

Technical Statement
and Exhibits
in support of a
NEW Commercial FM Translator
Construction Permit

Completes Short Form Application
BNPFT-20030317KXY

Channel 280

Durant, OK

August 29, 2013

EXHIBIT I-A

**LPFM PRECLUSION SHOWING
NEW COMMERCIAL FM TRANSLATOR
CHANNEL 280
DURANT, OK**

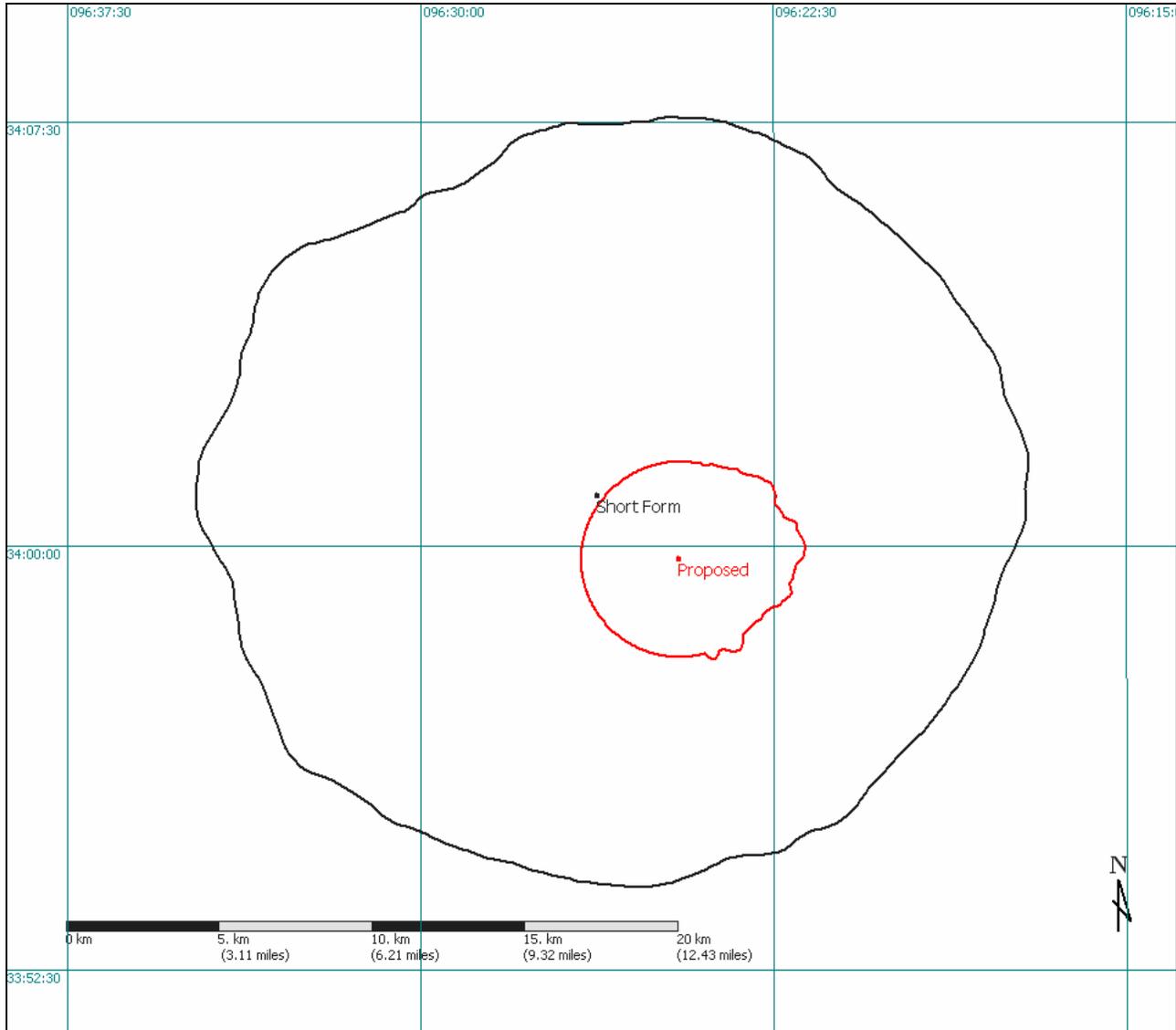
The proposed transmitter site is at least 39 kilometers from all Market Grids,¹ and therefore cannot preclude any LPFM licensing opportunities in any grid.

