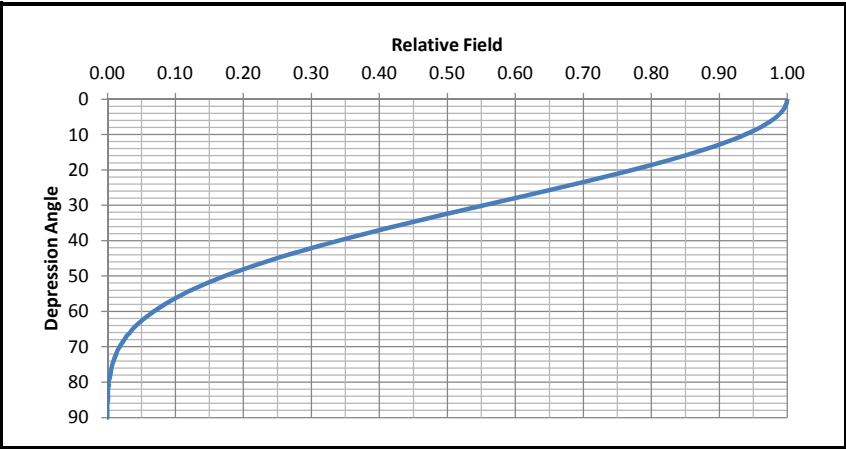


Exhibit A-5

Proximity Interference Analysis

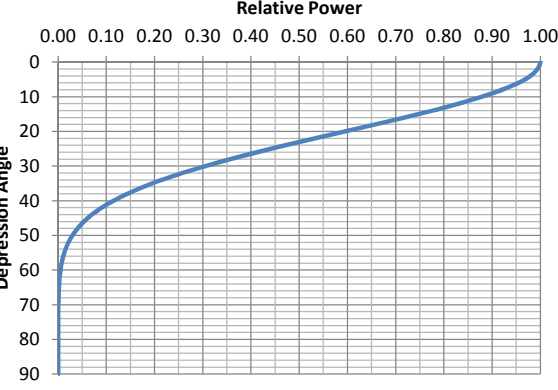
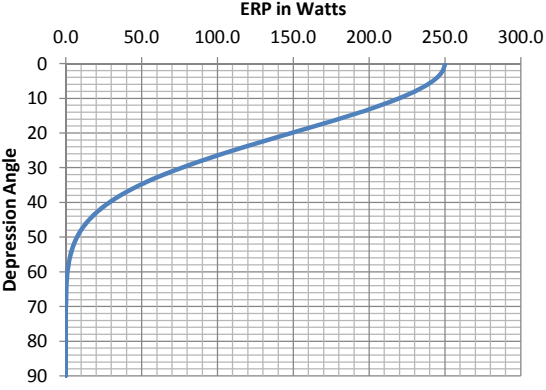
