

DELAWDER COMMUNICATIONS, INC.

P.O. Box 1095
Ashburn, Virginia 20146-1095
(703) 299-9222

ENGINEERING REPORT

K226CG, Decatur (to Azle), TX, Channel 225D Minor Change

ENGINEERING STATEMENT

Hispanic Family Christian Network (“Applicant”) proposes this site move change to K226CG, Decatur, TX, 226D to the Azle, TX area with a corresponding channel change to 225D. This modification is deemed a minor change pursuant to Section 74.1233(a) of the FCC Rules.

FILL-IN AND CONTOUR OVERLAP SHOWING

As demonstrated by Figure EE-A, attached, the proposed 60 dBu F50,50 service contour is completely within the 60 dBu F50,50 contour of its primary (donor signal) station, WRR, Dallas, 266C. Figures EE-A and EE-B demonstrate that the translator’s licensed and proposed 60 dBu F50,50 contours have a small amount of contour overlap.

PROTECTION TO KZPS

All contour non-overlap protection requirements are met with the exception of KZPS (Dallas 223C) discussed below.

KZPS, Dallas 223C (67.1 kilometers at 123 degrees True bearing from proposed site) is a second adjacent-channel to the proposed channel 225D facility. The 60 dBu F50,50 service contour for KZPS extends well beyond the proposed 225D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to KZPS.

Note that a rule waiver of Section 74.1204 for this second/third adjacent-channel protection using the well-established *Living Way Ministries* Methodology is respectfully requested if such a rule waiver is deemed necessary for protection to any station.

The F50,50 signal strength from KZPS at the proposed 225D transmitter site is at least 68 dBu (the “desired” signal). The second/third adjacent-channel protection of Section 74.1204 is an undesired-to-desired (“U/D”) dB signal strength ratio of 40:1.

Therefore, predicted interference to KZPS from the proposed 225D facility is a signal of greater than or equal to 108 dBu.

Figure EE1 is the vertical plane relative field pattern for the proposed Shively Labs 6020 three-bay halfwave-spaced antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 108 dBu interfering signal (using a free space field determination) does not exist at any point at ground level. (Actually, the study is made to 2 meters above ground level to account for a person's height.)

Attached as Figure EE2 is a tabulation of various points (at 2 meters above ground level) from the proposed translator tower base. (Column B is the different distances from the tower base to each studied point.) The actual distance from the antenna to each point is listed in Column C, the hypotenuse of the vertical height (Column A) and the horizontal distance (Column B). Also, the vertical distance from the antenna bottom to the calculated interference signal for each studied point is provided in Column K. Because the calculated distance to the free space interfering signal (Column J) is less than the hypotenuse distance (Column C) and the interfering signal vertical distance (Column K) is less than the vertical distance (Column A) for each studied point, the interfering signal does not reach any studied point. (In other words, the interfering signal does not make it to 2 meters any point.) The clearance in all cases is at least 50 meters.

The attached aerial photo of the site demonstrates that there are no large buildings within the worst-case study distance of 444 meters from the proposed translator site. It is noted that the terrain elevation within this distance of the transmitter site is within 15 meters of the ground elevation of the site. Therefore, pursuant to Section 74.1204(d) of the FCC Rules, KZPS is adequately protected by the proposed facility.

