

## **Technical Report K247CF Minor Modification**

This technical report is submitted for a minor modification to K247CF at Payson, AZ, FCC file no. BLFT-20161214AAQ. Changes in tower site, COR AGL, antenna and ERP are submitted for the translator to serve as a fill-in facility for KZON(FM) 280C1 at Gilbert, AZ, FCC facility I.D. 54944.

### **K247CF Modification Analysis:**

An overlap study in exhibit E-1 shows the K247CF modification is within the KMXF(FM) 245C second adjacent and KUPD(FM) 250C third-adjacent protected contours. The +40 F(50-10) dBu interfering contours calculated within the protected contours (exhibits E-2 and E-3) will not encompass any population, major roads or buildings. Based on this showing, a waiver of Section 74.1204 is requested, in accordance with *Living Way Ministries, Inc.* (FCC 08-242). The 60 dBu contour overlaps the licensed 60 dBu contour and is contained within the primary KZON(FM) 280C1 60 dBu contour (exhibit E-4).

### **Antenna System:**

The K247CF modification is located on the existing 46 meter tower at coordinates:

**33 19 57.2N 112 03 51.0W NAD 83.**

A TOWAIR determination (exhibit E-5) shows the tower does not require registration. A PSI FML single bay directional antenna (exhibit E-6) will be mounted at a COR AGL of 38 meters, 852 meters AMSL, 489.3 meters HAAT (exhibit E-7) and operate at 0.099 kW ERP.

**RF Exposure Calculation:**

The RF contribution was calculated using FM Model (exhibit E-8). The RF is calculated to be  $1.40 \mu\text{W}/\text{cm}^2$  at a distance of 36.8 meters from the base of the tower, which is below 5% of the  $200 \mu\text{W}/\text{cm}^2$  maximum permissible for uncontrolled public exposure, allowing exclusion from consideration.

**Conclusion:**

It is concluded that the K247CF modification complies with all Commission rules and policies.



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# E-1 K247CF Mod. Overlap Study

REFERENCE 33 19 57.20 N. 112 03 51.00 W.		CH# 247D - 97.3 MHz, Pwr= 0.099 kW DA, HAAT= 489.3 M, COR= 852 M Average Protected F(50-50)= 22.88 km Standard Directional								DISPLAY DATES DATA 05-01-23 SEARCH 05-01-23	
CH CITY	CALL	TYPE STATE	ANT AZ	AZI <--	DI ST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
245C Phoenix	KMXP	ALO AZ	60.2 240.1	0.37		33 20 03.20 112 03 38.50	100.000 600	13.5 963	91.2 Ihm Licenses, LLC	-34.0*	-91.6*
250C Tempe	KUPD	ALO AZ	269.9 90.0	0.11		33 19 57.20 112 03 55.50	100.000 600	13.4 962	90.9 Phoenix FCC License Sub, L	-24.5*	-91.0*
245C Phoenix	KMXP	LIC_CN AZ	51.6 231.6	0.32 0000204204		33 20 03.70 112 03 41.20	100.000 506	12.8 874	88.1 Ihm Licenses, LLC	-34.1*	-88.5*(1)
250C Tempe	KUPD	LIC_CN AZ	284.9 104.9	0.12 BMLH20130820ABM		33 19 58.20 112 03 55.50	100.000 494	12.4 856	85.2 Phoenix FCC License Sub, L	-23.0*	-85.2*(2)
247D Payson	K247CF	CP DCN AZ	0.0 0.0	0.00 0000114380		33 19 57.20 112 03 51.00	0.099	852	---Reference---		Rocket Radio Corporation
247D Payson	K247CF	LIC DCN AZ	65.5 245.8	43.20 BLFT20161214AAQ		33 29 33.10 111 38 26.40	0.250	768	---Reference---		Rocket Radio Corporation
248C Dewey-Humboldt	KMVA	LIC NCN AZ	344.4 164.3	104.15 BLH20050413ABX		34 14 05.10 112 22 04.60	42.000 849	133.2 2382	88.6 Desert Valley Media Group,	-36.2*	1.5
247C3 Central Heights-Mid	KFMR	CP NCN AZ	91.6 272.2	113.63 BPH20190423ABE		33 17 55.20 110 50 30.40	0.210 921	105.6 2274	39.9 Cochise Media Licenses LLC	-14.1	1.8
247D Goodyear	K247BH	LIC_VN AZ	276.9 96.7	45.31 BLFT20070904ABA		33 22 51.10 112 32 55.50	0.040 -55	14.2 272	4.4 Advance Ministries, Inc. D	16.5	1.5
247B Sonora	AL6485	SO	204.6 24.2	179.55		31 51 41.25 112 51 18.58	50.000 150	131.5 613	65.0 From CDBS	24.6	21.6

