

Technical Report K249FD.CP Minor Modification

This technical report is submitted for a minor modification to K249FD.CP, FCC file no. BNPFT-20171211ADA. Changes in the tower site, COR and antenna are proposed. The translator will continue to serve as a fill-in to rebroadcast the primary KYNG(AM) 1590 kHz facility at Springdale, AR, FCC facility ID 71702.

K249FD.CP Modification Analysis:

An overlap study in exhibit E-1 shows the K249FD.CP modification is within the KKEG(FM) 252C1 third-adjacent protected contour. Using the vertical elevation pattern of the Nicom BKG77 single bay antenna (exhibit E-2), the +40 119.65 F(50-10) dBu interfering contour lowest point = 46.2 meters above the site elevation (exhibit E-3), which will not reach any populated area or major highways (exhibit E-4). Based on this showing a waiver of Section 74.1204 is requested in accordance with *Living Way Ministries, Inc.* (FCC 08-242).

The 60 F(50-50) dBu contour overlaps the current CP 60 dBu contour and is contained within the KYNG(AM) 2.0 mV/m daytime contour (exhibit E-5).

Antenna System:

The K249FD.CP translator will be located on the existing tower, ASR #1038000 at coordinates:

36 08 50.0N 094 11 14.0W NAD 83

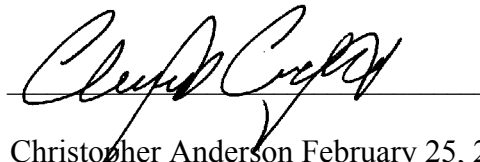
A Nicom BKG77-1 non-directional antenna will be mounted at a COR AGL of 97.5 meters, 511.4 meters AMSL, 128 meter HAAT (exhibit E-6) and operate at 0.250 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using FMModel (exhibit E-7). The worst-case (H+V) RF is calculated to be $0.504 \mu\text{W}/\text{cm}^2$ at a distance of 97.6 meters from the base of the tower, which is below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for uncontrolled, general public exposure, allowing exclusion from consideration.

Conclusion:

It is concluded that the minor modification application for K249FD.CP complies with all Commission rules and policies.

A handwritten signature in black ink, appearing to read 'Christopher Anderson', is written over a horizontal line.

Christopher Anderson February 25, 2020
andersce@bham.rr.com
© 2020 Anderson Associates