¹ The term “Market Grid” is the 30x30 or 20x20 minute grid specified in Appendices A and B for each studied market. *See Fourth Report and Order*, 27 FCC Rcd at 3398-3406.

EXHIBIT I-B

MINOR MODIFICATION ANALYSIS NEW COMMERCIAL FM TRANSLATOR CHANNEL 280 DURANT, OK

The instant application proposes to change the site for the translator. No channel change is requested.



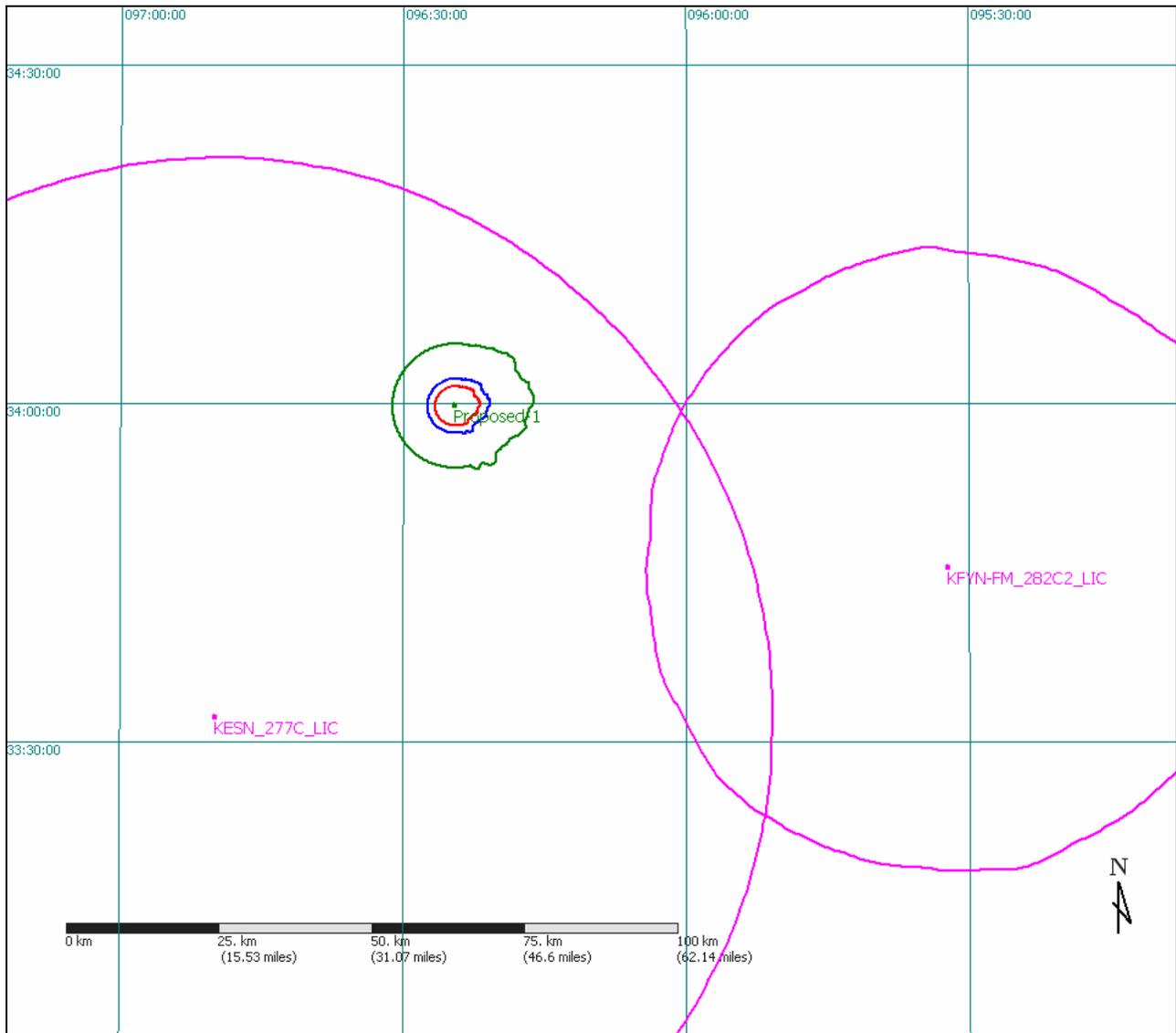
The proposed 60 dBu contour of the facility (red) is completely within the 60 dBu contour of the underlying short form application (black). Therefore, the proposed modification to the transmitter site for the facility is considered a minor change and may also be requested at this time.

