Technical Report
K228FT.CP Minor Modification

This technical report is submitted for a minor modification to K228FT.CP, FCC file no. BNPFT-20171206ACG. A tower site move with corresponding changes in antenna, COR and ERP is submitted. The translator will continue to serve as a fill-in facility to rebroadcast KRKC(AM) 1490 kHz at King City, CA, FCC facility I.D. no. 54554.

K228FT.CP Modification Analysis:

An overlap study in exhibit E-1 shows the K228FT.CP modification is within the KEXA(FM) 230B1 and KXSM(FM) 226A second-adjacent protected contours. The 117.2 and 108.1 +40 F(50-10) dBu interfering contours calculated within the protected contours in exhibits E-2 and E-3 show the interfering contours will not encompass any population, roads or buildings (exhibit E-4). The 60 dBu F(50-50) contour overlaps the current CP 60 dBu contour and is contained within a 25 mile/40 kilometer radius from the primary KRKC(AM) daytime tower site (exhibit E-5). The plot also shows the modified K228FT.CP facility has less than 50% overlap to K285FW, which also serves as a fill-in facility for KRKC(AM).

Antenna System:

The K228FT.CP modification will be relocated to a ten (10) meter tower at coordinates:

36 22 06N 121 25 31W NAD 27.

A TOWAIR determination (exhibit E-6) shows the tower does not require registration. A Scala CL-FM horizontally-polarized, directional antenna rotated to 70 degrees azimuth

(exhibit E-7) will be mounted at a COR AGL of 10 meters, 1198 meters AMSL, 729 meters HAAT (exhibit E-8) and operate at 0.120 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using the formula from the OET Bulletin 65:

$$S\ (\text{RF in microwatts/cm}^2) = \frac{33.4 \times F^2 \times (\text{H ERP} + \text{V ERP in watts})}{R^2\ (\text{height of radiation center in meters} - 2\text{m})}$$

Using a worst case vertical (F) factor of 1.0, the RF is calculated to be 62.6 $\mu W/cm^2$ to the ground, which is below the 200 $\mu W/cm^2$ maximum general public access.

Conclusion:

It is concluded that the K228FT.CP modification complies with all Commission rules and policies.

Christopher Anderson December 31, 2018
andersce@bham.rr.com

E-1 K228FT.CP Mod. Overlap Study

REFERENCE CH# 228D - 93.5 MHz, Pwr= 0.12 kW DA, HAAT= 729.0 M, COR= 1198 M DISPLAY DATES
36 22 06.0 N. Average Protected F(50-50)= 29.73 km DATA 12-31-18
121 25 31.0 W. Standard Directional SEARCH 12-31-18

CH CITY	CALL STATE	TYPE ANT <--	AZI FILE #	DIST	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
228D King City	K228FT CA	CP DV_	352.1 172.1	1.62 BNPFT20171206ACG	36 22 58.0 121 25 40.0	0.250	956	---Reference--- King City Communications C		
230B1 King City	KEXA CA	LIC _CN	86.0 266.1	18.79 BLH19871223KC	36 22 48.0 121 12 57.0	5.400 214	4.0 458	52.2 Inspiration Media Network,	-19.5*	-34.3*(1)
226A Chualar	KXSM CA	LIC NCX	48.2 228.2	15.20 BLH20170531ADD	36 27 34.2 121 17 54.8	2.500 89	2.2 418	24.1 Lazer Licenses, Llc	-19.4*	-9.5*(2)
228D Monterey	K228FD CA	LIC _C_	300.4 120.3	30.31 BLFT20160720ACN	36 30 22.0 121 43 04.0	0.099	46.2 664	10.2 Educational Media Foundati	-16.6*	0.8
229B Fresno	KSKS CA	LIC _CX	65.5 246.6	194.20 BMLH20050425ABM	37 04 39.0 119 26 01.0	68.000 580	142.8 1404	115.1 Cumulus Licensing Llc	14.4	4.5
227B San Luis Obispo	KZOZ CA	LIC _CN	148.0 328.5	131.70 BLH19961226KC	35 21 40.0 120 39 21.0	23.000 472	92.3 808	71.1 Agm California, Inc.	22.0	28.3
282A Gonzales	KHIP CA	LIC NCN	345.9 165.9	34.33 BMLH19980709KB	36 40 06.0 121 31 09.0	2.600 155	81.5 435	27.5 Mapleton License Of Monter	9.5R	24.8M

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= East Zone 2A, 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.
« = Station meets FCC minimum distance spacing for its class.

(1) The +40 117.2 F(50-10) dBu contour within the KEXA(FM) 230B1 second-adjacent protected contour (exhibit E-2) does not encompass any population, roads or buildings (exhibit E-4).

(2) The +40 108.1 F(50-10) dBu contour within the KXSM(FM) 226A second-adjacent protected contour (exhibit E-3) does not encompass any population, roads or buildings (exhibit E-4).

