

# Non-Interference Compliance Study

## Alpha Media Licensee, LLC

### K291CH (Facility ID: 156984)

This exhibit demonstrates compliance with all contour overlap and interference protection requirements and demonstrates full compliance with 47 C.F.R. §74.1204.

Applicant certifies that should any actual interference occur it will promptly cease operation in accordance with 47 C.F.R. §74.1203.

Below is a listing of area stations whose contours are less than 25 km clear of the proposed translator.

Callsign	State	City	Channel	ERP (kW)	Class	Status	Distance (km)	Clr (km)
<b>KOOI</b>	<b>TX</b>	<b>Jacksonville</b>	<b>293</b>	<b>100</b>	<b>C</b>	<b>LIC</b>	<b>32.29</b>	<b>-53.68</b>
<b>KYKX</b>	<b>TX</b>	<b>Longview</b>	<b>289</b>	<b>100</b>	<b>C0</b>	<b>LIC</b>	<b>52.64</b>	<b>-27.81</b>

The only stations that are of concern are KOOI and KYKX. KOOI is a second adjacent Class C that requires that a minimum of 40 dB separation exist between its service contour and K291CH's interference contour. KYKX is a second adjacent Class C0 that requires that a minimum of 40 dB separation exist between its service contour and K291CH's interference contour. The following pages demonstrate that this proposal is in compliance with these requirements.

## Compliance with 47 C.F.R. §74.1204(d)

All Authorized second and third adjacent stations with which the proposed translator's contour overlaps their service contour are listed below. The table lists the minimum signal level of the primary station's service contour that reaches the proposed tower site for K291CH.

Facility ID	Call Sign	Contour at Tower F(50,50)
70740	KOOI	83.0 dBu
54844	KYKX	70.32 dBu

Minimum protected contour signal level at K291CH's proposed tower site: **70.32 dBu**

This study will use the minimum contour of 70.32 dBu to represent a worst-case potential interference level. At 40 dB above 70.32 dBu, the translator interference contour is 110.32 dBu. Calculation of distance at this power and signal level requires the use of the free-space calculation due to the distance being less than 1.5 km.

The following tables use the free space formula to calculate the worst-case height above ground level. As shown in Table 1, at 110.32 dBu and 250 watts, the overall interference contour extends to 338 meters with the minimum height above ground being 35.5 meters. A satellite image is attached showing the interference area. Note that there are three buildings whose height exceeds 35.5 meters and which will be more thoroughly analyzed below.



The first building of concern is People's Petroleum Building ("PPB") which is the building to the left (south) of the Plaza Tower in the image above. This structure has a height of 202 feet, or 61.6 meters above ground level. From the K291CH antenna, which is located near the center of the building, the closest distance to the PPB is 48.7 meters. Additionally, the azimuth from the K291CH antenna spans the arc from 156 to 197 degrees true.

Based on the manufacturer's data, the maximum field in this arc is 0.551 at 156 degrees which gives an ERP of 75.9 watts. Table 2 shows the interference contour for this ERP along with the building height and distance. As seen in the table, the building distance from the antenna is from 48.7 to 67.7 meters. The worst case height in this distance range occurs at 70.7 meters from the antenna with a height of 64.1 meters which clears the PPB by 2.5 meters. Therefore, the interference contour passes over the PPB and does not actually reach the building.