Terrain database is FCC 30 meter, 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.  
« = Station meets FCC minimum distance spacing for its class.  
Reference station has protected zone issue: Mexico

- (1) The +40 176.75 F(50-10) dBu contour within the KMXP(FM) 245C second adjacent protected contour (exhibit E-2) does not encompass any population, roads or buildings.
- (2) The +40 185.32 F(50-10) dBu contour within the KUPD(FM) 250C third adjacent protected contour (exhibit E-3) does not encompass any population, roads or buildings.

# E-2 K247CF Mod. +40 F(50-10) dBu Calculation Within KMXF(FM) 245C

K247CF Payson, AZ, Showing Protection to KMXF, Channel: 245

Geographic Coordinates: N. 33 19 57.20 W. 112 03 51.00

74.1204(d) Study - Using FCC 30 SEC Terrain Database

Translator or LPFM Maximum Licensed ERP = 0.099 kW, Channel: 247

Translator or LPFM Antenna Height AG = 38 meters

K247CF Antenna Model = PSI FML-1

Protected Station's Contour = 136.7469 dBu

Translator's or LPFM's full Interference contour 176.7469

Review Azimuth = 0 Degrees True

Horizontal Relative Field at Review Azimuth = 0.240

Translator/LPFM ERP on the horizontal at Review Azimuth = 0.006 kW

Distance between stations = 0.3 km

Protected Station= KMXF, 100 kW, 874 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)
00.00	1.000	0.24	0.0238	000.0497	000.0497	038.000
05.00	0.996	0.24	0.0236	000.0495	000.0493	037.996
10.00	0.985	0.24	0.0231	000.0490	000.0482	037.991
15.00	0.966	0.24	0.0222	000.0480	000.0464	037.988
20.00	0.940	0.24	0.0210	000.0467	000.0439	037.984
25.00	0.906	0.24	0.0195	000.0451	000.0408	037.981
30.00	0.866	0.24	0.0178	000.0431	000.0373	037.978
35.00	0.819	0.24	0.0159	000.0407	000.0334	037.977
40.00	0.766	0.24	0.0139	000.0381	000.0292	037.976
45.00	0.707	0.24	0.0119	000.0352	000.0249	037.975
50.00	0.643	0.24	0.0098	000.0320	000.0206	037.976
55.00	0.573	0.24	0.0078	000.0285	000.0163	037.977
60.00	0.500	0.24	0.0059	000.0249	000.0124	037.978
65.00	0.423	0.24	0.0043	000.0210	000.0089	037.981
70.00	0.342	0.24	0.0028	000.0170	000.0058	037.984
75.00	0.259	0.24	0.0016	000.0129	000.0033	037.988
80.00	0.174	0.24	0.0007	000.0087	000.0015	037.991
85.00	0.087	0.24	0.0002	000.0043	000.0004	037.996
90.00	0.001	0.24	0.0000	000.0000	000.0000	038.000