EXHIBIT III-12

INTERFERENCE AND OVERLAP REQUIREMENTS NEW COMMERCIAL FM TRANSLATOR CHANNEL 280 DURANT, OK

It is proposed to locate the transmit antenna on an unregistered tower in Durant, OK.

The following illustration demonstrates the no prohibited contour overlap exists between the facility proposed herein and any other station or translator other than KESN (FID #58265).



The green contours represent co-channel interfering (40 dBu) to co-channel protected (60 dBu) contours. Blue contours represent first-adjacent channel interfering (54 dBu) to first-adjacent protected (60 dBu) contours. Magenta contours represent second and third-adjacent channel

interfering (100 dBu) to second and third-adjacent protected (60 dBu) contours. Red contours represent co-channel protected (60 dBu) to co-channel interfering (40 dBu) contours.

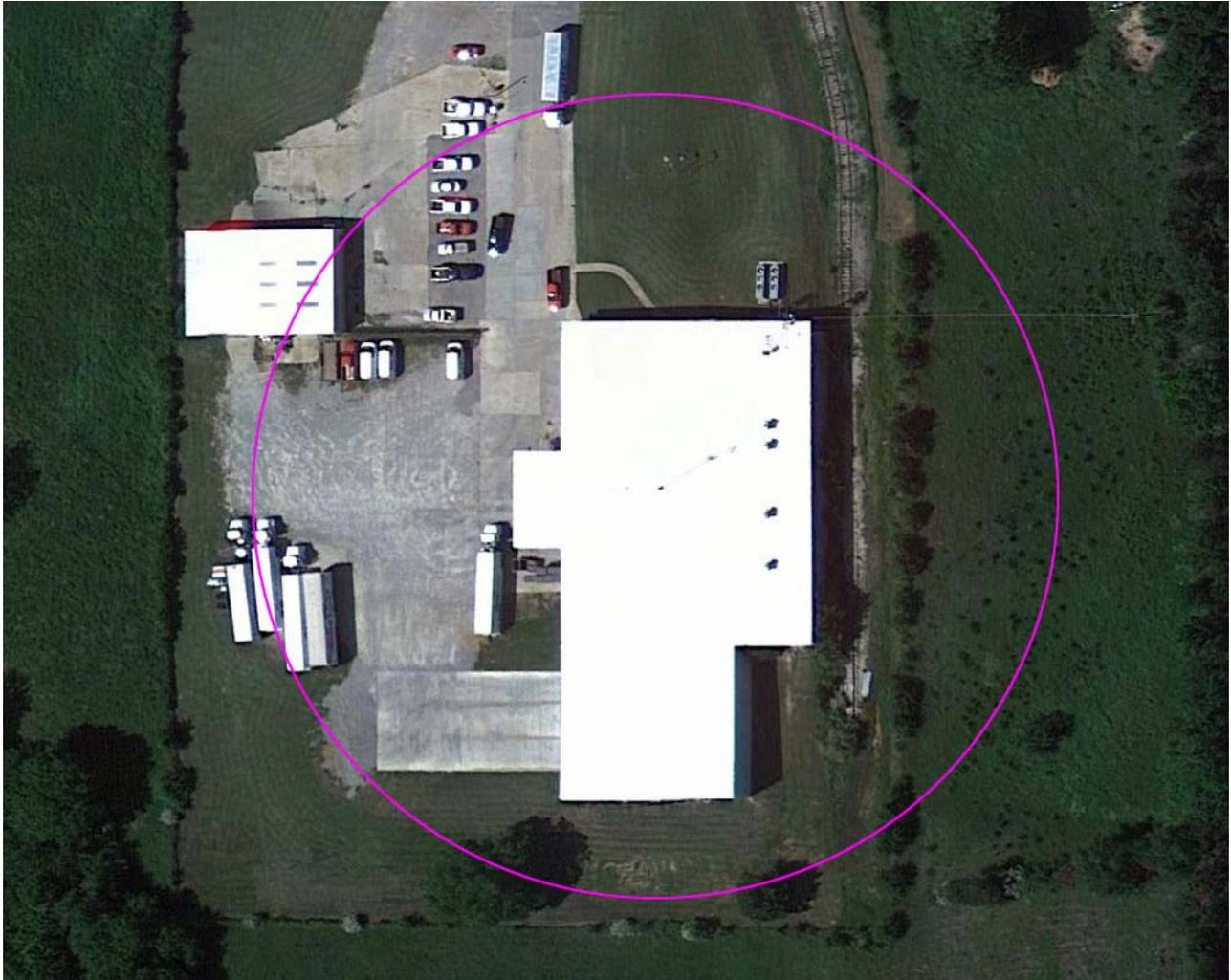
Section 74.1204(d) states

“[t]he provisions of this section concerning prohibited overlap will not apply where the area of such overlap lies entirely over water. In addition, an application otherwise precluded by this section will be accepted if it can be demonstrated that no actual interference will occur due to intervening terrain, lack of population or such other factors as may be applicable.”

The following analysis demonstrates that a lack of population and/or other factors allow this proposal to be compliant with 74.1204. The process commonly called “Living Way”, as recently described in FCC 08-242 in connection with BPFT-19981001TA, allows for the use of U/D Analysis, also known as “signal strength ratio methodology.”