E-2 K228FT.CP Mod. +40 dBu Tabulation Within KEXA(FM) 230B1

K228FT.C King City, CA, Showing Protection to KEXA
Geographic Coordinates: N. 36 22 06.00 W. 121 25 31.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.12
Translator or LPFM Antenna Height AG = 10 Meters
K228FT.C Antenna Model = CL-FM Hpol

Protected Station's Contour = 77.19684 dBu
Translator's or LPFM's full Interference contour 117.19684

Review Azimuth = 70 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.12 kW
Distance between stations = 18.8 km
Protected Station= KEXA, 5.4 kW, 458 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	1.00	1.0	0.1200	106.1081	106.1081	010.000
05.00	0.994	1.0	0.1184	105.4184	105.0173	000.812
10.00	0.98	1.0	0.1152	103.9860	102.4062	-008.057
15.00	0.953	1.0	0.1089	101.0680	097.6242	-016.158
20.00	0.917	1.0	0.1008	097.2481	091.3833	-023.261
25.00	0.873	1.0	0.0914	092.5793	083.9054	-029.126
30.00	0.818	1.0	0.0802	086.7434	075.1220	-033.372
35.00	0.756	1.0	0.0685	080.1647	065.6671	-035.981
40.00	0.69	1.0	0.0571	073.2146	056.0856	-037.061
45.00	0.618	1.0	0.0458	065.5218	046.3309	-036.331
50.00	0.544	1.0	0.0354	057.6698	037.0694	-034.178
55.00	0.468	1.0	0.0262	049.6055	028.4526	-030.634
60.00	0.39	1.0	0.0183	041.3822	020.6911	-025.838
65.00	0.3	1.0	0.0108	031.8324	013.4530	-018.850
70.00	0.19	1.0	0.0043	020.1605	006.8953	-008.945
75.00	0.11	1.0	0.0015	011.6719	003.0209	-001.274
80.00	0.05	1.0	0.0003	005.3054	000.9213	004.775
85.00	0.03	1.0	0.0001	003.1832	000.2774	006.829
90.00	0.03	1.0	0.0001	003.1832	000.0000	006.817

(1) The +40 117.2 F(50-10) dBu contour within the KEXA(FM) 230B1 second-adjacent protected contour does not encompass any population, roads or buildings, as shown in the aerial photo in exhibit E-4. Based on this showing a waiver of §74.1204 is requested in accordance with *Living Way Ministries, Inc.*, 23 FCC Rcd 15070 (2008).

E-3 K228FT.CP Mod. +40 dBu Tabulation Within KXSM(FM) 226A

K228FT.C King City, CA, Showing Protection to KXSM
Geographic Coordinates: N. 36 22 06.00 W. 121 25 31.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.12
Translator or LPFM Antenna Height AG = 10 Meters
K228FT.C Antenna Model = CL-FM Hpol

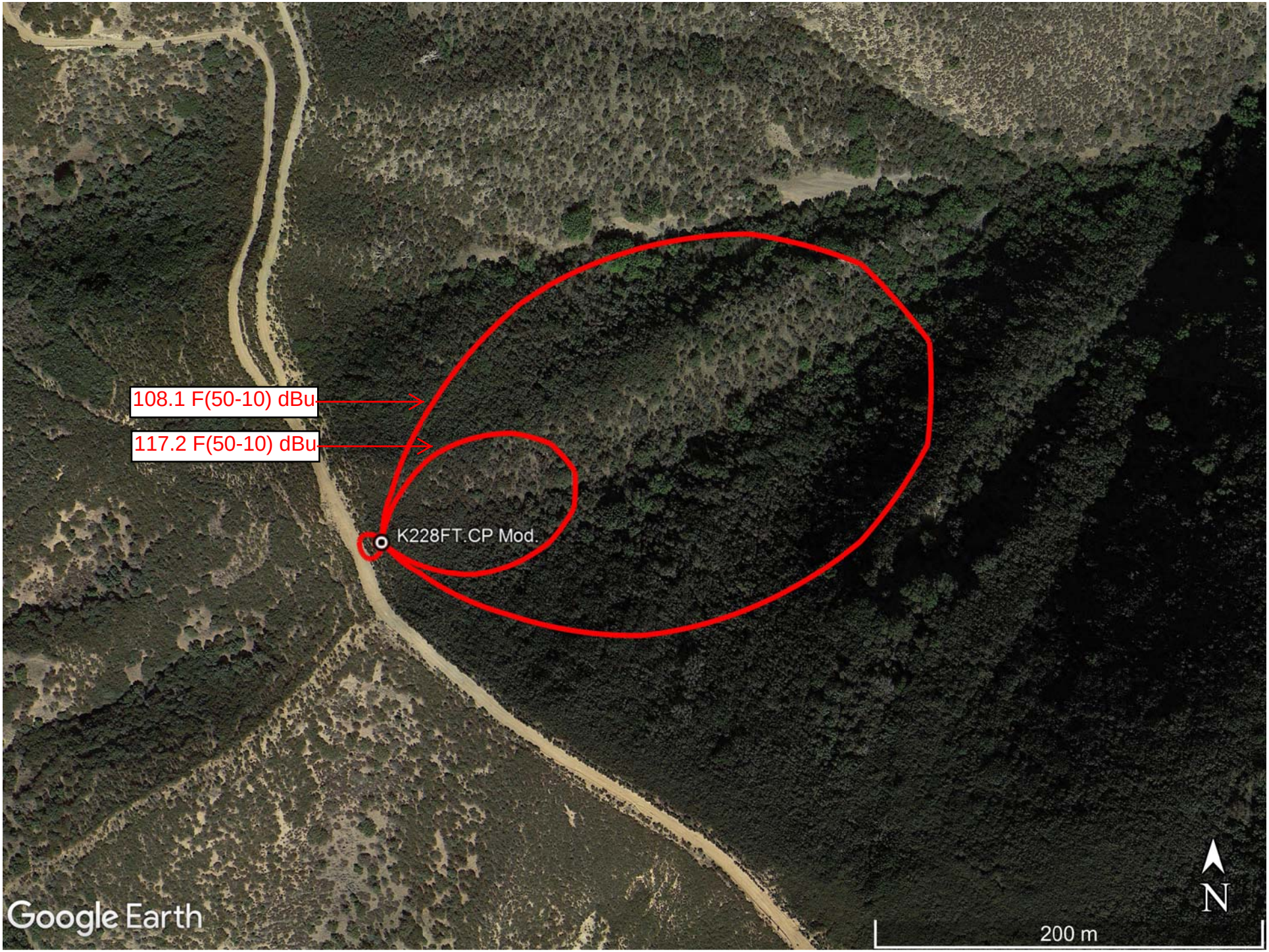
Protected Station's Contour = 68.08039 dBu
Translator's or LPFM's full Interference contour 108.08039