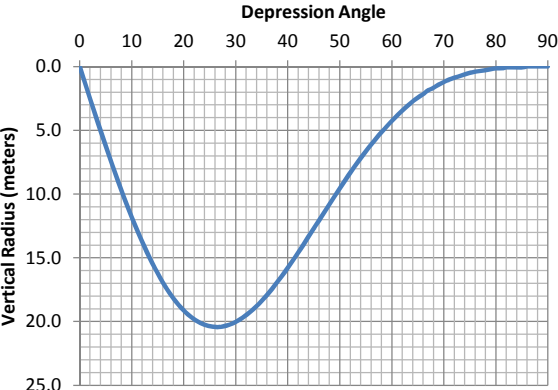
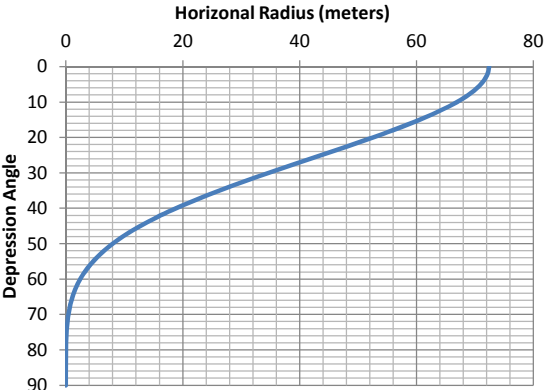
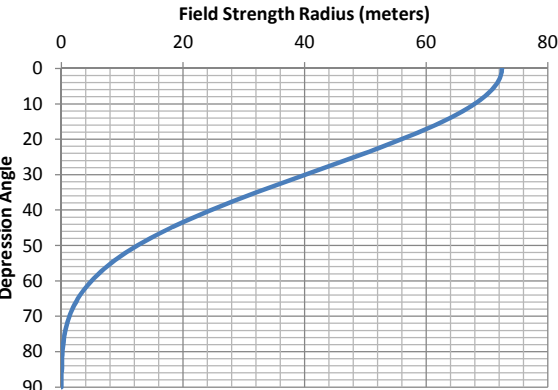
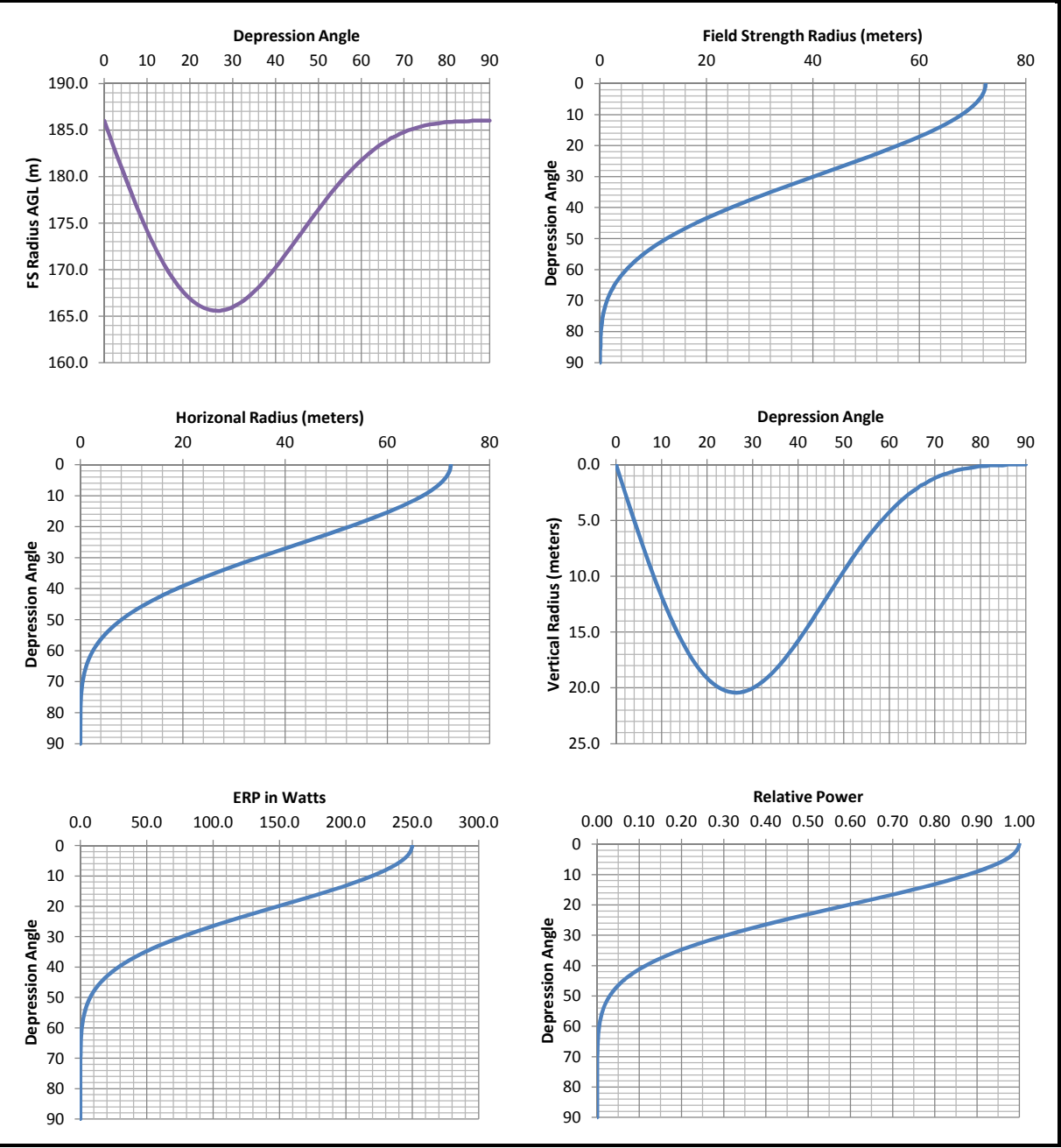
K296GK - San Antonio, Texas