In this instant case, the facilities of KESN are on a third adjacent channel to the proposed translator. KESN is authorized to broadcast with 98 kilowatts at 606 meters HAAT from a site that is 64.26 kilometers from the proposed translator site. The predicted strength of KESN at the proposed translator site is 71.4 dBu. Therefore, 111.4 dBu (71.4 dBu + 40 dBu) is the lowest value predicted to cause interference to KESN.

The aerial image below illustrates the area of predicted interference without accounting for the elevation pattern of the proposed antenna. The structure on which the tower is mounted and a small portion of another building are within this area. Neither structure is higher than 30 feet.



The facility proposed herein will utilize four-bay Shively 6812B antenna that employs half-wave spacing. (The elevation pattern for the antenna as prepared by Shively accompanies the instant application.)

The following table depicts the predicted signal strength from the proposed translator both at ground level, and at receiving antenna locations up to 14 meters (46 feet) above ground level. The 14 meter “artificial plane” is significantly higher than any structure within the potential free-space zone of interference.

Proposed Antenna: Shively 6812B 4-bay half-wave

Proposed Power: 0.01 kW

Antenna Height AGL: 25 meters

Interference Contour: 111.4 dBu

Artificial Rcv Antenna Height: 14 meters

Distance (Free Space)

Equation: $= (10^{((106.92 - [\text{desired dBu}] + [\text{ERP in dBk}]) / 20)}) * 1000$

