

K276EL Comprehensive Engineering Exhibit
Revised April 2011

K276EL is seeking relocation to a tower identified by ASR 1042431 which also supports the antenna of 2nd adjacent channel KBPA. It is proposed to utilize a custom directional antenna at a location 182 meters above ground level.

The facility will be utilized as a “fill-in” translator for primary station KVET-FM. The 60 dBu service contour of the proposed facility is within that of the primary station, as demonstrated in Figure 1. The 60 dBu contour of the facility as proposed overlaps the existing licensed facility, as is required for filing a minor modification application, and is demonstrated in Figure 1.

Attached as Figure 2 is an allocation spacing report wherein it can be seen that the proposed location is within the protected contour of co-located 2nd adjacent co-located facility of KBPA which will produce a signal of 125.7 dBu in the area of the tower base. The +40 dB 165.7 dBu interference level contour to KBPA, as shown in Figure 3 below, extends at most 18.2 meters and does not reach any habitable locations, thus this proposal complies with “Living Way”, and a request for waiver as needed is hereby made.

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, “Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation.”

The proposed antenna system is Scala vertical polarity composite antenna array located 182 meters above ground.. For purposes of this analysis the FM Model program has been set to calculate values for a “worst case” Ring-Stub antenna element, operated with an effective radiated power of 0.250 Kilowatts the vertical plane. At 2 meters above the surface, at 182 meters from the base of the tower, this proposal will contribute worst case, 0.25 microwatts per square centimeter, or 0.03 percent of the allowable ANSI limit for controlled exposure, and 0.150 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less

than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

Figure 1.