# E-3 K247CF Mod. +40 F(40-10) dBu Calculation Within KUPD(FM) 250C

K247CF Payson, AZ, Showing Protection to KUPD, Channel: 250

Geographic Coordinates: N. 33 19 57.20 W. 112 03 51.00

74.1204(d) Study - Using FCC 30 SEC Terrain Database

Translator or LPFM Maximum Licensed ERP = 0.099 kW, Channel: 247

Translator or LPFM Antenna Height AG = 38 meters

K247CF Antenna Model = PSI FML-1

Protected Station's Contour = 145.3162 dBu

Translator's or LPFM's full Interference contour 185.3162

Review Azimuth = 0 Degrees True

Horizontal Relative Field at Review Azimuth = 0.240

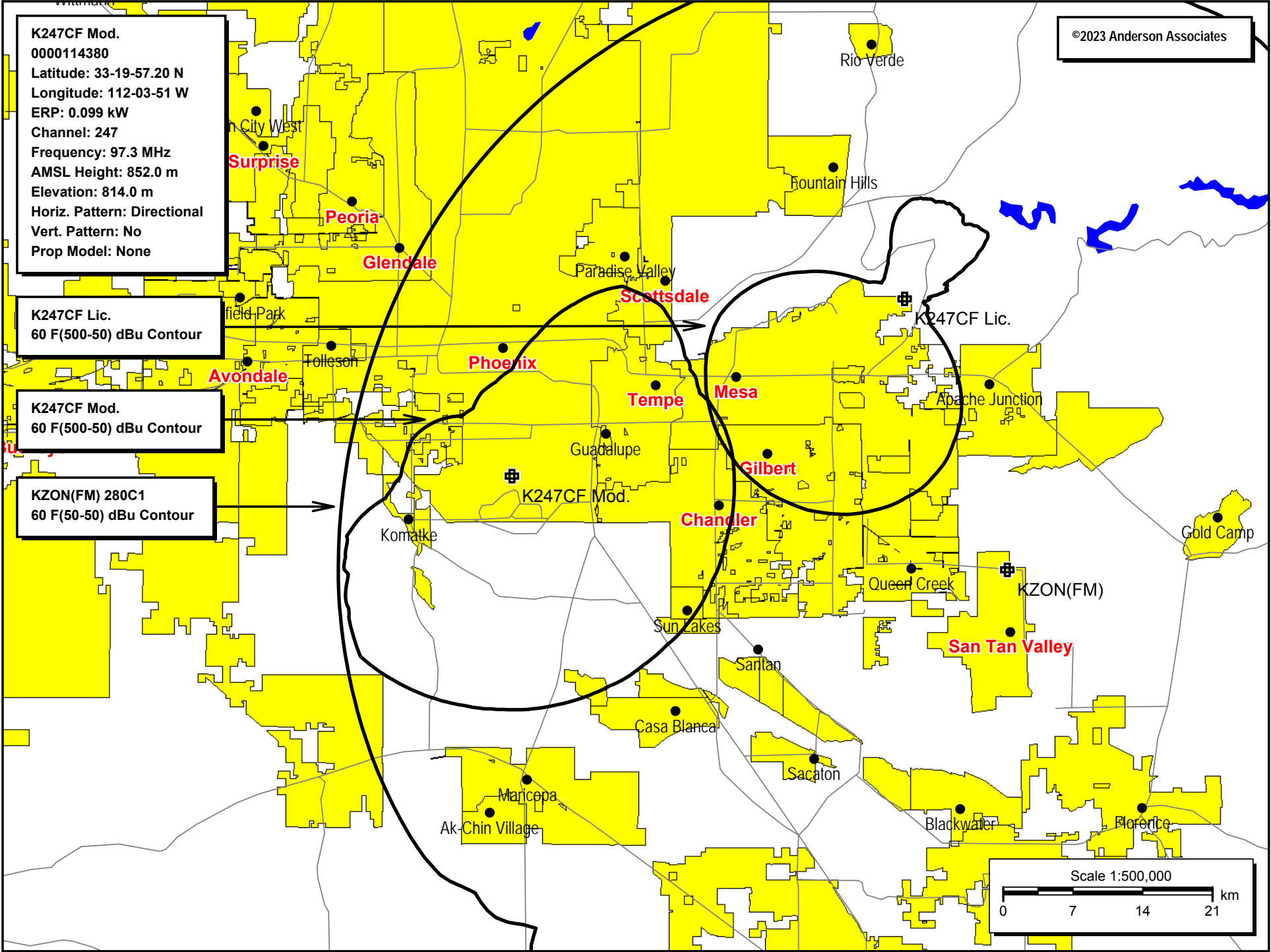
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.006 kW

Distance between stations = 0.1 km

Protected Station= KUPD, 100 kW, 856 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)
00.00	1.000	0.24	0.0238	000.0185	000.0185	038.000
05.00	0.996	0.24	0.0236	000.0185	000.0184	037.998
10.00	0.985	0.24	0.0231	000.0183	000.0180	037.997
15.00	0.966	0.24	0.0222	000.0179	000.0173	037.995
20.00	0.940	0.24	0.0210	000.0174	000.0164	037.994
25.00	0.906	0.24	0.0195	000.0168	000.0152	037.993
30.00	0.866	0.24	0.0178	000.0161	000.0139	037.992
35.00	0.819	0.24	0.0159	000.0152	000.0124	037.991
40.00	0.766	0.24	0.0139	000.0142	000.0109	037.991
45.00	0.707	0.24	0.0119	000.0131	000.0093	037.991
50.00	0.643	0.24	0.0098	000.0119	000.0077	037.991
55.00	0.573	0.24	0.0078	000.0106	000.0061	037.991
60.00	0.500	0.24	0.0059	000.0093	000.0046	037.992
65.00	0.423	0.24	0.0043	000.0078	000.0033	037.993
70.00	0.342	0.24	0.0028	000.0063	000.0022	037.994
75.00	0.259	0.24	0.0016	000.0048	000.0012	037.995
80.00	0.174	0.24	0.0007	000.0032	000.0006	037.997
85.00	0.087	0.24	0.0002	000.0016	000.0001	037.998
90.00	0.001	0.24	0.0000	000.0000	000.0000	038.000

