

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 +40 117.93 and 110.72 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). Clearly, these interference contours will not reach any populated area or major highways. 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 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). K285FW, which also serves as a fill-in facility for KRKC(AM), will be modified or reassigned to rebroadcast another primary facility to prevent 50% overlap to the K228FT.CP modification (exhibit E-6).

Antenna System:

The K228FT.CP modification will be relocated to the existing 33.5 meter tower, ASR 1053794, at coordinates:

36 22 58.8N 121 25 43.9W NAD 83.

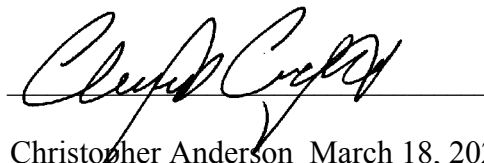
A Scala CL-FM vertically-polarized, directional antenna rotated at a 95 degree azimuth and 45 degree slant (exhibit E-7) will be mounted at a COR AGL of 9 meters, 949.3 meters AMSL, 483 meters HAAT (exhibit E-8) and operate at 0.215 kW ERP.

RF Exposure Calculation:

The RF contribution was calculated using the FM Model (exhibit E-9). The RF is calculated to be $176.4 \mu\text{W}/\text{cm}^2$ at a distance of 2 meters from the base of the tower, which is well below the $1000 \mu\text{W}/\text{cm}^2$ maximum permissible for controlled access.

Conclusion:

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



Christopher Anderson March 18, 2020
andersce@bham.rr.com
© 2020 Anderson Associates

E-1 K228FT.CP Mod. Overlap Study

REFERENCE 36 22 58.80 N. 121 25 43.90 W.		CH# 228D - 93.5 MHz, Pwr= 0.215 kW DA, HAAT= 483.0 M, COR= 949.3 M Average Protected F(50-50)= 27.39 km Standard Directional								DISPLAY DATES DATA 03-17-20 SEARCH 03-17-20	
CH CITY	CALL	TYPE STATE	ANT AZI <--	DI ST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*	
228D King City	K228FT	CP D CA	172.0 352.0	1.65 BMPFT20190228AAU	36 22 05.80 121 25 34.70	0.120	1198	---Reference---			
230B1 King City	KEXA	LIC CA	91.0 271.1	18.97 BLH19871223KC	36 22 47.80 121 13 00.70	5.400 214	4.2 458	54.6 Inspiration Media Network	-23.1*	-37.0*(1)	
226A Chualar	KXSM	LIC N CA	53.6 233.7	14.35 BLH20170531ADD	36 27 34.10 121 17 58.50	2.500 89	2.4 418	26.2 Lazer Licenses, LLC	-17.9*	-12.6*(2)	
228D Monterey	K228FD	LIC CA	297.9 117.7	29.32 BLFT20160720ACN	36 30 21.90 121 43 07.80	0.099	26.6 664	8.0 Educational Media Foundati	-10.9	3.3	
227B San Luis Obispo	KZ0Z	LIC CA	148.3 328.8	133.21 BLH19961226KC	35 21 39.90 120 39 24.60	23.000 472	92.3 808	71.2 Agm California, Inc.	13.9	0.4	
229B Fresno	KSKS	LIC CA	65.9 247.1	193.74 BMLH20050425ABM	37 04 38.80 119 26 04.50	68.000 580	143.5 1404	115.1 Cumulus Licensing LLC	14.3	5.7	
282A Gonzales	KHIP	LIC N CA	345.6 165.5	32.69 BMLH19980709KB	36 40 05.80 121 31 12.70	2.600 155	81.5 435	27.5 Smg-Monterey, LLC	9.5R	23.2M	
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 +40 117.93 F(50-10) dBu contour within the second-adjacent KEXA(FM) 230B1 protected contour (exhibit E-2) does not encompass any population, roads or buildings, as shown in the aerial photo in exhibit E-4.
- (2) The +40 110.72 F(50-10) dBu contour within the second-adjacent KXSM(FM) 226A protected contour (exhibit E-3) does not encompass any population, roads or buildings, as shown in the aerial photo in exhibit E-4.