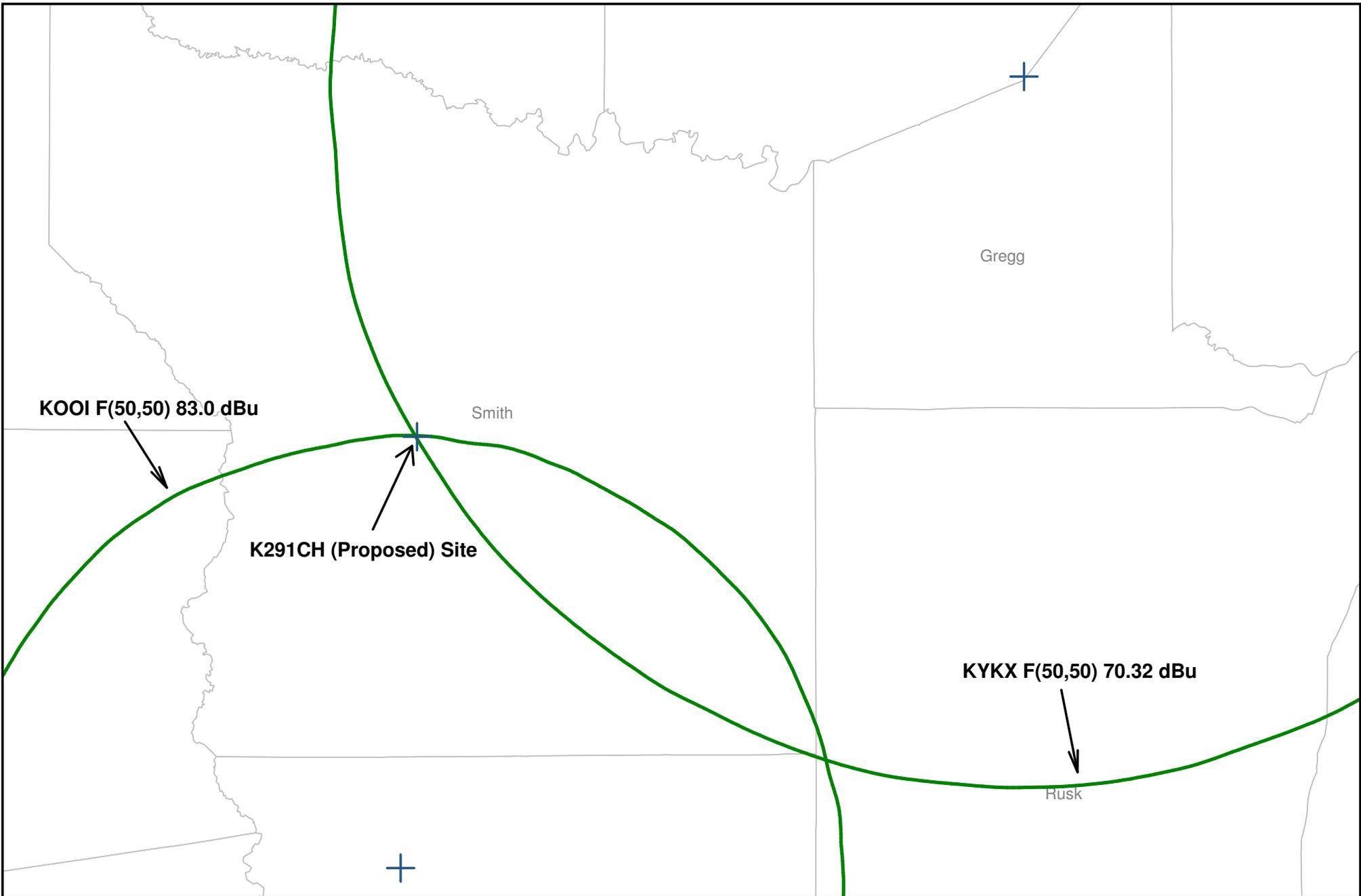
The second building of concern is the Regions building shown above. This structure has a height, to the roofline, of 142 feet, or 43.3 meters above ground level. From the K291CH antenna the closest distance to the Regions building is 172.9 meters. Additionally, the azimuth from the K291CH antenna spans the arc from 46 to 64 degrees true.

Based on the manufacturer's data, the maximum field in this arc is 0.998 at 64 degrees which gives an ERP of 249 watts. Table 3 shows the interference contour for this ERP along with the building height and distance. As seen in the table, the building distance from the antenna is from 172.9 to 209.3 meters. The worst case height in this distance range occurs at 202.3 meters from the antenna with a height of 43.7 meters which clears the Regions Bank building by 0.4 meters. Therefore, the interference contour passes over the Regions Bank building and does not actually reach the building.



The third building of concern is the Smith County Office building shown above. From the K291CH antenna the closest distance to the Smith County Office building is 231.5 meters. Additionally, the azimuth from the K291CH antenna spans the arc from 133 to 141 degrees true.

