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**Engineering Statement
Post-Auction Technical Facilities for KNIC-CD
Channel 24 at San Antonio, TX
June 2017**

Repack Application

This Engineering Statement has been prepared on behalf of Unimas Partnership of San Antonio, licensee of digital Class A television station KNIC-CD at San Antonio, Texas. KNIC-CD presently operates on Channel 34. 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 24.

The following table lists the KNIC-CD 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	24	24
ERP	12.1 kW	5.4 kW
HAAT	(not specified for Class A)	
RCAMSL	330.4 meters	367.6 meters
Antenna	ID #1000654 directional at 80 deg T	ERI ALP8L7-HSW-24 directional at 85 deg T
Coordinates (NAD83)	29-25-41.7 98-29-33.0	29-25-06.0 98-29-32.0

Interference Study

The proposed technical facilities will be located on a tower which is 1.1 km south of the licensed KNIC-CD tower site, and with a higher antenna height AMSL. Therefore, an interference study has been conducted using the Commission's TVStudy software. The results of the 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 13:30:17

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

Proposal: KNIC-CD D24 DC BL SAN ANTONIO, TX
 File number: KNIC(24)ALP8W(5.4KW)
 Facility ID: 48837
 Station data: User record
 Record ID: 63
 Country: U.S.

Stations potentially affected:

Call	Chan	Svc	Status	City, State	File Number	Distance
KNVA	D23	DT	BL	AUSTIN, TX	DTVBL144	121.0 km
KEDT	D23	DT	LIC	CORPUS CHRISTI, TX	BLEDT20081016ABR	215.8
KXLK-CD	D24	DC	BL	AUSTIN, TX	DTVBL48836	120.7
KVEO-TV	D24	DT	LIC	BROWNSVILLE, TX	BLCDT20050630AGL	374.3
KXAS-TV	D24	DT	BL	FORT WORTH, TX	DTVBL49330	380.8
KETH-TV	D24	DT	LIC	HOUSTON, TX	BLEDT20101019ABX	289.0
KHPZ-CD	D25	DC	BL	ROUND ROCK, TX	DTVBL35910	154.0
K27LF-D	D25	DC	CP	SAN ANTONIO, TX	BLANK0000024497	27.2
K27LF-D	D25	DC	BL	SAN ANTONIO, TX	DTVBL24570	27.2

No non-directional AM stations found within 0.8 km

No directional AM stations found within 3.2 km

Record parameters as studied:

Channel: D24
 Mask: Full Service
 Latitude: 29 25 6.00 N (NAD83)
 Longitude: 98 29 32.00 W
 Height AMSL: 367.6 m
 HAAT: 0.0 m
 Peak ERP: 5.40 kW
 Antenna: ERI-ALP8W-24 (ID 1000654) 85.0 deg

49.8 dBu contour:

Azimuth	ERP	HAAT	Distance
0.0 deg	4.86 kW	129.8 m	41.1 km
45.0	4.66	145.4	41.9
90.0	5.32	166.9	44.0
135.0	4.97	181.1	44.5
180.0	4.22	192.6	44.3
225.0	1.40	172.2	37.4

270.0	0.329	151.4	28.7
315.0	1.98	120.0	35.9

Database HAAT does not agree with computed HAAT
Database HAAT: 0 m Computed HAAT: 157 m

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

Distance to Canadian border: 1957.3 km

**Proposal is within coordination distance of Mexican border
Distance to Mexican border: 206.2 km

Conditions at FCC monitoring station: Kingsville TX
Bearing: 164.7 degrees Distance: 227.6 km
ERP: 5.14 kW Field strength: -0.3 dBu, 0.0 mV/m

Proposal is not within the West Virginia quiet zone area

Conditions at Table Mountain receiving zone:
Bearing: 334.5 degrees Distance: 1337.7 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 24 with a maximum lobe effective radiated power of 5.4 kilowatts (H pol). Operation is proposed with an ERI model ALP8L7-HSW-24 antenna, which will be mounted on an existing tower in San Antonio with FCC Antenna Structure Registration Number 1053689.

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 other FM or 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 (174 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 0.234 at these angles, based on the manufacturer's vertical plane pattern for the horizontally-polarized ERI model ALP8L7-HSW-24 antenna proposed in this application. This relative field value yields a worst-case adjusted average effective radiated power of 295.7 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 $0.3 \mu\text{W}/\text{cm}^2$, which is $<0.1\%$ of $353.3 \mu\text{W}/\text{cm}^2$ (the FCC maximum for uncontrolled environments at the Channel 24 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.

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.