E-2 K228FT.CP Mod. +40 117.93 F(50-10) dBu Calculation Within KEXA(FM) 230B1

K228FT.CP Mod. King City, CA, Showing Protection to KEXA(FM), Channel: 230
Geographic Coordinates: N. 36 22 58.80 W. 121 25 43.90
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.215 kW, Channel: 228
Translator or LPFM Antenna Height AG = 9 meters
K228FT.CP Mod. Antenna Model = CL-FM Vpol

Protected Station's Contour = 77.93353 dBu
Translator's or LPFM's full Interference contour 117.93353

Review Azimuth = 95 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.215 kW
Distance between stations = 19.0 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	1.0	1.0	0.2150	130.4796	130.4796	009.000
05.00	0.98	1.0	0.2065	127.8700	127.3835	-002.145
10.00	0.95	1.0	0.1940	123.9557	122.0725	-012.525
15.00	0.895	1.0	0.1722	116.7793	112.8001	-021.225
20.00	0.82	1.0	0.1446	106.9933	100.5408	-027.594
25.00	0.735	1.0	0.1161	095.9025	086.9172	-031.530
30.00	0.645	1.0	0.0894	084.1594	072.8841	-033.080
35.00	0.563	1.0	0.0680	073.3948	060.1215	-033.098
40.00	0.47	1.0	0.0475	061.3254	046.9780	-030.419
45.00	0.36	1.0	0.0279	046.9727	033.2147	-024.215
50.00	0.25	1.0	0.0134	032.6199	020.9677	-015.988
55.00	0.155	1.0	0.0052	020.2243	011.6002	-007.567
60.00	0.085	1.0	0.0016	011.0908	005.5454	-000.605
65.00	0.045	1.0	0.0004	005.8716	002.4814	003.679
70.00	0.02	1.0	0.0001	002.6096	000.8925	006.548
75.00	0.01	1.0	0.0000	001.3048	000.3377	007.740
80.00	0.01	1.0	0.0000	001.3048	000.2266	007.715
85.00	0.01	1.0	0.0000	001.3048	000.1137	007.700
90.00	0.01	1.0	0.0000	001.3048	000.0000	007.695

(1) The +40 117.93 F(50-10) dBu contour does not encompass any population, buildings or roads, as shown in the aerial photo (exhibit E-4).

E-3 K228FT.CP Mod. +40 110.72 F(50-10) dBu Calculation Within KXSM(FM) 226A

K228FT.CP Mod. King City, CA, Showing Protection to KXSM(FM), Channel: 226
Geographic Coordinates: N. 36 22 58.80 W. 121 25 43.90
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.215 kW, Channel: 228
Translator or LPFM Antenna Height AG = 9 meters
K228FT.CP Mod. Antenna Model = CL-FM_Vpol