Based on the manufacturer's data, the maximum field in this arc is 0.629 at 133 degrees which gives an ERP of 98.9 watts. Table 3 shows the interference contour for this ERP. As seen in the table, the worst case distance is 212.6 meters which is 18.9 meters short of the building at 231.5 meters. Therefore, the interference contour does not reach the building.



**KOOI F(50,50) 83.0 dBu**

**K291CH (Proposed) Site**

**KYKX F(50,50) 70.32 dBu**

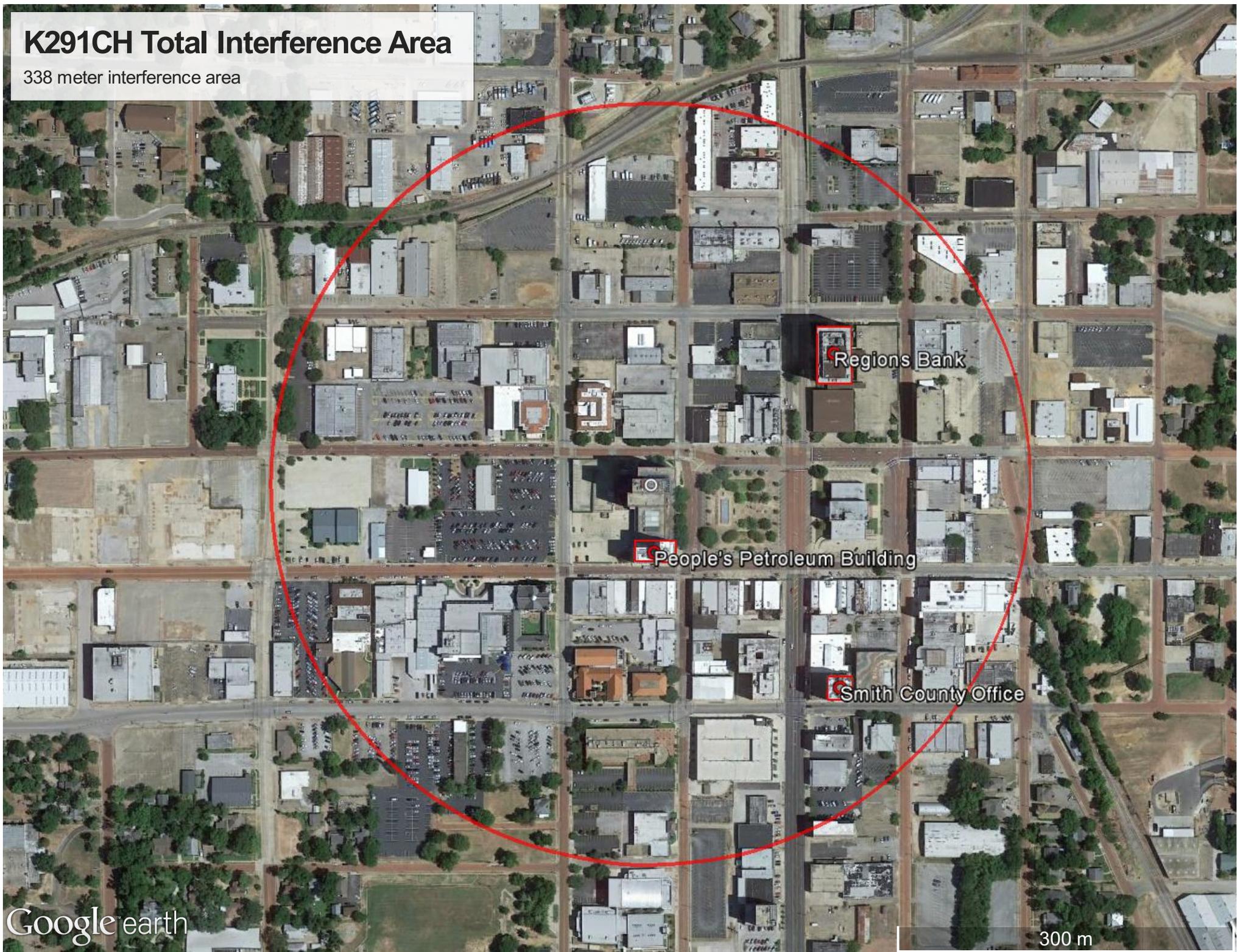
Protected Signal Levels at Proposed Tower Site

