

KVDA Application for Post-Repack Construction Permit

July 7, 2017

Engineering Exhibit

The purpose of this application is to request authority to construct a post-repack broadcast facility for operation on channel 15 for KVDA, San Antonio, TX, Facility ID 64969, licensed to NBC Telemundo License LLC.

This application specifies a side mount antenna location at a radiation center height of 615.1m AMSL, on an existing tower. The antenna will be located in aperture previously occupied by the KVDA analog antenna. The TVStudy computed HAAT of 451m at this location exceeds the current database HAAT of 414m and radiation center of 575m. The effective radiated power was reduced to 450 kW to offset the increase in HAAT. A TVStudy 2.2.2 analysis at 450 kW ERP and 451m HAAT showed the contour of the proposed facility 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.

Antenna System

The proposed facility will use a directional antenna with elliptical polarization. The proposed vertically polarized ERP is 225 kW. The vertically polarized ERP will not exceed the horizontally polarized ERP (450 kW) in any direction. Plots and tabulation of antenna data required by FCC Rules Section 73.625(c) are attached.

Environmental Statement

The requested facility will be installed on an existing tower located in an antenna farm. The proposed side mount antenna will not increase the height of the tower.

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 RF power density anywhere on the ground including extra heights of 10m for buildings and 2m for a person is calculated to be 0.001016 mw/cm² or 0.32% of the maximum permissible exposure (MPE) level of 0.319 mw/cm² at 479 MHz for an uncontrolled environment. At full power in the main beam of the antenna, RF power density is calculated to drop below the maximum public exposure level at distances greater than 218m and below the maximum permissible occupational (controlled environment) exposure level of 1.597 mw/cm² at distances greater than 98 meters from the tower. There are no other towers within these distances. Access to the tower site is restricted with fencing and a locked gate. KVDA will reduced power or shut off as required to protect workers on the tower 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 tolerances allowed, the post-repack facility assigned by the FCC.

Doug Lung
July 7, 2017

KVDA Application for Post-Repack Construction Permit**73.625(c)**
July 7, 2017**AZIMUTH PATTERN (H-Pol): Dielectric TFU-18JSC/VP-R 4C200****Main beam axis of symmetry: 315° true****Electrical Beam Tilt: 0.75****Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.91 (2.81 dBd)****Maximum Main Beam H-Pol. Effective Radiated Power (ERP) 450.0 kW 26.53 dBk****Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 225.0 kW 23.52 dBk****Tabulation of Azimuth Pattern (Horizontal polarization)**

Angle	RF	dBk	ERP kW
0	0.950	26.09	406.1
10	0.930	25.90	389.2
20	0.890	25.52	356.4
30	0.850	25.12	325.1
40	0.790	24.48	280.8
50	0.720	23.68	233.3
60	0.630	22.52	178.6
70	0.530	21.02	126.4
80	0.430	19.20	83.2
90	0.340	17.16	52.0
100	0.300	16.07	40.5
110	0.310	16.36	43.2
120	0.360	17.66	58.3
130	0.400	18.57	72.0
140	0.420	19.00	79.4
150	0.400	18.57	72.0
160	0.350	17.41	55.1
170	0.290	15.78	37.8
180	0.270	15.16	32.8
190	0.320	16.64	46.1
200	0.420	19.00	79.4
210	0.530	21.02	126.4
220	0.640	22.66	184.3
230	0.730	23.80	239.8
240	0.810	24.70	295.2
250	0.870	25.32	340.6
260	0.910	25.71	372.6
270	0.940	25.99	397.6
280	0.970	26.27	423.4
290	0.980	26.36	432.2
300	0.990	26.44	441.0
310	1.000	26.53	450.0
320	1.000	26.53	450.0
330	0.990	26.44	441.0
340	0.980	26.36	432.2
350	0.970	26.27	423.4