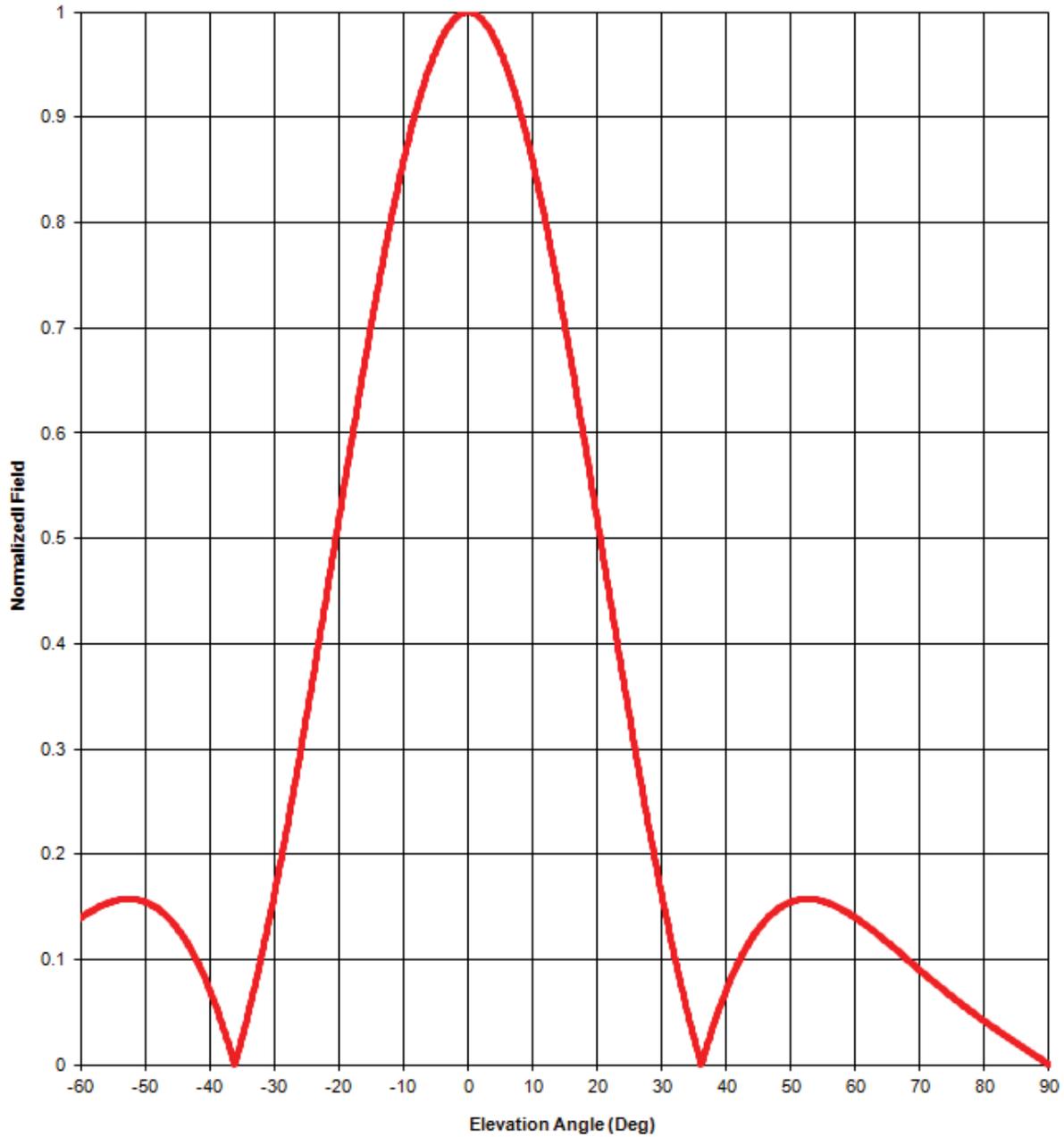
Field Strength (dBu) Equation $" = 106.92 - (20 * (\text{LOG}_{10}[\text{DistMeters} / 1000])) + [\text{ERP in dBk}]$

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. to	in dBu @
Horizon	Field	in kW	in dBk	Contour	Artificial Plane	Artificial Plane	to Ground Level	Ground Level
0°	0.999	0.010	20.01	59.64 m	infinite	---	infinite	---
-5°	0.963	0.009	20.33	57.49 m	126.21 m	104.57 dBu	286.84 m	97.44 dBu
-10°	0.858	0.007	21.33	51.23 m	63.35 m	109.56 dBu	143.97 m	102.42 dBu
-15°	0.703	0.005	23.06	41.97 m	42.50 m	111.29 dBu	96.59 m	104.16 dBu
-20°	0.519	0.003	25.70	30.99 m	32.16 m	111.08 dBu	73.10 m	103.95 dBu
-25°	0.331	0.001	29.60	19.76 m	26.03 m	109.01 dBu	59.16 m	101.88 dBu
-30°	0.162	0.000	35.81	9.67 m	22.00 m	104.26 dBu	50.00 m	97.13 dBu
-35°	0.026	0.000	51.70	1.55 m	19.18 m	89.56 dBu	43.59 m	82.43 dBu
-40°	0.071	0.000	42.97	4.24 m	17.11 m	99.28 dBu	38.89 m	92.15 dBu
-45°	0.130	0.000	37.72	7.76 m	15.56 m	105.36 dBu	35.36 m	98.23 dBu
-50°	0.155	0.000	36.19	9.25 m	14.36 m	107.58 dBu	32.64 m	100.45 dBu
-55°	0.155	0.000	36.19	9.25 m	13.43 m	108.17 dBu	30.52 m	101.04 dBu
-60°	0.140	0.000	37.08	8.36 m	12.70 m	107.77 dBu	28.87 m	100.63 dBu
-65°	0.116	0.000	38.71	6.93 m	12.14 m	106.53 dBu	27.58 m	99.40 dBu
-70°	0.090	0.000	40.92	5.37 m	11.71 m	104.64 dBu	26.60 m	97.51 dBu
-75°	0.065	0.000	43.74	3.88 m	11.39 m	102.05 dBu	25.88 m	94.92 dBu
-80°	0.041	0.000	47.74	2.45 m	11.17 m	98.21 dBu	25.39 m	91.08 dBu
-85°	0.021	0.000	53.56	1.25 m	11.04 m	92.50 dBu	25.10 m	85.37 dBu
-90°	0.001	0.000	80.00	0.06 m	11.00 m	66.09 dBu	25.00 m	58.96 dBu

