

Technical Report K272GD Minor Modification

This technical report is submitted for a minor modification to K272GD, FCC facility I.D. 144742. Changes in tower site, COR AGL, antenna and ERP are submitted for the translator to serve as a non fill-in facility to rebroadcast KNKS(FM) 283 L100 at Hanford, CA, FCC facility I.D. no. 196319.

K272GD Modification Analysis:

An overlap study in exhibit E-1 shows the K272GD modification is within the KHGE(FM) 274B and KLBN(FM) 270B second-adjacent protected contours. The +40 123.52 F(50-10) dBu contour within KHGE(FM) (exhibit E-2) and 112.01 F(50-10) dBu contour within KLBN(FM) (exhibit E-3) lowest points are 7.7 and 3.6 meters above the site elevation, respectively. The +40 112.01 F(50-10) dBu contour within KLBN(FM) does not encompass any population, roads or buildings within a 15 meter radius (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 dBu F(50-50) contour overlaps the licensed 60 dBu contour (exhibit E-5).

Antenna System:

The K272GD modification is located on a 10 meter tower at coordinates:

36 49 59.0N 119 43 32.0W NAD 83.

A TOWAIR determination (exhibit E-6) shows no registration is required. A Bext MDR-1 vertically-polarized, non-directional antenna will be mounted at a COR AGL of 10 meters, 117.6 meters AMSL, 5 meters HAAT (exhibit E-7) and operate at 0.001 kW ERP.

RF Exposure Calculation:

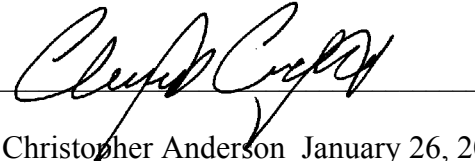
The RF contribution was calculated using the formula from the OET Bulletin 65:

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

Using a worst case vertical (F) factor of 1.0, the RF is calculated to be 1.05 $\mu\text{W}/\text{cm}^2$ to the ground, which is below 5% of the 200 $\mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure allowing exclusion from consideration.

Conclusion:

It is concluded that the K272GD modification complies with all Commission rules and policies.



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E-1 K272GD Mod. Overlap Study

REFERENCE		CH# 272D - 102.3 MHz, Pwr= 0.001 kW, HAAT= 5.0 M, COR= 117.6 M								DISPLAY DATES	
36 49 59.00 N.		Average Protected F(50-50)= 1.82 km								DATA 01-26-21	
119 43 32.00 W.		Omni-directional								SEARCH 01-26-21	
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*
274B Fresno	KHGE	LIC _CN CA		94.7 274.9	19.24 BLH6507	36 49 06.80 119 30 36.40	50.000 152	7.3 352	73.2 Capstar Tx, LLC	10.1	-54.1*(1)
270B Fresno	KLBN	LIC NCN CA		44.3 224.4	37.26 BMLH20010802AAU	37 04 21.80 119 25 56.50	2.250 597	3.2 1428	78.5 Lotus Fresno Corp.	32.3	-41.4*(2)
272B1 Corcoran	KBL0	LIC _CN CA		158.0 338.2	77.72 BLH19990802KC	36 11 03.80 119 24 04.40	19.500 116	109.5 196	44.2 Cca License Holdings LLC	-33.6*	26.8
272D South Fresno	K272GD	LIC _CN CA		236.9 56.8	6.95 0000096471	36 47 55.80 119 47 27.50	0.075	126	---Reference--- Gary M. Cocola		
273B Salinas	KDON-FM	LIC _CN CA		267.4 86.4	158.42 BLH20040723ABH	36 45 22.90 121 30 08.80	15.000 723	109.2 1018	88.6 Ihm Licenses, LLC	47.4	65.8
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.											

- (1) The +40 123.52 F(50-10) dBu contour within the KHGE(FM) 274B second adjacent protected contour.
- (2) The +40 112.01 F(50-10) dBu contour within the KLBN(FM) 270B second adjacent protected contour.