Review Azimuth = 70 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.12 kW
Distance between stations = 15.2 km
Protected Station= KXSM, 2.5 kW, 417.6 M Meters COR AMSL

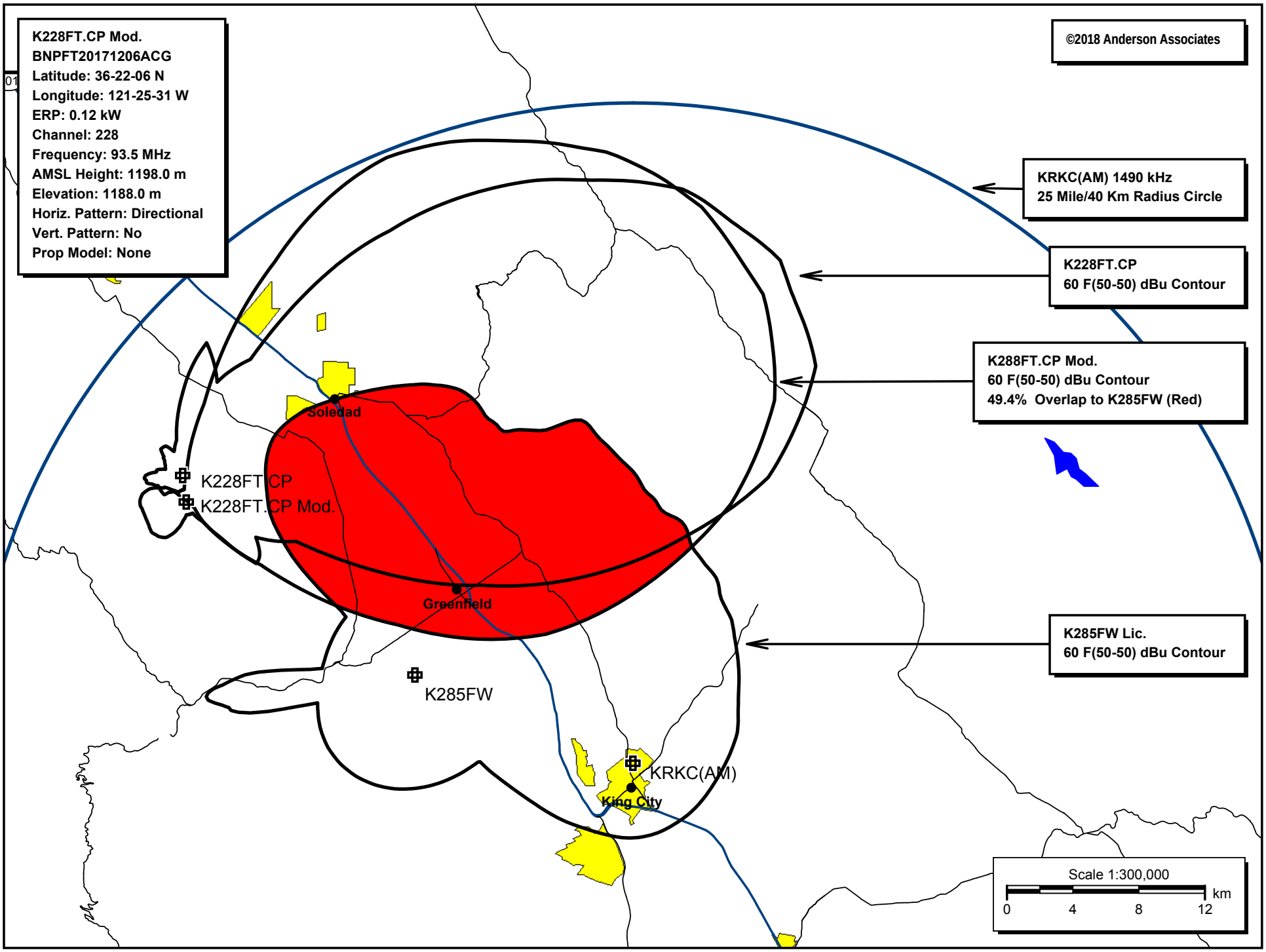
Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m)**(1)**
00.00	1.00	1.0	0.1200	303.0897	303.0897	010.000
05.00	0.994	1.0	0.1184	301.1196	299.9737	-016.244
10.00	0.98	1.0	0.1152	297.0279	292.5154	-041.578
15.00	0.953	1.0	0.1089	288.6929	278.8559	-064.719
20.00	0.917	1.0	0.1008	277.7817	261.0294	-085.007
25.00	0.873	1.0	0.0914	264.4457	239.6692	-101.760
30.00	0.818	1.0	0.0802	247.7758	214.5801	-113.888
35.00	0.756	1.0	0.0685	228.9842	187.5729	-121.340
40.00	0.69	1.0	0.0571	209.1319	160.2043	-124.427
45.00	0.618	1.0	0.0458	187.1579	132.3406	-122.341
50.00	0.544	1.0	0.0354	164.7292	105.8859	-116.190
55.00	0.468	1.0	0.0262	141.6944	081.2726	-106.069
60.00	0.39	1.0	0.0183	118.2050	059.1025	-092.369
65.00	0.3	1.0	0.0108	090.9269	038.4274	-072.408
70.00	0.19	1.0	0.0043	057.5870	019.6959	-044.114
75.00	0.11	1.0	0.0015	033.3399	008.6290	-022.204
80.00	0.05	1.0	0.0003	015.1545	002.6315	-004.924
85.00	0.03	1.0	0.0001	009.0927	000.7925	000.942
90.00	0.03	1.0	0.0001	009.0927	000.0000	000.907

(1) The +40 108.1F(50-10) dBu contour within the KXSM(FM) 226A second-adjacent protected contour does not encompass any population, roads or buildings, as shown in the aerial photo in exhibit E-4.Based on this showing a waiver of §74.1204 is requested in accordance with *Living Way Ministries, Inc.*, 23 FCC Rcd 15070 (2008).