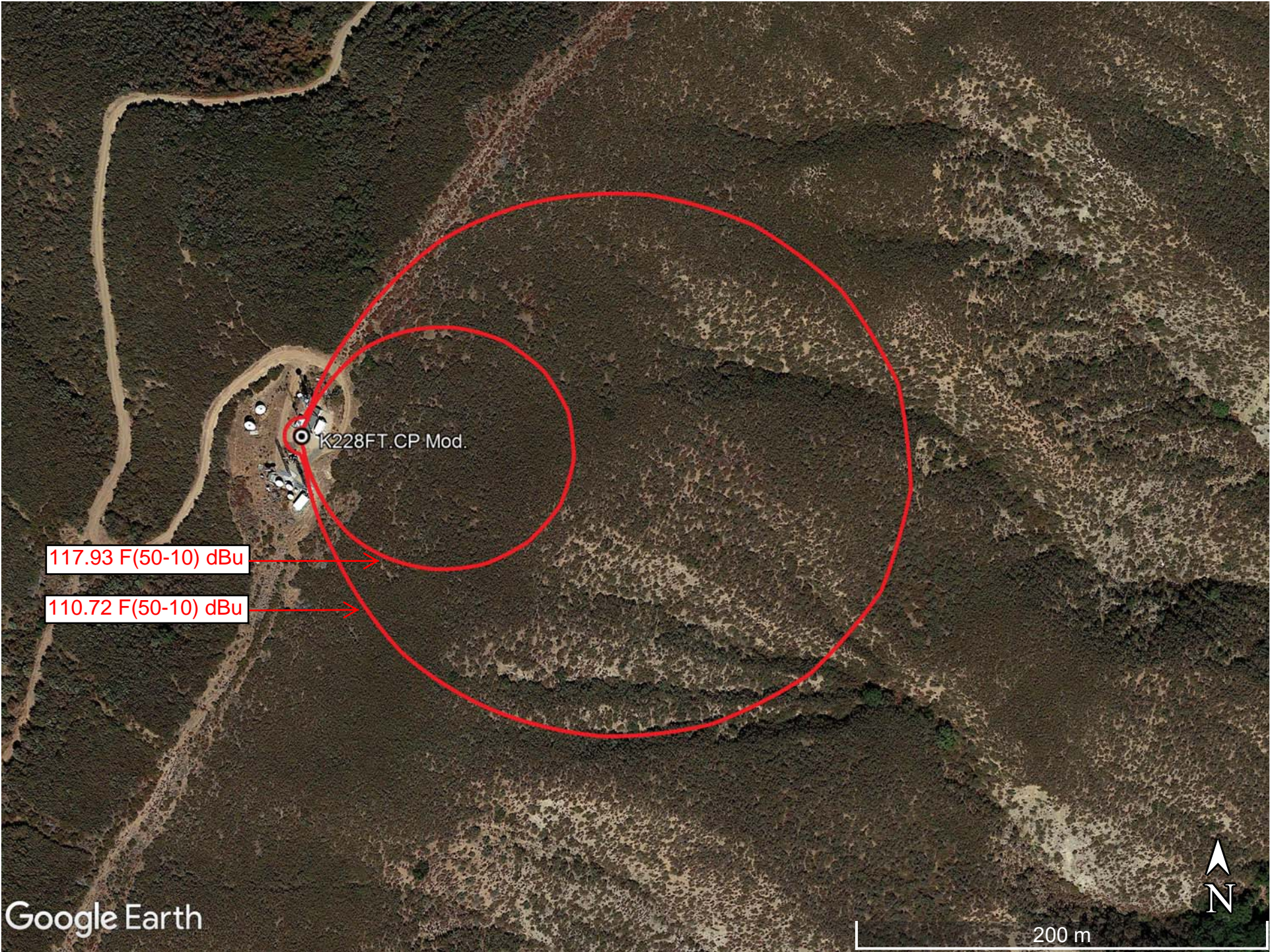
Protected Station's Contour = 70.71622 dBu
Translator's or LPFM's full Interference contour 110.71622

Review Azimuth = 95 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.215 kW
Distance between stations = 14.4 km
Protected Station= KXSM, 2.5 kW, 417.6 M meters COR AMSL