E-2 K272GD Mod. +40 F(50-10) dBu Tabulation Within KHGE(FM) 274B

K272GD South Fresno, CA, Showing Protection to KHGE(FM) 274B
Geographic Coordinates: N. 36 49 59.00 W. 119 43 32.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.001 kW, Channel: 272
Translator or LPFM Antenna Height AG = 10 meters
K272GD Antenna Model = BEXT MDR-1

Protected Station's Contour = 83.51639 dBu
Translator's or LPFM's full Interference contour 123.51639

Review Azimuth = 0 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.001 kW
Distance between stations = 19.2 km
Protected Station= KHGE, 50 kW, 352 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	0.0010	004.6793	004.6793	010.000
01.00	1.0	1.0	0.0010	004.6793	004.6786	009.918
02.00	1.0	1.0	0.0010	004.6793	004.6764	009.837
03.00	1.0	1.0	0.0010	004.6793	004.6729	009.755
04.00	1.0	1.0	0.0010	004.6793	004.6679	009.674
05.00	1.0	1.0	0.0010	004.6793	004.6615	009.592
06.00	1.0	1.0	0.0010	004.6793	004.6537	009.511
07.00	1.0	1.0	0.0010	004.6793	004.6444	009.430
08.00	1.0	1.0	0.0010	004.6793	004.6338	009.349
09.00	1.0	1.0	0.0010	004.6793	004.6217	009.268
10.00	1.0	1.0	0.0010	004.6793	004.6082	009.187
11.00	0.995	1.0	0.0010	004.6550	004.5694	009.112
12.00	0.99	1.0	0.0010	004.6306	004.5294	009.037
13.00	0.984	1.0	0.0010	004.6063	004.4882	008.964
14.00	0.979	1.0	0.0010	004.5820	004.4459	008.892
15.00	0.974	1.0	0.0009	004.5576	004.4023	008.820
16.00	0.968	1.0	0.0009	004.5314	004.3559	008.751
17.00	0.963	1.0	0.0009	004.5052	004.3084	008.683
18.00	0.957	1.0	0.0009	004.4790	004.2598	008.616
19.00	0.952	1.0	0.0009	004.4528	004.2102	008.550
20.00	0.946	1.0	0.0009	004.4266	004.1597	008.486
21.00	0.939	1.0	0.0009	004.3948	004.1029	008.425
22.00	0.932	1.0	0.0009	004.3630	004.0453	008.366
23.00	0.926	1.0	0.0009	004.3312	003.9869	008.308
24.00	0.919	1.0	0.0008	004.2993	003.9276	008.251
25.00	0.912	1.0	0.0008	004.2675	003.8677	008.196
26.00	0.903	1.0	0.0008	004.2245	003.7969	008.148
27.00	0.894	1.0	0.0008	004.1814	003.7257	008.102
28.00	0.884	1.0	0.0008	004.1384	003.6540	008.057
29.00	0.875	1.0	0.0008	004.0953	003.5818	008.015
30.00	0.866	1.0	0.0007	004.0523	003.5094	007.974
31.00	0.855	1.0	0.0007	004.0017	003.4302	007.939
32.00	0.844	1.0	0.0007	003.9512	003.3508	007.906
33.00	0.834	1.0	0.0007	003.9007	003.2714	007.876
34.00	0.823	1.0	0.0007	003.8501	003.1919	007.847
35.00	0.812	1.0	0.0007	003.7996	003.1124	007.821
36.00	0.8	1.0	0.0006	003.7425	003.0277	007.800
37.00	0.788	1.0	0.0006	003.6854	002.9433	007.782
38.00	0.775	1.0	0.0006	003.6283	002.8592	007.766
39.00	0.763	1.0	0.0006	003.5712	002.7754	007.753
40.00	0.751	1.0	0.0006	003.5142	002.6920	007.741
41.00	0.738	1.0	0.0005	003.4533	002.6063	007.734
42.00	0.725	1.0	0.0005	003.3925	002.5211	007.730
43.00	0.712	1.0	0.0005	003.3317	002.4366	007.728 (1)
44.00	0.699	1.0	0.0005	003.2708	002.3528	007.728
45.00	0.686	1.0	0.0005	003.2100	002.2698	007.730
46.00	0.673	1.0	0.0005	003.1492	002.1876	007.735
47.00	0.66	1.0	0.0004	003.0883	002.1062	007.741
48.00	0.647	1.0	0.0004	003.0275	002.0258	007.750
49.00	0.634	1.0	0.0004	002.9667	001.9463	007.761
50.00	0.621	1.0	0.0004	002.9058	001.8678	007.774
51.00	0.608	1.0	0.0004	002.8431	001.7892	007.790
52.00	0.594	1.0	0.0004	002.7804	001.7118	007.809
53.00	0.581	1.0	0.0003	002.7177	001.6356	007.830
54.00	0.567	1.0	0.0003	002.6550	001.5606	007.852
55.00	0.554	1.0	0.0003	002.5923	001.4869	007.876
56.00	0.541	1.0	0.0003	002.5306	001.4151	007.902
57.00	0.528	1.0	0.0003	002.4688	001.3446	007.929
58.00	0.514	1.0	0.0003	002.4070	001.2755	007.959
59.00	0.501	1.0	0.0003	002.3453	001.2079	007.990
60.00	0.488	1.0	0.0002	002.2835	001.1417	008.022
61.00	0.474	1.0	0.0002	002.2180	001.0753	008.060
62.00	0.46	1.0	0.0002	002.1525	001.0105	008.099
63.00	0.446	1.0	0.0002	002.0870	000.9475	008.140
64.00	0.432	1.0	0.0002	002.0215	000.8861	008.183

