

## **KVEA Application for Post-Repack Construction Permit**

**June 15, 2017**

### Engineering Exhibit

The purpose of this application is to request authority to construct a post-repack broadcast facility for operation on channel 25 for KVEA, Corona, CA, Facility ID 19783, licensed to NBC Telemundo License LLC.

This application specifies the same location, at the same height, on the same tower, currently authorized for KVEA. HAAT was reduced from 911m to 901m to match TVStudy computed output. The effective radiated power matches that in the post-repack allocation. The facility's contour will not exceed the authorized post-repack contour by more than 1% in any direction and will not cause new interference above 0.5% to any other station when studied using the horizontal plane antenna pattern provided with this application.

This application was studied using a horizontal plane azimuth pattern created using the methods described in FCC Rules Section 73.625, otherwise use of individual azimuth and elevation patterns in TVStudy will cause the 1% contour extension test to fail. This will also cause the 0.5% new interference tests to fail when compared with adjacent channel stations using their horizontal plane antenna patterns.

### Antenna System

The authorized pre-repack KVEA facility uses an antenna with a combination of electrical and mechanical beam tilt. The post-repack contour was based on the contour derived from the horizontal-plane pattern of the existing antenna. A similar combination was required to replicate this contour. The move from channel 39 to channel 25 mandated selection of an antenna with lower elevation gain to stay within existing height limits. As a result after retaining the same azimuth pattern and same electrical beam tilt the amount of mechanical tilt had to be increased to 0.8 degrees at the same azimuth (245 degrees) to match the assigned contour.

Tabular and plotted antenna data, including depression angle calculations to the radio horizon required by FCC rules Section 73.625, is attached.

The antenna will be elliptically polarized. As shown in the main beam azimuth plots in the attached 73.625(c) data, the vertically polarized effective radiated power does not exceed the horizontally polarized effective radiated power in any direction.

The height above average terrain data used for the depression angle calculations was generated using the TVStudy 2.2.2 ptelev utility with 360 radials selected and the default terrain database.

## **KVEA Application for Post-Repack Construction Permit**

**June 15, 2017**

### Environmental Statement

The requested facility will replace an existing antenna located in an antenna farm at a site shared by other broadcasters. No new tower construction or increase in height is required for this application.

RF power density from the facility using combined horizontal and vertically polarized ERP was calculated using the procedures described in FCC Office of Engineering and Technology Bulletin 65. The maximum power density at locations accessible to the general public, including observatory facilities at Mt. Wilson, does not exceed 0.6% of the public exposure limit for an uncontrolled environment as specified in FCC rule §1.1310.

The site is located on steep terrain, is protected by gates and is not accessible to the general public. Maximum RF power density on the ground from the proposed facility at the site is calculated to be 0.021 mW/cm<sup>2</sup>, or 5.7% of the public exposure limit for an uncontrolled environment as specified in FCC rule §1.1310.

Power will be reduced or shut off as required to protect workers on the tower or on adjacent towers from RF exposure above the limits specified in FCC rule §1.1310.

### Broadcast Facility

The facility proposed in this application provides similar coverage to the current authorized facility and matches, within the limits allowed, the post-repack facility assigned by the FCC.

Doug Lung  
June 15, 2017

**KVEA Application for Post-Repack Construction Permit****73.625(c) Data  
June 15, 2017****AZIMUTH PATTERN (Horizontal Plane – Horiz. Pol.): Dielectric TFU-18ETT/VP-R 4C160****Electrical Beam Tilt: 1.80°****Mechanical Beam Tilt: 0.80° at 245°****Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.60 (2.04 dBd)****Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 748.0 kW 28.74 dBk****Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 374.0 kW 25.73 dBk****Tabulation of Horizontal *Plane* Azimuth Pattern (Horizontal polarization)**

Angle	RF	dBk	ERP kW
0	0.222	15.7	36.9
10	0.274	17.5	56.2
20	0.288	17.9	62.0
30	0.256	16.9	49.0
40	0.209	15.1	32.7
50	0.271	17.4	54.9
60	0.471	22.2	165.9
70	0.696	25.6	362.3
80	0.864	27.5	558.4
90	0.963	28.4	693.7
100	1.000	28.7	748.0
110	0.991	28.7	734.6
120	0.958	28.4	686.5
130	0.920	28.0	633.1
140	0.871	27.5	567.5
150	0.798	26.8	476.3
160	0.717	25.8	384.5
170	0.652	25.0	318.0
180	0.622	24.6	289.4
190	0.600	24.3	269.3
200	0.550	23.5	226.3
210	0.483	22.4	174.5
220	0.428	21.4	137.0
230	0.397	20.7	117.9
240	0.376	20.2	105.7
250	0.386	20.5	111.4
260	0.429	21.4	137.7
270	0.471	22.2	165.9
280	0.511	22.9	195.3
290	0.540	23.4	218.1
300	0.546	23.5	223.0
310	0.510	22.9	194.6
320	0.429	21.4	137.7
330	0.310	18.6	71.9
340	0.195	14.5	28.4
350	0.166	13.1	20.6