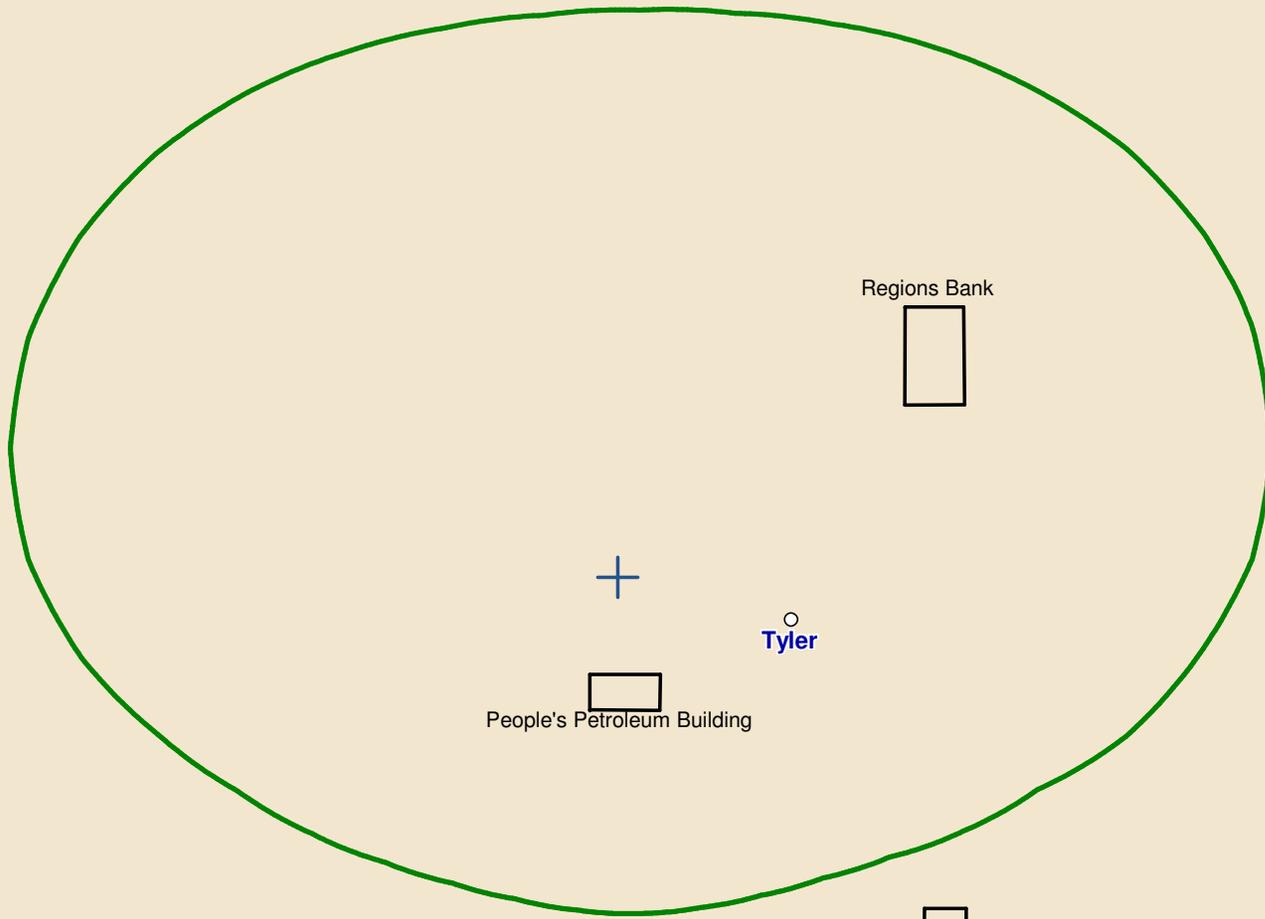
Scale 1:380,190



# K291CH Total Interference Area

338 meter interference area





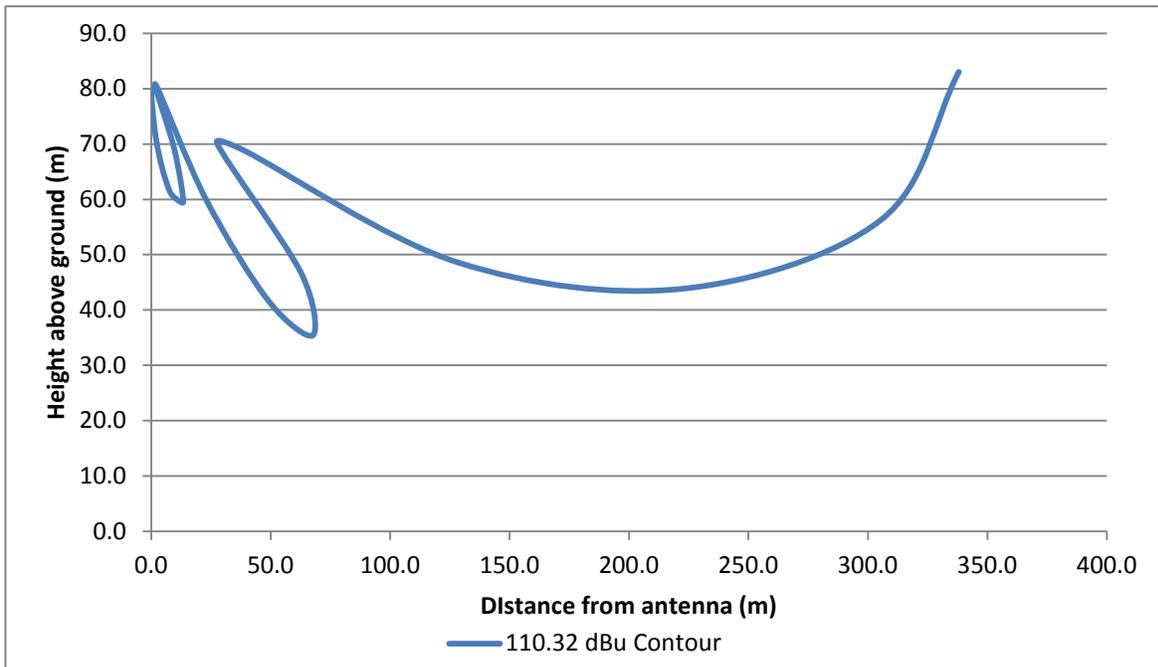
Surrounding Building(s) Interference Study  
110.32 dBu Signal from Proposed Tower Site



**§74.1204(d) Contour Protection Study**  
**Table 1: K291CH vs. KYKX - Overall Interference Area**

Antenna: BEXT TFC2K- 4 Bay/0.65-Wave ERP (watts): 250  
 Protected Contour at tower - F(50,50): 70.32 dBu RC-AGL (m): 83  
 Interference Ratio: 40 dB Relative field at Azimuth: 1.000  
 Interference Contour - F(50,10): 110.32 dBu ERP (watts) at Azimuth: 250

DEPRESSION ANGLE	RELATIVE FIELD	ERP (WATTS)	dBk	DISTANCE (m)		
				Contour	Horizontal	AGL