E-1 K249FD.CP Mod. Overlap Study

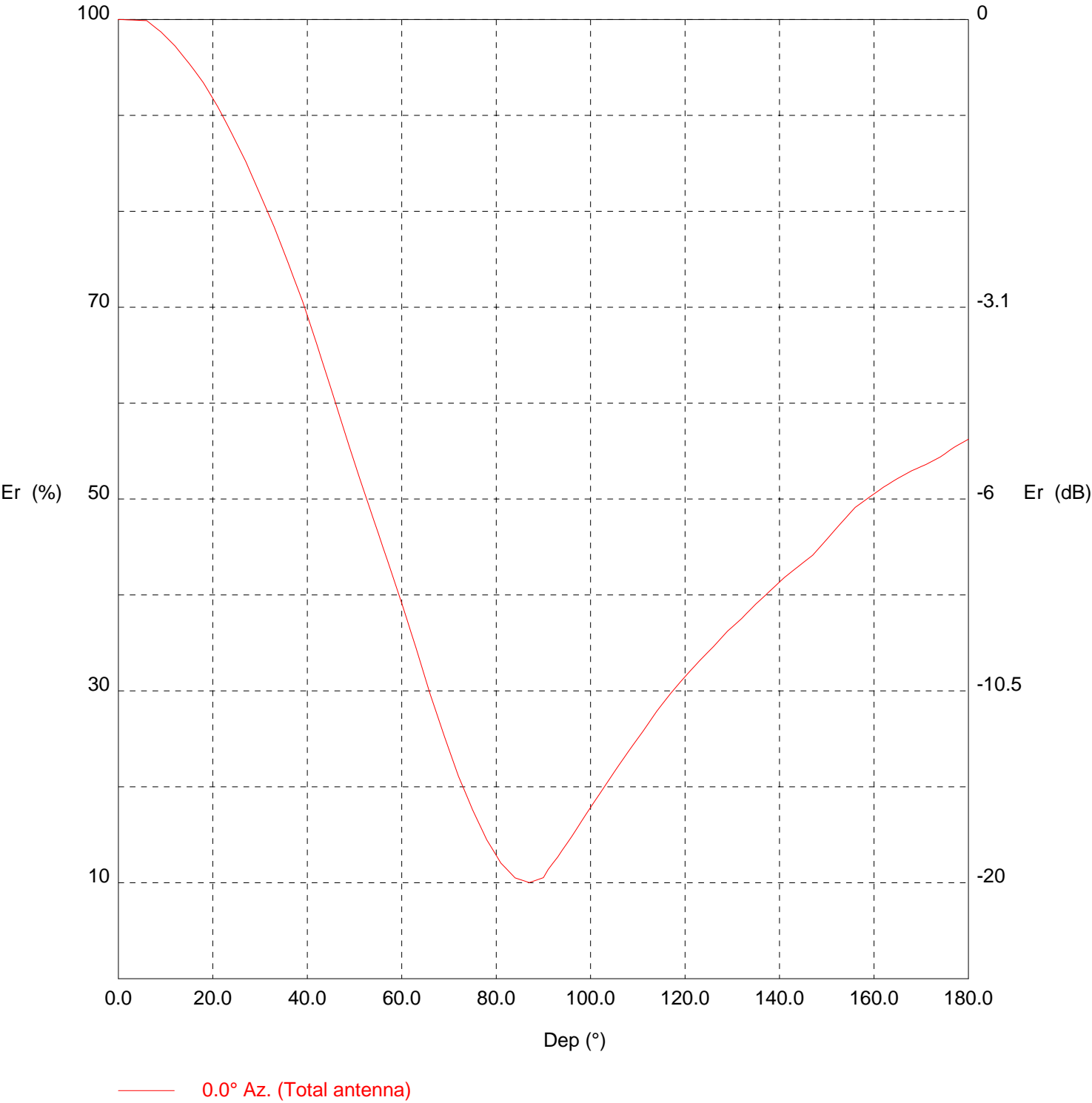
REFERENCE 36 08 50.00 N. 94 11 14.00 W.		CH# 249D - 97.7 MHz, Pwr= 0.25 kW, HAAT= 128.0 M, COR= 511.4 M Average Protected F(50-50)= 14.52 km Omni-directional								DISPLAY DATES DATA 02-25-20 SEARCH 02-25-20	
CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
249D Springdale	K249FD	CP AR		273.0 93.0	0.30 BNPFT20171211ADA	36 08 50.50 94 11 26.00	0.250	499	---Reference--- Cumulus Licensing LLC		
252C1 Bentonville	KKEG	LIC Z AR		97.1 277.2	17.85 BLH19960813KA	36 07 38.20 93 59 23.70	100.000 188	5.3 588	49.1 Cumulus Licensing LLC	-2.4	-32.3* (1)
250C Poteau	KZBB	LIC OK		200.6 20.3	127.55 BLH6297	35 04 19.30 94 40 46.80	100.000 610	138.6 784	93.4 Capstar Tx, LLC	-26.3*	11.3
249A Shell Knob	KOMO	LIC MO		35.1 215.4	81.86 BLH19990913AAC	36 44 55.20 93 39 32.70	2.100 170	80.5 547	27.5 Falcon Broadcasting, Inc.	-12.1	8.8
248D Huntsville	K248DM	LIC AR		100.0 280.3	42.43 BLFT20190125AAK	36 04 48.30 93 43 19.70	0.250	23.9 609	15.9 Kerm, Inc.	4.1	4.8
248C Tulsa	KMOD-FM	LIC OK		272.4 91.3	171.60 BMLH20100901AAC	36 11 46.30 96 05 54.00	100.000 453	125.5 687	84.4 Clear Channel Broadcasting	30.3	63.4
246C Muskogee	KYAL-FM	LIC OK		232.8 52.1	133.97 BLH20080724ABI	35 24 48.40 95 21 55.90	100.000 600	14.0 794	92.9 KmmY Inc.	103.4	39.9

Terrain database is GLOBE 30 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.
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.

