

**Technical Exhibit FCC Form 349  
Cameron Cravey  
Minor Modification K249EN  
BNPFT20130328AAE  
Facility ID#156309  
.25 kW Horizontal and Vertical  
EI Reno, OK**

**Purpose Of Application**

Cameron Cravey, ("Cravey"), the licensee of K249EN proposes through this instant application to modify and relocate K249EN to a different location. The proposed site utilizes an existing tower at N35°30'26" W97°54'02" (NAD27) with power of .25 kW horizontal and vertical at a height above average terrain of 39.5 m HAAT. The HAAT was calculated using the Computer program V-Soft, FMCommander using 12 radials in compliance with the methodology of 47CFR 73.313. NED 03 second terrain data was used for all contour calculations. The antenna used for the proposed facility is a 4 bay, double vee EPA type 2 half wave antenna, mounted 44 meters above ground level. The proposed facility has 53.8% 60 dBu 50-50 contour overlap with the construction permit facility 60 dBu 50-50, which permits Cravey to file this as a minor change. Cravey proposes to use this translator with KZUE, EI Reno OK FID 36185. Cravey has a rebroadcast agreement with the licensee of KZUE. See the following page for a demonstration of contours.

**Interference To Other Facilities**

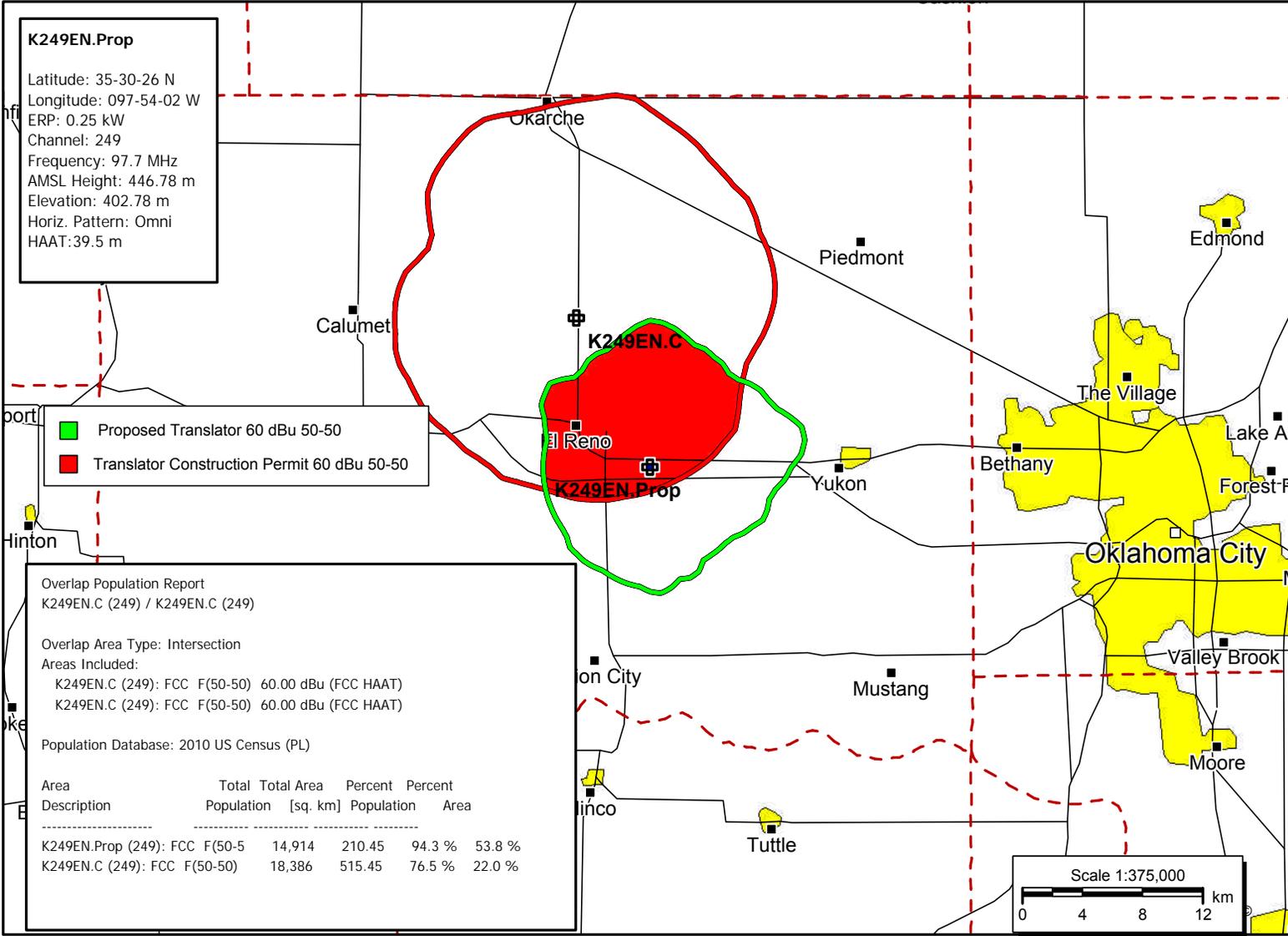
This proposed facility complies with 47CFR 74.1204 of the Commission's rules for interference to other facilities. There is no overlap of the proposed facility's interfering contours with the protected contours of any other application or facility, with the exception of second adjacent Ch. 251 C2 WWLS-FM, The Village, OK FID 37435. Cravey demonstrates in this application that no actual interference will occur, as no population is covered, or the contour is more than seven meters above ground level in the area where the proposed translator has an interfering signal 40 dB more than that of the contour of the protected facility.