E-2 K272GD Mod. +40 F(50-10) dBu Tabulation Within KHGE(FM) 274B, 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)
65.00	0.418	1.0	0.0002	001.9559	000.8266	008.227
66.00	0.404	1.0	0.0002	001.8886	000.7681	008.275
67.00	0.389	1.0	0.0002	001.8212	000.7116	008.324
68.00	0.375	1.0	0.0001	001.7538	000.6570	008.374
69.00	0.36	1.0	0.0001	001.6864	000.6044	008.426
70.00	0.346	1.0	0.0001	001.6190	000.5537	008.479
71.00	0.332	1.0	0.0001	001.5554	000.5064	008.529
72.00	0.319	1.0	0.0001	001.4918	000.4610	008.581
73.00	0.305	1.0	0.0001	001.4281	000.4175	008.634
74.00	0.292	1.0	0.0001	001.3645	000.3761	008.688
75.00	0.278	1.0	0.0001	001.3008	000.3367	008.743
76.00	0.266	1.0	0.0001	001.2456	000.3013	008.791
77.00	0.254	1.0	0.0001	001.1904	000.2678	008.840
78.00	0.243	1.0	0.0001	001.1352	000.2360	008.890
79.00	0.231	1.0	0.0001	001.0800	000.2061	008.940
80.00	0.219	1.0	0.0000	001.0248	000.1779	008.991
81.00	0.207	1.0	0.0000	000.9686	000.1515	009.043
82.00	0.195	1.0	0.0000	000.9125	000.1270	009.096
83.00	0.183	1.0	0.0000	000.8563	000.1044	009.150
84.00	0.171	1.0	0.0000	000.8002	000.0836	009.204
85.00	0.159	1.0	0.0000	000.7440	000.0648	009.259
86.00	0.149	1.0	0.0000	000.6963	000.0486	009.305
87.00	0.139	1.0	0.0000	000.6486	000.0339	009.352
88.00	0.128	1.0	0.0000	000.6008	000.0210	009.400
89.00	0.118	1.0	0.0000	000.5531	000.0097	009.447
90.00	0.108	1.0	0.0000	000.5054	000.0000	009.495

(1) The +40 123.52 F(50-10) dBu contour lowest point = 7.7 meters above the site elevation.

E-3 K272GD Mod. +40 112.01 F(50-10) dBu Tabulation Within KLBN(FM) 270B

K272GD South Fresno, CA, Showing Protection to KLBN(FM), Channel: 270
Geographic Coordinates: N. 36 49 59.00 W. 119 43 32.00
74.1204(d) Study - Using GLOBE 30 SEC Terrain Database
Translator or LPFM Maximum Licensed ERP = 0.001 kW, Channel: 272
Translator or LPFM Antenna Height AG = 10 meters
K272GD Antenna Model = BEXT MDR-1

Protected Station's Contour = 72.01343 dBu
Translator's or LPFM's full Interference contour 112.01343

Review Azimuth = 0 Degrees True
Horizontal Relative Field at Review Azimuth = 1.000
Translator/LPFM ERP on the horizontal at Review Azimuth = 0.001 kW
Distance between stations = 37.3 km
Protected Station= KLBN, 2.25 kW, 1428 M meters COR AMSL