Maximum

Angle	RF	dBk	ERP kW
140	0.420	19.00	79.4
315	1.000	26.53	450.0

Minimum

Angle	RF	dBk	ERP kW
102	0.300	16.07	40.5
180	0.270	15.16	32.8

KVDA Application for Post-Repack Construction Permit

73.625(c)
July 7, 2017

AZIMUTH PATTERN (H-Pol): Dielectric TFU-18JSC/VP-R 4C200

Main beam axis of symmetry: 315° true

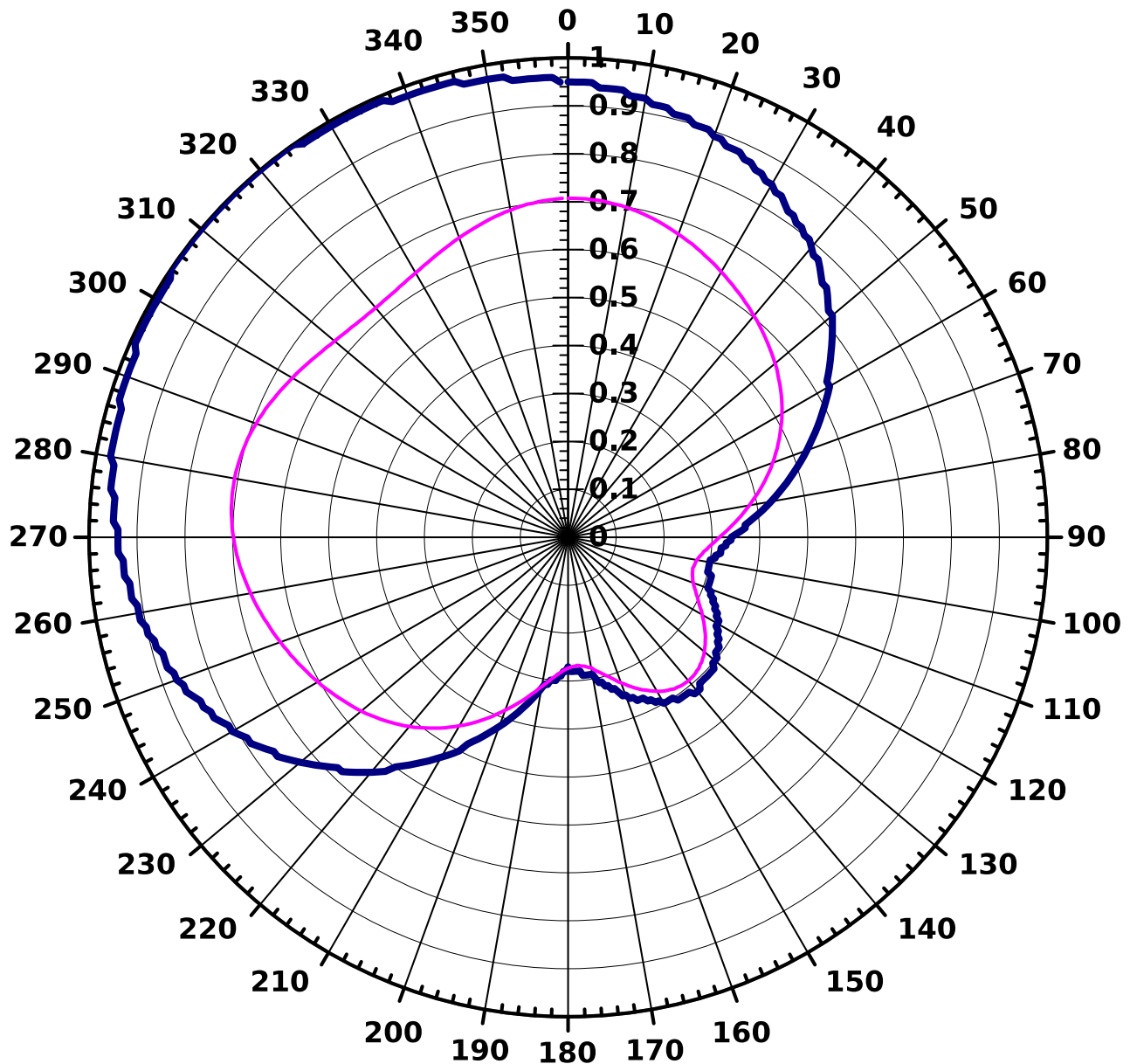
Electrical Beam Tilt: 0.75

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.91 (2.81 dBd)

