

ENGINEERING STATEMENT – SECOND ADJACENT CHANNEL PROTECTION

KLTN, Houston, TX, 275C0 (68.2 kilometers at 178 degrees True from LPFM site) and KMJQ, Houston, TX, 271C (89.2 kilometers at 188 degrees True from LPFM site) are second adjacent-channel stations to the proposed channel 273 LPFM facility. (Note that the 60 dBu F50,50 Contour of KMJQ does extend to the LPFM site and falls short of the LPFM site by at least one kilometer. *KMJQ is adequately protected.*)

The protected service contour of KLTN extends beyond the LPFM transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to KLTN.

Note that a rule waiver of Section 73.807 for this second 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 this station.

The F50,50 signal strength from KLTN at the proposed LPFM transmitter site is 61.6 dBu (the “desired” signal for KLTN). The second/third adjacent-channel protection is an undesired-to-desired (“U/D”) dB signal strength ratio of 40:1. Therefore, predicted interference to KLTN and is a LPFM signal of greater than or equal to 101.6 dBu.

Figure EE1 is the vertical plane relative field pattern for the proposed antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 101.6 dBu interfering signal (using a free space field determination) does not exist at any point a 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). Because the calculated distance to the free space interfering signal (Column J) is less than the hypotenuse distance (Column C) 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 above ground level to any point.) Therefore, pursuant to Section 74.1204(d) of the FCC Rules, KLTN is adequately protected by the proposed facility.

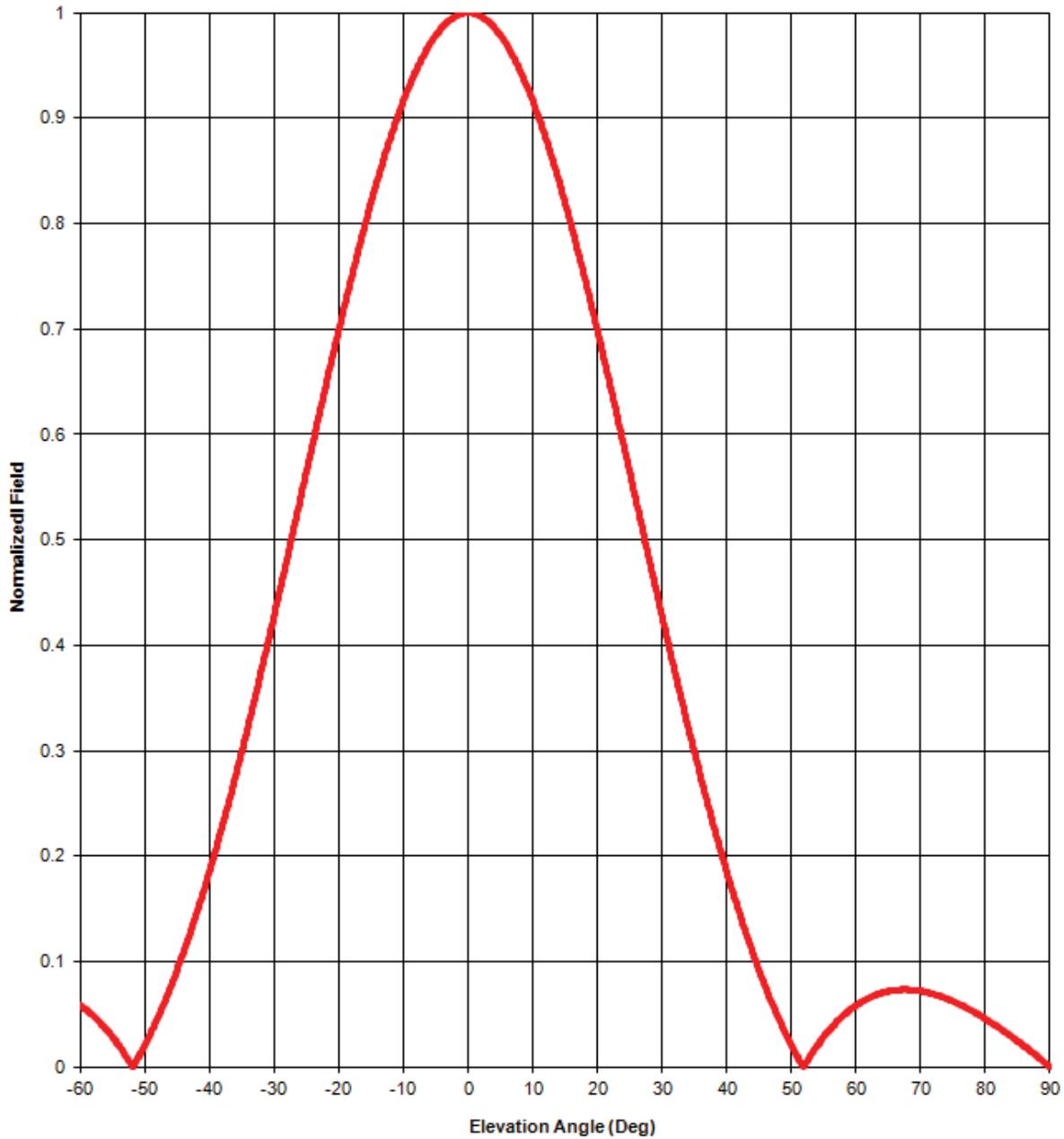
The above study results of Figure EE2 assume uniform terrain elevation near the proposed tower. Because the clearance shown (Column C minus Column J values) is at least 60 meters for all rows, this assumption is acceptable for showing non-interference—no actual elevation within 250 meters of the proposed translator tower is at an elevation that is more than 10 meters above that of the tower base elevation.