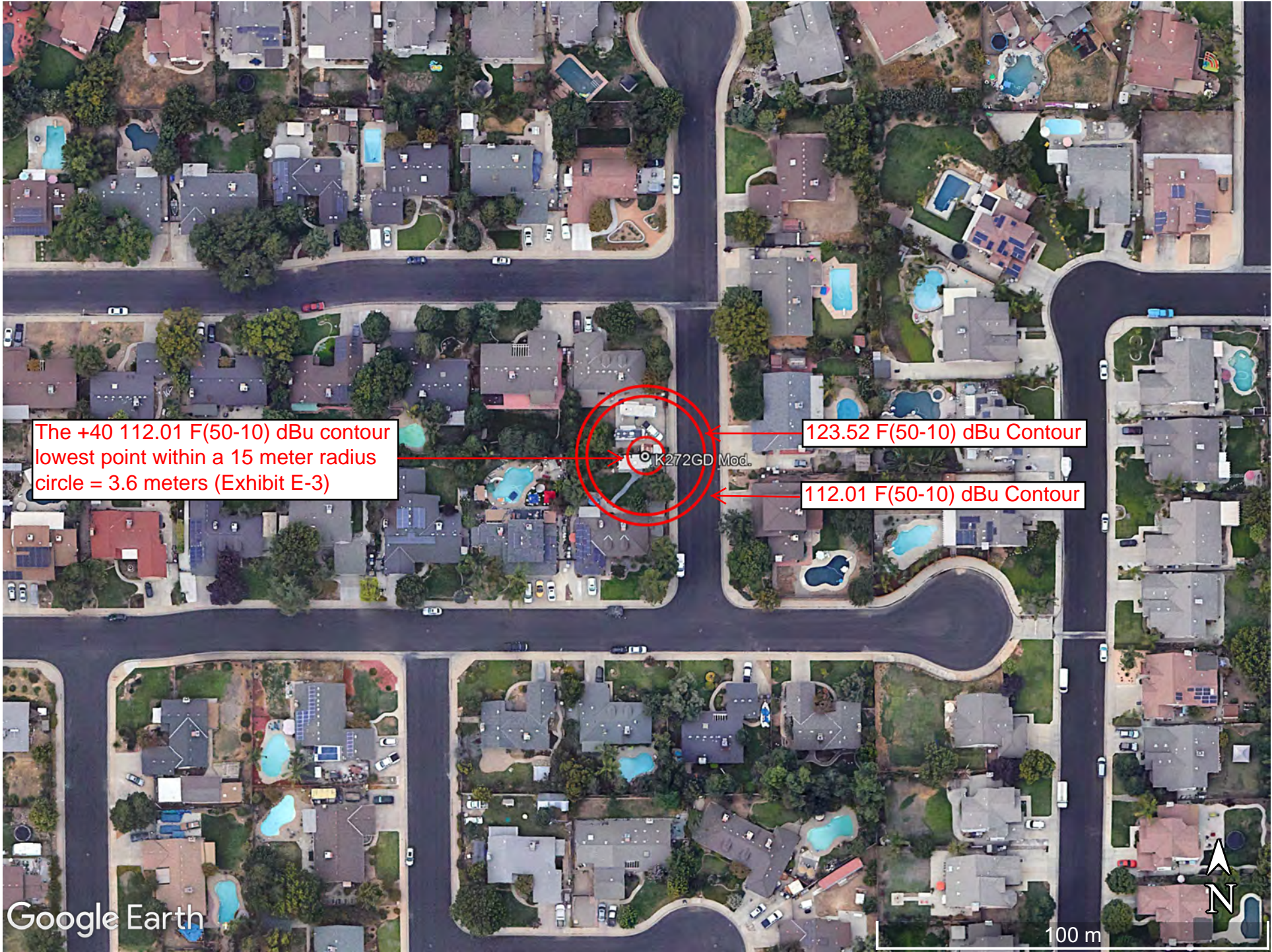
Depression Angle From Degree(Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle(m)	Dist to IX Contour From Tower Base(m)	Height IX Above Ground (m) (1)
00.00	1.0	1.0	0.0010	017.5925	017.5925	010.000
01.00	1.0	1.0	0.0010	017.5925	017.5899	009.693
02.00	1.0	1.0	0.0010	017.5925	017.5818	009.386
03.00	1.0	1.0	0.0010	017.5925	017.5684	009.079
04.00	1.0	1.0	0.0010	017.5925	017.5497	008.773
05.00	1.0	1.0	0.0010	017.5925	017.5256	008.467
06.00	1.0	1.0	0.0010	017.5925	017.4962	008.161
07.00	1.0	1.0	0.0010	017.5925	017.4614	007.856
08.00	1.0	1.0	0.0010	017.5925	017.4213	007.552
09.00	1.0	1.0	0.0010	017.5925	017.3759	007.248
10.00	1.0	1.0	0.0010	017.5925	017.3253	006.945
11.00	0.995	1.0	0.0010	017.5011	017.1795	006.661
12.00	0.99	1.0	0.0010	017.4096	017.0291	006.380
13.00	0.984	1.0	0.0010	017.3181	016.8742	006.104
14.00	0.979	1.0	0.0010	017.2266	016.7149	005.833
15.00	0.974	1.0	0.0009	017.1351	016.5513	005.565
16.00	0.968	1.0	0.0009	017.0366	016.3766	005.304
17.00	0.963	1.0	0.0009	016.9381	016.1980	005.048
18.00	0.957	1.0	0.0009	016.8396	016.0154	004.796
19.00	0.952	1.0	0.0009	016.7411	015.8290	004.550
20.00	0.946	1.0	0.0009	016.6425	015.6389	004.308
21.00	0.939	1.0	0.0009	016.5229	015.4255	004.079
22.00	0.932	1.0	0.0009	016.4033	015.2089	003.855
23.00	0.926	1.0	0.0009	016.2837	014.9892	003.637 (1)
24.00	0.919	1.0	0.0008	016.1640	014.7666	003.425
25.00	0.912	1.0	0.0008	016.0444	014.5412	003.219
26.00	0.903	1.0	0.0008	015.8825	014.2751	003.038
27.00	0.894	1.0	0.0008	015.7207	014.0072	002.863
28.00	0.884	1.0	0.0008	015.5588	013.7376	002.696
29.00	0.875	1.0	0.0008	015.3970	013.4665	002.535
30.00	0.866	1.0	0.0007	015.2351	013.1940	002.382