FIGURE EE-A: Map showing Licensed, Proposed and Primary 60 dBu F50,50 Contours

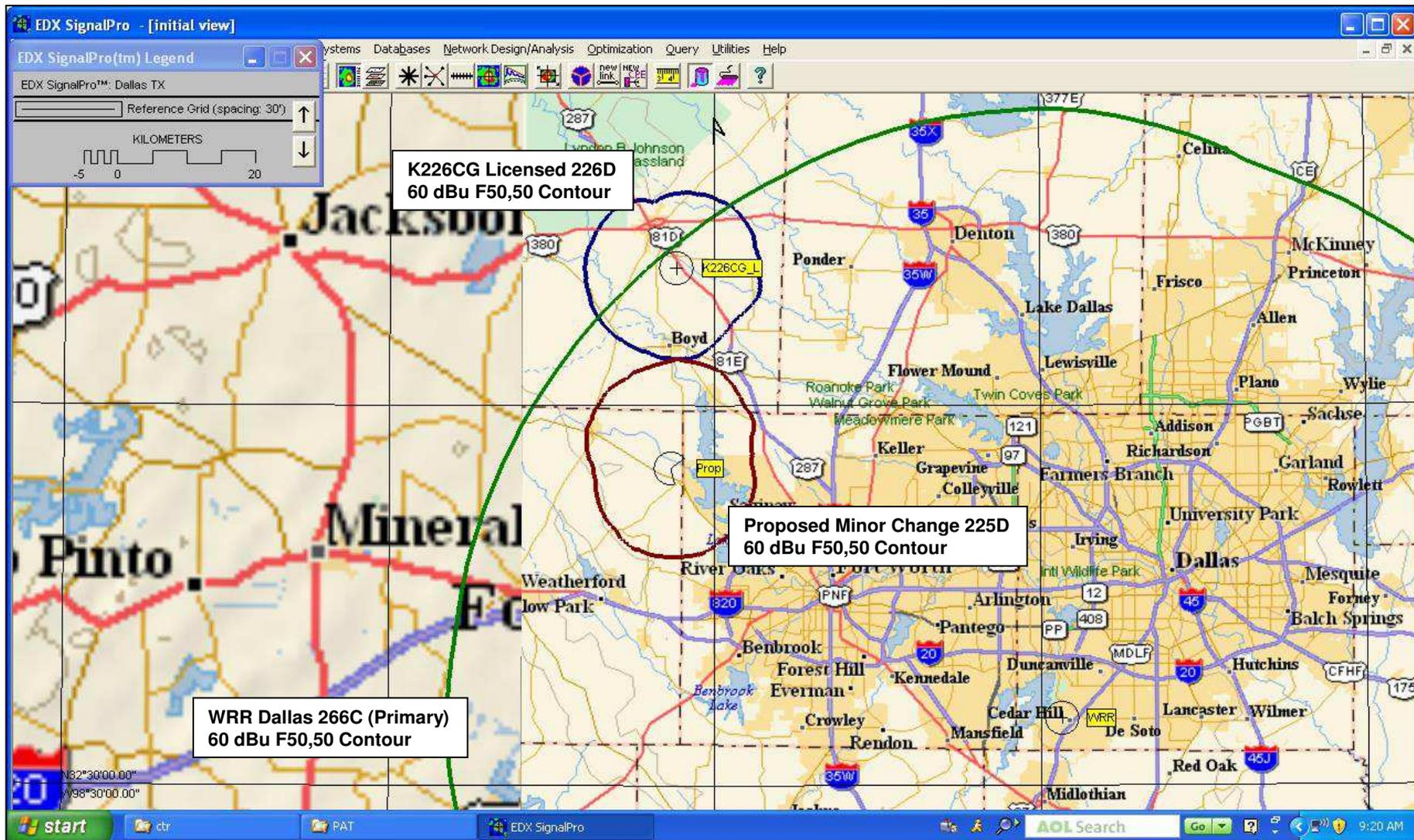