0	1.000	250.0	-6.02	338.0	338.0	83.0
5	0.907	205.7	-6.87	306.6	305.4	56.3
10	0.667	111.2	-9.54	225.5	222.0	43.8
15	0.393	38.6	-14.13	132.9	128.3	48.6
20	0.123	3.8	-24.22	41.6	39.1	68.8
25	0.090	2.0	-26.94	30.4	27.6	70.1
30	0.214	11.4	-19.41	72.3	62.6	46.8
35	0.245	15.0	-18.24	82.8	67.8	35.5
40	0.191	9.1	-20.40	64.6	49.5	41.5
45	0.097	2.4	-26.29	32.8	23.2	59.8
50	0.009	0.0	-46.94	3.0	2.0	80.7
55	0.050	0.6	-32.04	16.9	9.7	69.2
60	0.080	1.6	-27.96	27.0	13.5	59.6
65	0.075	1.4	-28.52	25.4	10.7	60.0
70	0.068	1.2	-29.37	23.0	7.9	61.4
75	0.053	0.7	-31.54	17.9	4.6	65.7
80	0.037	0.3	-34.66	12.5	2.2	70.7
85	0.020	0.1	-40.00	6.8	0.6	76.3
90	0.009	0.0	-46.94	3.0	0.0	80.0
<b>WORST CASE HEIGHT AGL (m)</b>						<b>35.5</b>