- (1) The +40 119.65 F(50-10) dBu contour within the KKEG(FM) 252C1 second-adjacent protected contour (exhibit E-3)
lowest point = 46.2 meters above the site elevation, which does not reach any buildings, roads or population, as shown
in the aerial photo (exhibit E-4).

E-2 Nicom BKG77-1 Vertical Elevation Pattern And Tabulation

Vertical diagram



TX station:

Site name:

Frequency: 100.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	373.6	60.0	39.1	57.2	120.0	31.5	37.0
1.0	100.0	373.5	61.0	37.6	52.8	121.0	32.0	38.3
2.0	100.0	373.4	62.0	36.1	48.6	122.0	32.6	39.6
3.0	99.9	373.3	63.0	34.5	44.6	123.0	33.1	41.0
4.0	99.9	373.1	64.0	32.9	40.5	124.0	33.6	42.2
5.0	99.9	372.9	65.0	31.3	36.6	125.0	34.1	43.5
6.0	99.9	372.8	66.0	29.7	33.0	126.0	34.6	44.7
7.0	99.5	369.9	67.0	28.2	29.8	127.0	35.2	46.2
8.0	99.1	367.0	68.0	26.8	26.8	128.0	35.7	47.6
9.0	98.7	364.1	69.0	25.3	23.9	129.0	36.2	49.1
10.0	98.2	360.5	70.0	23.9	21.3	130.0	36.7	50.3
11.0	97.7	356.9	71.0	22.5	18.9	131.0	37.1	51.5
12.0	97.2	353.3	72.0	21.1	16.6	132.0	37.6	52.7
13.0	96.6	348.9	73.0	19.9	14.8	133.0	38.1	54.1
14.0	96.0	344.5	74.0	18.8	13.2	134.0	38.6	55.6
15.0	95.4	340.1	75.0	17.6	11.6	135.0	39.1	57.0
16.0	94.7	335.4	76.0	16.6	10.2	136.0	39.5	58.4
17.0	94.1	330.8	77.0	15.5	9.0	137.0	40.0	59.7
18.0	93.4	326.1	78.0	14.5	7.8	138.0	40.4	61.1
19.0	92.6	320.4	79.0	13.7	7.0	139.0	40.9	62.5
20.0	91.8	314.7	80.0	12.9	6.2	140.0	41.4	63.9
21.0	91.0	309.1	81.0	12.0	5.4	141.0	41.8	65.3
22.0	90.0	302.7	82.0	11.5	5.0	142.0	42.2	66.5
23.0	89.1	296.5	83.0	11.0	4.5	143.0	42.6	67.8
24.0	88.1	290.3	84.0	10.5	4.1	144.0	43.0	69.0
25.0	87.2	283.8	85.0	10.3	4.0	145.0	43.4	70.3
26.0	86.2	277.4	86.0	10.2	3.9	146.0	43.8	71.6
27.0	85.2	271.1	87.0	10.0	3.7	147.0	44.1	72.8
28.0	84.0	263.9	88.0	10.2	3.9	148.0	44.7	74.7
29.0	82.9	256.8	89.0	10.4	4.0	149.0	45.3	76.5
30.0	81.8	249.8	90.0	10.5	4.1	150.0	45.8	78.4
31.0	80.6	242.9	91.0	11.4	4.8	151.0	46.4	80.3
32.0	79.5	236.1	92.0	12.0	5.4	152.0	46.9	82.3
33.0	78.3	229.3	93.0	12.7	6.0	153.0	47.5	84.3
34.0	77.1	222.0	94.0	13.4	6.7	154.0	48.0	86.2
35.0	75.8	214.7	95.0	14.1	7.4	155.0	48.6	88.2
36.0	74.5	207.6	96.0	14.8	8.2	156.0	49.1	90.2
37.0	73.2	200.4	97.0	15.6	9.1	157.0	49.5	91.5
38.0	71.9	193.3	98.0	16.4	10.0	158.0	49.8	92.8
39.0	70.6	186.3	99.0	17.1	11.0	159.0	50.2	94.1
40.0	69.1	178.6	100.0	17.9	11.9	160.0	50.5	95.4
41.0	67.6	170.9	101.0	18.6	12.9	161.0	50.9	96.8
42.0	66.1	163.5	102.0	19.3	13.9	162.0	51.2	98.1
43.0	64.6	156.0	103.0	20.1	15.0	163.0	51.5	99.2
44.0	63.1	148.7	104.0	20.8	16.2	164.0	51.8	100.4
45.0	61.6	141.6	105.0	21.5	17.3	165.0	52.1	101.6
46.0	60.0	134.4	106.0	22.3	18.5	166.0	52.4	102.7
47.0	58.4	127.5	107.0	23.0	19.7	167.0	52.7	103.7
48.0	56.8	120.7	108.0	23.7	21.0	168.0	53.0	104.8
49.0	55.3	114.4	109.0	24.4	22.2	169.0	53.2	105.7
50.0	53.8	108.2	110.0	25.1	23.5	170.0	53.4	106.5
51.0	52.3	102.2	111.0	25.7	24.8	171.0	53.6	107.4
52.0	50.8	96.6	112.0	26.5	26.2	172.0	53.9	108.4
53.0	49.4	91.1	113.0	27.2	27.6	173.0	54.1	109.4
54.0	47.9	85.8	114.0	27.9	29.0	174.0	54.4	110.5
55.0	46.5	80.7	115.0	28.5	30.4	175.0	54.7	111.9
56.0	45.0	75.7	116.0	29.2	31.8	176.0	55.1	113.3
57.0	43.6	71.0	117.0	29.8	33.1	177.0	55.4	114.7
58.0	42.1	66.2	118.0	30.4	34.4	178.0	55.7	115.9
59.0	40.6	61.6	119.0	30.9	35.7	179.0	56.0	117.0