Maximum Main Beam H-Pol. Effective Radiated Power (ERP) 450.0 kW 26.53 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 225.0 kW 23.52 dBk

AZIMUTH PATTERN RELATIVE FIELD



Blue plot shows azimuth pattern relative field for horizontal polarization
Red plot shows azimuth pattern relative field for vertical polarization

KVDA Application for Post-Repack Construction Permit

73.625(c)
July 7, 2017

AZIMUTH PATTERN (H-Pol): Dielectric TFU-18JSC/VP-R 4C200

Main beam axis of symmetry: 315° true

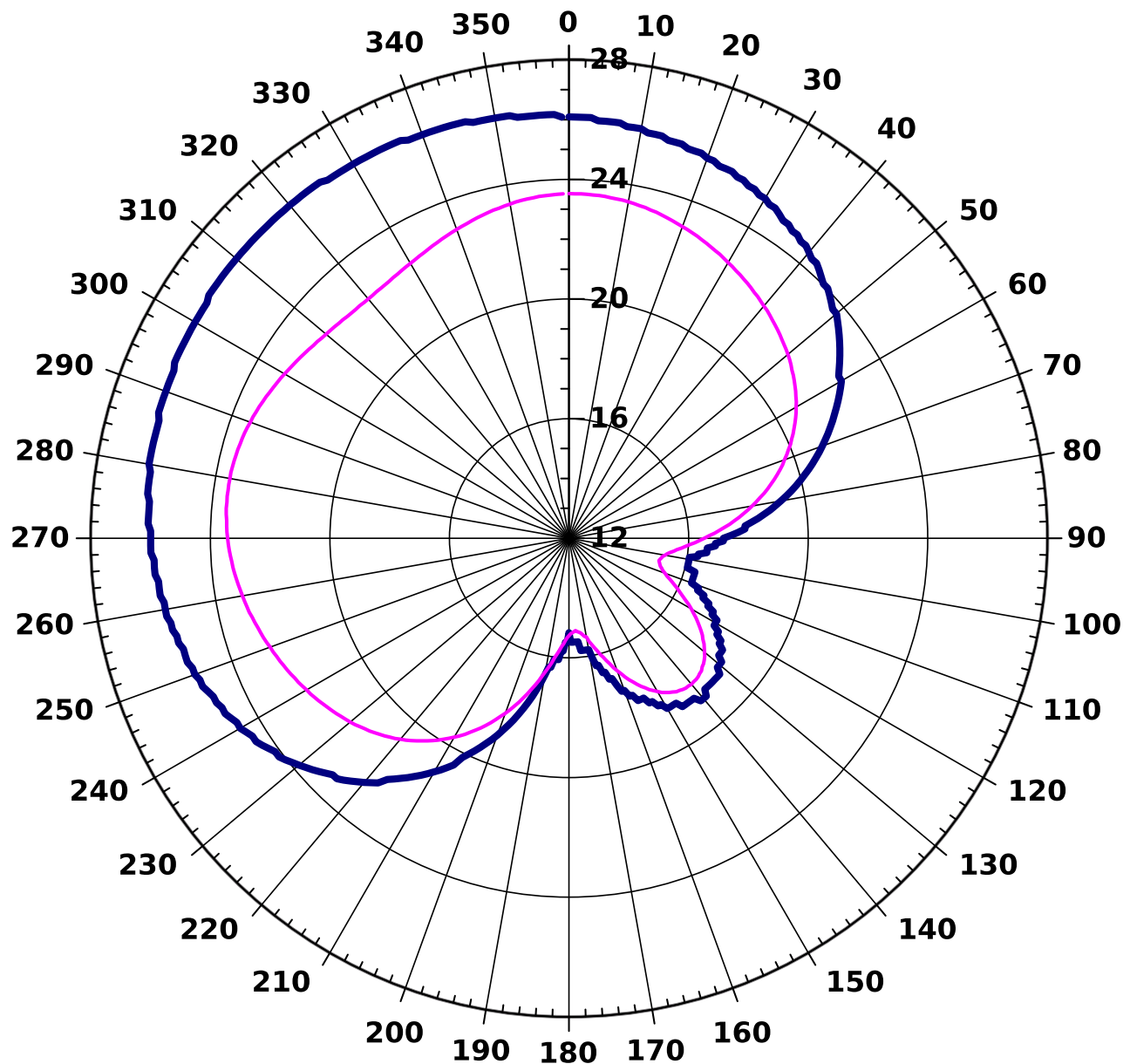
Electrical Beam Tilt: 0.75

Main Beam Calculated Max. H-pol Azimuth Pattern Gain (peak) 1.91 (2.81 dBd)

Maximum Main Beam H-Pol. Effective Radiated Power (ERP) 450.0 kW 26.53 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP): 225.0 kW 23.52 dBk

AZIMUTH PATTERN ERP (dBk)



Blue plot shows effective radiated power (dBk) for horizontal polarization
Red plot shows effective radiated power (dBk) for vertical polarization

KVDA Application for Post-Repack Construction Permit

73.625(c)
July 7, 2017

ELEVATION PATTERN Dielectric TFU-18JSC/VP-R 4C200

Electrical Beam Tilt: 0.75°

Calculated Maximum Elevation Gain (H + V polarization):

15.50

11.90 dBd

RMS Gain at Horizontal (H + V polarization):

13.30

11.24 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP)

