

TECHNICAL EXHIBIT  
APPLICATION FOR FM CONSTRUCTION PERMIT  
FM TRANSLATOR K285EU  
SAN ANTONIO, TEXAS  
CH 285D 0.250 KW

Technical Narrative

This Technical Exhibit was prepared in support of an application for modification of construction permit for a FM translator station K285EU at San Antonio, Texas. K285EU is currently licensed to operate with an effective radiated power (ERP) of 150 watts (BLFT-20110817ACV). This application proposes to relocate the transmitter site and become a fill-in for AM station KKYX(AM) on 680 kHz assigned to San Antonio, Texas.

K285EU will be mutually-exclusive to its presently licensed facility as the herein proposed 60 dBu protected contour intersects its licensed 60 dBu protected contour as shown by the map provided in Figure 1.

Tower Registration

The transmitter site will be located atop a building located at 8122 Datapoint Drive in San Antonio, Texas. The overall building height is approximately 188 feet above ground level. The antenna will be mounted on a pole that will not extend greater than 20 feet above the top of the building and therefore no antenna registration number is required. The antenna radiation center will be 200 feet (61 meters) above ground level.

### Predicted Coverage Contour

The predicted 60 dBu coverage contour was calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the N.G.D.C. 30-second terrain database. The distances to the predicted 60 dBu coverage contour for the proposal was determined using the average elevations of radials spaced every 10-degrees of azimuth. It is proposed to use a non-directional circular-polarized transmitting antenna. The antenna radiation center height above average terrain and the ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to the contour. Figure 1 is a map showing the predicted 60 dBu coverage contour of the proposed translator facility.

### Allocation Considerations

Toward all other licensed and authorized stations, there is no prohibited contour overlap predicted except toward: (1) KZEP-FM on Channel 283C1 (104.5 MHz) at San Antonio and (2) KSMG(FM) on Channel 287C (105.3 MHz) at Seguin, Texas.

The protected 60 dBu contours of KZEP-FM and KSMG(FM) overlap the proposed K285EU 100 dBu interfering contour. However, no actual interference is predicted to occur to any populated area as required by Section 74.1204(d) of the Commission's Rules is predicted to either KZEP-FM and KSMG(FM). The FCC propagation curves predict that KZEP-FM has a field strength of 89 dBu and KSMG(FM) has a field strength of 79 dBu at the proposed transmitter site. Applying a 40 dB desired-to-undesired ratio, the proposed facility does not cause interference at ground level to either the 129 dBu for KZEP-FM or 119 dBu for KSMG(FM) interfering contours.

Employing the actual vertical antenna pattern to calculate the extent of the "worse-case" 119 dBu interfering contour, it can be predicted that this field would not even exist at the field strength at ground level. Using the ERI 2 bay,  $\frac{1}{2}$  wavelength spaced

transmitting antenna specifications provided in the herein Appendix, it is calculated in Table 1 that the greatest field predicted at ground level is 115 dBu, 4 dB below the 119 dBu “worst-case” value.

Depression Angle from Transmitting Antenna	Maximum Relative Field (Appendix)	Distance to ground (m) <sup>1</sup>	Predicted Field at Ground Level (dBu)
90°	<0.10	61	106
80°	<0.10	62	106
70°	<0.10	65	105
60°	0.15	70	108
55°	0.20	75	109
50°	0.25	80	111
45°	0.35	86	113
40°	0.45	95	114
35°	0.55	106	115
30°	0.65	122	115
25°	0.75	145	115
20°	0.82	178	114
15°	0.90	235	112
10°	0.95	350	109
5°	1.00	700	104

Table 1. Predicted Ground Level Field Strength Using Proposed 2-Bay ½-wavelength spaced Antenna Vertical Pattern.

### Radio Frequency Exposure Analysis

The proposal is categorically excluded from environmental processing, as an existing tower site is to be employed, and the proposal complies with the FCC Rules concerning human exposure to radio frequency (RF) energy. The proposal will not exceed 60 percent of the RF exposure limit for general population/uncontrolled environments for the frequency proposed. The calculation of RF energy at ground level was made under the procedures of OET Bulletin No. 65.<sup>2</sup> The formula employed is as follows:

<sup>1</sup> Assumes uniform terrain around the proposed supporting structure.

<sup>2</sup> Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

$$S = \frac{(33.4)F^2P}{R^2}$$

Where,  $S$  = power density in  $\mu\text{W}/\text{cm}^2$ ,  $F$  = relative field factor at the angle to the calculation point,  $P$  = the total effective radiated power relative to a dipole in watts, and  $R$  = distance from the antenna radiation center to the calculation point in meters. Based on the conservative assumption of a relative field factor of 0.5 with a total effective radiated power of 500 watts, and an antenna radiation center height above the ground of 6 meters (20 feet), the calculated power density should not exceed  $260 \mu\text{W}/\text{cm}^2$ . Therefore, the calculated RF exposure at ground level will not exceed 26 percent of the limit of  $1000 \mu\text{W}/\text{cm}^2$  for a controlled electromagnetic environment along the building roof-top.