E-4 K247CF Mod. 60 F(50-50) dBu Contour Plot



## 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	33-19-57.2 north
Longitude	112-03-51.0 west

##### Measurements (Meters)

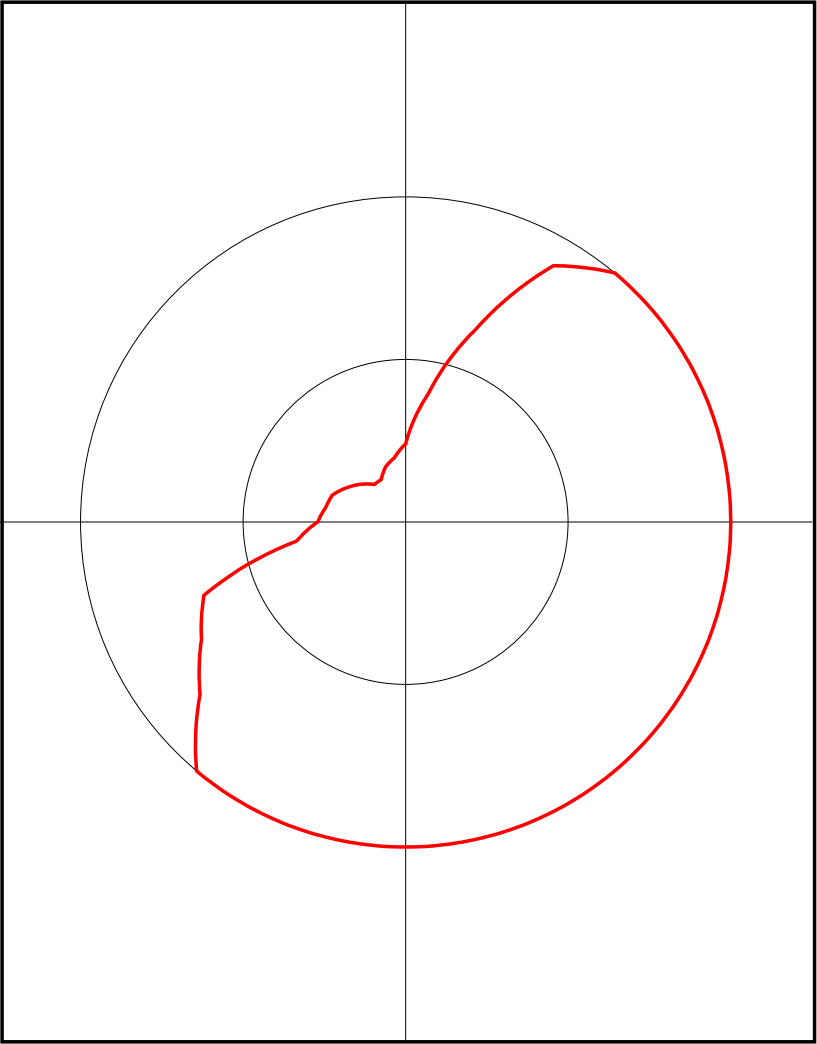
Overall Structure Height (AGL)	46
Support Structure Height (AGL)	0
Site Elevation (AMSL)	814

##### Structure Type

GTOWER - Guyed Structure Used for Communication Purposes

E-6 K247CF Mod. Directional Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.24
10.0	0.4
20.0	0.63
30.0	0.91
40.0	1.0
50.0	1.0
60.0	1.0
70.0	1.0
80.0	1.0
90.0	1.0
100.0	1.0
110.0	1.0
120.0	1.0
130.0	1.0
140.0	1.0
150.0	1.0
160.0	1.0
170.0	1.0
180.0	1.0
190.0	1.0
200.0	1.0
210.0	1.0
220.0	1.0
230.0	0.825
240.0	0.725
250.0	0.66
260.0	0.34
270.0	0.27
280.0	0.25
290.0	0.24
300.0	0.21
310.0	0.18
320.0	0.15
330.0	0.15
340.0	0.18
350.0	0.2