E-4 K228FT.CP Mod. +40 F(50-10) dBu Contours Aerial Photo



E-5 K228FT.CP Mod. 60 dBu Contour Plot



E-6 K228FT.CP Mod. TOWAIR

TOWAIR Determination Results

*** NOTICE ***

TOWAIR's findings are not definitive or binding, and we cannot guarantee that the data in TOWAIR are fully current and accurate. In some instances, TOWAIR may yield results that differ from application of the criteria set out in 47 C.F.R. Section 17.7 and 14 C.F.R. Section 77.13. A positive finding by TOWAIR recommending notification should be given considerable weight. On the other hand, a finding by TOWAIR recommending either for or against notification is not conclusive. It is the responsibility of each ASR participant to exercise due diligence to determine if it must coordinate its structure with the FAA. TOWAIR is only one tool designed to assist ASR participants in exercising this due diligence, and further investigation may be necessary to determine if FAA coordination is appropriate.

DETERMINATION Results

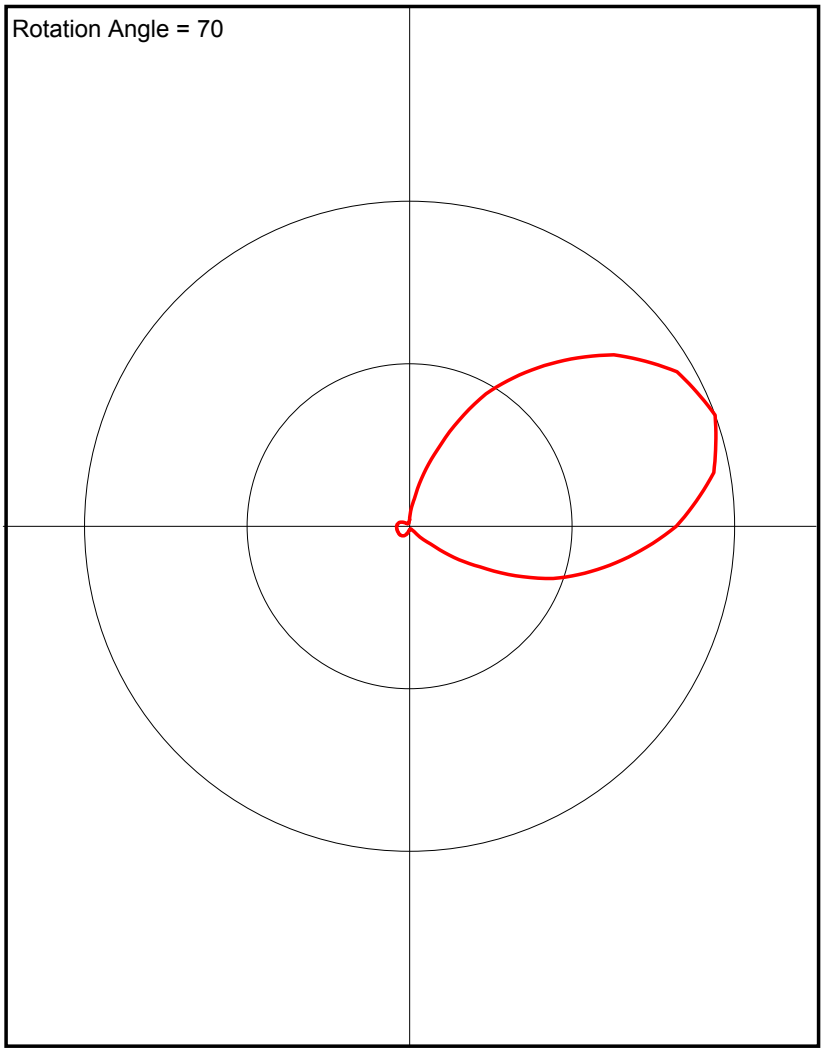
Structure does not require registration. There are no airports within 8 kilometers (5 miles) of the coordinates you provided.

Your Specifications

NAD83 Coordinates	
Latitude	36-22-06.0 north
Longitude	121-25-35.0 west
Measurements (Meters)	
Overall Structure Height (AGL)	10
Support Structure Height (AGL)	0
Site Elevation (AMSL)	1188
Structure Type	
LTOWER - Lattice Tower	

E-7 K228FT.CP Mod. Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.02
10.0	0.085
20.0	0.25
30.0	0.47
40.0	0.645
50.0	0.82
60.0	0.95
70.0	1.0
80.0	0.95
90.0	0.82
100.0	0.645
110.0	0.47
120.0	0.25
130.0	0.085
140.0	0.02
150.0	0.01
160.0	0.01
170.0	0.01
180.0	0.01
190.0	0.015
200.0	0.025
210.0	0.034
220.0	0.038
230.0	0.04
240.0	0.04
250.0	0.04
260.0	0.04
270.0	0.04
280.0	0.038
290.0	0.034
300.0	0.025
310.0	0.015
320.0	0.01
330.0	0.01
340.0	0.01
350.0	0.01



Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **36° 22' 6"** North
Longitude **121° 25' 31"** West (NAD 27)

These coordinates convert to NAD 83 coordinates of
36° 22' 05.87", North, 121° 25' 34.76" West (NAD 83).