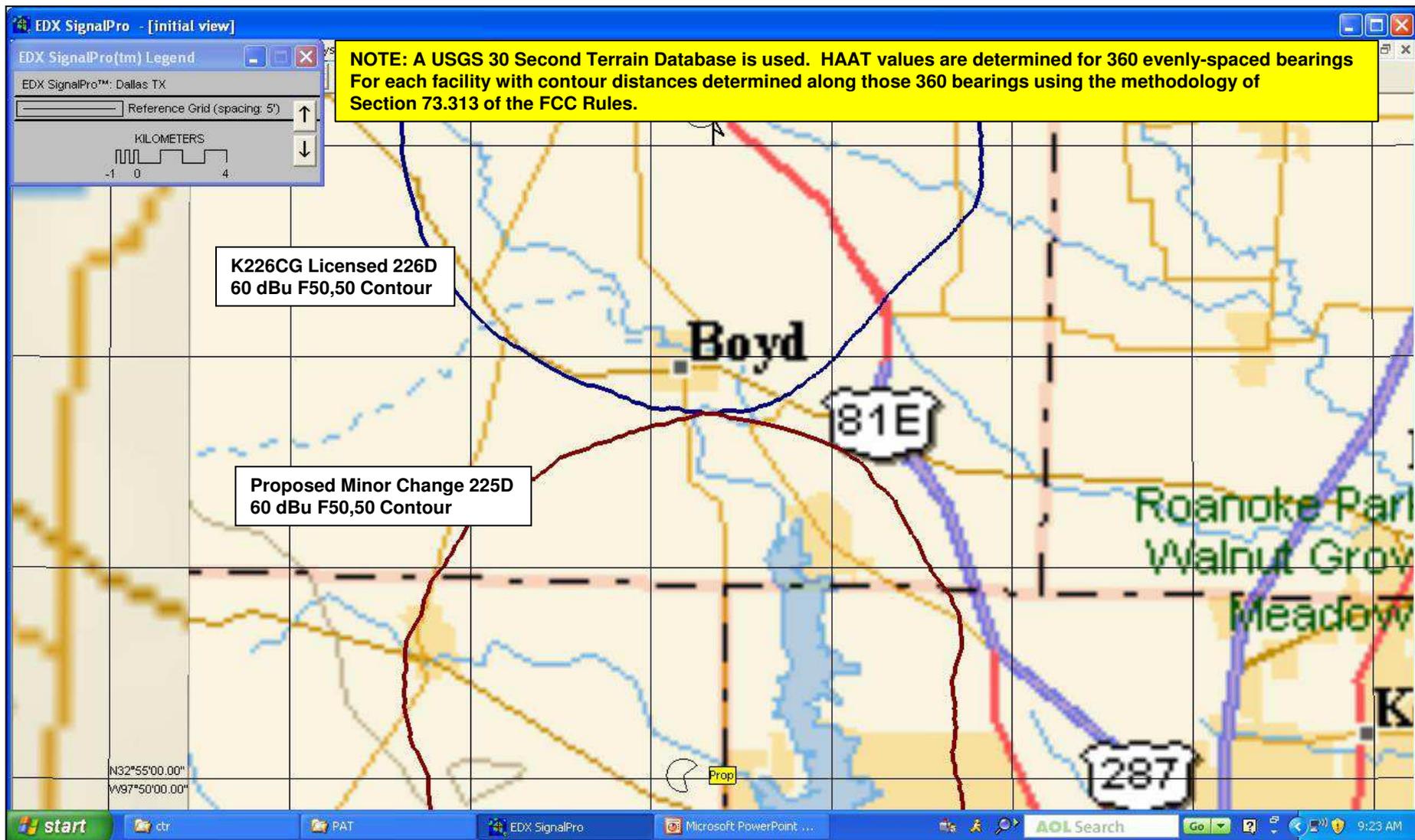
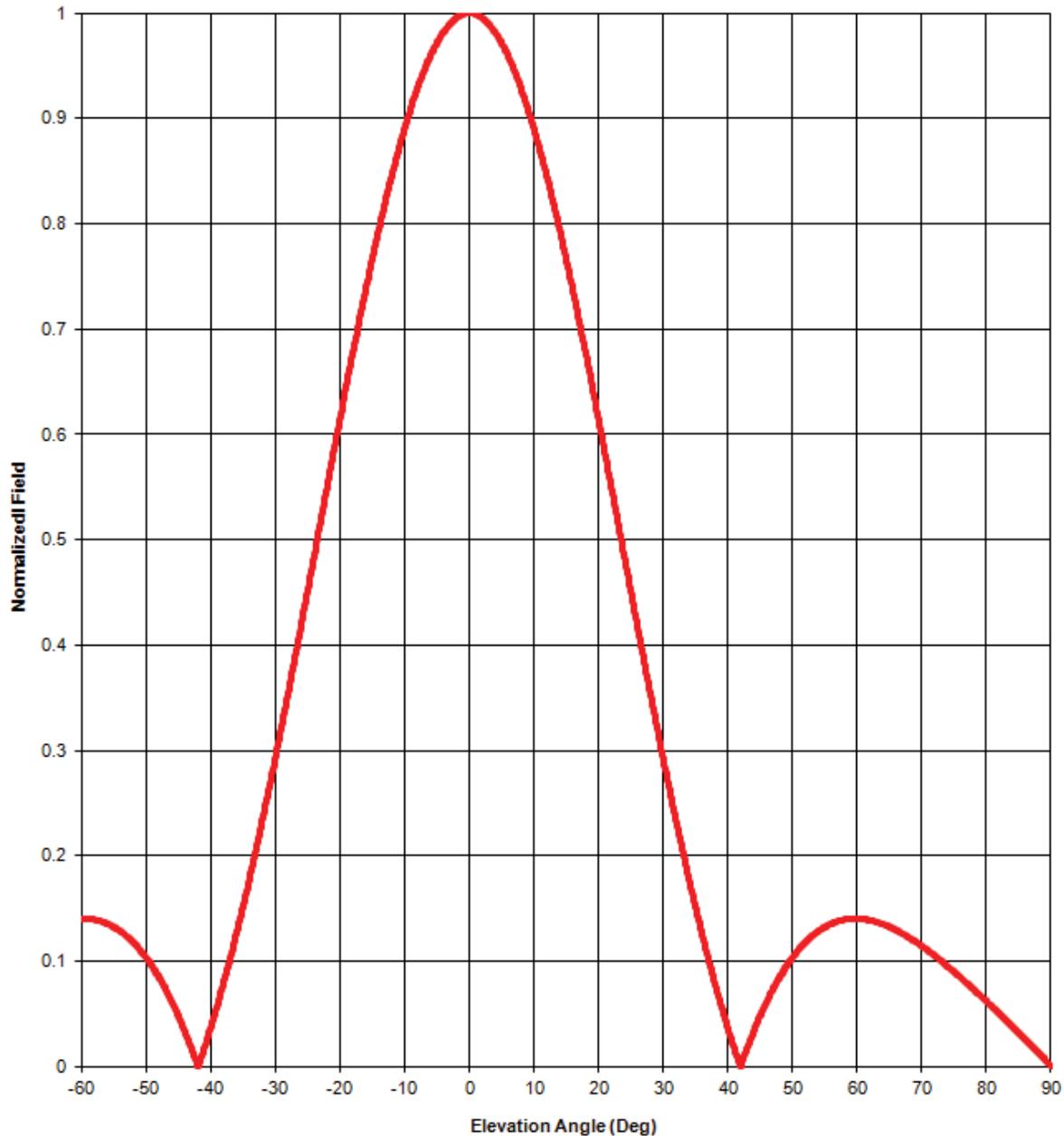


