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ENGINEERING REPORT

K284BX, Alvin, TX, Channel 283D FM Translator Application (Amended)

ENGINEERING STATEMENT

This is a minor change amendment to BMPFT-20140812AAQ, a pending minor modification to K284BX—a site move modification that includes a channel change to channel 283. This amendment makes a change to a directional antenna in order to eliminate mutual exclusivity to LPFM applications in Houston that are also on channel 283.[1]

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.

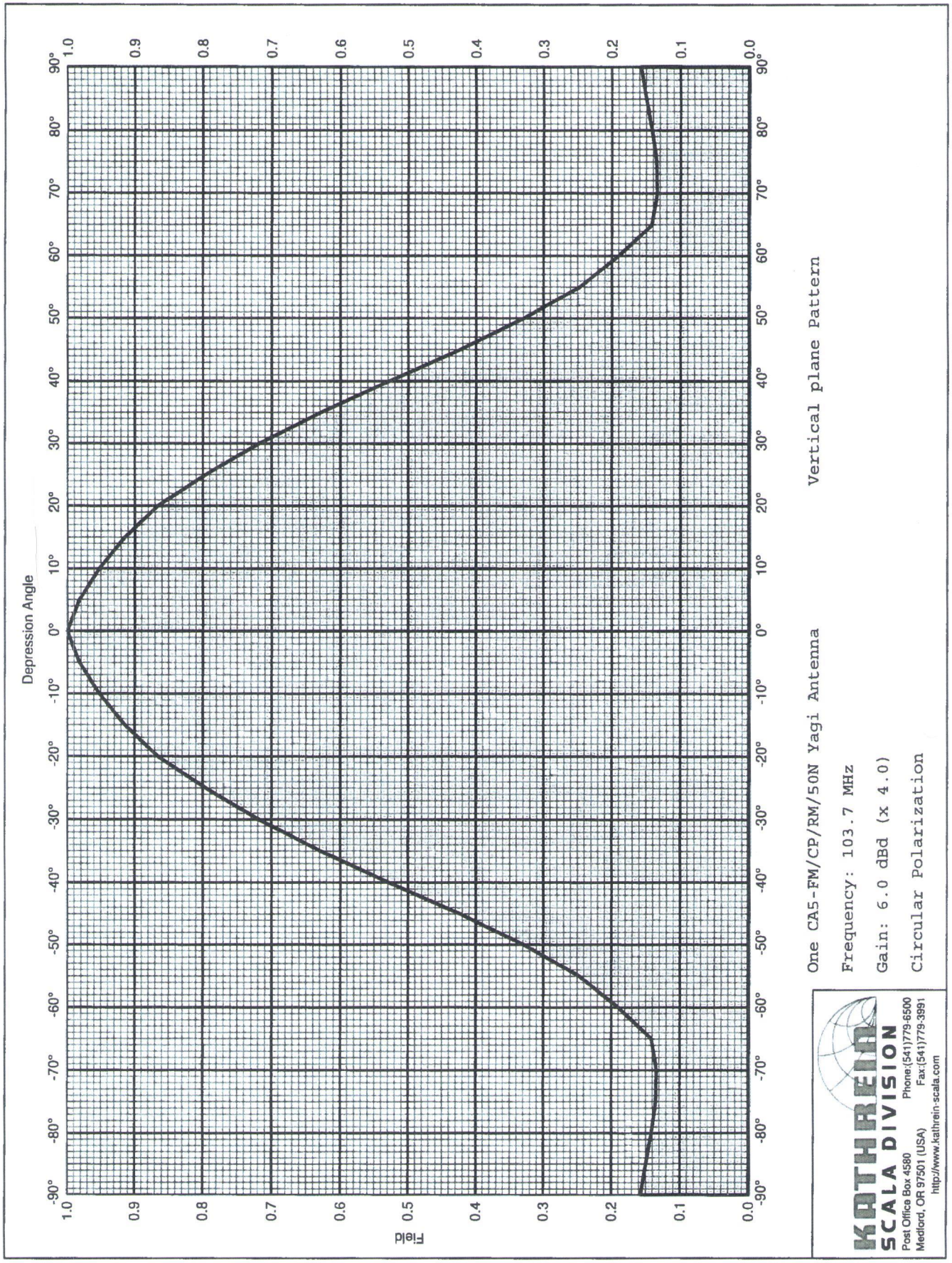
[1] BNPL-20131112AUS and BNPL-20131114BMM

Figure EE1 is the vertical plane relative field pattern for the proposed Scala CA5-FM/CP 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 138 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.