E-3 K249FD.CP Mod. +40 119.65 F(50-10) dBu Tabulation Within KKEG(FM) 252C1

K249FD.C Springdale, AR, Showing Protection to KKEG, Channel: 252
Geographic Coordinates: N. 36 08 50.00 W. 94 11 14.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.25 kW, Channel: 249
Translator or LPFM Antenna Height AG = 97.5 meters
K249FD.C Antenna Model = BKG-77-1

Protected Station's Contour = 79.64586 dBu
Translator's or LPFM's full Interference contour 119.64586

Review Azimuth = 0 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.25 kW
Distance between stations = 17.9 km
Protected Station= KKEG, 100 kW, 588 M meters COR AMSL

Depression Angle From Degree(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) (1)
00.00	1.0	1.0	0.2500	115.5253	115.5253	097.500
01.00	1.0	1.0	0.2499	115.5022	115.4846	095.484
02.00	1.0	1.0	0.2498	115.4791	115.4087	093.470
03.00	0.999	1.0	0.2497	115.4560	115.2977	091.458
04.00	0.999	1.0	0.2496	115.4329	115.1517	089.448
05.00	0.999	1.0	0.2495	115.4097	114.9706	087.441
06.00	0.996	1.0	0.2478	115.0170	114.3869	085.477
07.00	0.992	1.0	0.2461	114.6242	113.7698	083.531
08.00	0.989	1.0	0.2444	114.2314	113.1197	081.602
09.00	0.985	1.0	0.2428	113.8386	112.4371	079.692
10.00	0.982	1.0	0.2411	113.4458	111.7223	077.800
11.00	0.976	1.0	0.2383	112.7989	110.7264	075.977
12.00	0.971	1.0	0.2356	112.1519	109.7011	074.182
13.00	0.965	1.0	0.2329	111.5050	108.6471	072.417
14.00	0.96	1.0	0.2302	110.8580	107.5651	070.681
15.00	0.954	1.0	0.2275	110.2111	106.4558	068.975
16.00	0.947	1.0	0.2241	109.3793	105.1422	067.351
17.00	0.94	1.0	0.2207	108.5475	103.8045	065.764
18.00	0.932	1.0	0.2173	107.7158	102.4438	064.214
19.00	0.925	1.0	0.2140	106.8840	101.0608	062.702
20.00	0.918	1.0	0.2107	106.0522	099.6565	061.228
21.00	0.909	1.0	0.2065	104.9894	098.0160	059.875
22.00	0.9	1.0	0.2023	103.9265	096.3590	058.568
23.00	0.89	1.0	0.1982	102.8637	094.6865	057.308
24.00	0.881	1.0	0.1941	101.8009	092.9997	056.094
25.00	0.872	1.0	0.1901	100.7380	091.2997	054.926
26.00	0.861	1.0	0.1854	099.4904	089.4213	053.886
27.00	0.85	1.0	0.1808	098.2427	087.5349	052.899
28.00	0.84	1.0	0.1762	096.9950	085.6415	051.964