**Maximum**

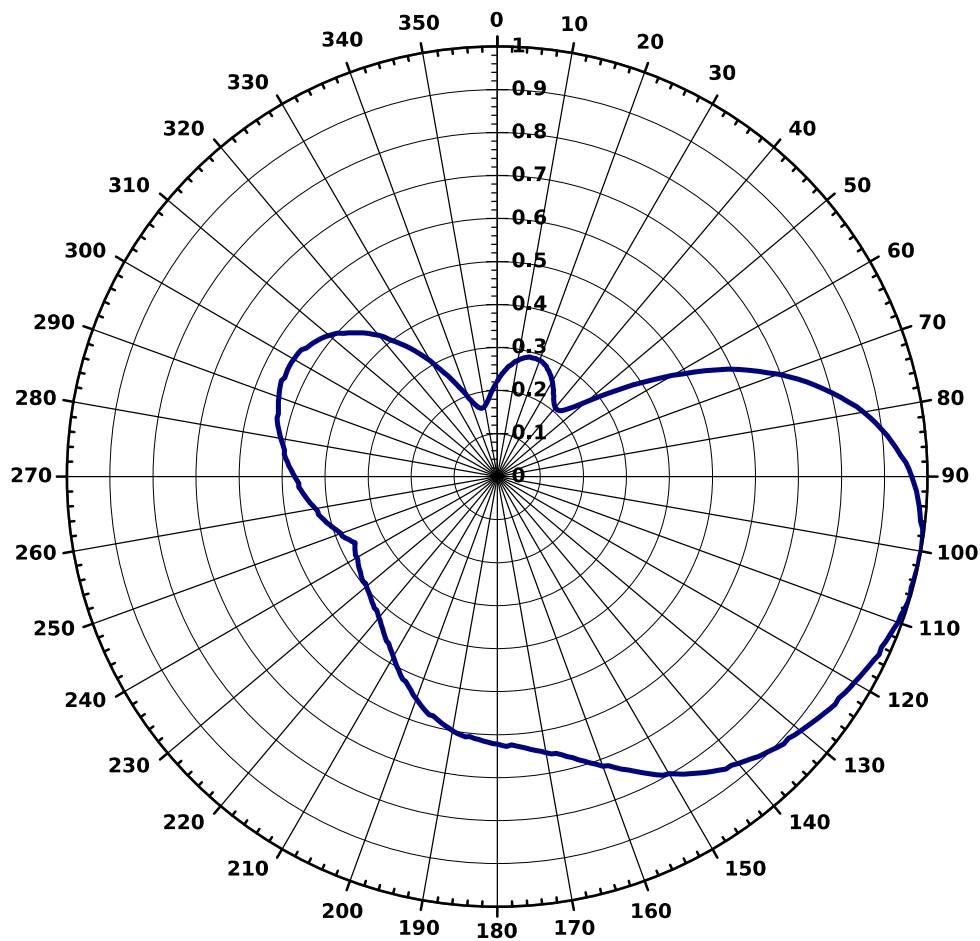
Angle	RF	dBk	ERP kW
18	0.291	18.0	63.3
100	1.000	28.7	748.0
102	1.000	28.7	748.0
298	0.547	23.5	297.8

**Minimum**

Angle	RF	dBk	ERP kW
41	0.209	15.1	32.1
245	0.364	20.0	176.7
348	0.163	13.0	21.4

**AZIMUTH PATTERN (Horizontal Plane – Horiz. Pol.): Dielectric TFU-18ETT/VP-R 4C160**

Electrical Beam Tilt: 1.80°      Mechanical Beam Tilt: 0.80° at 245°  
Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak)      1.60      (2.04 dBd)  
Maximum Main Beam H-Pol. Effective Radiated Power (ERP):      748.0 kW      28.74 dBk  
Maximum Main Beam V-Pol. Effective Radiated Power (ERP):      374.0 kW      25.73 dBk

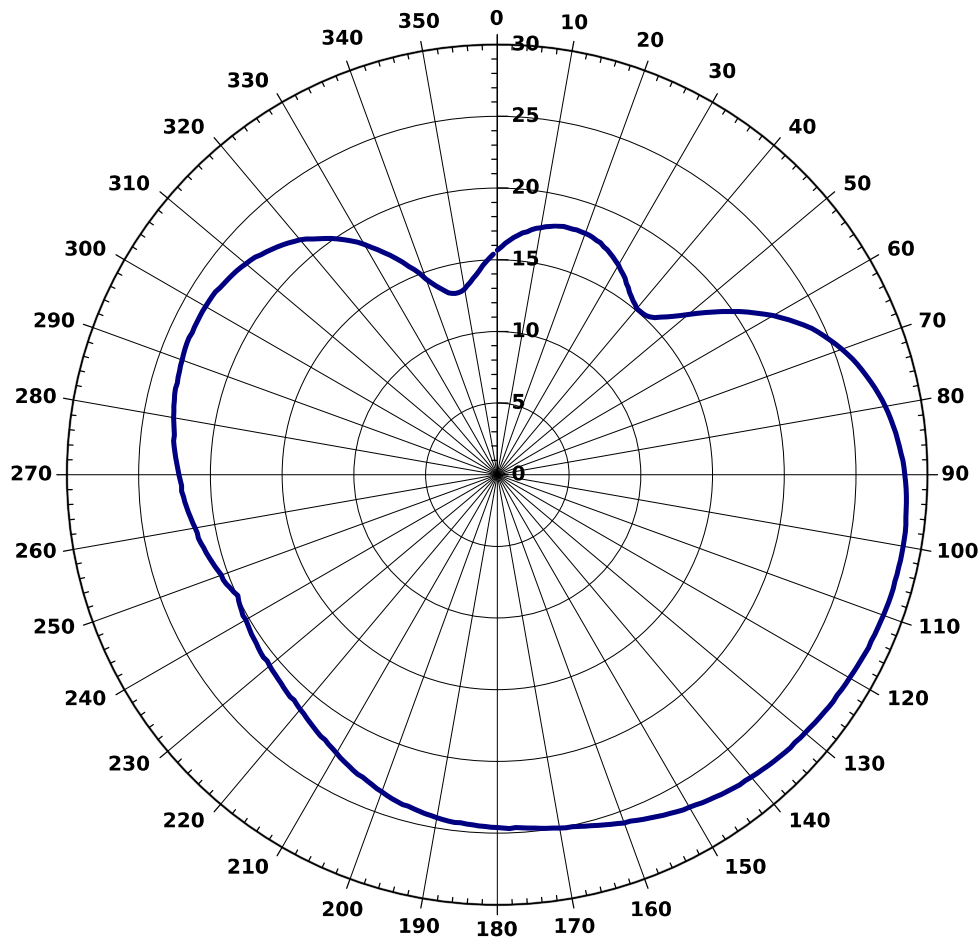
**AZIMUTH PATTERN RELATIVE FIELD – HORIZONTAL PLANE**

Blue plot shows horizontal plane azimuth pattern relative field at horizontal polarization

**AZIMUTH PATTERN (Horizontal Plane – Horiz. Pol.): Dielectric TFU-18ETT/VP-R 4C160**

Electrical Beam Tilt: 1.80°      Mechanical Beam Tilt: 0.80° at 245°  
Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak)      1.60      (2.04 dBd)  
Maximum Main Beam H-Pol. Effective Radiated Power (ERP):      748.0 kW      28.74 dBk  
Maximum Main Beam V-Pol. Effective Radiated Power (ERP):      374.0 kW      25.73 dBk