AERIAL PHOTO

Attached is an aerial photo of the proposed transmitter site. All nearby buildings shown on the photo are less than 20 meters in height; therefore, based on the clearance shown by Figure EE2, no interference is predicted to occur to KLTN.

Elevation pattern

FIGURE EE1 (PAGE 1 OF 2)



Antenna model: 6812b, 3-bay half-wave-spaced

Test frequency: 98.1 MHz

Gain (maximum):

Power	dB
0.89	-0.51 dB

[Document No. 6812b 3-bay hw \(130701\)](#)

FIGURE EE1 (PAGE 2 OF 2)

Degrees	Rel. Field								
1	0.999	19	0.725	37	0.251	55	0.029	73	0.067
2	0.997	20	0.699	38	0.229	56	0.036	74	0.065
3	0.992	21	0.673	39	0.207	57	0.043	75	0.062
4	0.986	22	0.646	40	0.185	58	0.049	76	0.060
5	0.979	23	0.619	41	0.165	59	0.054	77	0.056
6	0.969	24	0.592	42	0.146	60	0.059	78	0.053
7	0.958	25	0.565	43	0.127	61	0.063	79	0.050
8	0.946	26	0.537	44	0.109	62	0.066	80	0.046
9	0.932	27	0.510	45	0.092	63	0.068	81	0.042
10	0.916	28	0.482	46	0.076	64	0.070	82	0.038
11	0.900	29	0.455	47	0.061	65	0.072	83	0.033
12	0.881	30	0.428	48	0.047	66	0.073	84	0.029
13	0.862	31	0.401	49	0.033	67	0.073	85	0.025
14	0.842	32	0.375	50	0.021	68	0.073	86	0.020
15	0.820	33	0.349	51	0.009	69	0.073	87	0.015
16	0.797	34	0.324	52	0.002	70	0.072	88	0.010
17	0.774	35	0.299	53	0.011	71	0.071	89	0.005
18	0.750	36	0.275	54	0.021	72	0.069	90	0.000

Elevation Pattern Tabulation

Antenna model: 6812b, 3-bay half-wave-spaced

Relative Field at 0° Depression = 1.000

FIGURE EE2

FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

PROJECT: CONROE, TX, CHANNEL 273D

3-Nov-13

Point	Column A Vertical Distance From Antenna Bottom (meters)	Column B Horizontal Distance From Tower Base (meters)	Column C Hypotenuse Distance From Antenna Bottom (meters)	Column D Downward Angle From Antenna 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 OUTPUT Distance (meters)
1	76	0.1	76.0	89.9	11	40.41	0.005	101.6	-5.61	1.0
2	76	10	76.7	82.5	11	40.41	0.038	101.6	12.01	7.4
3	76	20	78.6	75.3	11	40.41	0.062	101.6	16.26	12.0
4	76	30	81.7	68.5	11	40.41	0.073	101.6	17.68	14.2
5	76	40	85.9	62.2	11	40.41	0.068	101.6	17.06	13.2
6	76	50	91.0	56.7	11	40.41	0.043	101.6	13.08	8.3
7	76	70	103.3	47.4	11	40.41	0.061	101.6	16.12	11.8
8	76	90	117.8	40.2	11	40.41	0.185	101.6	25.76	35.9
9	76	110	133.7	34.6	11	40.41	0.324	101.6	30.62	62.9
10	76	130	150.6	30.3	11	40.41	0.428	101.6	33.04	83.1
11	76	160	177.1	25.4	11	40.41	0.565	101.6	35.45	109.7
12	76	190	204.6	21.8	11	40.41	0.673	101.6	36.97	130.7
13	76	220	232.8	19.1	11	40.41	0.725	101.6	37.62	140.8
14	76	250	261.3	16.9	11	40.41	1.000	101.6	40.41	194.2

NOTE: Study point at 2 meters above ground level.

Worst-case relative field of 1.000 used for last examined point.

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

CONROE, TX LPFM AERIAL PHOTO OF PROPOSED SITE



Google earth