31.00	0.855	1.0	0.0007	015.0451	012.8962	002.251
32.00	0.844	1.0	0.0007	014.8551	012.5979	002.128
33.00	0.834	1.0	0.0007	014.6651	012.2992	002.013
34.00	0.823	1.0	0.0007	014.4751	012.0004	001.906
35.00	0.812	1.0	0.0007	014.2851	011.7017	001.806
36.00	0.8	1.0	0.0006	014.0705	011.3833	001.730
37.00	0.788	1.0	0.0006	013.8559	011.0658	001.661
38.00	0.775	1.0	0.0006	013.6413	010.7495	001.602
39.00	0.763	1.0	0.0006	013.4266	010.4344	001.550
40.00	0.751	1.0	0.0006	013.2120	010.1210	001.507
41.00	0.738	1.0	0.0005	012.9833	009.7986	001.482
42.00	0.725	1.0	0.0005	012.7546	009.4785	001.466
43.00	0.712	1.0	0.0005	012.5259	009.1609	001.457
44.00	0.699	1.0	0.0005	012.2972	008.8459	001.458
45.00	0.686	1.0	0.0005	012.0685	008.5337	001.466
46.00	0.673	1.0	0.0005	011.8398	008.2246	001.483
47.00	0.66	1.0	0.0004	011.6111	007.9187	001.508
48.00	0.647	1.0	0.0004	011.3824	007.6163	001.541
49.00	0.634	1.0	0.0004	011.1537	007.3175	001.582
50.00	0.621	1.0	0.0004	010.9250	007.0224	001.631
51.00	0.608	1.0	0.0004	010.6892	006.7269	001.693
52.00	0.594	1.0	0.0004	010.4535	006.4358	001.763
53.00	0.581	1.0	0.0003	010.2177	006.1492	001.840
54.00	0.567	1.0	0.0003	009.9820	005.8673	001.924
55.00	0.554	1.0	0.0003	009.7463	005.5902	002.016
56.00	0.541	1.0	0.0003	009.5140	005.3202	002.112
57.00	0.528	1.0	0.0003	009.2818	005.0552	002.216
58.00	0.514	1.0	0.0003	009.0496	004.7956	002.326
59.00	0.501	1.0	0.0003	008.8174	004.5413	002.442
60.00	0.488	1.0	0.0002	008.5852	004.2926	002.565
61.00	0.474	1.0	0.0002	008.3389	004.0428	002.707
62.00	0.46	1.0	0.0002	008.0926	003.7992	002.855
63.00	0.446	1.0	0.0002	007.8463	003.5621	003.009
64.00	0.432	1.0	0.0002	007.6000	003.3316	003.169