**AZIMUTH PATTERN ERP (dBk) – HORIZONTAL PLANE**



Blue plot shows effective radiated power (dBk) at horizontal polarization

**KVEA Application for Post-Repack Construction Permit****73.625(c) Data  
June 15, 2017****AZIMUTH PATTERN (Main Beam – Horiz. Pol.): Dielectric TFU-18ETT/VP-R 4C160****Main beam axis of symmetry: 195° true****Electrical Beam Tilt: 1.80° Mechanical Beam Tilt: 0.80° at 245°****Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.60 (2.04 dBd)****Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 748.0 kW 28.74 dBk****Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 374.0 kW 25.73 dBk****Tabulation of Main Beam Azimuth Pattern (Horizontal polarization)**

Angle	RF	dBk	ERP kW
0	0.241	16.4	43.4
10	0.283	17.8	59.9
20	0.283	17.8	59.9
30	0.241	16.4	43.4
40	0.190	14.3	27.0
50	0.237	16.2	42.0
60	0.399	20.8	119.1
70	0.590	24.2	260.4
80	0.756	26.3	427.5
90	0.874	27.6	571.4
100	0.943	28.2	665.2
110	0.975	28.5	711.1
120	0.988	28.6	730.2
130	0.998	28.7	745.0
140	0.997	28.7	743.5
150	0.970	28.5	703.8
160	0.922	28.0	635.9
170	0.898	27.8	603.2
180	0.922	28.0	635.9
190	0.960	28.4	689.4
200	0.960	28.4	689.4
210	0.922	28.0	635.9
220	0.898	27.8	603.2
230	0.922	28.0	635.9
240	0.970	28.5	703.8
250	0.997	28.7	743.5
260	0.998	28.7	745.0
270	0.989	28.6	731.6
280	0.975	28.5	711.1
290	0.943	28.2	665.2
300	0.874	27.6	571.4
310	0.756	26.3	427.5
320	0.590	24.2	260.4
330	0.399	20.8	119.1
340	0.237	16.2	42.0
350	0.190	14.3	27.0

**Maximum**

Angle	RF	dBk	ERP kW
15	0.289	18.0	62.5
154	0.980	28.6	718.4
195	0.966	28.4	698.0
255	1.000	28.7	748.0

**Minimum**

Angle	RF	dBk	ERP kW
42	0.188	14.2	26.4
170	0.898	27.8	603.2
220	0.898	27.8	603.2
348	0.188	14.2	26.4

**AZIMUTH PATTERN (Main Beam): Dielectric TFU-18ETT/VP-R 4C160**

Main beam axis of symmetry: 195° true

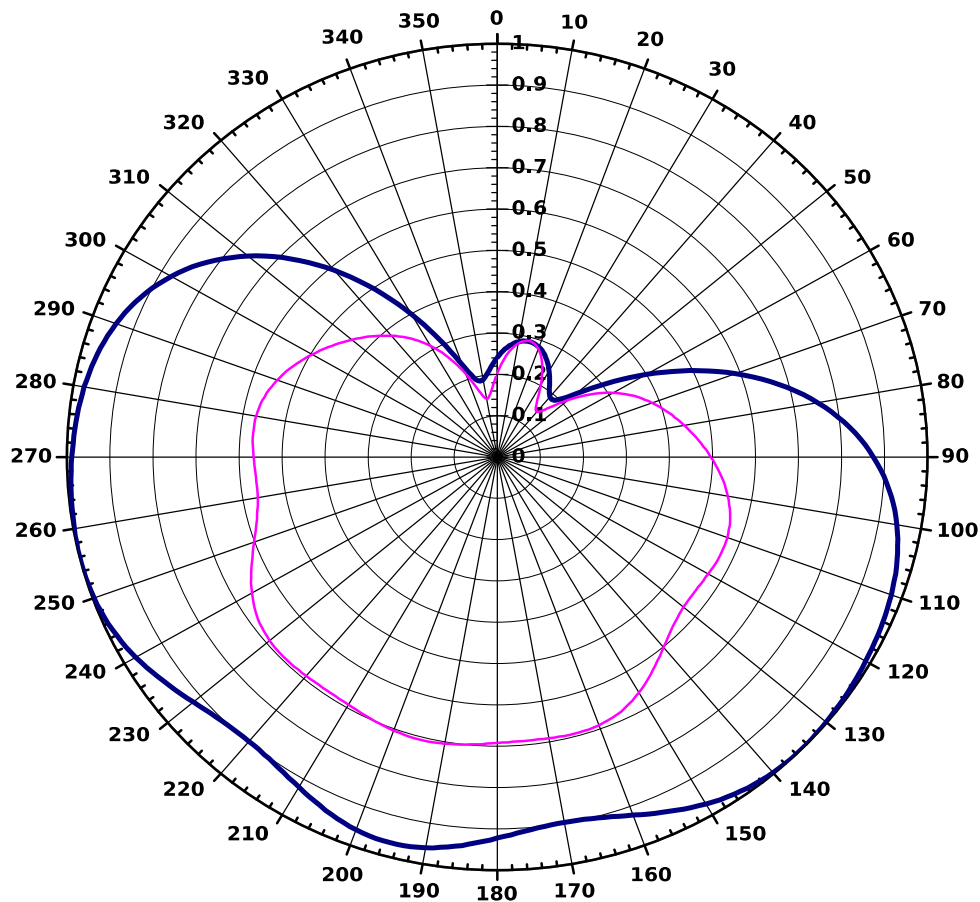
Electrical Beam Tilt: 1.80°

Mechanical Beam Tilt: 0.80° at 245°

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.60 (2.04 dBd)

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 748.0 kW 28.74 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 374.0 kW 25.73 dBk