Height of antenna radiation center above mean sea level: **1198** meters AMSL

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

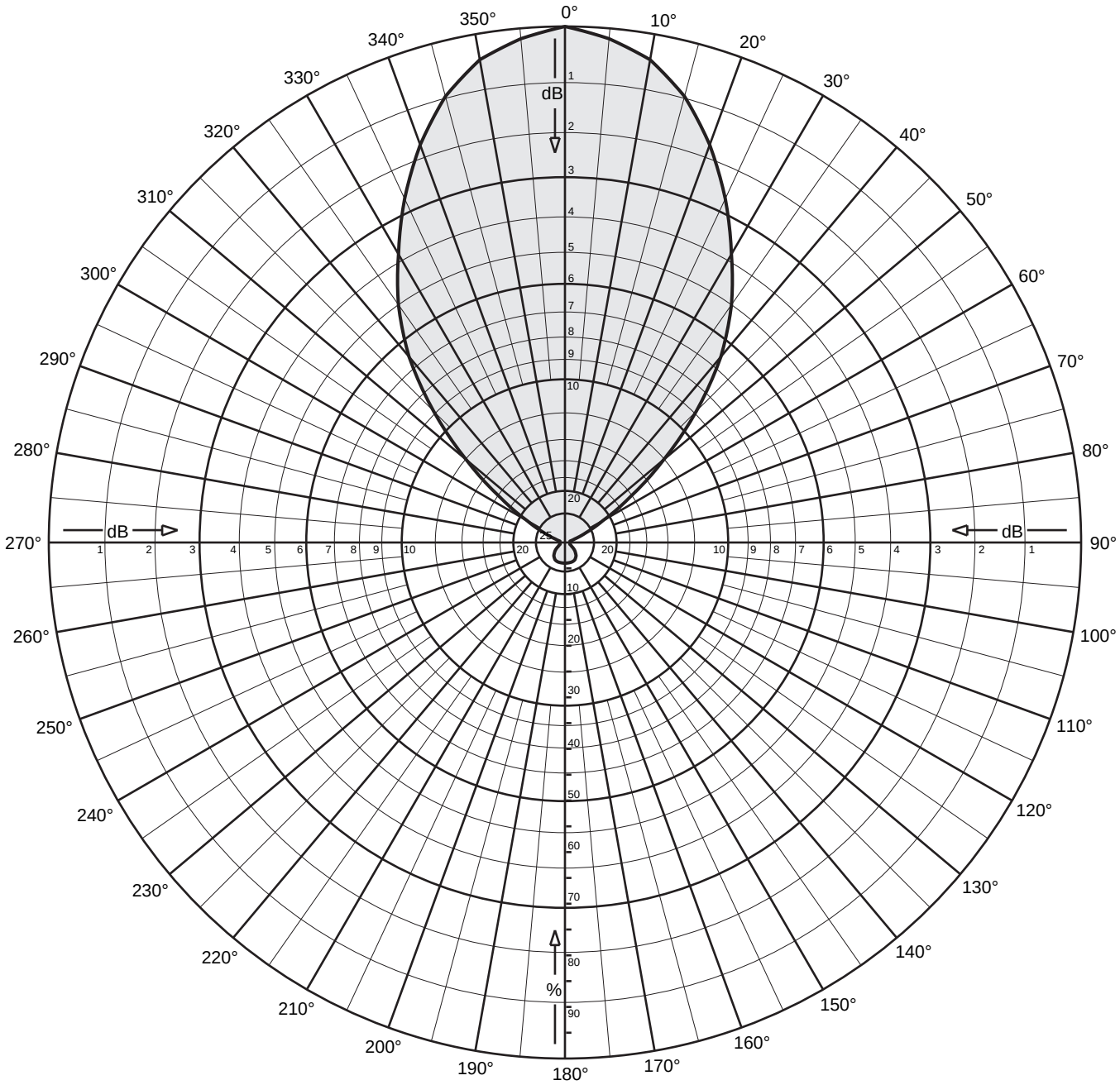
Results

Calculated HAAT = **729 meters**

Antenna Height Above Average Terrain calculated
using 1 km GLOBE terrain data

Individual "Radial HAAT" Values, in meters

0°	1074.7 m
30°	1080.9 m
60°	1090.4 m
90°	1060.4 m
120°	911.0 m
150°	588.5 m
180°	717.8 m
210°	516.9 m
240°	276.2 m
270°	419.7 m
300°	234.7 m
330°	774.4 m



CL-FM Log-periodic
FM
7.0 dBd (9.15 dBi)
Horizontal polarization
Horizontal radiation pattern

KATHREIN
SCALA DIVISION
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18-Jun-2004