450.0 kW

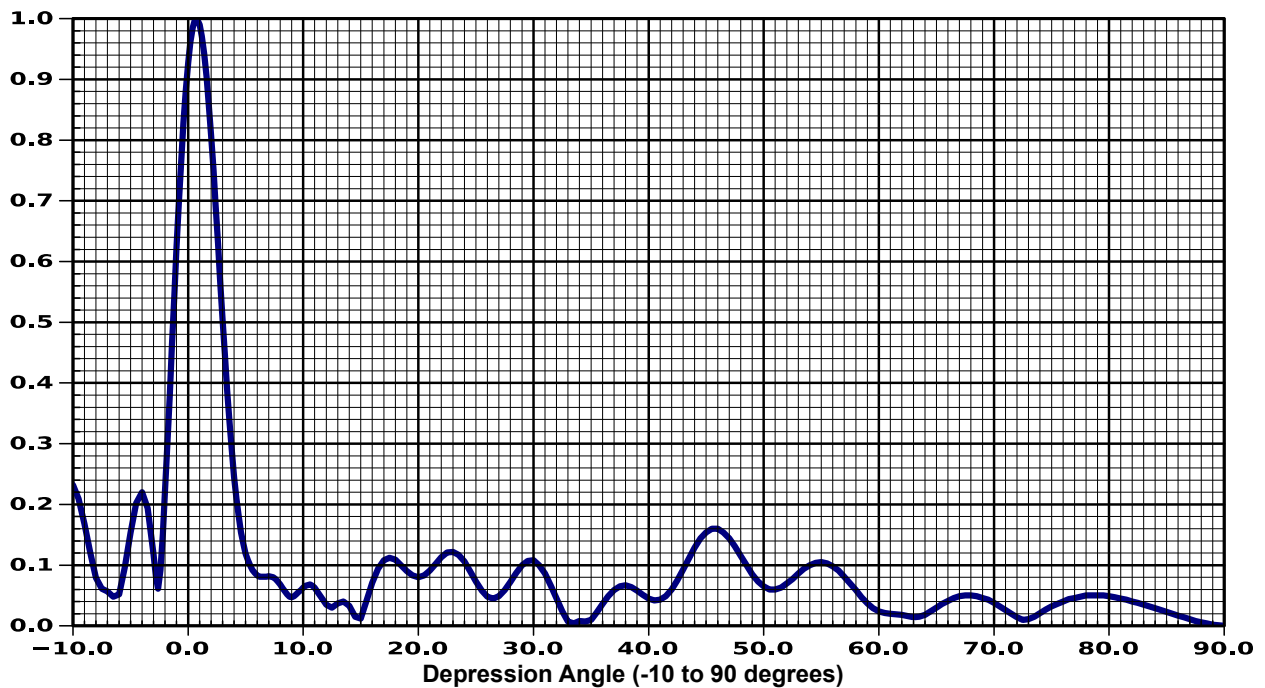
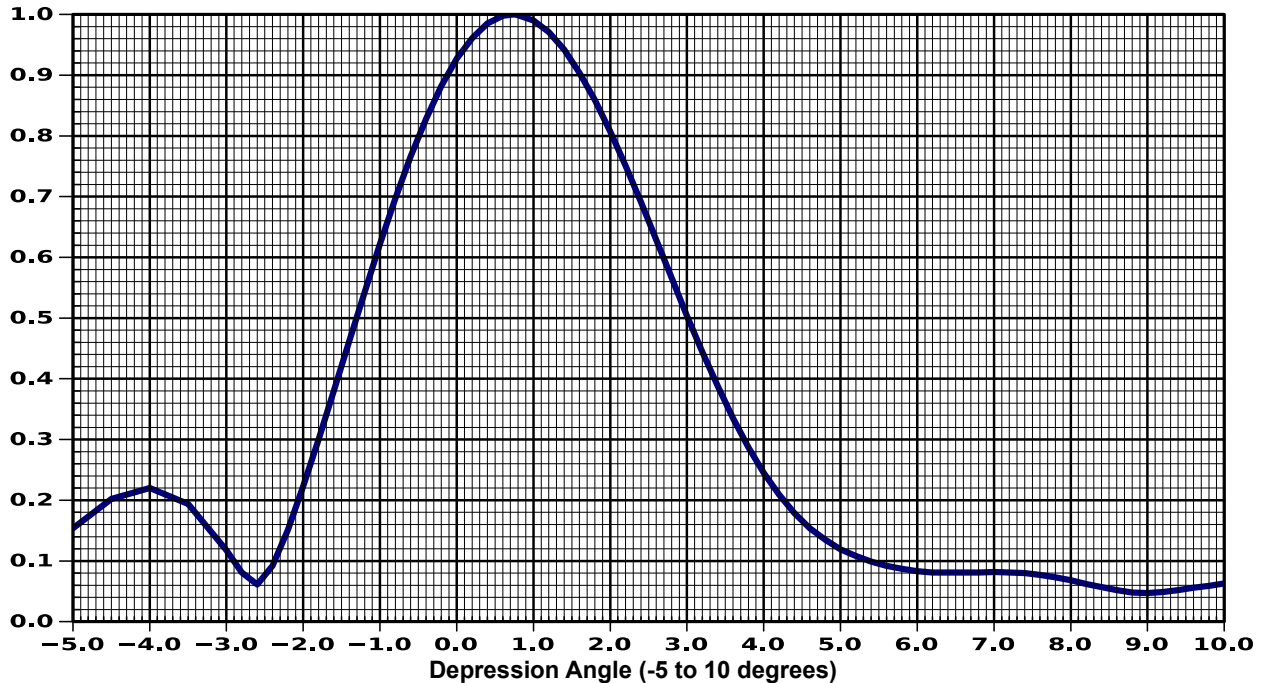
26.53 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP):