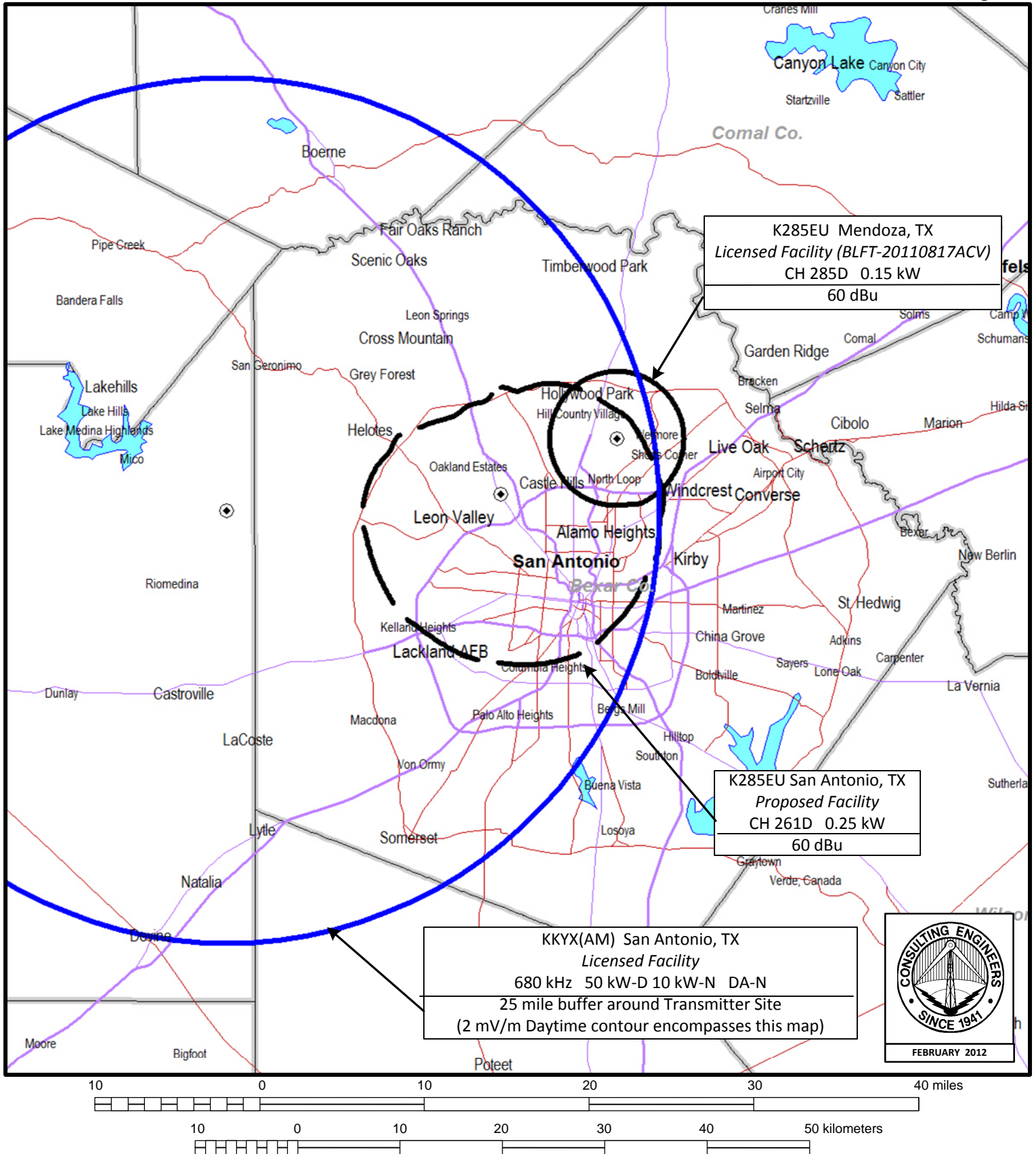
The transmitter site shall be restricted from access. In the event that personnel are required to climb the structure, the proposed FM translator transmissions shall be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits.

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Figure 1



## FCC PREDICTED COVERAGE CONTOURS

FM TRANSLATOR STATION K285EU  
 SAN ANTONIO, TEXAS  
 CH 285D 0.25 KW

du Treil, Lundin & Rackley, Inc. Sarasota, Florida

# APPENDIX A

## PROPOSED TRANSMITTING ANTENNA SPECIFICATIONS

ELECTRONICS RESEARCH, INC.  
100 MARKET STREET  
NEWBURGH, IN. 47630

FIGURE H2

-----THEORETICAL-----  
VERTICAL PLANE RELATIVE FIELD

2 ERI TYPE SHP, SHPX, LP, OR LPX ELEMENTS  
0 DEGREE(S) BEAM TILT  
0 PERCENT FIRST NULL FILL

MAY 24, 1983

ELEMENT SPACING:  
0.5 WAVELENGTH

POWER GAIN IS .702 IN THE HORIZONTAL PLANE( .702 IN THE MAX.)

RELATIVE FIELD

1.0  
.9  
.8  
.7  
.6  
.5  
.4  
.3  
.2  
.1  
0