WWLS has a calculated contour of 74.6 dBu 50-50 at the proposed translator location. The interference contour of the proposed facility, 114.6 dBu 50-10, is calculated by free space method to extend 206.5 meters from the translator antenna support structure. As shown in the following exhibit, this contour does not reach ground level when the vertical radiation pattern of the SWR FMEC 4HW antenna is taken into consideration. No actual interference will occur anywhere at ground level, as this interference contour, does not reach the ground at any point. The nearest point to ground level is at 119.69 meters from the base of the support structure. At this point the interfering contour is 11.92 meters above ground level. See the following pages for exhibits depicting these statements.

The existing 47 meter tower for the proposed K249EN site is located in a rural area. There are no structures, occupied or unoccupied within 300 meters of the proposed facility that are more than 7 meters tall. Cravey acknowledges that operation of this facility will cease if there are any complaints of interference. See the following pages for demonstration of no interference and compliance with 74.1204 d.

**Environmental**

The proposed location is an existing tower. The antenna proposed above was studied using the OET FM model program. Using this program, with the EPA Type 2, 4 bay half wave spaced antenna mounted at 44 meters above ground level, the worst-case power density at 2 meters above ground level was found to be .000258 microwatts/cm<sup>2</sup>, which occurs 157 meters from the base of the support structure. This is .00125% of the maximum level for the general population, uncontrolled exposure level, and exempts the facility from further study, as it is an insignificant contributor.



**K249EN.Prop**  
 Latitude: 35-30-26 N  
 Longitude: 097-54-02 W  
 ERP: 0.25 kW  
 Channel: 249  
 Frequency: 97.7 MHz  
 AMSL Height: 446.78 m  
 Elevation: 402.78 m  
 Horiz. Pattern: Omni  
 HAAT: 39.5 m

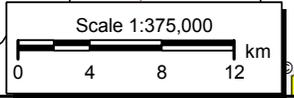
■ Proposed Translator 60 dBu 50-50  
■ Translator Construction Permit 60 dBu 50-50

Overlap Population Report  
 K249EN.C (249) / K249EN.C (249)