E-3 K272GD Mod. +40 112.01 F(50-10) dBu Tabulation Within KLBN(FM) 270B, cont.

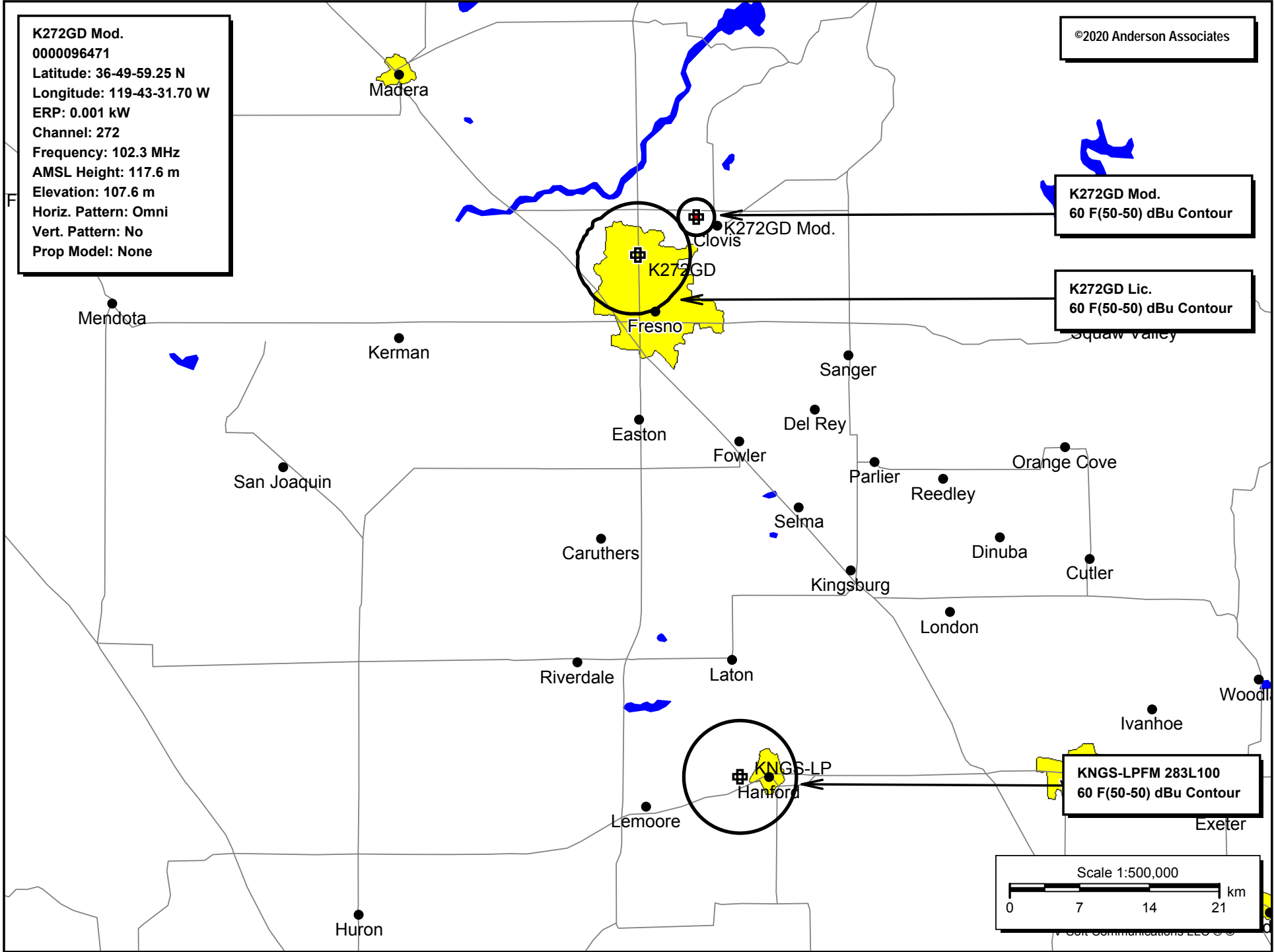
Depression Angle From Degree (Deg)	Vertical Relative Field	Horizontal Relative Field	ERP (kw)	Dist to IX Contour Along Dep. Angle (m)	Dist to IX Contour From Tower Base (m)	Height IX Above Ground (m) (1)
65.00	0.418	1.0	0.0002	007.3537	003.1078	003.335
66.00	0.404	1.0	0.0002	007.1003	002.8880	003.514
67.00	0.389	1.0	0.0002	006.8470	002.6753	003.697
68.00	0.375	1.0	0.0001	006.5937	002.4700	003.886
69.00	0.36	1.0	0.0001	006.3404	002.2722	004.081
70.00	0.346	1.0	0.0001	006.0870	002.0819	004.280
71.00	0.332	1.0	0.0001	005.8478	001.9038	004.471
72.00	0.319	1.0	0.0001	005.6085	001.7331	004.666
73.00	0.305	1.0	0.0001	005.3692	001.5698	004.865
74.00	0.292	1.0	0.0001	005.1300	001.4140	005.069
75.00	0.278	1.0	0.0001	004.8907	001.2658	005.276
76.00	0.266	1.0	0.0001	004.6831	001.1330	005.456
77.00	0.254	1.0	0.0001	004.4755	001.0068	005.639
78.00	0.243	1.0	0.0001	004.2679	000.8874	005.825
79.00	0.231	1.0	0.0001	004.0604	000.7748	006.014
80.00	0.219	1.0	0.0000	003.8528	000.6690	006.206
81.00	0.207	1.0	0.0000	003.6417	000.5697	006.403
82.00	0.195	1.0	0.0000	003.4305	000.4774	006.603
83.00	0.183	1.0	0.0000	003.2194	000.3924	006.805
84.00	0.171	1.0	0.0000	003.0083	000.3145	007.008
85.00	0.159	1.0	0.0000	002.7972	000.2438	007.213
86.00	0.149	1.0	0.0000	002.6178	000.1826	007.389
87.00	0.139	1.0	0.0000	002.4383	000.1276	007.565
88.00	0.128	1.0	0.0000	002.2589	000.0788	007.742
89.00	0.118	1.0	0.0000	002.0794	000.0363	007.921
90.00	0.108	1.0	0.0000	001.9000	000.0000	008.100