225.0 kW

23.52 dBk

Relative Field



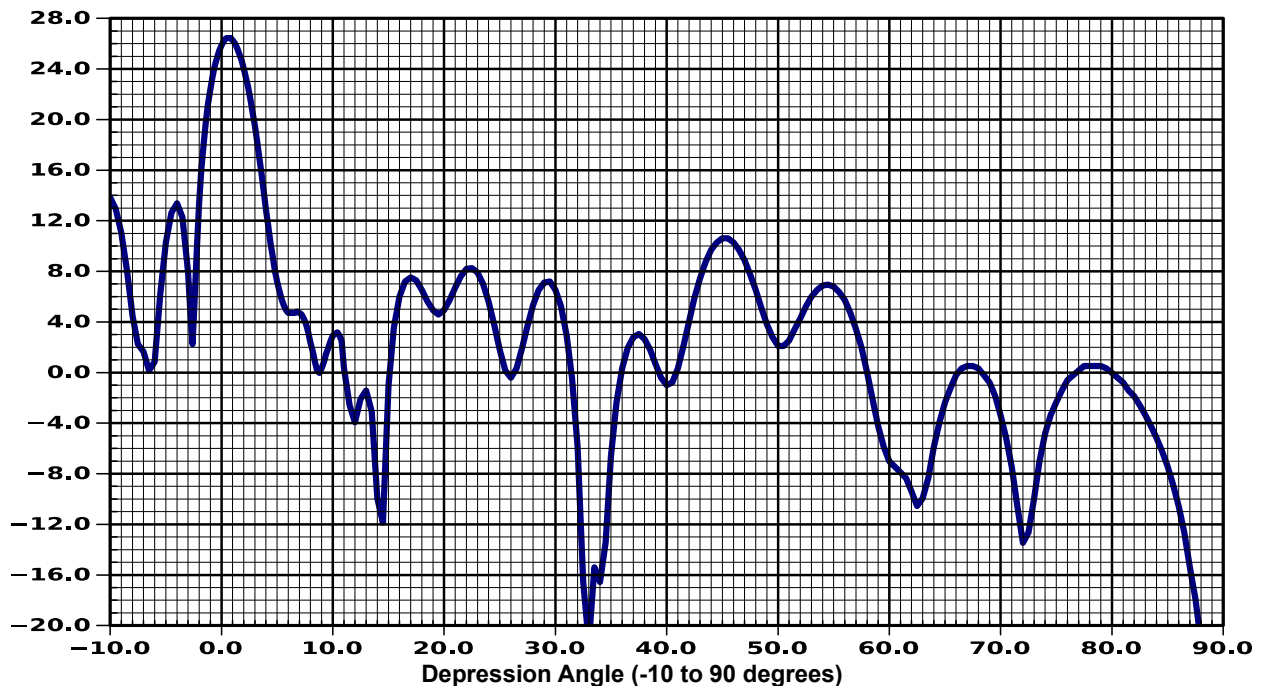