**AZIMUTH PATTERN RELATIVE FIELD**

Blue plot shows azimuth pattern relative field at horizontal polarization

Magenta plot shows azimuth pattern relative field at vertical polarization

# KVEA Application for Post-Repack Construction Permit

73.625(c) Data  
June 15, 2017

## AZIMUTH PATTERN (Main Beam): Dielectric TFU-18ETT/VP-R 4C160

Main beam axis of symmetry: 195° true

Electrical Beam Tilt: 1.80°

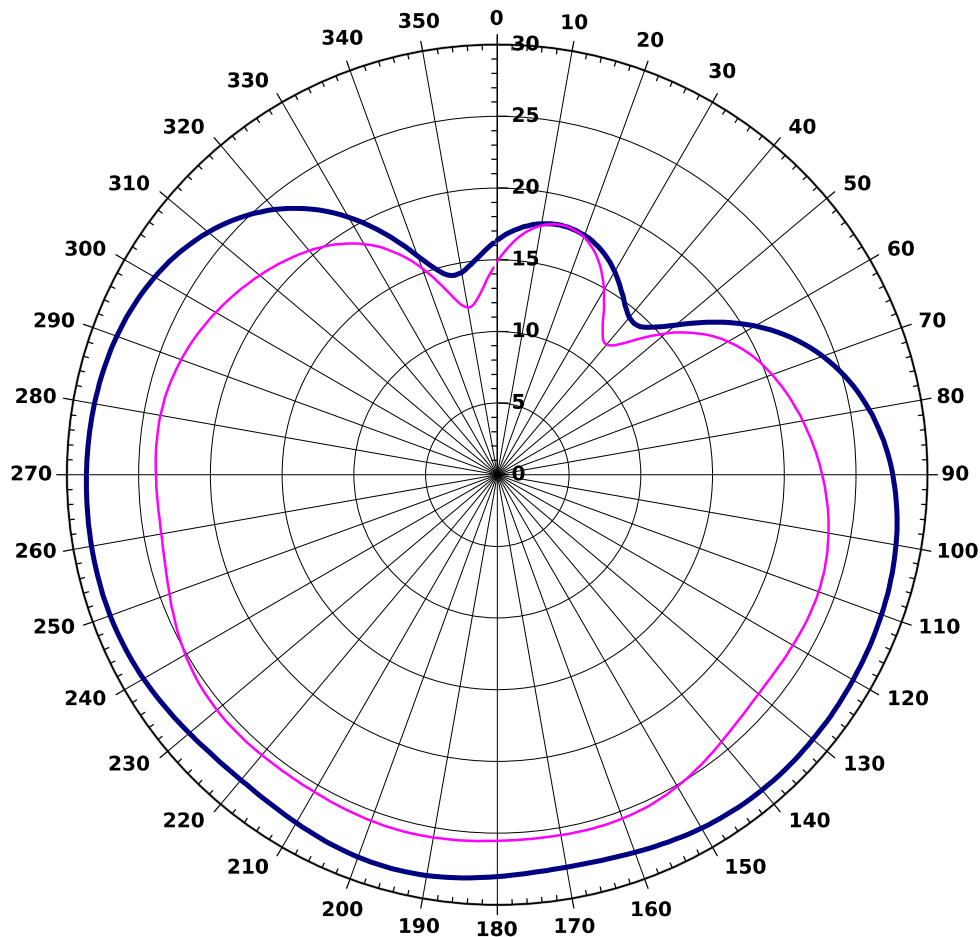
Mechanical Beam Tilt: 0.80° at 245°

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.60 (2.04 dBd)

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 748.0 kW 28.74 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 374.0 kW 25.73 dBk

## AZIMUTH PATTERN ERP (dBk)



Blue plot shows effective radiated power (dBk) at horizontal polarization

Magenta plot shows effective radiated power (dBk) at vertical polarization



# KVEA Application for Post-Repack Construction Permit

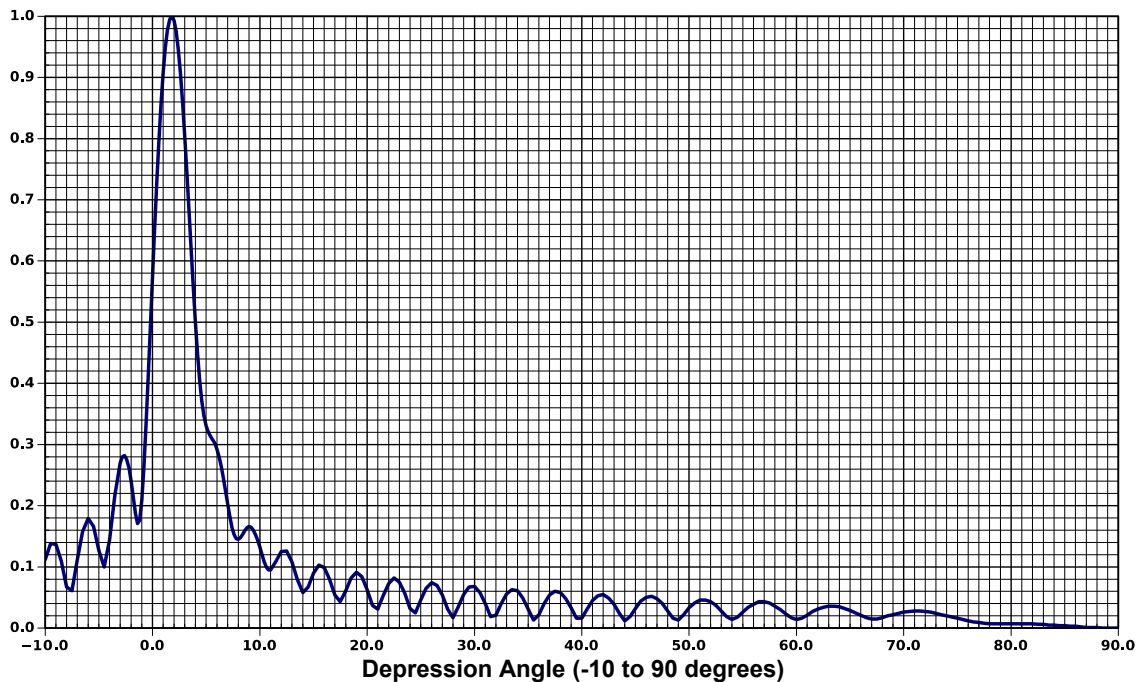
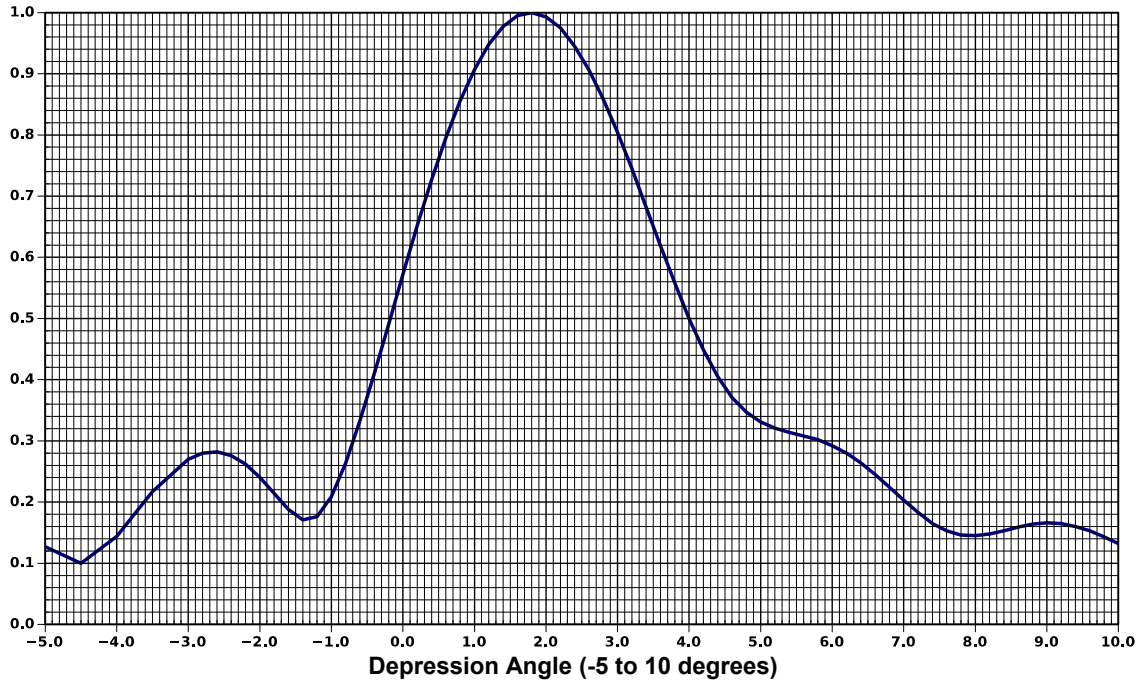
73.625(c) Data  
June 15, 2017