(1) The 112.01 +40 F(50-10) dBu contour within 15 meters of the tower site does not encompass any population, buildings or roads, as shown in the aerial photo (exhibit E-4).

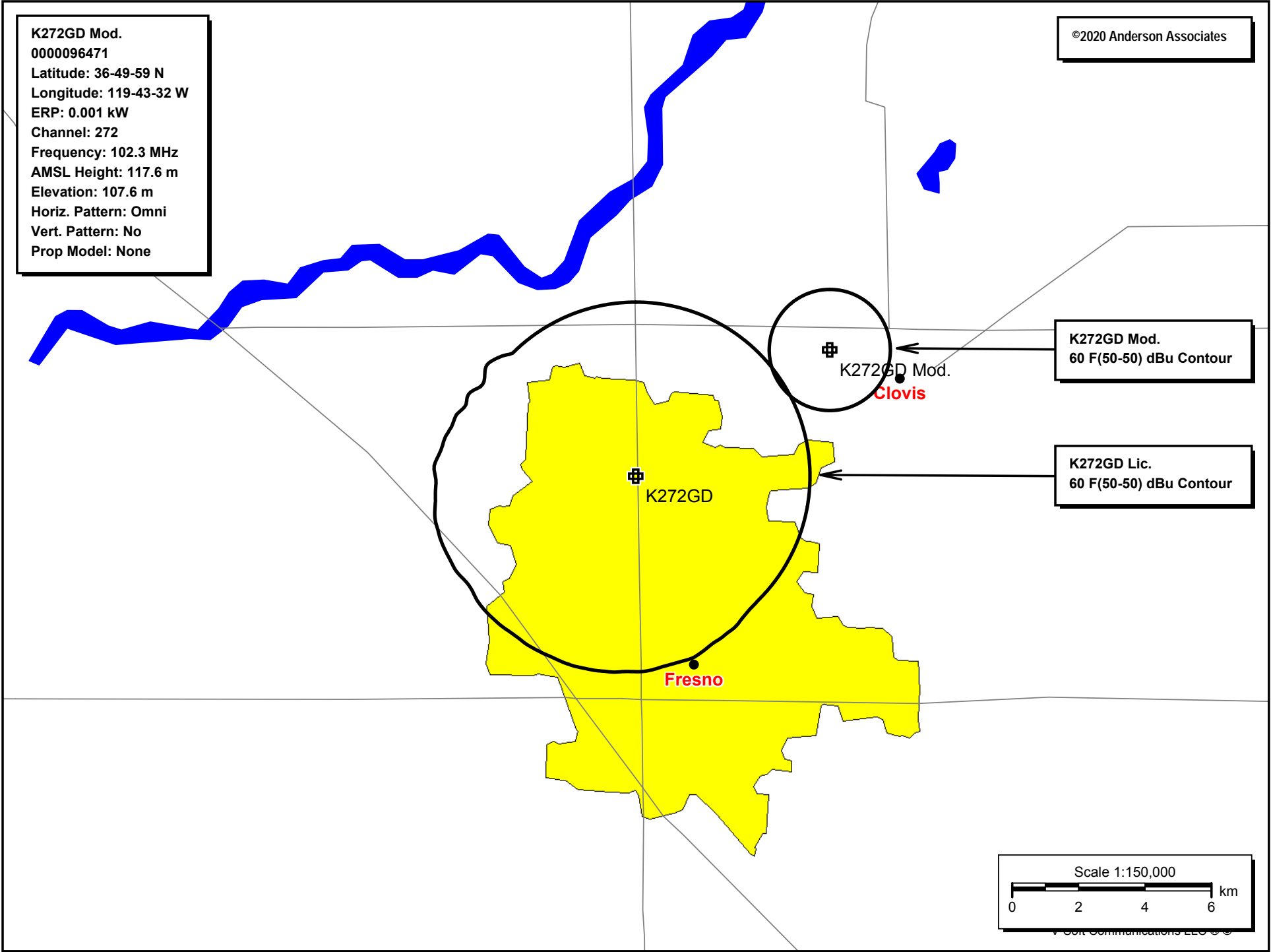
E-4 K272GD Mod. +40 F(50-10) Contours Aerial Photo



E-5 K272GD Mod. 60 F(50-50) dBu Contour Plot



E-5A K272GD Mod. 60 F(50-50) dBu Contour Plot



TOWAIR Determination Results

A routine check of the coordinates, heights, and structure type you provided indicates that this structure does not require registration.

*** 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

PASS SLOPE(50:1) NO FAA REQ - 2047.0 Meters (6715.80 Feet)away & below slope by 20.0 Meters (65.6200 Feet)

Type	C/R	Latitude	Longitude	Name	Address	Lowest Elevation (m)	Runway Length (m)
AIRP	R	36-50-33.00N	119-52-21.00W	SIERRA SKY PARK	FRESNO, FRESNO, CA	96.6	753.79999999999995

Your Specifications

NAD83 Coordinates

Latitude 36-49-59.0 north
Longitude 119-53-32.0 west

Measurements (Meters)

Overall Structure Height (AGL) 10
Support Structure Height (AGL) 0
Site Elevation (AMSL) 107.6

Structure Type

POLE - Any type of Pole

E-7 K272GD Mod. HAAT Calculation

Antenna Height Above Average Terrain Calculations -- Results

Input Data

Latitude **36° 49' 59"** North
Longitude **119° 43' 32"** West (NAD 83)

Height of antenna radiation center above mean sea level: **117.6** meters AMSL

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

Results

Calculated HAAT = **5 meters**

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

Individual "Radial HAAT" Values, in meters

0°	6.4 m
30°	-40.4 m
60°	-21.0 m
90°	-6.8 m
120°	5.7 m
150°	12.3 m
180°	21.1 m
210°	23.9 m
240°	22.9 m
270°	18.4 m
300°	13.1 m
330°	7.0 m