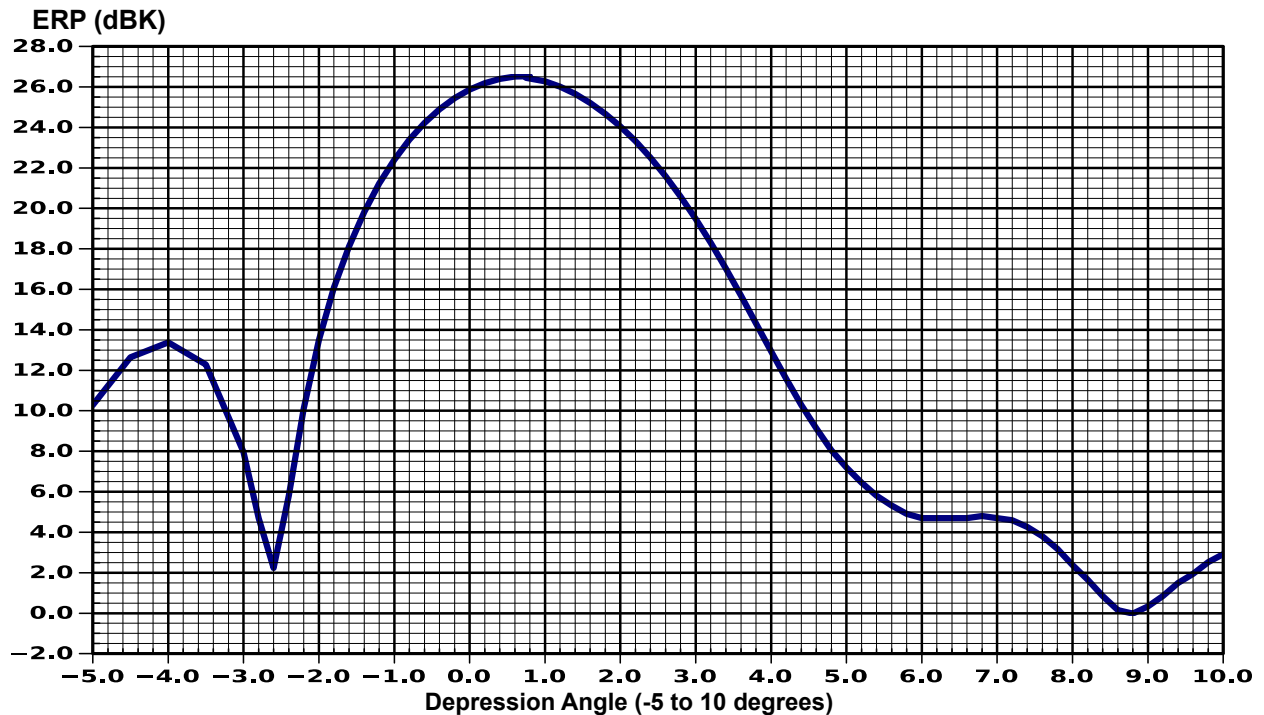
KVDA Application for Post-Repack Construction Permit