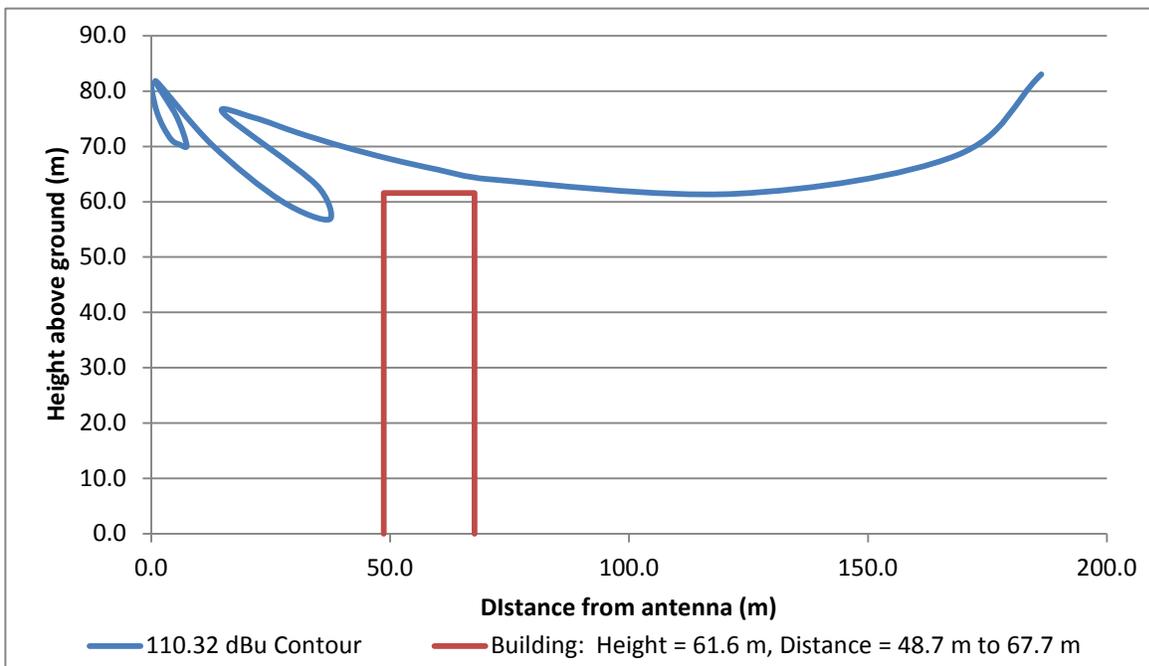


## §74.1204(d) Contour Protection Study

### Table 2: K291CH vs. KYKX - PPB Study

Antenna:	BEXT TFC2K- 4 Bay/0.65-Wave			ERP (watts):	250
Protected Contour at tower - F(50,50):	70.32	dBu		RC-AGL (m):	83
Interference Ratio:	40	dB		Relative field at Azimuth:	0.551
Interference Contour - F(50,10):	110.32	dBu		ERP (watts) at Azimuth:	75.90025