## ELEVATION PATTERN Dielectric TFU-18ETT/VP-R 4C160

Electrical Beam Tilt: 1.80° Mechanical Beam Tilt: 0.80° at 245°

Calculated Maximum Elevation Gain	:	16.70	12.23 dBd
RMS Gain at Horizontal (H polarization):		5.50	7.40 dBd
Maximum Main Beam H-Pol. Effective Radiated Power (ERP):		748.0 kW	28.74 dBk
Maximum Main Beam V-Pol. Effective Radiated Power (ERP):		374.0 kW	25.73 dBk

### Relative Field



# KVEA Application for Post-Repack Construction Permit

73.625(c) Data  
June 15, 2017

## ELEVATION PATTERN Dielectric TFU-18ETT/VP-R 4C160

Electrical Beam Tilt: 1.80° Mechanical Beam Tilt: 0.80° at 245°

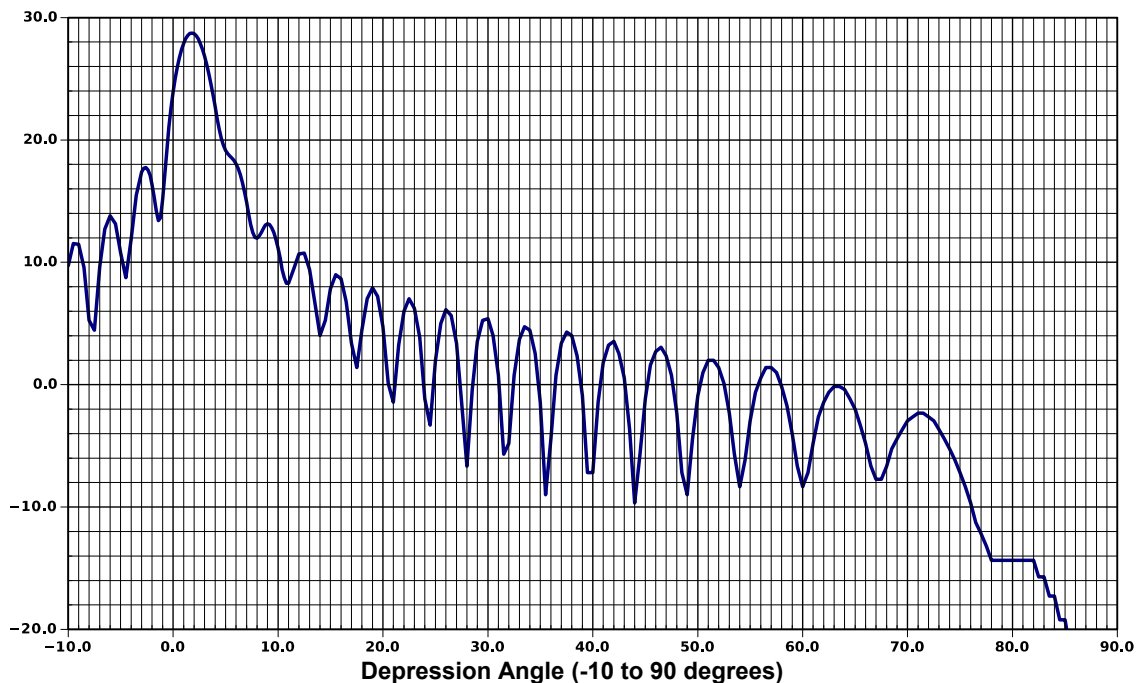
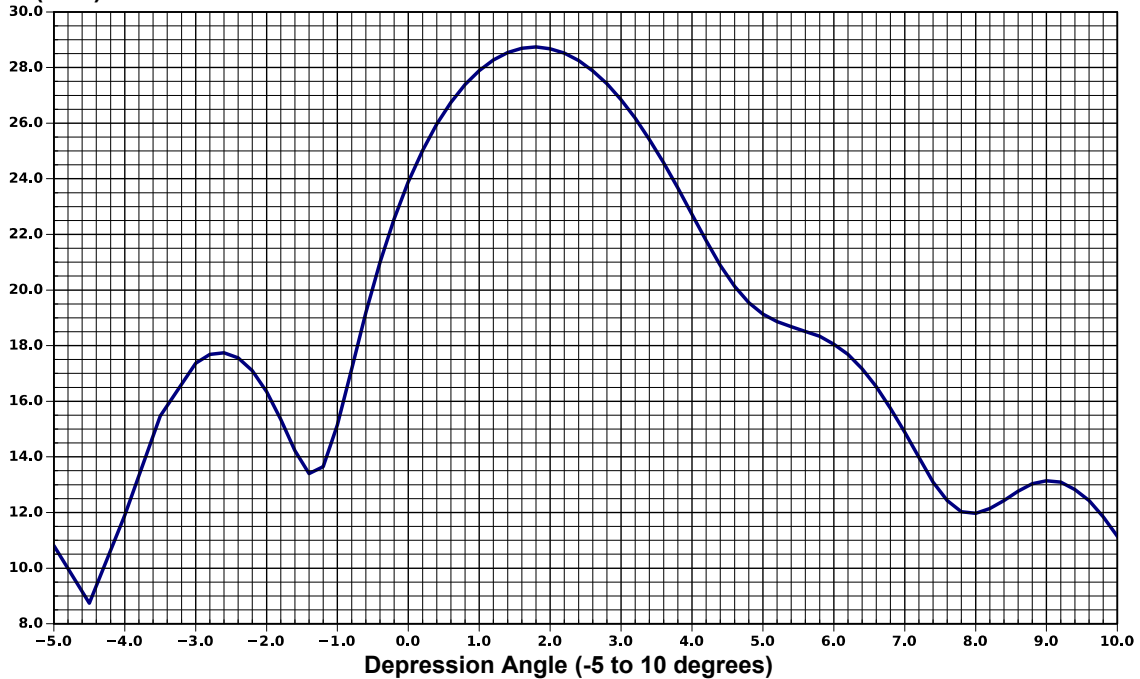
Calculated Maximum Elevation Gain : 16.70 12.23 dBd