Overlap Area Type: Intersection  
 Areas Included:  
 K249EN.C (249): FCC F(50-50) 60.00 dBu (FCC HAAT)  
 K249EN.C (249): FCC F(50-50) 60.00 dBu (FCC HAAT)

Population Database: 2010 US Census (PL)

Area Description	Total Population	Total Area [sq. km]	Percent Population	Percent Area
K249EN.Prop (249): FCC F(50-5)	14,914	210.45	94.3 %	53.8 %
K249EN.C (249): FCC F(50-50)	18,386	515.45	76.5 %	22.0 %



K249EN Mod  
Cameron Cravey

REFERENCE CH# 249D - 97.7 MHz, Pwr= 0.25 kw, HAAT= 39.5 M, COR= 446 M      DISPLAY DATES  
35 30 26.0 N.      Average Protected F(50-50)= 8.1 km      DATA 04-18-16  
97 54 02.0 W.      Omni-directional      SEARCH 04-20-16

CH CITY	CALL	TYPE STATE	ANT STATE	AZI <--	DIST FILE #	LAT LNG	PWR(kw) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
249D El Reno	K249EN	CP OK	_C_	333.8 153.8	11.04 BNPFT20130328AAE	35 35 47.0 97 57 16.0	0.250 99	43.3 499	12.6 Cameron Cravey	-42.4*	-31.0*
251C1 The Village	WVLS-FM	LIC OK	_C_	81.0 261.2	38.03 BLH20080721ACN	35 33 37.0 97 29 07.0	31.000 470	8.5 820	70.5 Radio License Holding Cbc,	19.5	-33.6*
249A Hennessey	NEW	CP OK	_CX	354.6 174.5	68.21 BNPH20151001ACX	36 07 05.0 97 58 20.0	6.000 90	87.6 441	29.0 Chisholm Trail Broadcastin	-29.3*	5.6
249C2 Healdton	KICM	LIC OK	ZCX	162.4 342.7	134.96 BLH20070419AAV	34 20 57.0 97 27 24.0	50.000 150	136.8 450	51.2 Keystone Broadcasting Corp	-10.2*	55.6
249L1 Oklahoma City	KSQE-LP	CP OK	___	66.2 246.5	42.52 BNPL20131114BPJ	35 39 37.8 97 28 10.9	0.024 61	397	14.6 Edwards Broadcasting		6.1
249L1 Midwest City	NEW	CP OK	___	101.5 281.7	40.64 BNPL20131115AMR	35 26 01.0 97 27 39.0	0.044 45	416	11.7 Midwest City Knights Of Co		7.6
247A Blanchard	KKNG-FM	LIC OK	NCX	143.6 323.7	45.55 BLH20060324AAC	35 10 38.0 97 36 10.0	1.000 244	1.9 614	26.7 Wpa Radio Llc	35.4	17.7
247A Blanchard	AL6900	RSV-A OK	___	154.0 334.2	47.54 RM10758	35 07 21.0 97 40 18.0	6.000 100	2.5 476	25.3	36.6	20.8
249C3 Mangum	KHIM	CP OK	NCX	247.2 66.3	149.15 BPH20130812AAJ	34 58 39.0 99 24 35.0	2.250 329	99.9 824	39.0 Fuchs Radio L.l.c.	42.1	86.3
248C Tulsa	KMOD-FM	LIC OK	_CX	64.2 245.3	179.58 BMLH20100901AAC	36 11 46.0 96 05 53.0	100.000 453	124.8 687	84.0 Clear Channel Broadcasting	45.0	82.6
249A Vici	DKJZI	VAC OK	___	300.0 119.2	144.79	36 08 59.0 99 17 52.0	6.000 100	90.0 738	30.9 Jordan E. Zeller	46.5	87.1