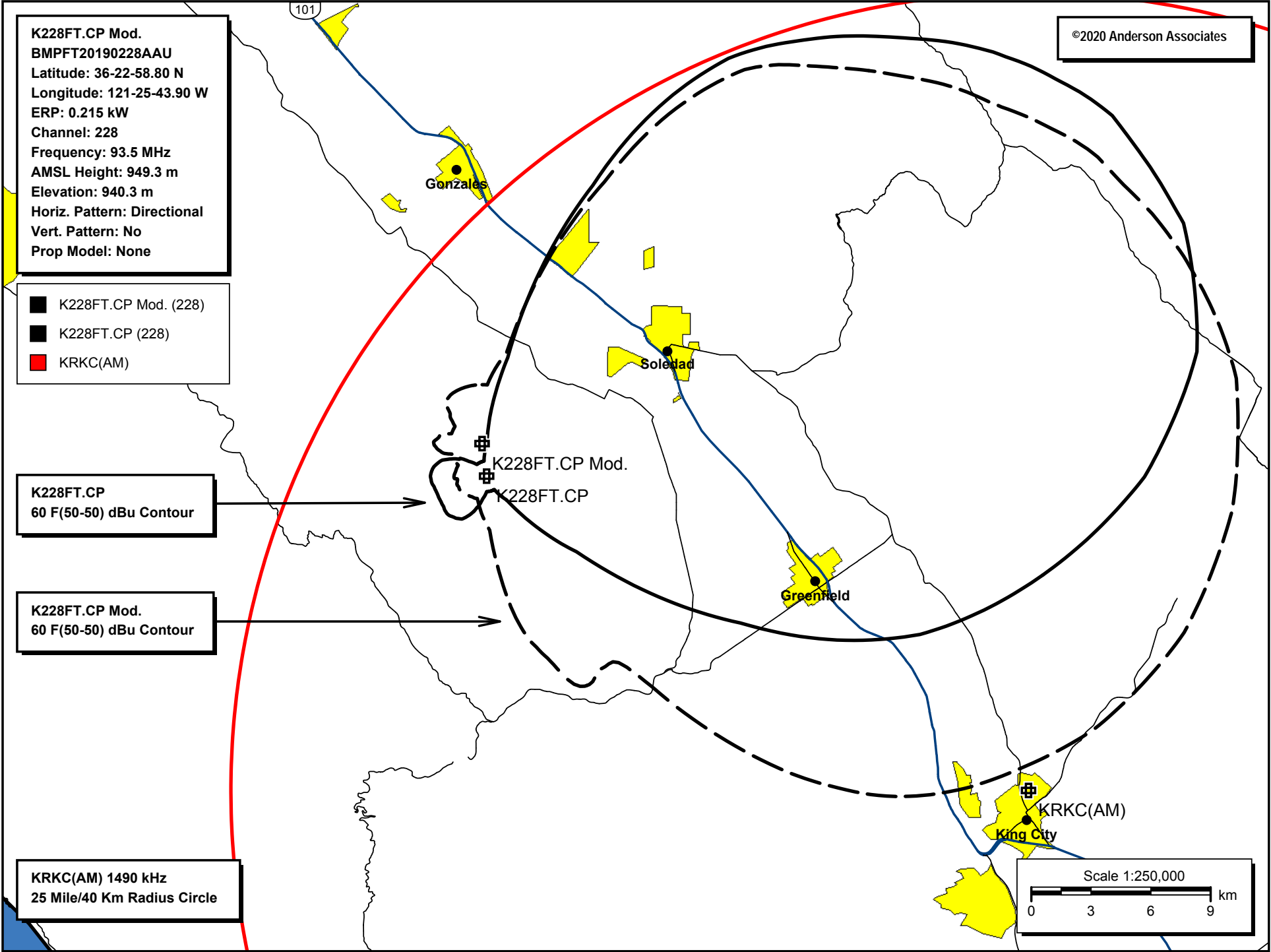
Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m) (1)
00.00	1.0	1.0	0.2150	299.5079	299.5079	009.000
05.00	0.98	1.0	0.2065	293.5177	292.4008	-016.582
10.00	0.95	1.0	0.1940	284.5325	280.2098	-040.409
15.00	0.895	1.0	0.1722	268.0595	258.9256	-060.379
20.00	0.82	1.0	0.1446	245.5964	230.7852	-074.999
25.00	0.735	1.0	0.1161	220.1383	199.5130	-084.034
30.00	0.645	1.0	0.0894	193.1826	167.3010	-087.591
35.00	0.563	1.0	0.0680	168.4732	138.0051	-087.632
40.00	0.47	1.0	0.0475	140.7687	107.8351	-081.484
45.00	0.36	1.0	0.0279	107.8228	076.2423	-067.242
50.00	0.25	1.0	0.0134	074.8770	048.1300	-048.359
55.00	0.155	1.0	0.0052	046.4237	026.6276	-029.028
60.00	0.085	1.0	0.0016	025.4582	012.7291	-013.047
65.00	0.045	1.0	0.0004	013.4779	005.6960	-003.215
70.00	0.02	1.0	0.0001	005.9902	002.0488	003.371
75.00	0.01	1.0	0.0000	002.9951	000.7752	006.107
80.00	0.01	1.0	0.0000	002.9951	000.5201	006.050
85.00	0.01	1.0	0.0000	002.9951	000.2610	006.016
90.00	0.01	1.0	0.0000	002.9951	000.0000	006.005

(1) The +40 110.72 F(50-10) dBu contour does not encompass any population, buildings or roads,as shown in the aerial photo (exhibit E-4).