FIGURE EE-B: Map showing Licensed and Proposed 60 dBu F50,50 Contour Overlap



Elevation pattern

FIGURE EE1 (PAGE 1 OF 2)



Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, & 68xx except 6832, 3-bay half-wave-spaced

Test frequency: 98.1 MHz

Gain (maximum):

	Power	dB
6014, 6015, 68xx:	1.02	0.08 dB
6510, 6513, 6600:	2.04	3.08 dB

Document No. 68xx 3-bay hw (130701)

A Division of Howell Laboratories, Inc., P. O. Box 389, Bridgton, Maine 04009 USA

(207) 647-3327

1-888-SHIVELY

Fax: (207)647-8273

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www.shively.com

sales@shively.com

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FIGURE EE1 (PAGE 2 OF 2)

Degrees	Rel. Field								
1	0.999	19	0.646	37	0.102	55	0.133	73	0.100
2	0.995	20	0.615	38	0.079	56	0.136	74	0.095
3	0.990	21	0.582	39	0.057	57	0.138	75	0.090
4	0.982	22	0.550	40	0.037	58	0.140	76	0.084
5	0.972	23	0.517	41	0.017	59	0.140	77	0.079
6	0.959	24	0.484	42	0.001	60	0.140	78	0.073
7	0.945	25	0.451	43	0.018	61	0.140	79	0.068
8	0.929	26	0.419	44	0.034	62	0.139	80	0.062
9	0.911	27	0.387	45	0.048	63	0.137	81	0.056
10	0.891	28	0.355	46	0.062	64	0.135	82	0.050
11	0.869	29	0.323	47	0.074	65	0.133	83	0.044
12	0.845	30	0.293	48	0.085	66	0.130	84	0.038
13	0.820	31	0.263	49	0.095	67	0.126	85	0.032
14	0.794	32	0.234	50	0.104	68	0.123	86	0.026
15	0.767	33	0.205	51	0.111	69	0.119	87	0.020
16	0.738	34	0.178	52	0.118	70	0.114	88	0.013
17	0.708	35	0.152	53	0.124	71	0.110	89	0.007
18	0.678	36	0.126	54	0.129	72	0.105	90	0.000

Elevation Pattern Tabulation

Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, & 68xx except 6832, 3-bay half-wave-spaced.