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CL-FM Log-periodic
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Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	7.00	5.01	45	0.360	-8.87	-1.87	0.65
1	0.996	-0.03	6.97	4.97	46	0.338	-9.42	-2.42	0.57
2	0.992	-0.07	6.93	4.93	47	0.316	-10.01	-3.01	0.50
3	0.988	-0.10	6.90	4.89	48	0.294	-10.63	-3.63	0.43
4	0.984	-0.14	6.86	4.85	49	0.272	-11.31	-4.31	0.37
5	0.980	-0.18	6.82	4.81	50	0.250	-12.04	-5.04	0.31
6	0.974	-0.23	6.77	4.75	51	0.231	-12.73	-5.73	0.27
7	0.968	-0.28	6.72	4.70	52	0.212	-13.47	-6.47	0.23
8	0.962	-0.34	6.66	4.64	53	0.193	-14.29	-7.29	0.19
9	0.956	-0.39	6.61	4.58	54	0.174	-15.19	-8.19	0.15
10	0.950	-0.45	6.55	4.52	55	0.155	-16.19	-9.19	0.12
11	0.939	-0.55	6.45	4.42	56	0.141	-17.02	-10.02	0.10
12	0.928	-0.65	6.35	4.32	57	0.127	-17.92	-10.92	0.08
13	0.917	-0.75	6.25	4.21	58	0.113	-18.94	-11.94	0.06
14	0.906	-0.86	6.14	4.11	59	0.099	-20.09	-13.09	0.05
15	0.895	-0.96	6.04	4.01	60	0.085	-21.41	-14.41	0.04
16	0.880	-1.11	5.89	3.88	61	0.077	-22.27	-15.27	0.03
17	0.865	-1.26	5.74	3.75	62	0.069	-23.22	-16.22	0.02
18	0.850	-1.41	5.59	3.62	63	0.061	-24.29	-17.29	0.02
19	0.835	-1.57	5.43	3.49	64	0.053	-25.51	-18.51	0.01
20	0.820	-1.72	5.28	3.37	65	0.045	-26.94	-19.94	0.01
21	0.803	-1.91	5.09	3.23	66	0.040	-27.96	-20.96	0.01
22	0.786	-2.09	4.91	3.10	67	0.035	-29.12	-22.12	0.01
23	0.769	-2.28	4.72	2.96	68	0.030	-30.46	-23.46	0.00
24	0.752	-2.48	4.52	2.83	69	0.025	-32.04	-25.04	0.00
25	0.735	-2.67	4.33	2.71	70	0.020	-33.98	-26.98	0.00
26	0.717	-2.89	4.11	2.58	71	0.018	-34.89	-27.89	0.00
27	0.699	-3.11	3.89	2.45	72	0.016	-35.92	-28.92	0.00
28	0.681	-3.34	3.66	2.32	73	0.014	-37.08	-30.08	0.00
29	0.663	-3.57	3.43	2.20	74	0.012	-38.42	-31.42	0.00
30	0.645	-3.81	3.19	2.09	75	0.010	-40.00	-33.00	0.00
31	0.628	-4.03	2.97	1.98	76	0.010	-40.00	-33.00	0.00
32	0.612	-4.26	2.74	1.88	77	0.010	-40.00	-33.00	0.00
33	0.595	-4.50	2.50	1.78	78	0.010	-40.00	-33.00	0.00
34	0.579	-4.75	2.25	1.68	79	0.010	-40.00	-33.00	0.00
35	0.562	-5.00	2.00	1.59	80	0.010	-40.00	-33.00	0.00
36	0.544	-5.29	1.71	1.48	81	0.010	-40.00	-33.00	0.00
37	0.525	-5.59	1.41	1.38	82	0.010	-40.00	-33.00	0.00
38	0.507	-5.90	1.10	1.29	83	0.010	-40.00	-33.00	0.00
39	0.488	-6.22	0.78	1.20	84	0.010	-40.00	-33.00	0.00
40	0.470	-6.56	0.44	1.11	85	0.010	-40.00	-33.00	0.00
41	0.448	-6.97	0.03	1.01	86	0.010	-40.00	-33.00	0.00
42	0.426	-7.41	-0.41	0.91	87	0.010	-40.00	-33.00	0.00
43	0.404	-7.87	-0.87	0.82	88	0.010	-40.00	-33.00	0.00
44	0.382	-8.36	-1.36	0.73	89	0.010	-40.00	-33.00	0.00

KATHREIN
SCALA DIVISION

CL-FM Log-periodic
FM
7.0 dBd (9.15 dBi)
Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
90	0.010	-40.00	-33.00	0.00	135	0.029	-30.75	-23.75	0.00
91	0.010	-40.00	-33.00	0.00	136	0.030	-30.49	-23.49	0.00
92	0.010	-40.00	-33.00	0.00	137	0.031	-30.23	-23.23	0.00
93	0.010	-40.00	-33.00	0.00	138	0.032	-29.98	-22.98	0.01
94	0.010	-40.00	-33.00	0.00	139	0.033	-29.74	-22.74	0.01
95	0.010	-40.00	-33.00	0.00	140	0.034	-29.50	-22.50	0.01
96	0.010	-40.00	-33.00	0.00	141	0.034	-29.37	-22.37	0.01
97	0.010	-40.00	-33.00	0.00	142	0.034	-29.24	-22.24	0.01
98	0.010	-40.00	-33.00	0.00	143	0.035	-29.12	-22.12	0.01
99	0.010	-40.00	-33.00	0.00	144	0.036	-29.00	-22.00	0.01
100	0.010	-40.00	-33.00	0.00	145	0.036	-28.87	-21.87	0.01
101	0.010	-40.00	-33.00	0.00	146	0.036	-28.75	-21.75	0.01
102	0.010	-40.00	-33.00	0.00	147	0.037	-28.64	-21.64	0.01
103	0.010	-40.00	-33.00	0.00	148	0.038	-28.52	-21.52	0.01
104	0.010	-40.00	-33.00	0.00	149	0.038	-28.40	-21.40	0.01
105	0.010	-40.00	-33.00	0.00	150	0.038	-28.29	-21.29	0.01
106	0.010	-40.00	-33.00	0.00	151	0.039	-28.25	-21.25	0.01
107	0.010	-40.00	-33.00	0.00	152	0.039	-28.20	-21.20	0.01
108	0.010	-40.00	-33.00	0.00	153	0.039	-28.16	-21.16	0.01
109	0.010	-40.00	-33.00	0.00	154	0.039	-28.11	-21.11	0.01
110	0.010	-40.00	-33.00	0.00	155	0.039	-28.07	-21.07	0.01
111	0.010	-39.58	-32.58	0.00	156	0.040	-28.05	-21.05	0.01
112	0.011	-39.17	-32.17	0.00	157	0.040	-28.02	-21.02	0.01
113	0.012	-38.79	-31.79	0.00	158	0.040	-28.00	-21.00	0.01
114	0.012	-38.42	-31.42	0.00	159	0.040	-27.98	-20.98	0.01
115	0.012	-38.06	-31.06	0.00	160	0.040	-27.96	-20.96	0.01
116	0.013	-37.72	-30.72	0.00	161	0.040	-27.96	-20.96	0.01
117	0.013	-37.39	-30.39	0.00	162	0.040	-27.96	-20.96	0.01
118	0.014	-37.08	-30.08	0.00	163	0.040	-27.96	-20.96	0.01
119	0.014	-36.77	-29.77	0.00	164	0.040	-27.96	-20.96	0.01
120	0.015	-36.48	-29.48	0.00	165	0.040	-27.96	-20.96	0.01
121	0.016	-35.92	-28.92	0.00	166	0.040	-27.96	-20.96	0.01
122	0.017	-35.39	-28.39	0.00	167	0.040	-27.96	-20.96	0.01
123	0.018	-34.89	-27.89	0.00	168	0.040	-27.96	-20.96	0.01
124	0.019	-34.42	-27.42	0.00	169	0.040	-27.96	-20.96	0.01
125	0.020	-33.98	-26.98	0.00	170	0.040	-27.96	-20.96	0.01
126	0.021	-33.56	-26.56	0.00	171	0.040	-27.96	-20.96	0.01
127	0.022	-33.15	-26.15	0.00	172	0.040	-27.96	-20.96	0.01
128	0.023	-32.77	-25.77	0.00	173	0.040	-27.96	-20.96	0.01
129	0.024	-32.40	-25.40	0.00	174	0.040	-27.96	-20.96	0.01
130	0.025	-32.04	-25.04	0.00	175	0.040	-27.96	-20.96	0.01
131	0.026	-31.77	-24.77	0.00	176	0.040	-27.96	-20.96	0.01
132	0.027	-31.50	-24.50	0.00	177	0.040	-27.96	-20.96	0.01
133	0.027	-31.24	-24.24	0.00	178	0.040	-27.96	-20.96	0.01
134	0.028	-31.00	-24.00	0.00	179	0.040	-27.96	-20.96	0.01