73.625(c)
July 7, 2017

ELEVATION PATTERN Dielectric TFU-18JSC/VP-R 4C200

Electrical Beam Tilt: 0.75°

Calculated Maximum Elevation Gain (H + V polarization):	15.50	11.90 dBd
RMS Gain at Horizontal (H + V polarization):	13.30	11.24 dBd
Maximum Main Beam H-Pol. Effective Radiated Power (ERP)	450.0 kW	26.53 dBk
Maximum Main Beam V-Pol. Effective Radiated Power (ERP):	225.0 kW	23.52 dBk



KVDA Application for Post-Repack Construction Permit

73.625(c)
July 7, 2017

ELEVATION PATTERN Dielectric TFU-18JSC/VP-R 4C200

Electrical Beam Tilt: 0.75°

Calculated Maximum Elevation Gain (H + V polarization):

15.50

11.90 dBd

RMS Gain at Horizontal (H + V polarization):

13.30

11.24 dBd

Maximum Main Beam H-Pol. Effective Radiated Power (ERP)

450.0 kW

26.53 dBk

Maximum Main Beam V-Pol. Effective Radiated Power (ERP):

225.0 kW

23.52 dBk

Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field	Angle	Field
-10.0	0.232	1.0	0.990	8.0	0.068	21.0	0.091	38.5	0.064	56.0	0.098	73.5	0.015
-9.5	0.209	1.2	0.971	8.2	0.062	21.5	0.102	39.0	0.058	56.5	0.091	74.0	0.021
-9.0	0.168	1.4	0.942	8.4	0.057	22.0	0.113	39.5	0.051	57.0	0.081	74.5	0.027
-8.5	0.120	1.6	0.904	8.6	0.052	22.5	0.121	40.0	0.045	57.5	0.070	75.0	0.032
-8.0	0.079	1.8	0.859	8.8	0.048	23.0	0.122	40.5	0.042	58.0	0.059	75.5	0.036
-7.5	0.061	2.0	0.807	9.0	0.047	23.5	0.117	41.0	0.043	58.5	0.047	76.0	0.040
-7.0	0.057	2.2	0.751	9.2	0.049	24.0	0.106	41.5	0.049	59.0	0.037	76.5	0.044
-6.5	0.048	2.4	0.691	9.4	0.052	24.5	0.090	42.0	0.060	59.5	0.029	77.0	0.046
-6.0	0.052	2.6	0.629	9.6	0.056	25.0	0.073	42.5	0.075	60.0	0.024	77.5	0.048
-5.5	0.096	2.8	0.566	9.8	0.059	25.5	0.058	43.0	0.093	60.5	0.021	78.0	0.050
-5.0	0.154	3.0	0.504	10.0	0.063	26.0	0.048	43.5	0.111	61.0	0.020	78.5	0.050