# E-7 K247CF Mod. HAAT Calculation

N. Lat. = 331957.2 W. Lng. = 1120351.0

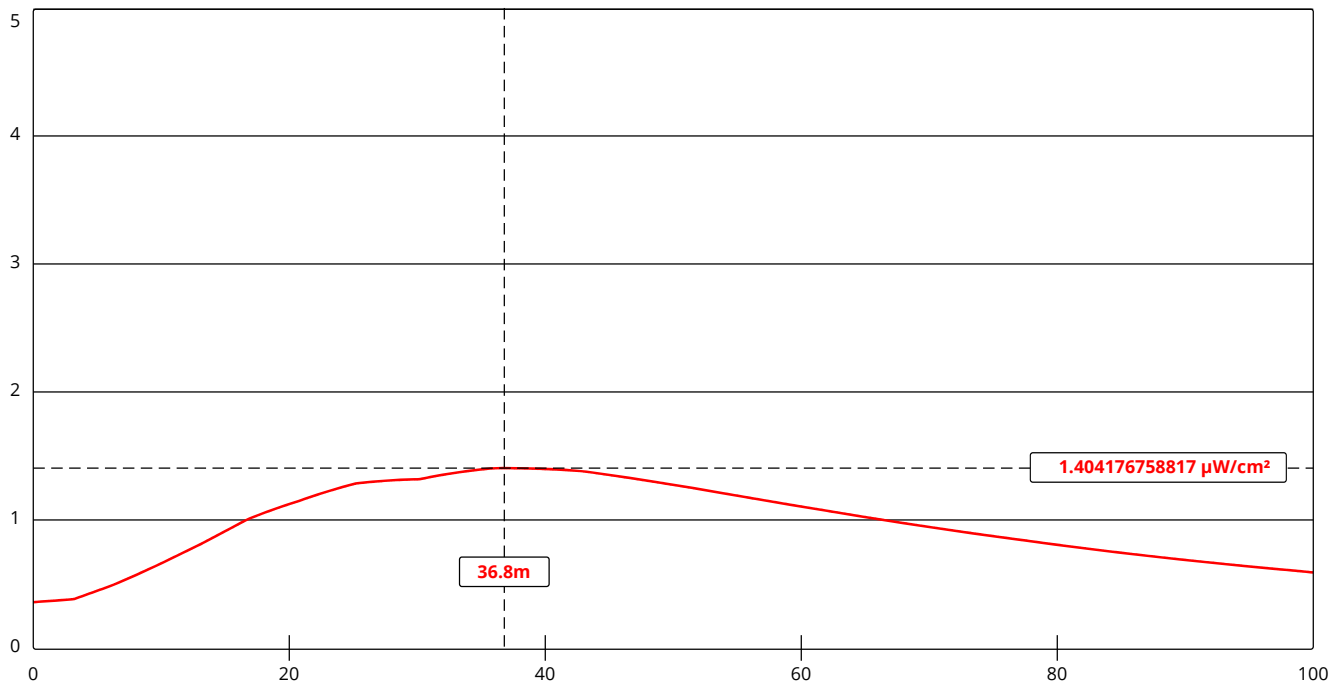
HAAT and Distance to Contour,

FCC, FM 2-10 Mi, 51 pts Method - FCC 30 Meter

Azi.	AV EL	HAAT	ERP kW	60-F(50-50)
000	340.1	511.9	0.0057	10.74
030	357.0	495.0	0.0820	22.00
060	441.8	410.2	0.0990	20.88
090	384.1	467.9	0.0990	22.28
120	367.0	485.0	0.0990	22.75
150	350.9	501.1	0.0990	23.22
180	344.4	507.6	0.0990	23.40
210	336.0	516.0	0.0990	23.64
240	374.9	477.1	0.0634	20.18
270	394.9	457.1	0.0072	11.17
300	329.9	522.1	0.0044	09.93
330	331.7	520.3	0.0022	07.85

Ave El= 362.73 M HAAT= 489.27 M AMSL= 852.0

# FM Model



Channel Selection	Channel 247 (97.3 MHz)		
Antenna Type +	EPA Type 2: Opposed V Dipole		
Height (m)	38	Distance (m)	100
ERP-H (W)	99	ERP-V (W)	99
Num of Elements	1	Element Spacing ( $\lambda$ )	1
Num of Points	500		