KATHREIN
SCALA DIVISION

CL-FM Log-periodic
FM
7.0 dBd (9.15 dBi)
Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
180	0.040	-27.96	-20.96	0.01	225	0.029	-30.75	-23.75	0.00
181	0.040	-27.96	-20.96	0.01	226	0.028	-31.00	-24.00	0.00
182	0.040	-27.96	-20.96	0.01	227	0.027	-31.24	-24.24	0.00
183	0.040	-27.96	-20.96	0.01	228	0.027	-31.50	-24.50	0.00
184	0.040	-27.96	-20.96	0.01	229	0.026	-31.77	-24.77	0.00
185	0.040	-27.96	-20.96	0.01	230	0.025	-32.04	-25.04	0.00
186	0.040	-27.96	-20.96	0.01	231	0.024	-32.40	-25.40	0.00
187	0.040	-27.96	-20.96	0.01	232	0.023	-32.77	-25.77	0.00
188	0.040	-27.96	-20.96	0.01	233	0.022	-33.15	-26.15	0.00
189	0.040	-27.96	-20.96	0.01	234	0.021	-33.56	-26.56	0.00
190	0.040	-27.96	-20.96	0.01	235	0.020	-33.98	-26.98	0.00
191	0.040	-27.96	-20.96	0.01	236	0.019	-34.42	-27.42	0.00
192	0.040	-27.96	-20.96	0.01	237	0.018	-34.89	-27.89	0.00
193	0.040	-27.96	-20.96	0.01	238	0.017	-35.39	-28.39	0.00
194	0.040	-27.96	-20.96	0.01	239	0.016	-35.92	-28.92	0.00
195	0.040	-27.96	-20.96	0.01	240	0.015	-36.48	-29.48	0.00
196	0.040	-27.96	-20.96	0.01	241	0.014	-36.77	-29.77	0.00
197	0.040	-27.96	-20.96	0.01	242	0.014	-37.08	-30.08	0.00
198	0.040	-27.96	-20.96	0.01	243	0.013	-37.39	-30.39	0.00
199	0.040	-27.96	-20.96	0.01	244	0.013	-37.72	-30.72	0.00
200	0.040	-27.96	-20.96	0.01	245	0.012	-38.06	-31.06	0.00
201	0.040	-27.98	-20.98	0.01	246	0.012	-38.42	-31.42	0.00
202	0.040	-28.00	-21.00	0.01	247	0.012	-38.79	-31.79	0.00
203	0.040	-28.02	-21.02	0.01	248	0.011	-39.17	-32.17	0.00
204	0.040	-28.05	-21.05	0.01	249	0.010	-39.58	-32.58	0.00
205	0.039	-28.07	-21.07	0.01	250	0.010	-40.00	-33.00	0.00
206	0.039	-28.11	-21.11	0.01	251	0.010	-40.00	-33.00	0.00
207	0.039	-28.16	-21.16	0.01	252	0.010	-40.00	-33.00	0.00
208	0.039	-28.20	-21.20	0.01	253	0.010	-40.00	-33.00	0.00
209	0.039	-28.25	-21.25	0.01	254	0.010	-40.00	-33.00	0.00
210	0.038	-28.29	-21.29	0.01	255	0.010	-40.00	-33.00	0.00
211	0.038	-28.40	-21.40	0.01	256	0.010	-40.00	-33.00	0.00
212	0.038	-28.52	-21.52	0.01	257	0.010	-40.00	-33.00	0.00
213	0.037	-28.64	-21.64	0.01	258	0.010	-40.00	-33.00	0.00
214	0.036	-28.75	-21.75	0.01	259	0.010	-40.00	-33.00	0.00
215	0.036	-28.87	-21.87	0.01	260	0.010	-40.00	-33.00	0.00
216	0.036	-29.00	-22.00	0.01	261	0.010	-40.00	-33.00	0.00
217	0.035	-29.12	-22.12	0.01	262	0.010	-40.00	-33.00	0.00
218	0.034	-29.24	-22.24	0.01	263	0.010	-40.00	-33.00	0.00
219	0.034	-29.37	-22.37	0.01	264	0.010	-40.00	-33.00	0.00
220	0.034	-29.50	-22.50	0.01	265	0.010	-40.00	-33.00	0.00
221	0.033	-29.74	-22.74	0.01	266	0.010	-40.00	-33.00	0.00
222	0.032	-29.98	-22.98	0.01	267	0.010	-40.00	-33.00	0.00
223	0.031	-30.23	-23.23	0.00	268	0.010	-40.00	-33.00	0.00
224	0.030	-30.49	-23.49	0.00	269	0.010	-40.00	-33.00	0.00

