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ENGINEERING REPORT

K283CH, Alvin, TX, Channel 283D FM Translator Minor Mod

ENGINEERING STATEMENT

This is a minor change to BMPFT-20140812AAQ, a construction permit for K283CH (previously K284BX) that has a pending license to cover (BLFT-20150224AAQ). This minor modification makes an antenna change to an omnidirectional antenna.

PROTECTION TO KAMA-FM AND KRBE

All contour non-overlap protection requirements are met with the exception of Houston, TX stations KRBE (281C) and KAMA-FM (285C2), discussed below.

KAMA-FM (34.2 kilometers at 341 degrees True) and KRBE (30.4 kilometers at 294 degrees True) are second adjacent-channel to the proposed channel 283D facility. The 60 dBu F50,50 service contour extends well beyond the proposed 283D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to KAMA-FM or KRBE.

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 KAMA-FM at the proposed 283D transmitter site is at least 68 dBu (the “desired” signal). The F50,50 signal strength from KRBE at the proposed 283D transmitter site is at least 86 dBu (the other “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 KAMA-FM and KRBE from the proposed 283D 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 6812B one-bay antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 108 dBu

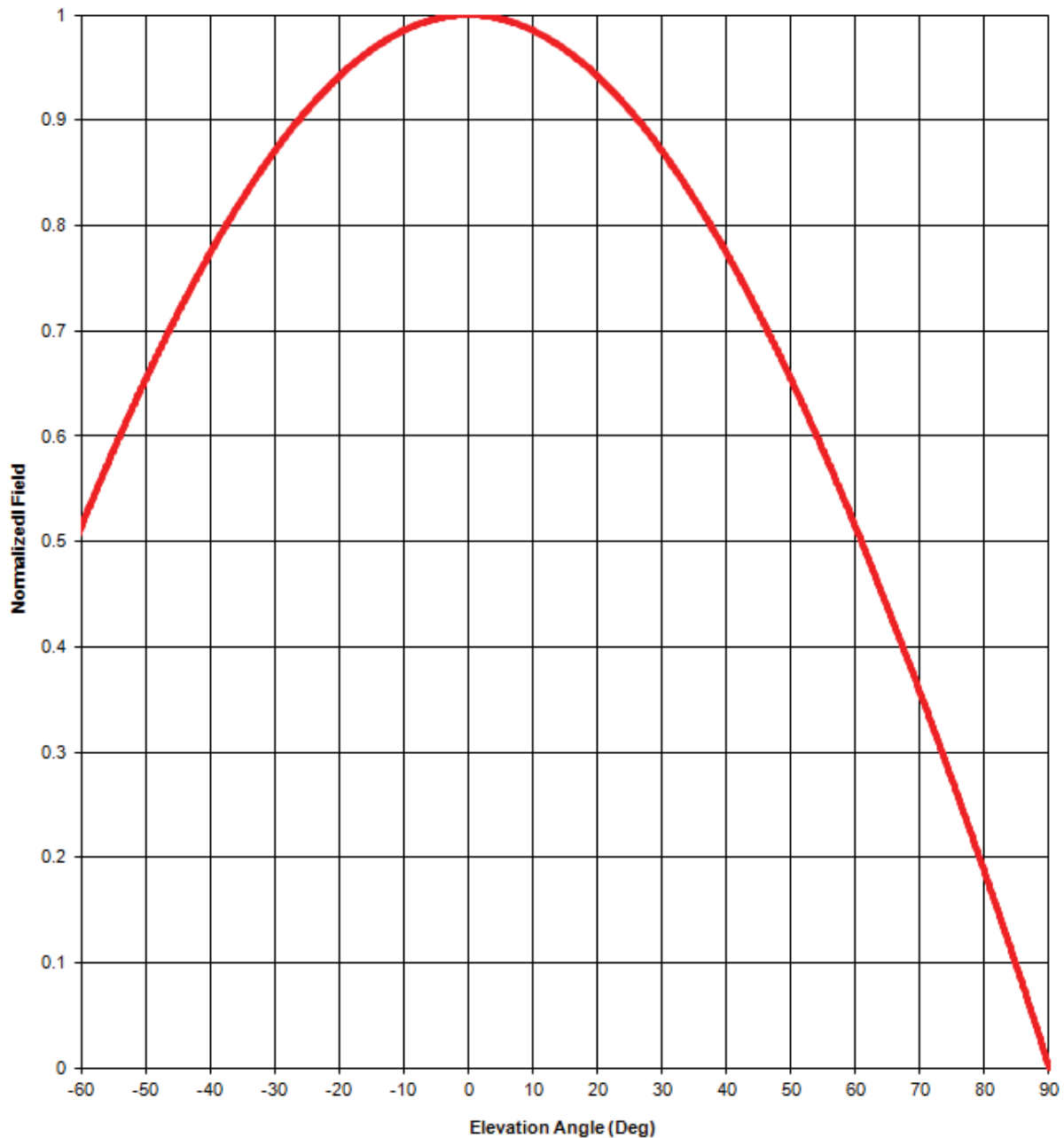
interfering signal (using a free space field determination) does not exist at any point at ground level. (Actually, the study is made to 2 meters above ground level to account for a person's height.)