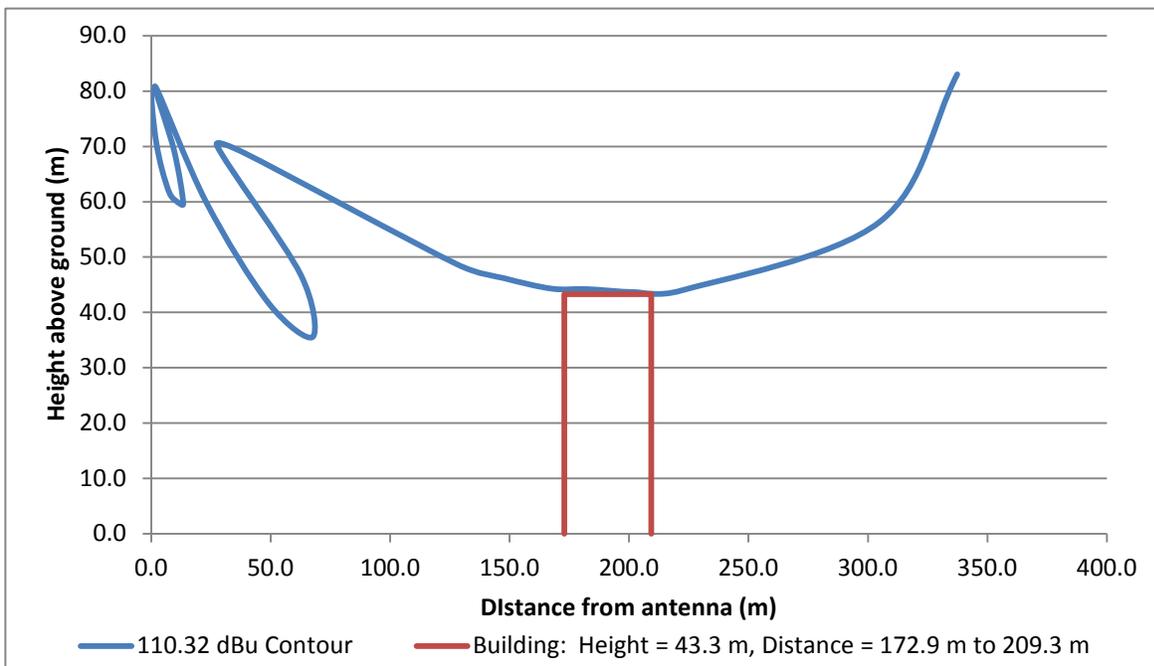
DEPRESSION ANGLE	RELATIVE FIELD	ERP (WATTS)	dBk	DISTANCE (m)		
				Contour	Horizontal	AGL
0	1.000	75.9	-11.20	186.3	186.3	83.0
5	0.907	62.4	-12.05	168.9	168.3	68.3
10	0.667	33.8	-14.72	124.2	122.3	61.4
<b>15</b>	<b>0.393</b>	<b>11.7</b>	<b>-19.31</b>	<b>73.2</b>	<b>70.7</b>	<b>64.1</b>
16	0.336	8.6	-20.67	62.6	60.2	65.7
17	0.281	6.0	-22.22	52.3	50.1	67.7
18	0.227	3.9	-24.08	42.3	40.2	69.9
19	0.174	2.3	-26.39	32.4	30.6	72.4
20	0.123	1.1	-29.40	22.9	21.5	75.2
25	0.090	0.6	-32.11	16.8	15.2	75.9
30	0.214	3.5	-24.59	39.9	34.5	63.1
35	0.245	4.6	-23.41	45.6	37.4	56.8
40	0.191	2.8	-25.58	35.6	27.3	60.1
45	0.097	0.7	-31.46	18.1	12.8	70.2
50	0.009	0.0	-52.11	1.7	1.1	81.7
55	0.050	0.2	-37.22	9.3	5.3	75.4
60	0.080	0.5	-33.14	14.9	7.5	70.1
65	0.075	0.4	-33.70	14.0	5.9	70.3
70	0.068	0.4	-34.55	12.7	4.3	71.1
75	0.053	0.2	-36.71	9.9	2.6	73.5
80	0.037	0.1	-39.83	6.9	1.2	76.2
85	0.020	0.0	-45.18	3.7	0.3	79.3
90	0.009	0.0	-52.11	1.7	0.0	81.3
<b>WORST CASE HEIGHT AGL (m)</b>						<b>56.8</b>



**§74.1204(d) Contour Protection Study**  
**Table 3: K291CH vs. KYKX - Regions Bank Study**

Antenna: BEXT TFC2K- 4 Bay/0.65-Wave ERP (watts): 250  
 Protected Contour at tower - F(50,50): 70.32 dBu RC-AGL (m): 83  
 Interference Ratio: 40 dB Relative field at Azimuth: 0.998  
 Interference Contour - F(50,10): 110.32 dBu ERP (watts) at Azimuth: 249.001

