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**Engineering Statement
Post-Auction Technical Facilities for KXLN-DT
Channel 30 at Rosenberg, TX
June 2017**

Repack Application

This Engineering Statement has been prepared on behalf of KXLN License Partnership, L.P., licensee of digital television station KXLN-DT at Rosenberg, Texas. KXLN-DT presently operates on Channel 45. The instant application is being filed in response to the Commission's *Channel Reassignment Public Notice* (DA 17-314), released on April 13, 2017, specifying the station's post-auction facilities on Channel 30.

The following table lists the KXLN-DT assigned post-auction facilities, as well as the requested facilities as proposed in this Form 2100 application:

	Technical Parameters from Post Auction Table	Technical Parameters from Proposed Form 2100
Channel	30	30
ERP	745 kW	745 kW
HAAT	594 meters	594 meters
Antenna	ID #87264 directional	DIE TFU-24ETT/VP-R S190 directional
Coordinates (NAD83)	29-33-44.8 95-30-35.8	29-33-45.2 95-30-35.9

Interference Study

The proposed technical facilities utilize an antenna pattern which is somewhat different from that of the licensed KXLN-DT pattern. Additionally, while the tower and antenna radiation center to be used are the same as the licensed location, the transmitter site coordinates are being corrected to match those of the ASR for tower 1059622. Therefore, an interference study has been conducted using the Commission's TVStudy software. The results of that study demonstrate that this proposal will have no additional interference impact on other stations, and will not expand the service area more than 1% beyond the baseline.

Study created: 2017.06.21 16:32:43

Study build station data: LMS TV 2017-06-14 (17)

Proposal: KXLN-DT D30 DT BL ROSENBERG, TX
 File number: KXLN(S190)745KW
 Facility ID: 53847
 Station data: User record
 Record ID: 64
 Country: U.S.

Stations potentially affected:

Call	Chan	Svc	Status	City, State	File Number	Distance
KITU-TV	D29	DT	BL	BEAUMONT, TX	DTVBL12896	168.9 km
KYLE-TV	D29	DT	BL	BRYAN, TX	DTVBL60384	153.1
K09YZ-D	D30	DC	BL	BEEVILLE-REFUGIO, TX	DTVBL51373	227.3
KMPX	D30	DT	LIC	DECATUR, TX	BLCDT20060317AGE	363.9
KPLE-CD	D30	DC	LIC	KILLEEN, TX	BLDTL20090416ASY	272.9
KPLE-CD	D30	DC	CP	KILLEEN, TX	BPDTA20130211ACF	272.9
KABB	D30	DT	LIC	SAN ANTONIO, TX	BLCDT20100527AFI	268.9
KUBE-TV	D31	DT	BL	BAYTOWN, TX	DTVBL70492	0.9

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D30
 Latitude: 29 33 45.20 N (NAD83)
 Longitude: 95 30 35.90 W
 Height AMSL: 610.6 m
 HAAT: 594.0 m
 Peak ERP: 745 kW
 Antenna: DIE-TFU-24ETT/VP-4 S190 0.0 deg

40.3 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	745 kW	590.7 m	118.7 km
45.0	612	593.0	117.0
90.0	430	592.0	113.7
135.0	80.6	591.7	99.2

Hatfield & Dawson Consulting Engineers

180.0	146	592.8	104.2
225.0	80.6	591.7	99.2
270.0	430	590.5	113.6
315.0	612	586.4	116.6

Database HAAT does not agree with computed HAAT
Database HAAT: 594 m Computed HAAT: 591 m

ERP exceeds maximum
ERP: 745 kW ERP maximum: 337 kW

Proposal service area is within baseline plus 1.0%
Proposal service area population is more than 95.0% of baseline

Distance to Canadian border: 1765.2 km

Distance to Mexican border: 422.3 km

Conditions at FCC monitoring station: Kingsville TX
Bearing: 225.1 degrees Distance: 330.6 km

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 325.6 degrees Distance: 1468.3 km

Study cell size: 2.00 km
Profile point spacing: 1.00 km

Maximum new IX to full-service and Class A: 0.50%
Maximum new IX to LPTV: 2.00%

No IX check failures found.

Facilities Proposed

The proposed operation will be on Channel 30 with a maximum lobe effective radiated power of 745 kilowatts (H pol) and 152.7 kilowatts (V-pol). Operation is proposed with an elliptically polarized Dielectric model TFU-24ETT/VP-R S190 antenna, which will be mounted on an existing tower with FCC Antenna Structure Registration Number 1059622.

RF Exposure Calculations

OET Bulletin 65 Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01) states in part that:

When performing an evaluation for compliance with the FCC's RF guidelines all significant contributors to the ambient RF environment should be considered. . . For purposes of such consideration, significance can be taken to mean any transmitter producing more than 5% of the applicable exposure limit (in terms of power density or the square of the electric or magnetic field strength) at accessible locations.

As will be demonstrated below, the proposed operation will produce less than 5% of the applicable exposure limit for both controlled and uncontrolled environments. Thus, the proposed facility is categorically excluded from the requirement of further study. Therefore, pursuant to §1.1307(b)(3) of the Commission's Rules no calculations are required for the other FM and TV facilities in the vicinity, and precise calculations are made only with regard to the levels from this proposal.

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.40981 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

D is the distance in meters from the center of radiation to the calculation point.

Power density levels produced by the proposed facility were calculated for an elevation of 2 meters above ground (586 meters below the antenna radiation center). The worst case power density levels occur at depression angles between 45 and 90 degrees below the horizontal. The calculations in this report assume a worst-case relative field value of 0.049 at these angles, based on the manufacturer's vertical plane pattern for the elliptically-polarized Dielectric model TFU-24ETT/VP-R S190 antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 2155.4 watts at depression angles between 45 and 90 degrees below the horizontal. Assuming this power and the shortest distance between the antenna radiation center and 2 meters above ground level (i.e. straight down), the highest calculated power density from the proposed antenna alone occurs at the base of the antenna support structure. At this point the power density is calculated to be $0.2 \mu\text{W}/\text{cm}^2$, which is $<0.1\%$ of $377.3 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 30 frequency).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307(b)(3) of the Commission's Rules excludes applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 et seq and no further analysis of RF exposure at this site is required in this application.

Access to the tower site is restricted by a gated perimeter fence; another locked fence encloses the tower base area. Appropriate RF advisory signs are posted and a formal protection protocol is in effect for the protection of workers on the tower. The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.