KATHREIN
SCALA DIVISION

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7.0 dBd (9.15 dBi)
Horizontal polarization

Horizontal radiation pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
270	0.010	-40.00	-33.00	0.00	315	0.360	-8.87	-1.87	0.65
271	0.010	-40.00	-33.00	0.00	316	0.382	-8.36	-1.36	0.73
272	0.010	-40.00	-33.00	0.00	317	0.404	-7.87	-0.87	0.82
273	0.010	-40.00	-33.00	0.00	318	0.426	-7.41	-0.41	0.91
274	0.010	-40.00	-33.00	0.00	319	0.448	-6.97	0.03	1.01
275	0.010	-40.00	-33.00	0.00	320	0.470	-6.56	0.44	1.11
276	0.010	-40.00	-33.00	0.00	321	0.488	-6.22	0.78	1.20
277	0.010	-40.00	-33.00	0.00	322	0.507	-5.90	1.10	1.29
278	0.010	-40.00	-33.00	0.00	323	0.525	-5.59	1.41	1.38
279	0.010	-40.00	-33.00	0.00	324	0.544	-5.29	1.71	1.48
280	0.010	-40.00	-33.00	0.00	325	0.562	-5.00	2.00	1.59
281	0.010	-40.00	-33.00	0.00	326	0.579	-4.75	2.25	1.68
282	0.010	-40.00	-33.00	0.00	327	0.595	-4.50	2.50	1.78
283	0.010	-40.00	-33.00	0.00	328	0.612	-4.26	2.74	1.88
284	0.010	-40.00	-33.00	0.00	329	0.628	-4.03	2.97	1.98
285	0.010	-40.00	-33.00	0.00	330	0.645	-3.81	3.19	2.09
286	0.012	-38.42	-31.42	0.00	331	0.663	-3.57	3.43	2.20
287	0.014	-37.08	-30.08	0.00	332	0.681	-3.34	3.66	2.32
288	0.016	-35.92	-28.92	0.00	333	0.699	-3.11	3.89	2.45
289	0.018	-34.89	-27.89	0.00	334	0.717	-2.89	4.11	2.58
290	0.020	-33.98	-26.98	0.00	335	0.735	-2.67	4.33	2.71
291	0.025	-32.04	-25.04	0.00	336	0.752	-2.48	4.52	2.83
292	0.030	-30.46	-23.46	0.00	337	0.769	-2.28	4.72	2.96
293	0.035	-29.12	-22.12	0.01	338	0.786	-2.09	4.91	3.10
294	0.040	-27.96	-20.96	0.01	339	0.803	-1.91	5.09	3.23
295	0.045	-26.94	-19.94	0.01	340	0.820	-1.72	5.28	3.37
296	0.053	-25.51	-18.51	0.01	341	0.835	-1.57	5.43	3.49
297	0.061	-24.29	-17.29	0.02	342	0.850	-1.41	5.59	3.62
298	0.069	-23.22	-16.22	0.02	343	0.865	-1.26	5.74	3.75
299	0.077	-22.27	-15.27	0.03	344	0.880	-1.11	5.89	3.88
300	0.085	-21.41	-14.41	0.04	345	0.895	-0.96	6.04	4.01
301	0.099	-20.09	-13.09	0.05	346	0.906	-0.86	6.14	4.11
302	0.113	-18.94	-11.94	0.06	347	0.917	-0.75	6.25	4.21
303	0.127	-17.92	-10.92	0.08	348	0.928	-0.65	6.35	4.32
304	0.141	-17.02	-10.02	0.10	349	0.939	-0.55	6.45	4.42
305	0.155	-16.19	-9.19	0.12	350	0.950	-0.45	6.55	4.52
306	0.174	-15.19	-8.19	0.15	351	0.956	-0.39	6.61	4.58
307	0.193	-14.29	-7.29	0.19	352	0.962	-0.34	6.66	4.64
308	0.212	-13.47	-6.47	0.23	353	0.968	-0.28	6.72	4.70
309	0.231	-12.73	-5.73	0.27	354	0.974	-0.23	6.77	4.75
310	0.250	-12.04	-5.04	0.31	355	0.980	-0.18	6.82	4.81
311	0.272	-11.31	-4.31	0.37	356	0.984	-0.14	6.86	4.85
312	0.294	-10.63	-3.63	0.43	357	0.988	-0.10	6.90	4.89
313	0.316	-10.01	-3.01	0.50	358	0.992	-0.07	6.93	4.93
314	0.338	-9.42	-2.42	0.57	359	0.996	-0.03	6.97	4.97