Terrain database is NED 03 SEC , R= 73.215 qualifying spacings or FCC minimum spacings in KM, M= Margin in KM  
In & Out distances between contours are shown at closest points. Reference zone= West Zone, Co to 3rd adjacent.  
All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.  
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, \_= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)  
"\*"affixed to 'IN' or 'OUT' values = site inside restricted contour.  
Reference station has protected zone issue: AM tower

K249EN.C El Reno, OK  
 74.1204(d) Showing  
 Translator Maximum Licensed ERP = 0.25  
 Translator Antenna Height AG = 44 Meters  
 K249EN.C Antenna Model = SWR FM EC4 HW

Protected Station's Contour = 74.6 dBu  
 Translator's or LPFM's full Interference contour 114.6

Review Azimuth = 90 Degrees True  
 Relative Field on the horizon at Review Azimuth = 1.000  
 Translator/LPFM ERP on the horizon at Review Azimuth = 0.25 kW  
 Distance between stations = 38.0 km  
 Protected Station= WWLS-F, 31 kW, 820 M Meters COR AMSL

Depression Angle From Horizon (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m)
00.00	1.0	1.0	0.2500	206.5238	206.5238	044.000
05.00	0.88	1.0	0.1936	181.7409	181.0493	028.160
10.00	0.8	1.0	0.1600	165.2190	162.7090	015.310
15.00	0.6	1.0	0.0900	123.9143	119.6920	011.929
20.00	0.4	1.0	0.0400	082.6095	077.6275	015.746
25.00	0.2	1.0	0.0100	041.3048	037.4348	026.544
30.00	0.05	1.0	0.0006	010.3262	008.9427	038.837
35.00	0.1	1.0	0.0025	020.6524	016.9174	032.154
40.00	0.18	1.0	0.0081	037.1743	028.4771	020.105
45.00	0.2	1.0	0.0100	041.3048	029.2069	014.793
50.00	0.18	1.0	0.0081	037.1743	023.8952	015.523
55.00	0.15	1.0	0.0056	030.9786	017.7686	018.624
60.00	0.1	1.0	0.0025	020.6524	010.3262	026.115
65.00	0.08	1.0	0.0016	016.5219	006.9825	029.026
70.00	0.04	1.0	0.0004	008.2609	002.8254	036.237
75.00	0.02	1.0	0.0001	004.1305	001.0690	040.010
80.00	0.005	1.0	0.0000	001.0326	000.1793	042.983
85.00	0.001	1.0	0.0000	000.1033	000.0090	043.897
90.00	0.001	1.0	0.0000	000.1033	000.0000	043.897

**K249ENPROP**

Latitude: 35-30-26 N  
Longitude: 097-54-02 W  
ERP: 0.25 kW  
Channel: 249  
Frequency: 97.7 MHz  
AMSL Height: 445.91 m  
Elevation: 401.91 m  
Horiz. Pattern: Omni  
HAAT: 39.5 m

**WWLS-FM**

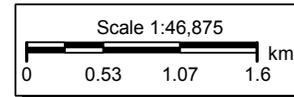
BLH20080721ACN  
Latitude: 35-33-37 N  
Longitude: 097-29-07 W  
ERP: 31.00 kW  
Channel: 251  
Frequency: 98.1 MHz  
AMSL Height: 820.0 m  
Elevation: 349.0 m  
Horiz. Pattern: Omni  
HAAT: 470.0 m