Relative Field at 0° Depression = 1.000

FIGURE EE2

FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

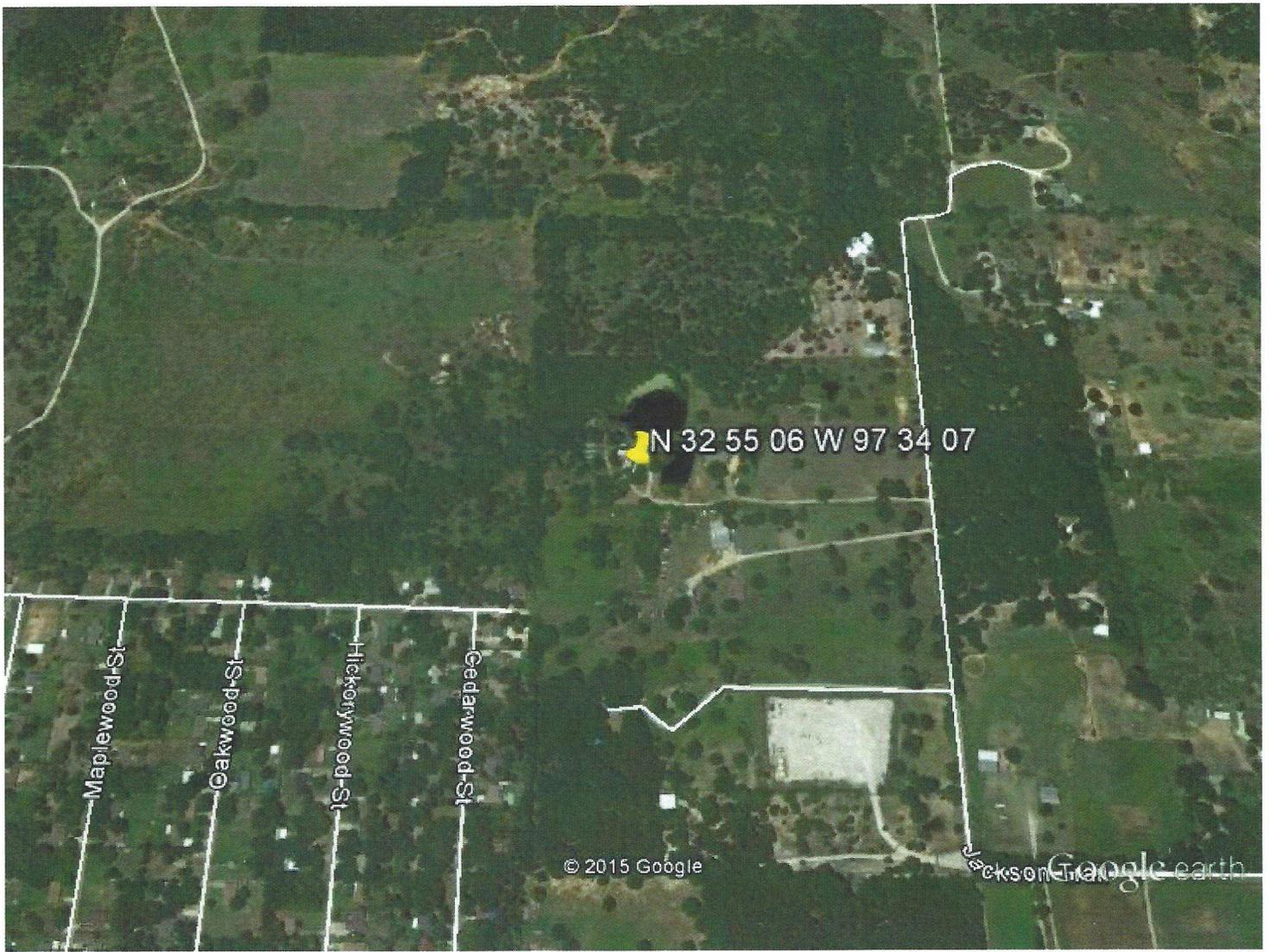
PROJECT: AZLE, TX, CHANNEL 225D

29-Dec-15

Pt	Column A Vert Dist From Ant Bottom (meters)	Column B Horiz Dist From Tower Base (meters)	Column C Hypot- enuse Dist fr Ant Bottom (meters)	Column D Down- ward Angle fr Ant Bottom (degrees)	Column E Max ERP (watts)	Column F Max ERP (dBmW)	Column G Pattern Relative Field at Down- ward Angle	Column H Free Space Inter- ferring Signal (dBu)	Column I Adjusted ERP in Down- ward Angle (dBmW)	Column J Interf Distance along Hypot- enuse (meters)	Column K Vert Interf Distance below Antenna (meters)
1	146	0.1	146.0	90.0	250	53.98	0.001	108.0	-6.02	0.4	0.4
2	146	20	147.4	82.2	250	53.98	0.050	108.0	27.96	22.2	21.9
3	146	40	151.4	74.7	250	53.98	0.095	108.0	33.53	42.1	40.6
4	146	60	157.8	67.7	250	53.98	0.126	108.0	35.99	55.8	51.6
5	146	80	166.5	61.3	250	53.98	0.140	108.0	36.90	62.0	54.4
6	146	100	177.0	55.6	250	53.98	0.136	108.0	36.65	60.3	49.7
7	146	140	202.3	46.2	250	53.98	0.074	108.0	31.36	32.8	23.7
8	146	180	231.8	39.0	250	53.98	0.057	108.0	29.10	25.3	15.9
9	146	220	264.0	33.6	250	53.98	0.205	108.0	40.21	90.8	50.2
10	146	260	298.2	29.3	250	53.98	0.323	108.0	44.16	143.1	70.1
11	146	300	333.6	26.0	250	53.98	0.419	108.0	46.42	185.6	81.2
12	146	340	370.0	23.2	250	53.98	0.517	108.0	48.25	229.1	90.4
13	146	380	407.1	21.0	250	53.98	0.582	108.0	49.28	257.9	92.5
14	146	420	444.7	19.2	250	53.98	0.646	108.0	50.18	286.2	94.0
14	146	460	482.6	17.6	250	53.98	0.708	108.0	50.98	313.7	94.9

NOTE: Study point at 2 meters above ground (or rooftop, see write-up) level.

RESULTS: COLUMN J DISTANCES ARE LESS THAN COLUMN C AND COLUMN K DISTANCES ARE LESS THAN COLUMN A DISTANCES IN ALL INSTANCES; THEREFORE, INTERFERING SIGNAL DOES NOT EXIST AT ANY LOCATION (TWO METERS OR LESS ABOVE GROUND LEVEL)



Google earth