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.) Therefore, pursuant to Section 74.1204(d) of the FCC Rules, KAMA-FM and KRBE are 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 A minus Column K values) is at least 75 meters for all rows, this assumption is acceptable for showing non-interference—no actual elevation within 444 meters of the proposed translator tower is at an elevation that is more than 15 meters above that of the tower base elevation.

Elevation pattern

FIGURE EE1 (Page 1 of 2)



Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, 68xx except 6832, & Versa2une, single bay

Test frequency: 98.1 MHz

Gain (maximum):

	Power	dB
6014, 6015, 68xx:	0.45	-3.43 dB
6510, 6513, 6600:	0.91	-0.43 dB

Document No. 68xx-1 bay fw (130701)

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FIGURE EE1 (Page 2 of 2)

Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field	Degrees	Rel. Field
1	1.000	19	0.948	37	0.806	55	0.586	73	0.307
2	0.999	20	0.942	38	0.796	56	0.572	74	0.290
3	0.999	21	0.936	39	0.785	57	0.558	75	0.273
4	0.998	22	0.930	40	0.774	58	0.544	76	0.256
5	0.996	23	0.924	41	0.763	59	0.529	77	0.239
6	0.995	24	0.917	42	0.752	60	0.514	78	0.221
7	0.993	25	0.910	43	0.741	61	0.499	79	0.204
8	0.991	26	0.903	44	0.729	62	0.484	80	0.186
9	0.988	27	0.895	45	0.717	63	0.469	81	0.168
10	0.985	28	0.887	46	0.705	64	0.453	82	0.151
11	0.982	29	0.879	47	0.693	65	0.437	83	0.133
12	0.979	30	0.871	48	0.680	66	0.422	84	0.114
13	0.975	31	0.862	49	0.667	67	0.406	85	0.096
14	0.971	32	0.854	50	0.654	68	0.390	86	0.078
15	0.967	33	0.845	51	0.641	69	0.373	87	0.059
16	0.963	34	0.835	52	0.628	70	0.357	88	0.040
17	0.958	35	0.826	53	0.614	71	0.341	89	0.021
18	0.953	36	0.816	54	0.600	72	0.324	90	0.000

Elevation Pattern Tabulation

Antenna models: 6014, 6015, 6020, 6510, 6513, 6600, 68xx except 6832, & Versa2une, single bay.

Relative Field at 0° Depression = 1.000

FIGURE EE2

FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

PROJECT: ALVIN, TX, 283D

8-Apr-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	300	0.1	300.0	90.0	250	53.98	0.021	108.0	20.42	9.3	9.3
2	300	20	300.7	86.2	250	53.98	0.078	108.0	31.82	34.6	34.5
3	300	40	302.7	82.4	250	53.98	0.151	108.0	37.56	66.9	66.3
4	300	60	305.9	78.7	250	53.98	0.221	108.0	40.87	97.9	96.0
5	300	80	310.5	75.1	250	53.98	0.273	108.0	42.70	121.0	116.9
6	300	100	316.2	71.6	250	53.98	0.341	108.0	44.63	151.1	143.3
7	300	150	335.4	63.4	250	53.98	0.469	108.0	47.40	207.8	185.9
8	300	200	360.6	56.3	250	53.98	0.572	108.0	49.13	253.4	210.9
9	300	250	390.5	50.2	250	53.98	0.654	108.0	50.29	289.8	222.6
10	300	300	424.3	45.0	250	53.98	0.717	108.0	51.09	317.7	224.6
11	300	350	461.0	40.6	250	53.98	0.774	108.0	51.75	342.9	223.2
12	300	400	500.0	36.9	250	53.98	0.816	108.0	52.21	361.5	216.9
13	300	450	540.8	33.7	250	53.98	0.845	108.0	52.52	374.4	207.7

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, INTERFERRING SIGNAL DOES NOT EXIST AT ANY LOCATION (TWO METERS OR LESS ABOVE GROUND LEVEL)