DEPRESSION ANGLE	RELATIVE FIELD	ERP (WATTS)	dBk	DISTANCE (m)		
				Contour	Horizontal	AGL
0	1.000	249.0	-6.04	337.4	337.4	83.0
5	0.907	204.8	-6.89	306.0	304.8	56.3
10	0.667	110.8	-9.56	225.0	221.6	43.9
<b>11</b>	<b>0.611</b>	<b>93.0</b>	<b>-10.32</b>	<b>206.1</b>	<b>202.3</b>	<b>43.7</b>
12	0.553	76.1	-11.18	186.6	182.5	44.2
13	0.510	64.8	-11.89	172.1	167.6	44.3
14	0.451	50.6	-12.95	152.2	147.6	46.2
15	0.393	38.5	-14.15	132.6	128.1	48.7
20	0.123	3.8	-24.24	41.5	39.0	68.8
25	0.090	2.0	-26.95	30.4	27.5	70.2
30	0.214	11.4	-19.43	72.2	62.5	46.9
35	0.245	14.9	-18.25	82.7	67.7	35.6
40	0.191	9.1	-20.42	64.4	49.4	41.6
45	0.097	2.3	-26.30	32.7	23.1	59.9
50	0.009	0.0	-46.95	3.0	2.0	80.7
55	0.050	0.6	-32.06	16.9	9.7	69.2
60	0.080	1.6	-27.98	27.0	13.5	59.6
65	0.075	1.4	-28.54	25.3	10.7	60.1
70	0.068	1.2	-29.39	22.9	7.8	61.4
75	0.053	0.7	-31.55	17.9	4.6	65.7
80	0.037	0.3	-34.67	12.5	2.2	70.7
85	0.020	0.1	-40.02	6.7	0.6	76.3
90	0.009	0.0	-46.95	3.0	0.0	80.0
<b>WORST CASE HEIGHT AGL (m)</b>						<b>35.6</b>



**§74.1204(d) Contour Protection Study**  
**Table 4: K291CH vs. KYKX - Smith County Office Study**

Antenna: BEXT TFC2K- 4 Bay/0.65-Wave ERP (watts): 250  
 Protected Contour at tower - F(50,50): 70.32 dBu RC-AGL (m): 83  
 Interference Ratio: 40 dB Relative field at Azimuth: 0.629  
 Interference Contour - F(50,10): 110.32 dBu ERP (watts) at Azimuth: 98.91025

DEPRESSION ANGLE	RELATIVE FIELD	ERP (WATTS)	dBk	DISTANCE (m)		
				Contour	Horizontal	AGL
0	1.000	98.9	-10.05	212.6	212.6	83.0
5	0.907	81.4	-10.90	192.9	192.1	66.2
10	0.667	44.0	-13.57	141.8	139.7	58.4
15	0.393	15.3	-18.16	83.6	80.7	61.4
20	0.123	1.5	-28.25	26.2	24.6	74.1
25	0.090	0.8	-30.96	19.1	17.3	74.9
30	0.214	4.5	-23.44	45.5	39.4	60.2
35	0.245	5.9	-22.26	52.1	42.7	53.1
40	0.191	3.6	-24.43	40.6	31.1	56.9
45	0.097	0.9	-30.31	20.6	14.6	68.4
50	0.009	0.0	-50.96	1.9	1.2	81.5
55	0.050	0.2	-36.07	10.6	6.1	74.3
60	0.080	0.6	-31.99	17.0	8.5	68.3
65	0.075	0.6	-32.55	15.9	6.7	68.5
70	0.068	0.5	-33.40	14.5	4.9	69.4
75	0.053	0.3	-35.56	11.3	2.9	72.1
80	0.037	0.1	-38.68	7.9	1.4	75.3
85	0.020	0.0	-44.03	4.3	0.4	78.8
90	0.009	0.0	-50.96	1.9	0.0	81.1
<b>WORST CASE HEIGHT AGL (m)</b>						<b>53.1</b>