Antenna No:	7	<div><div></div><div></div><div></div></div>	Center of Radiation:	186 m AGL
Manufacturer:	ERI	<div><div></div><div></div><div></div></div>	Effective Radiated Power:	250 Watts
Model:	LPX2H		FS Contour:	123.7 dBu
Number of Bays:	2		E Field Strength:	1.53109 V/m
Bay Spacing:	Half		Z0 (Ohms):	377 Ohms
			Power Density:	0.006218114 W/m^2



Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
0	1.0000	1.0000	250.00	72.44	72.44	0.00	186.00
1	0.9990	0.9980	249.50	72.36	72.35	1.26	184.74
2	0.9970	0.9940	248.50	72.22	72.18	2.52	183.48
3	0.9940	0.9880	247.01	72.00	71.90	3.77	182.23
4	0.9900	0.9801	245.03	71.71	71.54	5.00	181.00
5	0.9840	0.9683	242.06	71.28	71.01	6.21	179.79
6	0.9770	0.9545	238.63	70.77	70.38	7.40	178.60
7	0.9690	0.9390	234.74	70.19	69.67	8.55	177.45
8	0.9600	0.9216	230.40	69.54	68.86	9.68	176.32
9	0.9490	0.9006	225.15	68.74	67.90	10.75	175.25
10	0.9380	0.8798	219.96	67.95	66.91	11.80	174.20
11	0.9250	0.8556	213.91	67.00	65.77	12.78	173.22
12	0.9120	0.8317	207.94	66.06	64.62	13.74	172.26
13	0.8970	0.8046	201.15	64.98	63.31	14.62	171.38
14	0.8820	0.7779	194.48	63.89	61.99	15.46	170.54
15	0.8650	0.7482	187.06	62.66	60.52	16.22	169.78
16	0.8480	0.7191	179.78	61.43	59.05	16.93	169.07
17	0.8300	0.6889	172.23	60.12	57.50	17.58	168.42
18	0.8110	0.6577	164.43	58.75	55.87	18.15	167.85
19	0.7920	0.6273	156.82	57.37	54.24	18.68	167.32
20	0.7720	0.5960	149.00	55.92	52.55	19.13	166.87
21	0.7510	0.5640	141.00	54.40	50.79	19.50	166.50
22	0.7300	0.5329	133.23	52.88	49.03	19.81	166.19
23	0.7090	0.5027	125.67	51.36	47.27	20.07	165.93
24	0.6870	0.4720	117.99	49.76	45.46	20.24	165.76
25	0.6650	0.4422	110.56	48.17	43.66	20.36	165.64
26	0.6430	0.4134	103.36	46.58	41.86	20.42	165.58
27	0.6210	0.3856	96.41	44.98	40.08	20.42	165.58
28	0.5980	0.3576	89.40	43.32	38.25	20.34	165.66
29	0.5760	0.3318	82.94	41.72	36.49	20.23	165.77
30	0.5530	0.3058	76.45	40.06	34.69	20.03	165.97
31	0.5300	0.2809	70.23	38.39	32.91	19.77	166.23
32	0.5080	0.2581	64.52	36.80	31.21	19.50	166.50
33	0.4860	0.2362	59.05	35.20	29.52	19.17	166.83
34	0.4640	0.2153	53.82	33.61	27.86	18.79	167.21
35	0.4420	0.1954	48.84	32.02	26.23	18.36	167.64
36	0.4210	0.1772	44.31	30.50	24.67	17.92	168.08
37	0.4000	0.1600	40.00	28.97	23.14	17.44	168.56
38	0.3790	0.1436	35.91	27.45	21.63	16.94	169.10
39	0.3590	0.1289	32.22	26.00	20.21	16.37	169.63
40	0.3390	0.1149	28.73	24.56	18.81	15.78	170.22
41	0.3200	0.1024	25.60	23.18	17.49	15.21	170.79
42	0.3010	0.0906	22.65	21.80	16.20	14.59	171.41
43	0.2830	0.0801	20.02	20.50	14.99	13.98	172.02
44	0.2650	0.0702	17.56	19.20	13.81	13.33	172.67
45	0.2480	0.0615	15.38	17.96	12.70	12.70	173.30