As can be determined by the columns colored green, at no location from ground level to 14 meters above the ground does the predicted signal of the proposed translator exceed that of 40 dB greater than KESN.

The Applicant respectfully submits that since a lack of population exists in the area of actual interference, the processing pursuant to 47 C.F.R § 74.1204(d) is appropriate for the instant application.

Elevation pattern



Antenna model: 6812b, 4-bay half-wave-spaced

Test frequency: 98.1 MHz

Gain (maximum):

Power	dB
1.14	0.58 dB

[Document No. 6812b 4-bay hw \(130701\)](#)

Degrees	Rel. Field
1	0.999
2	0.994
3	0.987
4	0.976
5	0.963
6	0.947
7	0.929
8	0.908
9	0.884
10	0.858
11	0.831
12	0.801
13	0.770
14	0.737
15	0.703
16	0.667
17	0.631
18	0.594

Degrees	Rel. Field
19	0.556
20	0.519
21	0.481
22	0.443
23	0.405
24	0.368
25	0.331
26	0.296
27	0.261
28	0.227
29	0.194
30	0.162
31	0.132
32	0.103
33	0.076
34	0.050
35	0.026
36	0.003

Degrees	Rel. Field
37	0.018
38	0.037
39	0.055
40	0.071
41	0.086
42	0.099
43	0.111
44	0.121
45	0.130
46	0.137
47	0.143
48	0.148
49	0.152
50	0.155
51	0.157
52	0.158
53	0.158
54	0.157

Degrees	Rel. Field
55	0.155
56	0.153
57	0.151
58	0.147
59	0.144
60	0.140
61	0.136
62	0.131
63	0.126
64	0.121
65	0.116
66	0.111
67	0.106
68	0.101
69	0.095
70	0.090
71	0.085
72	0.080

Degrees	Rel. Field
73	0.075
74	0.070
75	0.065
76	0.060
77	0.055
78	0.050
79	0.046
80	0.041
81	0.037
82	0.033
83	0.029
84	0.025
85	0.021
86	0.016
87	0.012
88	0.008
89	0.004
90	0.000

Elevation Pattern Tabulation

Antenna 6812b, 4-bay half-wave-spaced

Relative Field at 0° Depression = 1.000

EXHIBIT III-15

RF EXPOSURE ANALYSIS NEW COMMERCIAL FM TRANSLATOR CHANNEL 280 DURANT, OK

The proposed facility was 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 facility will operate on an existing tower with a radiation centerline at 25.0 meters above ground level (AGL) and an ERP of 10 watts with circular polarization. The Applicant intends to use a four-bay Shively 6812B antenna. The antenna will employ half-wave spacing.

The antenna will be mounted on an existing tower that sits atop an occupied building. The antenna centerline is 19 meters above the roof.

At 2 meters above the roof and 14.2 meters from the base of the tower, this proposal will contribute 7.57 microwatts per square centimeter, or less than 3.8 percent of the allowable ANSI limit for uncontrolled exposure, and 0.008 percent of the allowable limit for controlled exposure. This figure is significantly 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, 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 by a substantial fence and locked gate. 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.