29.00	0.829	1.0	0.1717	095.7473	083.7425	051.081
30.00	0.818	1.0	0.1673	094.4997	081.8391	050.250
31.00	0.806	1.0	0.1624	093.1134	079.8137	049.543
32.00	0.794	1.0	0.1576	091.7271	077.7890	048.892
33.00	0.782	1.0	0.1529	090.3408	075.7661	048.297
34.00	0.77	1.0	0.1482	088.9545	073.7466	047.757
35.00	0.758	1.0	0.1436	087.5682	071.7316	047.273
36.00	0.745	1.0	0.1386	086.0201	069.5917	046.939
37.00	0.731	1.0	0.1337	084.4721	067.4624	046.663
38.00	0.718	1.0	0.1288	082.9240	065.3450	046.447
39.00	0.704	1.0	0.1240	081.3760	063.2410	046.288
40.00	0.691	1.0	0.1194	079.8280	061.1518	046.188 (1)
41.00	0.676	1.0	0.1142	078.0951	058.9391	046.265
42.00	0.661	1.0	0.1092	076.3622	056.7482	046.404
43.00	0.646	1.0	0.1043	074.6293	054.5804	046.603
44.00	0.631	1.0	0.0995	072.8964	052.4373	046.862
45.00	0.616	1.0	0.0949	071.1636	050.3202	047.180
46.00	0.6	1.0	0.0901	069.3614	048.1825	047.606
47.00	0.585	1.0	0.0855	067.5592	046.0753	048.090
48.00	0.569	1.0	0.0810	065.7570	044.0000	048.633
49.00	0.554	1.0	0.0766	063.9548	041.9581	049.233
50.00	0.538	1.0	0.0724	062.1526	039.9509	049.888
51.00	0.523	1.0	0.0685	060.4659	038.0524	050.509
52.00	0.509	1.0	0.0647	058.7793	036.1881	051.181
53.00	0.494	1.0	0.0611	057.0926	034.3592	051.904
54.00	0.48	1.0	0.0575	055.4059	032.5668	052.676
55.00	0.465	1.0	0.0541	053.7193	030.8121	053.496
56.00	0.45	1.0	0.0507	052.0095	029.0833	054.382
57.00	0.435	1.0	0.0474	050.2997	027.3952	055.315
58.00	0.421	1.0	0.0442	048.5899	025.7487	056.293
59.00	0.406	1.0	0.0412	046.8802	024.1451	057.316
60.00	0.391	1.0	0.0382	045.1704	022.5852	058.381
61.00	0.375	1.0	0.0352	043.3682	021.0253	059.569
62.00	0.36	1.0	0.0324	041.5660	019.5141	060.799
63.00	0.344	1.0	0.0296	039.7638	018.0524	062.070
64.00	0.329	1.0	0.0270	037.9616	016.6413	063.380
65.00	0.313	1.0	0.0245	036.1594	015.2816	064.728
66.00	0.298	1.0	0.0222	034.4496	014.0119	066.029
67.00	0.283	1.0	0.0201	032.7399	012.7925	067.363
68.00	0.269	1.0	0.0180	031.0301	011.6241	068.729
69.00	0.254	1.0	0.0161	029.3203	010.5075	070.127
70.00	0.239	1.0	0.0143	027.6105	009.4434	071.555
71.00	0.226	1.0	0.0128	026.1549	008.5152	072.770
72.00	0.214	1.0	0.0114	024.6993	007.6325	074.010