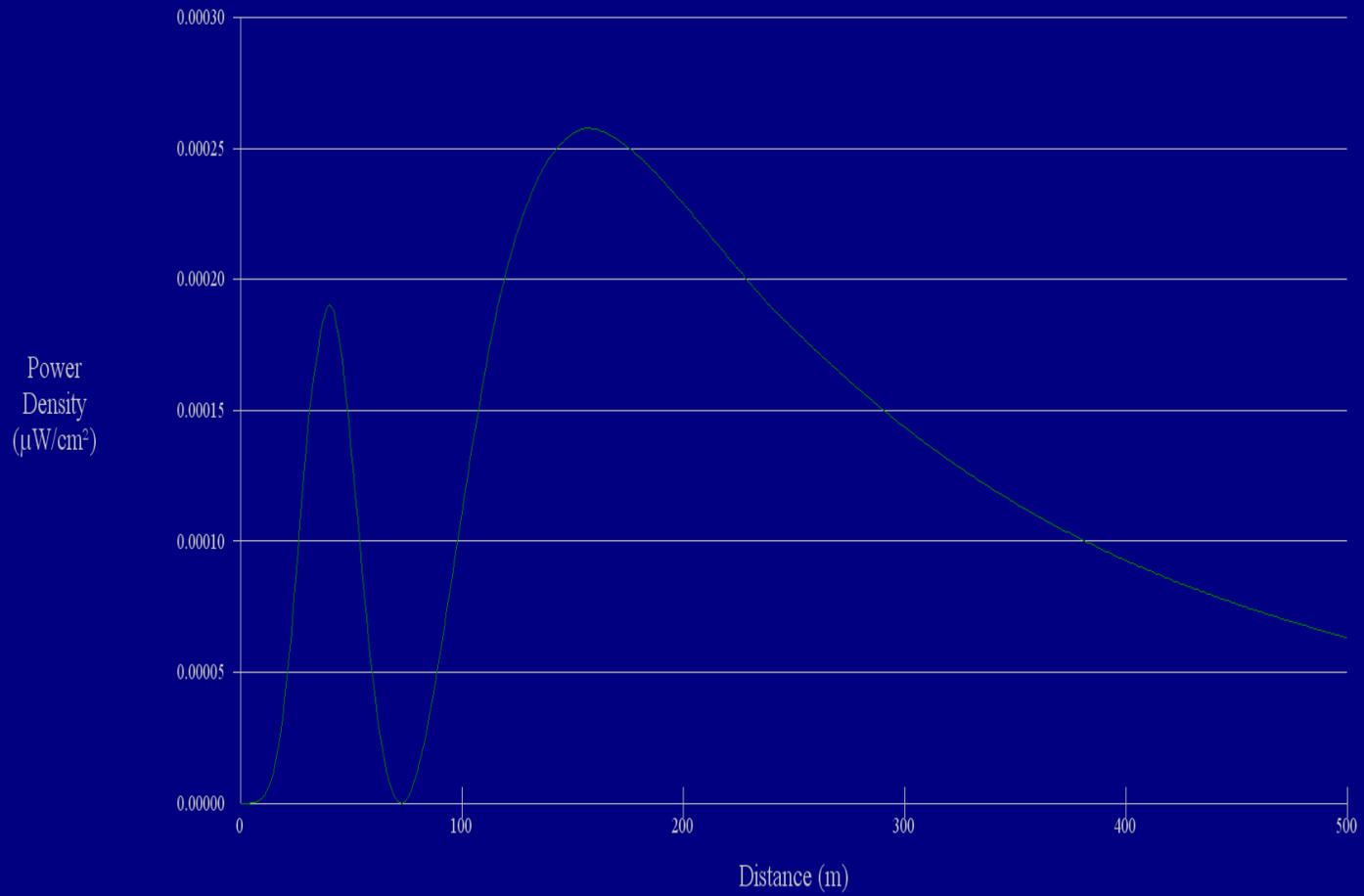
**KZUE**

**K249ENPROP**

-  WWLS 74.6 dBu 50-50 Contour
-  Translator 114.6 dBu 50-10 Contour



### Power Density vs Distance



Office of Engineering and Technology

Distance (m):	500	Antenna Type:	Jampro "Double V" (EPA)
Horizontal ERP (W):	.25	Number of Elements:	4
Vertical ERP (W):	.25	Element Spacing:	.5
Antenna Height (m):	44		

Update Graph