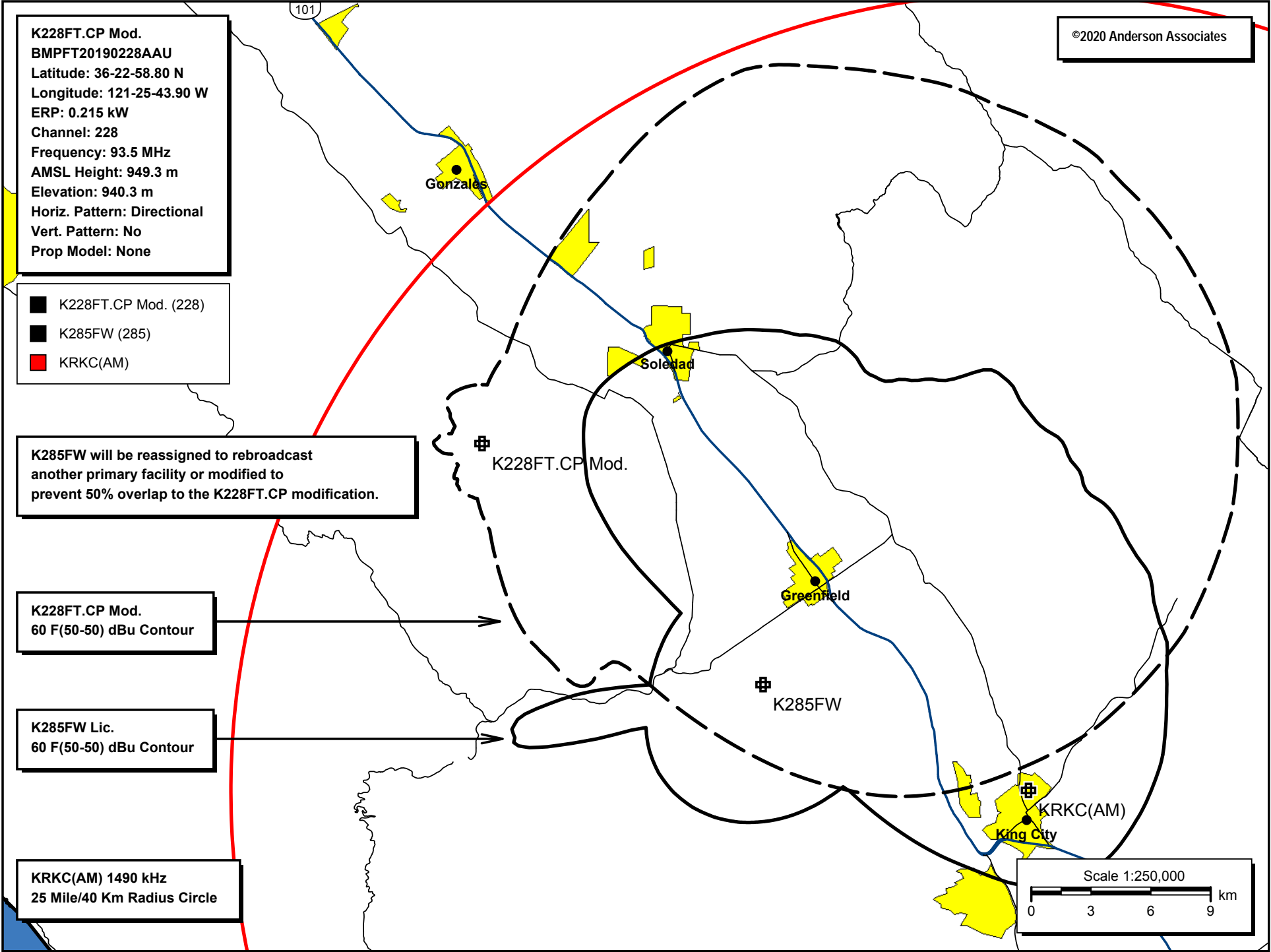
E-4 K228FT.CP Mod. +40 F(50-10) dBu Contours Aerial Photo