Depression Angle	Relative Field	Relative Power	ERP Watts	Radii in meters			
				Field Strength	Horizontal	Vertical	AGL
45	0.2480	0.0615	15.38	17.96	12.70	12.70	173.30
46	0.2320	0.0538	13.46	16.81	11.67	12.09	173.91
47	0.2160	0.0467	11.66	15.65	10.67	11.44	174.56
48	0.2010	0.0404	10.10	14.56	9.74	10.82	175.18
49	0.1860	0.0346	8.65	13.47	8.84	10.17	175.83
50	0.1720	0.0296	7.40	12.46	8.01	9.54	176.46
51	0.1590	0.0253	6.32	11.52	7.25	8.95	177.05
52	0.1460	0.0213	5.33	10.58	6.51	8.33	177.67
53	0.1340	0.0180	4.49	9.71	5.84	7.75	178.25
54	0.1230	0.0151	3.78	8.91	5.24	7.21	178.79
55	0.1120	0.0125	3.14	8.11	4.65	6.65	179.35
56	0.1020	0.0104	2.60	7.39	4.13	6.13	179.87
57	0.0930	0.0086	2.16	6.74	3.67	5.65	180.35
58	0.0840	0.0071	1.76	6.08	3.22	5.16	180.84
59	0.0760	0.0058	1.44	5.51	2.84	4.72	181.28
60	0.0680	0.0046	1.16	4.93	2.46	4.27	181.73
61	0.0610	0.0037	0.93	4.42	2.14	3.86	182.14
62	0.0540	0.0029	0.73	3.91	1.84	3.45	182.55
63	0.0480	0.0023	0.58	3.48	1.58	3.10	182.90
64	0.0420	0.0018	0.44	3.04	1.33	2.73	183.27
65	0.0370	0.0014	0.34	2.68	1.13	2.43	183.57
66	0.0330	0.0011	0.27	2.39	0.97	2.18	183.82
67	0.0280	0.0008	0.20	2.03	0.79	1.87	184.13
68	0.0250	0.0006	0.16	1.81	0.68	1.68	184.32
69	0.0210	0.0004	0.11	1.52	0.55	1.42	184.58
70	0.0180	0.0003	0.08	1.30	0.45	1.23	184.77
71	0.0150	0.0002	0.06	1.09	0.35	1.03	184.97
72	0.0130	0.0002	0.04	0.94	0.29	0.90	185.10
73	0.0110	0.0001	0.03	0.80	0.23	0.76	185.24
74	0.0090	0.0001	0.02	0.65	0.18	0.63	185.37
75	0.0070	0.0000	0.01	0.51	0.13	0.49	185.51
76	0.0060	0.0000	0.01	0.43	0.11	0.42	185.58
77	0.0050	0.0000	0.01	0.36	0.08	0.35	185.65
78	0.0040	0.0000	0.00	0.29	0.06	0.28	185.72
79	0.0030	0.0000	0.00	0.22	0.04	0.21	185.79
80	0.0020	0.0000	0.00	0.14	0.03	0.14	185.86
81	0.0020	0.0000	0.00	0.14	0.02	0.14	185.86
82	0.0010	0.0000	0.00	0.07	0.01	0.07	185.93
83	0.0010	0.0000	0.00	0.07	0.01	0.07	185.93
84	0.0010	0.0000	0.00	0.07	0.01	0.07	185.93
85	0.0010	0.0000	0.00	0.07	0.01	0.07	185.93
86	0.0000	0.0000	0.00	0.00	0.00	0.00	186.00
87	0.0000	0.0000	0.00	0.00	0.00	0.00	186.00
88	0.0000	0.0000	0.00	0.00	0.00	0.00	186.00
89	0.0000	0.0000	0.00	0.00	0.00	0.00	186.00
90	0.0000	0.0000	0.00	0.00	0.00	0.00	186.00

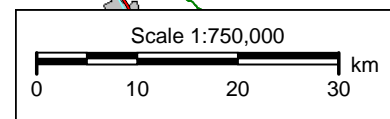


Latitude: 29-25-06.46 N
Longitude: 098-29-01 W
ERP: 0.25 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 384.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

BNPFT20130830AOI
Latitude: 29-00-01 N
Longitude: 098-31-50 W
ERP: 0.25 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 206.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Authorized K296GK
60 dBu Service Contour

Jeremy Ruck & Associates, Inc.



BNPFT20130830AOI
Latitude: 29-25-06.46 N
Longitude: 098-29-01 W
ERP: 0.25 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 384.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

BNPFT20130830AOI
Latitude: 29-00-01 N
Longitude: 098-31-50 W
ERP: 0.25 kW
Channel: 296
Frequency: 107.1 MHz
AMSL Height: 206.0 m
Horiz. Pattern: Omni
Vert. Pattern: No
Prop Model: None

Exhibit A-7
Contour Overlap Study
K296GK - San Antonio, Texas
Wildcatter Wireless, Inc.
February, 2014

Jeremy Ruck & Associates, Inc.

- 60 dBu F(50,50) Service Contour
- 40 dBu F(50,10) Interference Contour
- Areas of Contour Overlap