RMS Gain at Horizontal (H polarization): 5.50 7.40 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 748.0 kW 28.74 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 374.0 kW 25.73 dBk

ERP (dBk):



# KVEA Application for Post-Repack Construction Permit

73.625(c) Data  
June 15, 2017

## ELEVATION PATTERN Dielectric TFU-18ETT/VP-R 4C160

Electrical Beam Tilt: 1.80° Mechanical Beam Tilt: 0.80° at 245°

Calculated Maximum Elevation Gain : 16.70 12.23 dBd

RMS Gain at Horizontal (H polarization): 5.50 7.40 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP): 748.0 kW 28.74 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 374.0 kW 25.73 dBk

## Elevation Pattern Relative Field Tabulation

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.112	1.2	0.948	8.2	0.148	21.5	0.053	39.0	0.033	56.5	0.043	74.0	0.020
-9.5	0.138	1.4	0.977	8.4	0.153	22.0	0.073	39.5	0.016	57.0	0.043	74.5	0.018
-9.0	0.137	1.6	0.995	8.6	0.159	22.5	0.082	40.0	0.016	57.5	0.041	75.0	0.016
-8.5	0.110	1.8	1.000	8.8	0.164	23.0	0.075	40.5	0.031	58.0	0.036	75.5	0.014
-8.0	0.067	2.0	0.993	9.0	0.166	23.5	0.057	41.0	0.045	58.5	0.030	76.0	0.012
-7.5	0.061	2.2	0.975	9.2	0.165	24.0	0.032	41.5	0.053	59.0	0.023	76.5	0.010
-7.0	0.111	2.4	0.945	9.4	0.160	24.5	0.025	42.0	0.055	59.5	0.017	77.0	0.009
-6.5	0.158	2.6	0.906	9.6	0.153	25.0	0.046	42.5	0.049	60.0	0.014	77.5	0.008
-6.0	0.179	2.8	0.859	9.8	0.143	25.5	0.065	43.0	0.039	60.5	0.016	78.0	0.007
-5.5	0.166	3.0	0.804	10.0	0.132	26.0	0.074	43.5	0.024	61.0	0.021	78.5	0.007
-5.0	0.127	3.2	0.745	10.2	0.120	26.5	0.070	44.0	0.012	61.5	0.027	79.0	0.007
-4.5	0.100	3.4	0.682	10.4	0.108	27.0	0.054	44.5	0.019	62.0	0.031	79.5	0.007
-4.0	0.144	3.6	0.619	10.6	0.100	27.5	0.031	45.0	0.032	62.5	0.034	80.0	0.007
-3.5	0.217	3.8	0.558	10.8	0.095	28.0	0.017	45.5	0.044	63.0	0.036	80.5	0.007
-3.0	0.270	4.0	0.500	11.0	0.095	28.5	0.035	46.0	0.050	63.5	0.036	81.0	0.007
-2.8	0.280	4.2	0.449	11.5	0.109	29.0	0.055	46.5	0.052	64.0	0.035	81.5	0.007
-2.6	0.282	4.4	0.405	12.0	0.125	29.5	0.067	47.0	0.048	64.5	0.032	82.0	0.007
-2.4	0.276	4.6	0.371	12.5	0.126	30.0	0.068	47.5	0.040	65.0	0.029	82.5	0.006
-2.2	0.262	4.8	0.347	13.0	0.108	30.5	0.058	48.0	0.028	65.5	0.025	83.0	0.006
-2.0	0.240	5.0	0.331	13.5	0.080	31.0	0.040	48.5	0.016	66.0	0.021	83.5	0.005
-1.8	0.214	5.2	0.321	14.0	0.058	31.5	0.019	49.0	0.013	66.5	0.017	84.0	0.005
-1.6	0.188	5.4	0.314	14.5	0.067	32.0	0.021	49.5	0.022	67.0	0.015	84.5	0.004
-1.4	0.171	5.6	0.308	15.0	0.090	32.5	0.040	50.0	0.033	67.5	0.015	85.0	0.004
-1.2	0.176	5.8	0.302	15.5	0.103	33.0	0.056	50.5	0.041	68.0	0.017	85.5	0.003
-1.0	0.209	6.0	0.292	16.0	0.099	33.5	0.063	51.0	0.046	68.5	0.020	86.0	0.003
-0.8	0.264	6.2	0.280	16.5	0.080	34.0	0.061	51.5	0.046	69.0	0.022	86.5	0.002
-0.6	0.333	6.4	0.264	17.0	0.054	34.5	0.049	52.0	0.043	69.5	0.024	87.0	0.001
-0.4	0.410	6.6	0.245	17.5	0.043	35.0	0.031	52.5	0.037	70.0	0.026	87.5	0.001
-0.2	0.491	6.8	0.224	18.0	0.061	35.5	0.013	53.0	0.028	70.5	0.027	88.0	0.001
0.0	0.572	7.0	0.203	18.5	0.082	36.0	0.022	53.5	0.019	71.0	0.028	88.5	0.000
0.2	0.652	7.2	0.183	19.0	0.091	36.5	0.040	54.0	0.014	71.5	0.028	89.0	0.000
0.4	0.727	7.4	0.165	19.5	0.084	37.0	0.054	54.5	0.018	72.0	0.027	89.5	0.000
0.6	0.795	7.6	0.153	20.0	0.063	37.5	0.060	55.0	0.026	72.5	0.026	90.0	0.000
0.8	0.856	7.8	0.146	20.5	0.037	38.0	0.058	55.5	0.034	73.0	0.024		
1.0	0.907	8.0	0.145	21.0	0.031	38.5	0.048	56.0	0.039	73.5	0.022		