E-5 K228FT.CP Mod. 60 F(50-50) dBu Contour Plot

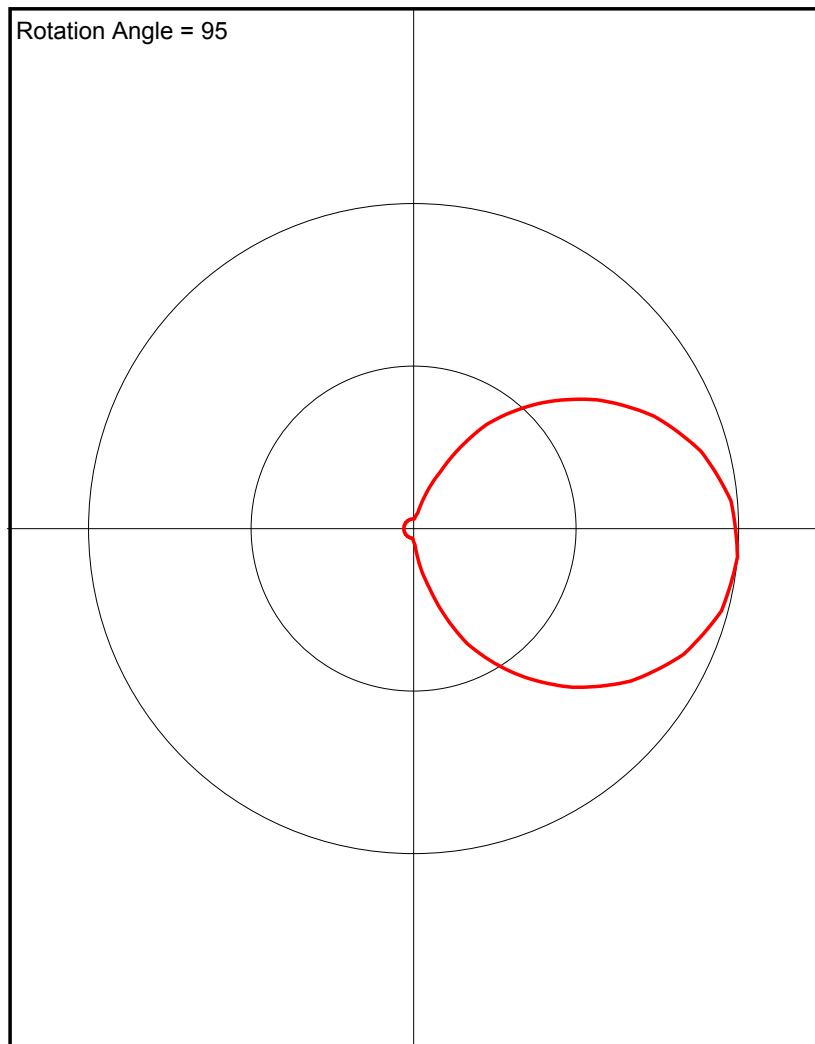


E-6 K228FT.CP Mod. + K285FW 60 F(50-50) dBu Contour Plot



E-7 K228FT.CP Mod. Directional Antenna Pattern

Azimuth (deg)	Relative Field
0.0	0.03
10.0	0.04
20.0	0.12
30.0	0.29
40.0	0.467
50.0	0.617
60.0	0.754
70.0	0.867
80.0	0.948
90.0	0.99
95.0	1.000
100.0	0.99
110.0	0.948
120.0	0.867
130.0	0.754
140.0	0.617
150.0	0.467
160.0	0.29
170.0	0.12
180.0	0.04
190.0	0.03
200.0	0.03
210.0	0.03
220.0	0.03
230.0	0.03
240.0	0.03
250.0	0.03
260.0	0.03
270.0	0.03
280.0	0.03
290.0	0.03
300.0	0.03
310.0	0.03
320.0	0.03
330.0	0.03
340.0	0.03
350.0	0.03



Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **36° 22' 58.8"** North

Longitude **121° 25' 43.9"** West (NAD 83)