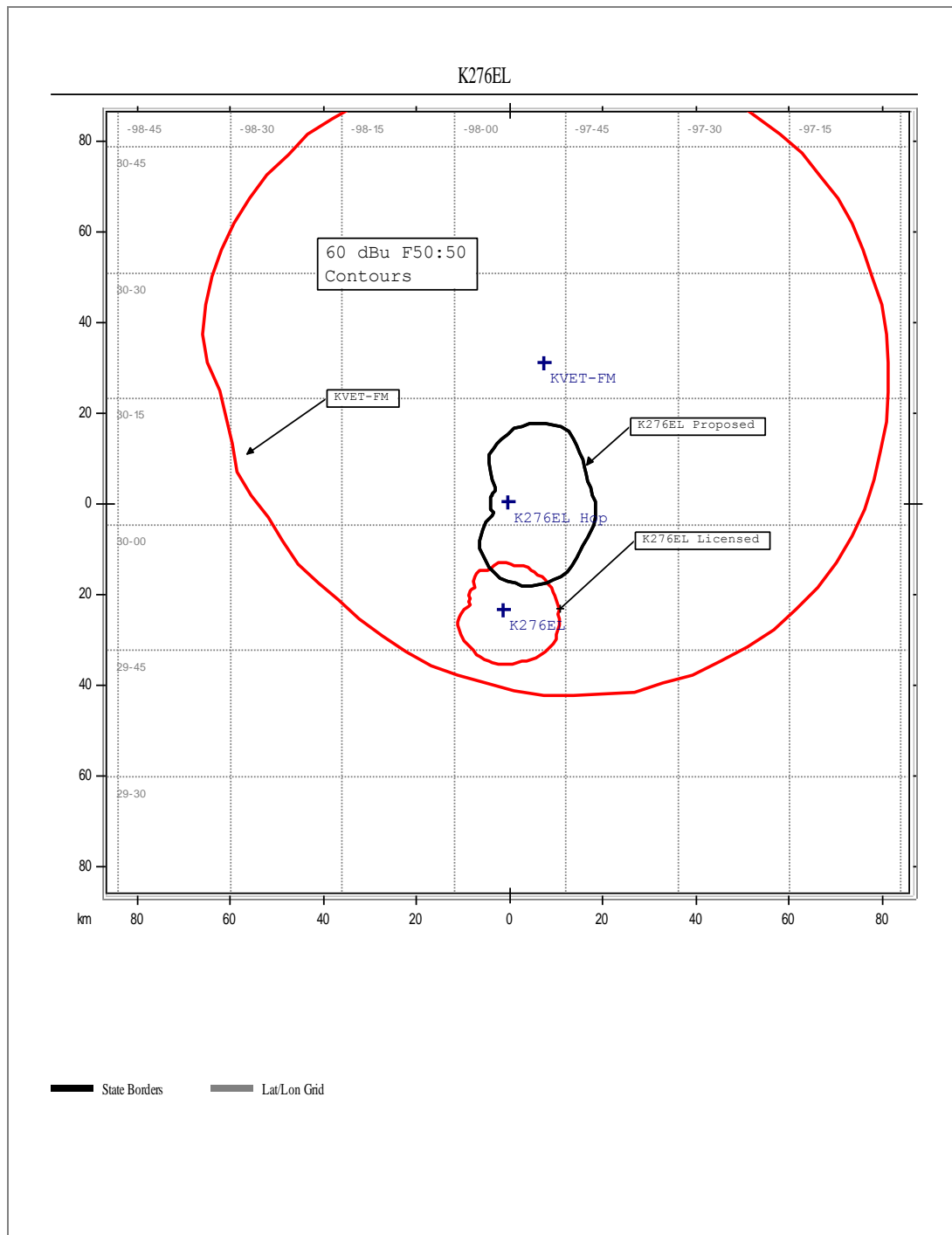


Figure 2. Spacing Study

ComStudy 2.2 search of channel 276 (103.1 MHz Class D) at 30-02-42.0 N, 97-52-50.0 W.								
Callsign	City	Chanl	ERP_w	Class	Status	Dist_km	Sep	Clr
KBPA	SAN MARCOS	278	100000	C0	LIC	0	0	-86.92 dB
KBPA	SAN MARCOS	278	96000	C0	LIC	0	0	-86.74 dB
K276EL	SAN MARCOS	276	170	D	LIC	23.77	0	-28.88 dB
KDRP-LP	DRIPPING SPRINGS	276	5	LP100	LIC	24.48	24	1.72 dB
KHHL	KARNES CITY	276	34000	C2	LIC	116.27	0	2.90 dB
KZOS-LP	SAN MARCOS	223	100	LP100	LIC	15.63	7	8.6
K274AX	AUSTIN	274	250	D	APP	31.68	0	8.52 dB
K274AX	AUSTIN	274	250	D	CP	31.68	0	8.52 dB
KSSM	COPPERAS COVE	276	8600	C3	LIC	115.46	0	8.74 dB
K274BB	SMITHVILLE	275	170	D	APP	61.11	0	10.43 dB
K274AX	AUSTIN	274	75	D	LIC	31.78	0	10.20 dB
KJXK	SAN ANTONIO	274	100000	C1	LIC	90.71	0	12.03 dB
KJXK	SAN ANTONIO	274	69000	C1	LIC	79.91	0	17.46 dB
NEW	AUSTIN	222	250	D	APP	18.13	0	18.1
KVJM	HEARNE	276	5000	A	LIC	157.28	0	19.70 dB
KHHL	KARNES CITY	276	0	C2	USE	124.69	0	19.92 dB
KSSM	COPPERAS COVE	276	0	C3	USE	112.95	0	21.71 dB
KXXS	SUNSET VALLEY	223	0	A	RSV	31.02	10	21
KXXS	SUNSET VALLEY	223	3000	A	APP	31.8	10	21.8
NEW	AUSTIN	222	125	D	APP	22.76	0	22.8
K274BB	SMITHVILLE	274	170	D	LIC	61.11	0	24.37 dB
KVJM	HEARNE	276	0	A	USE	154.6	0	24.66 dB
KITY	LLANO	275	2000	A	LIC	96.2	0	26.93 dB
NEW	DEL VALLE	223	20	D	APP	28.4	0	28.4
NEW	BEE CAVE	223	10	D	APP	29.28	0	29.3
NEW	AUSTIN	222	3	D	APP	31.78	0	31.8
NEW	GREENSHORES	222	150	D	APP	33.43	0	33.4
KHLB	MASON	273	26000	C2	LIC	148.96	0	33.48 dB

Figure 3. Line of Site Distance to Contour From Antenna

Proposed Antenna: Scala CL-FM V Pol Proposed Power: 250 kW Antenna Height AGL: 182 meters Interference Contour: 165.7 dBu f(50:10) Artificial Rcv Antenna Height: 2 meters Distance (Free Space) Equation: $=(10^{((106.92-[\text{desired dBu}]+[\text{ERP in dBk}])/20)}) \times 1000$ Field Strength (dBu) Equation $=106.92-(20 \times (\text{LOG10}[\text{DistMeters}/1000]))+[\text{ERP in dBk}]$								
Depression				Distance				
Angle	Antenna			from Ant.	Distance	Field Strength	Distance	Field Strength
Below	Relative	ERP	ERP	to Interf	from Ant. to	in dBu @	from Ant.	in dBu @
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	1.000	250.000	23.98	18.20 m	infinite	---	infinite	---
-5°	0.980	240.100	23.80	17.83 m	2065.27 m	124.42 dBu	2088.22 m	124.33 dBu
-10°	0.950	225.625	23.53	17.29 m	1036.58 m	130.14 dBu	1048.10 m	130.05 dBu
-15°	0.895	200.256	23.02	16.29 m	695.47 m	133.09 dBu	703.19 m	132.99 dBu
-20°	0.820	168.100	22.26	14.92 m	526.28 m	134.75 dBu	532.13 m	134.66 dBu
-25°	0.735	135.056	21.31	13.37 m	425.92 m	135.64 dBu	430.65 m	135.54 dBu
-30°	0.645	104.006	20.17	11.74 m	360.00 m	135.96 dBu	364.00 m	135.87 dBu
-35°	0.562	78.961	18.97	10.23 m	313.82 m	135.96 dBu	317.31 m	135.86 dBu
-40°	0.470	55.225	17.42	8.55 m	280.03 m	135.40 dBu	283.14 m	135.30 dBu
-45°	0.360	32.400	15.11	6.55 m	254.56 m	133.91 dBu	257.39 m	133.81 dBu
-50°	0.250	15.625	11.94	4.55 m	234.97 m	131.44 dBu	237.58 m	131.34 dBu
-55°	0.155	6.006	7.79	2.82 m	219.74 m	127.87 dBu	222.18 m	127.77 dBu
-60°	0.085	1.806	2.57	1.55 m	207.85 m	123.13 dBu	210.16 m	123.04 dBu
-65°	0.045	0.506	-2.96	0.82 m	198.61 m	118.00 dBu	200.81 m	117.91 dBu
-70°	0.020	0.100	-10.00	0.36 m	191.55 m	111.27 dBu	193.68 m	111.18 dBu
-75°	0.010	0.025	-16.02	0.18 m	186.35 m	105.49 dBu	188.42 m	105.40 dBu
-80°	0.010	0.025	-16.02	0.18 m	182.78 m	105.66 dBu	184.81 m	105.57 dBu
-85°	0.010	0.025	-16.02	0.18 m	180.69 m	105.76 dBu	182.70 m	105.66 dBu
-90°	0.010	0.025	-16.02	0.18 m	180.00 m	105.79 dBu	182.00 m	105.70 dBu