# KVEA Application for Post-Repack Construction Permit

**73.625(c) Data  
June 15, 2017**

## CALCULATIONS REQUIRED BY SECTIONS 73.625(b) and 73.625(c)

Calculated depression angle, relative field and effective radiated power at radio horizon

Electrical Beam Tilt: 1.80° Mechanical Beam Tilt: 0.80° at 245°

Azimuth	Antenna HAAT (meters)	Depression angle to radio horiz.	Antenna mechanical Tilt @ az.	Antenna angle to radio horiz.	Antenna elev. rel. field		Azimuth main beam rel. field	Towards Radio Horizon			At horizontal plane		
					at angle to radio horiz	calc per 73.625(b)(2)		Rel. field	ERP (kW)	ERP (dBk)	Rel. field	ERP (kW)	ERP (dBk)
0	372.9	0.53	-0.22	0.31	0.694	0.694	0.241	0.203	30.8	14.88	0.222	36.9	15.67
5	454.9	0.59	-0.27	0.32	0.697	0.697	0.266	0.232	40.3	16.05	0.252	47.6	16.78
10	374.4	0.54	-0.31	0.23	0.663	0.663	0.283	0.246	45.3	16.56	0.274	56.3	17.51
15	284.2	0.47	-0.36	0.11	0.617	0.617	0.289	0.250	46.7	16.69	0.288	61.9	17.92
18	258.9	0.45	-0.38	0.07	0.601	0.601	0.287	0.248	46.0	16.63	0.289	62.3	17.95
20	245.0	0.43	-0.40	0.03	0.584	0.584	0.283	0.245	44.7	16.51	0.288	61.9	17.91
25	244.2	0.43	-0.44	-0.01	0.568	0.568	0.266	0.233	40.5	16.08	0.276	56.8	17.54
30	300.4	0.48	-0.49	-0.01	0.568	0.568	0.241	0.217	35.2	15.46	0.256	48.8	16.89
35	363.5	0.53	-0.53	0.00	0.572	0.572	0.212	0.195	28.5	14.54	0.229	39.1	15.93
40	407.4	0.56	-0.58	-0.02	0.564	0.564	0.190	0.178	23.7	13.75	0.209	32.8	15.16
41	400.1	0.55	-0.59	-0.04	0.556	0.556	0.189	0.177	23.4	13.70	0.209	32.7	15.15
42	399.3	0.55	-0.60	-0.05	0.552	0.552	0.188	0.176	23.3	13.67	0.209	32.7	15.14
45	384.3	0.54	-0.62	-0.08	0.540	0.540	0.195	0.183	25.2	14.01	0.218	35.7	15.53
50	499.5	0.62	-0.67	-0.05	0.552	0.552	0.237	0.228	38.9	15.90	0.271	54.8	17.39
55	540.9	0.64	-0.71	-0.07	0.544	0.544	0.310	0.301	67.7	18.31	0.360	96.7	19.86
60	670.3	0.72	-0.76	-0.04	0.556	0.556	0.399	0.393	115.7	20.63	0.471	165.9	22.20
65	733.8	0.75	-0.80	-0.05	0.552	0.552	0.495	0.491	180.2	22.56	0.592	262.4	24.19
70	841.0	0.80	-0.76	0.04	0.588	0.588	0.590	0.585	256.3	24.09	0.696	362.7	25.60
75	860.5	0.81	-0.71	0.10	0.613	0.613	0.678	0.671	336.6	25.27	0.786	462.7	26.65
80	718.8	0.74	-0.67	0.07	0.601	0.601	0.756	0.739	409.0	26.12	0.864	558.1	27.47
85	508.3	0.62	-0.62	0.00	0.572	0.572	0.822	0.785	460.4	26.63	0.921	634.2	28.02
90	645.2	0.70	-0.58	0.12	0.621	0.621	0.874	0.840	527.5	27.22	0.963	693.9	28.41
95	742.4	0.75	-0.53	0.22	0.660	0.660	0.914	0.878	576.9	27.61	0.986	727.4	28.62
100	831.3	0.80	-0.49	0.31	0.694	0.694	0.943	1.000	748.0	28.74	1.000	747.7	28.74
102	830.0	0.80	-0.47	0.33	0.701	0.701	0.952	1.000	748.0	28.74	1.000	748.0	28.74
105	869.9	0.82	-0.44	0.38	0.720	0.720	0.962	1.000	748.0	28.74	0.996	742.6	28.71
110	994.9	0.87	-0.40	0.47	0.752	0.752	0.975	1.000	748.0	28.74	0.991	734.3	28.66
115	1103.2	0.92	-0.36	0.56	0.782	0.782	0.983	1.000	748.0	28.74	0.979	716.3	28.55
120	1205.1	0.96	-0.31	0.65	0.811	0.811	0.988	1.000	748.0	28.74	0.958	686.5	28.37
125	1306.7	1.00	-0.27	0.73	0.836	0.836	0.994	1.000	748.0	28.74	0.943	664.9	28.23
130	1363.9	1.02	-0.22	0.80	0.856	0.856	0.998	1.000	748.0	28.74	0.920	633.3	28.02
135	1406.8	1.04	-0.18	0.86	0.872	0.872	1.000	1.000	748.0	28.74	0.900	606.5	27.83
140	1434.2	1.05	-0.13	0.92	0.888	0.888	0.997	1.000	748.0	28.74	0.871	566.9	27.54
145	1460.5	1.06	-0.09	0.97	0.900	0.900	0.987	1.000	748.0	28.74	0.840	527.8	27.22
150	1488.2	1.07	-0.04	1.03	0.914	1.000	0.970	1.000	748.0	28.74	0.798	476.1	26.78
154	1511.0	1.08	-0.01	1.07	0.922	1.000	0.951	0.881	581.1	27.64	0.766	438.7	26.42
155	1514.6	1.08	0.00	1.08	0.925	1.000	0.946	0.875	572.3	27.58	0.756	427.9	26.31
160	1506.8	1.08	0.04	1.12	0.933	1.000	0.922	0.844	533.3	27.27	0.717	384.0	25.84
165	1504.2	1.07	0.09	1.16	0.940	1.000	0.904	0.816	497.6	26.97	0.677	343.1	25.35
170	1508.5	1.08	0.13	1.21	0.950	1.000	0.898	0.804	483.2	26.84	0.652	318.3	25.03
175	1511.0	1.08	0.18	1.26	0.958	1.000	0.905	0.799	477.7	26.79	0.631	298.3	24.75
180	1507.8	1.08	0.22	1.30	0.964	1.000	0.922	0.804	483.7	26.85	0.622	289.8	24.62
185	1496.4	1.07	0.27	1.34	0.969	1.000	0.944	0.808	488.4	26.89	0.611	279.2	24.46
190	1498.9	1.07	0.31	1.38	0.974	1.000	0.960	0.811	491.5	26.92	0.600	269.0	24.30
195	1485.3	1.07	0.36	1.43	0.980	1.000	0.966	0.802	480.7	26.82	0.576	248.0	23.94
200	1483.3	1.07	0.40	1.47	0.985	1.000	0.960	0.785	460.6	26.63	0.550	226.4	23.55
205	1476.1	1.06	0.44	1.50	0.988	1.000	0.944	0.757	428.1	26.32	0.520	202.6	23.07
210	1458.5	1.06	0.49	1.55	0.992	1.000	0.922	0.724	391.9	25.93	0.483	174.6	22.42
215	1443.2	1.05	0.53	1.58	0.994	1.000	0.905	0.696	361.9	25.59	0.455	154.8	21.90
220	1423.3	1.05	0.58	1.63	0.996	1.000	0.898	0.675	340.7	25.32	0.428	136.7	21.36
225	1416.1	1.04	0.62	1.66	0.997	1.000	0.904	0.664	329.3	25.18	0.412	126.8	21.03
230	1391.7	1.03	0.67	1.70	0.999	1.000	0.922	0.657	322.5	25.09	0.397	117.7	20.71
235	1367.4	1.02	0.71	1.73	0.999	1.000	0.946	0.656	322.1	25.08	0.388	112.8	20.52
240	1354.2	1.02	0.76	1.78	1.000	1.000	0.970	0.655	320.5	25.06	0.376	105.7	20.24
245	1317.9	1.01	0.80	1.81	1.000	1.000	0.987	0.647	313.4	24.96	0.364	99.2	19.97
250	1286.7	0.99	0.76	1.75	1.000	1.000	0.997	0.661	327.2	25.15	0.386	111.6	20.48
255	1238.8	0.97	0.71	1.68	0.998	1.000	1.000	0.675	340.6	25.32	0.411	126.1	21.01
260	1209.2	0.96	0.67	1.63	0.996	1.000	0.998	0.685	350.8	25.45	0.429	137.9	21.40
265	1160.5	0.94	0.62	1.56	0.992	1.000	0.994	0.693	359.5	25.56	0.453	153.3	21.85