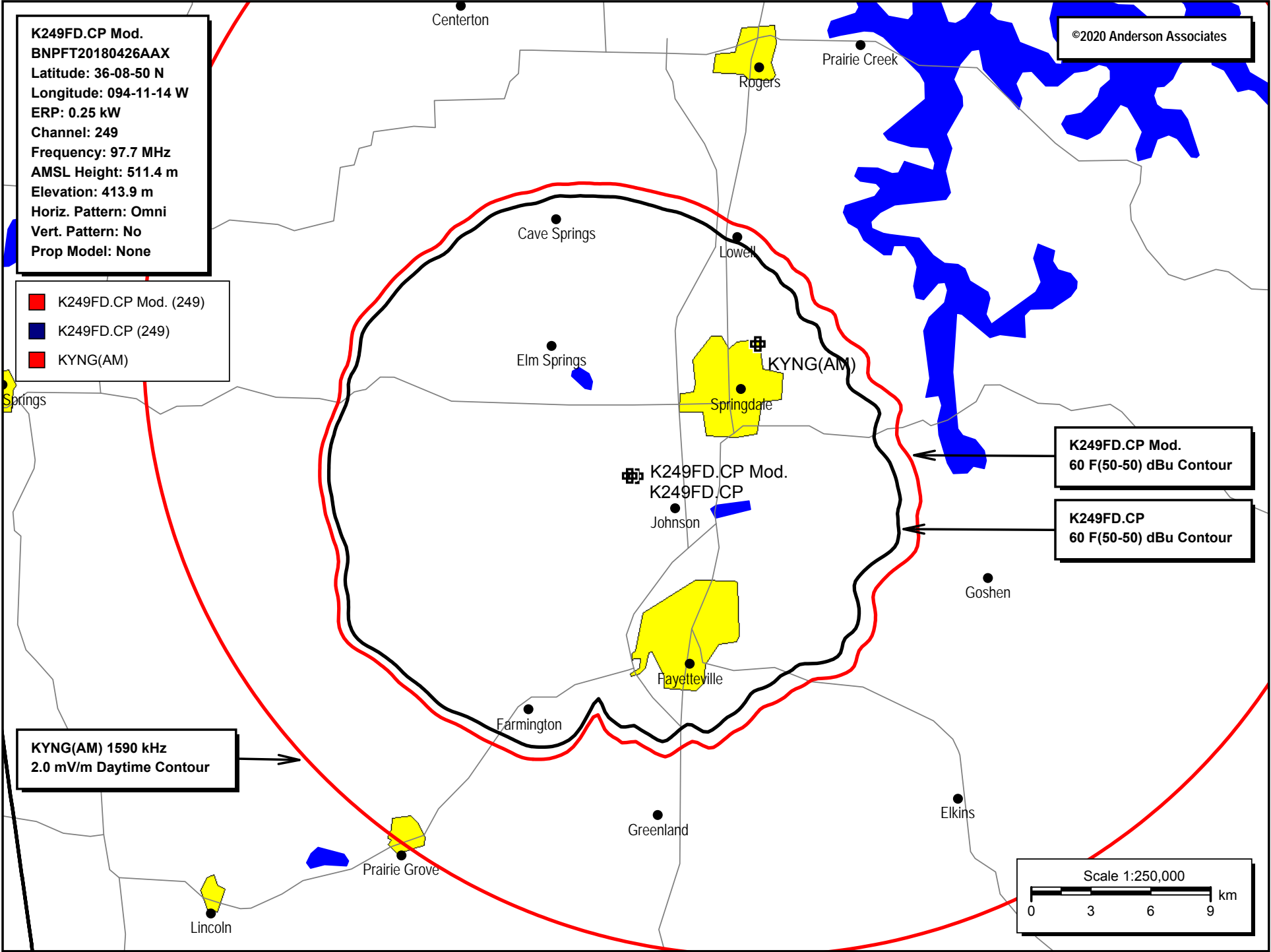
E-3 K249FD.CP Mod. +40 119.65 F(50-10) dBu Tabulation Within KKEG(FM) 252C1, cont.