Height of antenna radiation center above mean sea level: **949.3** meters AMSL

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

Results

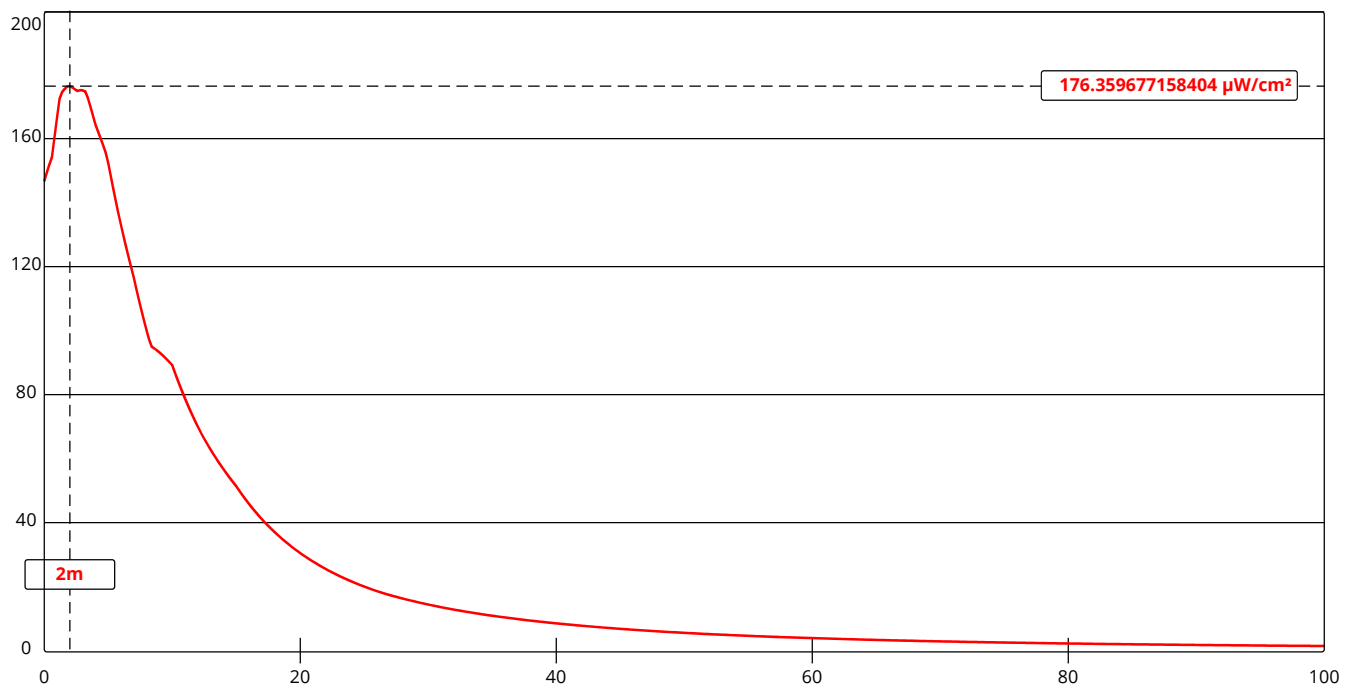
Calculated HAAT = **483 meters**

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

Individual "Radial HAAT" Values, in meters

0°	868.5 m
30°	841.3 m
60°	832.6 m
90°	854.2 m
120°	717.1 m
150°	212.8 m
180°	377.1 m
210°	184.1 m
240°	0.3 m
270°	178.0 m
300°	31.5 m
330°	694.2 m

FM Model



Channel Selection	Channel 228 (93.5 MHz)		
Antenna Type +	EPA Type 1: Ring-and-Stub or "Other"		
Height (m)	9	Distance (m)	100
ERP-H (W)	215	ERP-V (W)	215
Num of Elements	1	Element Spacing (λ)	1
Num of Points	500		

ASR Registration 1053794

Registration Detail

Reg Number	1053794	Status	Constructed
File Number	A0816810	Constructed	08/06/2001
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	36-22-58.8 N 121-25-43.9 W	Address	37390 River Lane (Soledad Peak T1 #8505)
City, State	SOLEDAD , CA		
Zip	93960	County	MONTEREY
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
940.3	33.5
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
973.8	30.5

Painting and Lighting Specifications

None

FAA Notification

FAA Study	2005-AWP-663-OE	FAA Issue Date	02/09/2005
-----------	-----------------	----------------	------------

Owner & Contact Information

FRN	0011498342	Owner Entity Type	Limited Liability Company
Assignor FRN	0005885231	Assignor ID	L00008376

Owner

American Towers LLC	P: (678)564-3236
Attention To: Regulatory Compliance FAA FCC	F:
10 Presidential Way	E: faa-fcc@americantower.com
Woburn , MA 01801	

Contact

Attention To: FAA FCC	P: (678)564-3236
10 Presidential Way	F:
Woburn , MA 01801	E: faa-fcc@americantower.com

Last Action Status

Status	Constructed	Received	01/15/2013
Purpose	Change Owner	Entered	01/15/2013