(continued on next page)

# KVEA Application for Post-Repack Construction Permit

73.625(c) Data  
June 15, 2017

## CALCULATIONS REQUIRED BY SECTIONS 73.625(b) and 73.625(c)

Calculated depression angle, relative field and effective radiated power at radio horizon

Electrical Beam Tilt: 1.80° Mechanical Beam Tilt: 0.80° at 245°

(Continued from previous page)

Azimuth	Antenna HAAT (meters)	Depression angle to radio horiz.	Antenna mechanical Tilt @ az.	Antenna angle to radio horiz.	Antenna elev. rel. field		Azimuth main beam rel. field	Towards Radio Horizon			At horizontal plane		
					at angle to radio horiz	calc per 73.625(b)(2)		Rel. field	ERP (kW)	ERP (dBk)	Rel. field	ERP (kW)	ERP (dBk)
270	1071.8	0.91	0.58	1.49	0.987	1.000	0.989	0.693	359.6	25.56	0.471	165.8	22.20
275	973.8	0.86	0.53	1.39	0.976	1.000	0.983	0.689	355.3	25.51	0.494	182.6	22.62
280	813.7	0.79	0.49	1.28	0.961	1.000	0.975	0.673	338.5	25.30	0.511	195.3	22.91
285	680.3	0.72	0.44	1.16	0.940	1.000	0.962	0.656	322.4	25.08	0.530	210.4	23.23
290	594.7	0.68	0.40	1.08	0.925	1.000	0.943	0.644	309.7	24.91	0.540	218.5	23.39
295	668.9	0.72	0.36	1.08	0.925	1.000	0.914	0.651	317.0	25.01	0.545	222.0	23.46
298	637.5	0.70	0.33	1.03	0.914	1.000	0.892	0.639	305.0	24.84	0.547	223.8	23.50
300	612.8	0.69	0.31	1.00	0.907	1.000	0.874	0.629	295.9	24.71	0.546	223.0	23.48
305	551.9	0.65	0.27	0.92	0.888	0.888	0.822	0.592	261.7	24.18	0.532	211.7	23.26
310	441.2	0.58	0.22	0.80	0.856	0.856	0.756	0.538	216.8	23.36	0.510	194.9	22.90
315	402.5	0.56	0.18	0.74	0.839	0.839	0.678	0.488	178.1	22.51	0.473	167.4	22.24
320	443.4	0.58	0.13	0.71	0.830	0.830	0.590	0.439	144.3	21.59	0.429	137.4	21.38
325	344.9	0.51	0.09	0.60	0.795	0.795	0.495	0.363	98.7	19.95	0.371	102.9	20.12
330	425.7	0.57	0.04	0.61	0.798	0.798	0.399	0.308	71.0	18.51	0.310	71.9	18.57
335	463.3	0.60	0.00	0.60	0.795	0.795	0.310	0.246	45.4	16.57	0.248	46.0	16.62
340	499.1	0.62	-0.04	0.58	0.788	0.788	0.237	0.193	27.9	14.45	0.195	28.4	14.54
345	464.3	0.60	-0.09	0.51	0.765	0.765	0.195	0.161	19.3	12.86	0.166	20.6	13.14
348	453.7	0.59	-0.12	0.47	0.752	0.752	0.188	0.156	18.2	12.60	0.163	19.9	12.99
350	453.4	0.59	-0.13	0.46	0.748	0.748	0.190	0.158	18.7	12.72	0.166	20.6	13.14
355	368.2	0.53	-0.18	0.35	0.708	0.708	0.211	0.175	22.9	13.61	0.190	27.0	14.31