Depression Angle From Degree (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) (1)
73.00	0.201	1.0	0.0101	023.2437	006.7958	075.272
74.00	0.189	1.0	0.0089	021.7881	006.0056	076.556
75.00	0.176	1.0	0.0077	020.3324	005.2624	077.860
76.00	0.167	1.0	0.0069	019.2465	004.6562	078.825
77.00	0.157	1.0	0.0062	018.1606	004.0852	079.805
78.00	0.148	1.0	0.0055	017.0746	003.5500	080.798
79.00	0.138	1.0	0.0048	015.9887	003.0508	081.805
80.00	0.129	1.0	0.0042	014.9028	002.5878	082.824
81.00	0.124	1.0	0.0038	014.3020	002.2373	083.374
82.00	0.119	1.0	0.0035	013.7013	001.9069	083.932
83.00	0.113	1.0	0.0032	013.1006	001.5966	084.497
84.00	0.108	1.0	0.0029	012.4998	001.3066	085.069
85.00	0.103	1.0	0.0027	011.8991	001.0371	085.646
86.00	0.083	1.0	0.0017	009.6117	000.6705	087.912
87.00	0.063	1.0	0.0010	007.3243	000.3833	090.186
88.00	0.044	1.0	0.0005	005.0369	000.1758	092.466
89.00	0.024	1.0	0.0001	002.7495	000.0480	094.751
90.00	0.004	1.0	0.0000	000.4621	000.0000	097.038

(1) The +40 119.65 F(50-10) dBu contour within the KKEG(FM) 252C1 third-adjacent protected contour lowest point = 46.2 meters, which will not reach any population, roads or buildings, as shown in the aerial photo in exhibit E-4.



E-5 K249FD.CP Mod. 60 F(50-50) dBu Contour Plot



Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **36° 8' 50"** North

Longitude **94° 11' 14"** West (NAD 83)