-4.5	0.202	3.2	0.444	10.2	0.066	26.5	0.045	44.0	0.129	61.5	0.019	79.0	0.050
-4.0	0.220	3.4	0.388	10.4	0.067	27.0	0.049	44.5	0.144	62.0	0.018	79.5	0.050
-3.5	0.194	3.6	0.335	10.6	0.068	27.5	0.059	45.0	0.154	62.5	0.016	80.0	0.049
-3.0	0.118	3.8	0.287	10.8	0.066	28.0	0.072	45.5	0.160	63.0	0.014	80.5	0.047
-2.8	0.081	4.0	0.245	11.0	0.063	28.5	0.087	46.0	0.160	63.5	0.015	81.0	0.045
-2.6	0.061	4.2	0.209	11.5	0.049	29.0	0.100	46.5	0.154	64.0	0.018	81.5	0.043
-2.4	0.092	4.4	0.179	12.0	0.035	29.5	0.107	47.0	0.144	64.5	0.024	82.0	0.040
-2.2	0.151	4.6	0.154	12.5	0.030	30.0	0.108	47.5	0.131	65.0	0.030	82.5	0.038
-2.0	0.223	4.8	0.135	13.0	0.037	30.5	0.100	48.0	0.115	65.5	0.036	83.0	0.035
-1.8	0.300	5.0	0.119	13.5	0.040	31.0	0.086	48.5	0.100	66.0	0.041	83.5	0.032
-1.6	0.380	5.2	0.108	14.0	0.033	31.5	0.066	49.0	0.085	66.5	0.046	84.0	0.029
-1.4	0.462	5.4	0.099	14.5	0.015	32.0	0.045	49.5	0.073	67.0	0.049	84.5	0.026
-1.2	0.543	5.6	0.092	15.0	0.012	32.5	0.024	50.0	0.065	67.5	0.050	85.0	0.023
-1.0	0.622	5.8	0.087	15.5	0.042	33.0	0.007	50.5	0.060	68.0	0.050	85.5	0.020
-0.8	0.697	6.0	0.083	16.0	0.071	33.5	0.004	51.0	0.060	68.5	0.049	86.0	0.017
-0.6	0.766	6.2	0.081	16.5	0.094	34.0	0.008	51.5	0.063	69.0	0.046	86.5	0.014
-0.4	0.828	6.4	0.081	17.0	0.108	34.5	0.007	52.0	0.070	69.5	0.043	87.0	0.011
-0.2	0.882	6.6	0.081	17.5	0.112	35.0	0.010	52.5	0.077	70.0	0.038	87.5	0.008
0.0	0.927	6.8	0.081	18.0	0.109	35.5	0.022	53.0	0.086	70.5	0.032	88.0	0.006
0.2	0.961	7.0	0.082	18.5	0.100	36.0	0.036	53.5	0.094	71.0	0.026	88.5	0.004
0.4	0.985	7.2	0.081	19.0	0.090	36.5	0.049	54.0	0.100	71.5	0.020	89.0	0.002
0.6	0.998	7.4	0.080	19.5	0.083	37.0	0.059	54.5	0.104	72.0	0.014	89.5	0.001
0.75	1.000	7.6	0.077	20.0	0.080	37.5	0.065	55.0	0.105	72.5	0.010	90.0	0.000
0.8	0.999	7.8	0.073	20.5	0.083	38.0	0.067	55.5	0.103	73.0	0.011		