FIGURE EE1 (Page 1 of 2)



KATHREIN
SCALA DIVISION

One CA5-FM/CP/RM/50N Yagi Antenna
Frequency: 103.7 MHz
Gain: 6.0 dBd (x 4.0)
Circular Polarization

Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	6.00	3.98	45	0.423	-7.47	-1.47	0.71
1	0.996	-0.03	5.97	3.95	46	0.405	-7.86	-1.86	0.65
2	0.993	-0.06	5.94	3.93	47	0.386	-8.27	-2.27	0.59
3	0.989	-0.09	5.91	3.90	48	0.367	-8.71	-2.71	0.54
4	0.986	-0.12	5.88	3.87	49	0.348	-9.17	-3.17	0.48
5	0.982	-0.15	5.85	3.84	50	0.329	-9.65	-3.65	0.43
6	0.976	-0.21	5.79	3.79	51	0.313	-10.09	-4.09	0.39
7	0.970	-0.26	5.74	3.75	52	0.296	-10.57	-4.57	0.35
8	0.964	-0.32	5.68	3.70	53	0.280	-11.07	-5.07	0.31
9	0.958	-0.37	5.63	3.66	54	0.263	-11.59	-5.59	0.28
10	0.952	-0.42	5.58	3.61	55	0.247	-12.16	-6.16	0.24
11	0.945	-0.49	5.51	3.55	56	0.235	-12.57	-6.57	0.22
12	0.937	-0.56	5.44	3.50	57	0.224	-13.00	-7.00	0.20
13	0.930	-0.63	5.37	3.44	58	0.213	-13.45	-7.45	0.18
14	0.922	-0.70	5.30	3.39	59	0.201	-13.92	-7.92	0.16
15	0.915	-0.77	5.23	3.33	60	0.190	-14.42	-8.42	0.14
16	0.905	-0.87	5.13	3.26	61	0.180	-14.88	-8.88	0.13
17	0.895	-0.96	5.04	3.19	62	0.171	-15.36	-9.36	0.12
18	0.885	-1.06	4.94	3.12	63	0.161	-15.86	-9.86	0.10
19	0.876	-1.15	4.85	3.05	64	0.151	-16.40	-10.40	0.09
20	0.866	-1.25	4.75	2.99	65	0.142	-16.97	-10.97	0.08
21	0.852	-1.39	4.61	2.89	66	0.140	-17.07	-11.07	0.08
22	0.838	-1.54	4.46	2.80	67	0.139	-17.16	-11.16	0.08
23	0.824	-1.68	4.32	2.70	68	0.137	-17.26	-11.26	0.07
24	0.810	-1.83	4.17	2.61	69	0.136	-17.36	-11.36	0.07
25	0.796	-1.98	4.02	2.52	70	0.134	-17.46	-11.46	0.07
26	0.780	-2.15	3.85	2.42	71	0.134	-17.44	-11.44	0.07
27	0.765	-2.33	3.67	2.33	72	0.134	-17.43	-11.43	0.07
28	0.749	-2.51	3.49	2.24	73	0.135	-17.42	-11.42	0.07
29	0.734	-2.69	3.31	2.14	74	0.135	-17.41	-11.41	0.07
30	0.718	-2.87	3.13	2.05	75	0.135	-17.39	-11.39	0.07
31	0.700	-3.09	2.91	1.95	76	0.136	-17.31	-11.31	0.07
32	0.682	-3.32	2.68	1.85	77	0.138	-17.22	-11.22	0.08
33	0.664	-3.55	2.45	1.76	78	0.139	-17.14	-11.14	0.08
34	0.646	-3.79	2.21	1.66	79	0.140	-17.06	-11.06	0.08
35	0.628	-4.04	1.96	1.57	80	0.142	-16.97	-10.97	0.08
36	0.608	-4.32	1.68	1.47	81	0.143	-16.87	-10.87	0.08
37	0.588	-4.61	1.39	1.38	82	0.145	-16.77	-10.77	0.08
38	0.568	-4.91	1.09	1.29	83	0.147	-16.67	-10.67	0.09
39	0.548	-5.22	0.78	1.20	84	0.148	-16.58	-10.58	0.09
40	0.528	-5.54	0.46	1.11	85	0.150	-16.48	-10.48	0.09
41	0.507	-5.89	0.11	1.02	86	0.151	-16.39	-10.39	0.09
42	0.486	-6.26	-0.26	0.94	87	0.153	-16.31	-10.31	0.09
43	0.465	-6.64	-0.64	0.86	88	0.154	-16.23	-10.23	0.09
44	0.444	-7.05	-1.05	0.79	89	0.156	-16.14	-10.14	0.10
					90	0.157	-16.06	-10.06	0.10

FIGURE EE2
FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

PROJECT: ALVIN, TX, 283D

5-Jan-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	0.157	108.0	37.90	69.6	69.6
2	300	100	**316.2**	71.6	250	53.98	0.134	108.0	36.52	59.4	56.3
3	300	140	**331.1**	65.0	250	53.98	0.142	108.0	37.03	62.9	57.0
4	300	160	**340.0**	61.9	250	53.98	0.180	108.0	39.08	79.8	70.4
5	300	180	**349.9**	59.0	250	53.98	0.201	108.0	40.04	89.1	76.4
6	300	200	**360.6**	56.3	250	53.98	0.235	108.0	41.40	104.1	86.6
7	300	240	**384.2**	51.3	250	53.98	0.313	108.0	43.89	138.7	108.3
8	300	280	**410.4**	47.0	250	53.98	0.386	108.0	45.71	171.0	125.0
9	300	320	**438.6**	43.2	250	53.98	0.465	108.0	47.33	206.0	140.9
10	300	360	**468.6**	39.8	250	53.98	0.548	108.0	48.76	242.8	155.4
11	300	400	**500.0**	36.9	250	53.98	0.608	108.0	49.66	269.4	161.6
12	300	440	**532.5**	34.3	250	53.98	0.646	108.0	50.18	286.2	161.2
13	300	444	**535.9**	34.0	250	53.98	0.646	108.0	50.18	286.2	160.2

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)

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