Height of antenna radiation center above mean sea level: **511.4** meters AMSL

Number of Evenly Spaced Radials = **12** 0° is referenced to True North

Results

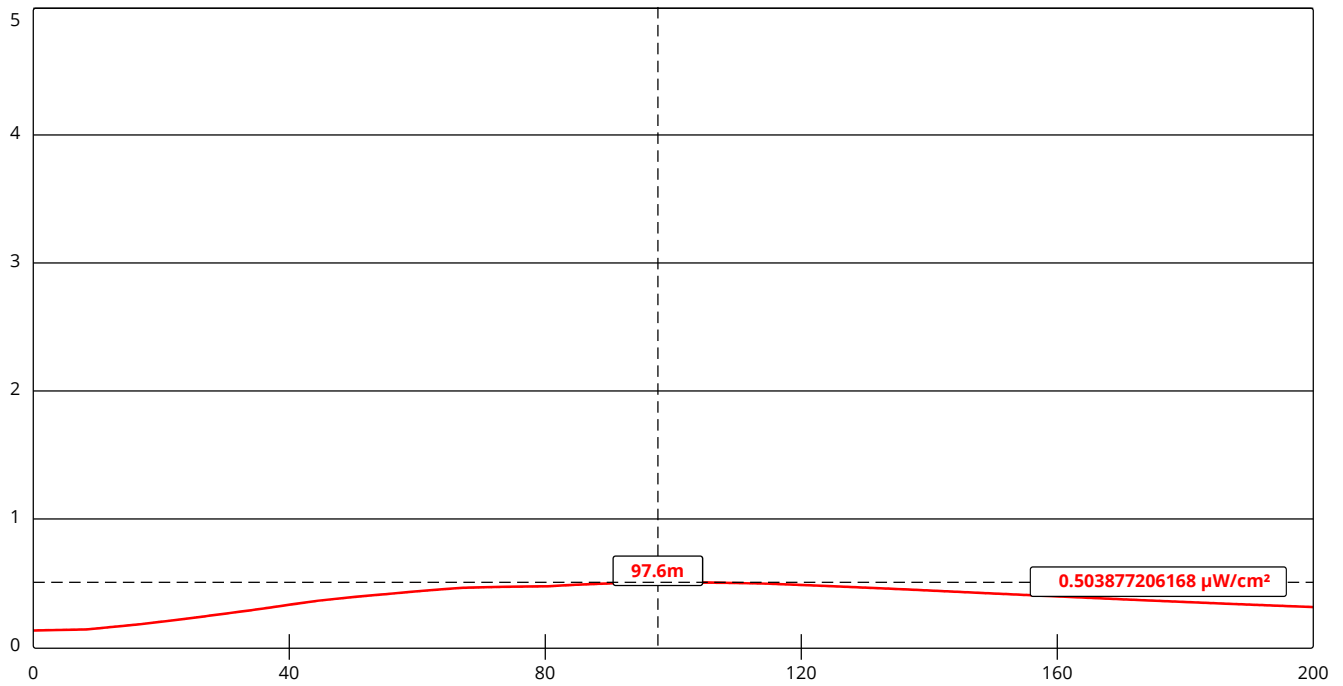
Calculated HAAT = **128 meters**

Antenna Height Above Average Terrain calculated
using 1 km [GLOBE terrain data](#)

Individual "Radial HAAT" Values, in meters

0°	126.7 m
30°	108.0 m
60°	101.0 m
90°	120.1 m
120°	116.6 m
150°	107.0 m
180°	107.5 m
210°	139.9 m
240°	162.0 m
270°	148.9 m
300°	150.5 m
330°	143.4 m

FM Model



Channel Selection	Channel 249 (97.7 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	97.5	Distance (m)	200
ERP-H (W)	250	ERP-V (W)	250
Num of Elements	1	Element Spacing (λ)	1
Num of Points	500		

ASR Registration 1038000

Registration Detail

Reg Number	1038000	Status	Granted
File Number	A1049032	Constructed	04/01/1988
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type GTOWER - Guyed Structure Used for Communication Purposes

Location (in NAD83 Coordinates)

Lat/Long	36-08-50.0 N 094-11-14.0 W	Address	4201 S. 56th (Johnson 1)
City, State	SPRINGDALE , AR		
Zip	72762	County	WASHINGTON
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
413.9	151.5
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
565.4	146.3

Painting and Lighting Specifications

FCC Paragraphs 1, 3, 4, 13, 21

FAA Notification

FAA Study	97-ASW-2394-OE	FAA Issue Date	09/05/1997
-----------	----------------	----------------	------------

Owner & Contact Information

FRN	0023591779	Owner Entity	Limited Liability Company
		Type	

Owner

Arklahoma Broadcast & Communiaction Towers, LLC	P: (870)642-3104
Attention To: Jay Bunyard	F:
111 Westwood Drive	E: radiotowers@live.com
De Queen , AR 71832	

Contact

Daniel , Chris T	P: (479)234-5428
Attention To: Chris Daniel	F:
208 Dogwood Drive	E: radiotowers@live.com
Mena , AR 71953	

Last Action Status

Status	Granted	Received	09/12/2016
--------	---------	----------	------------