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ENGINEERING REPORT

K291CE, Houston, TX, Channel 291D FM Translator Minor Mod

ENGINEERING STATEMENT

PROTECTION TO KOVE-FM AND KHCB-FM

All contour non-overlap protection requirements are met with the exception of Houston, TX stations KOVE-FM, Galveston, TX (293C) and KHCB-FM, Houston, TX (289C), discussed below.

KOVE-FM (57 kilometers at 154 degrees True) and KHCB-FM (25 kilometers at 211 degrees True) are second adjacent-channel to the proposed channel 291D facility. The 60 dBu F50,50 service contour extends well beyond the proposed 291D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to KHCB-FM or KOVE-FM.

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.

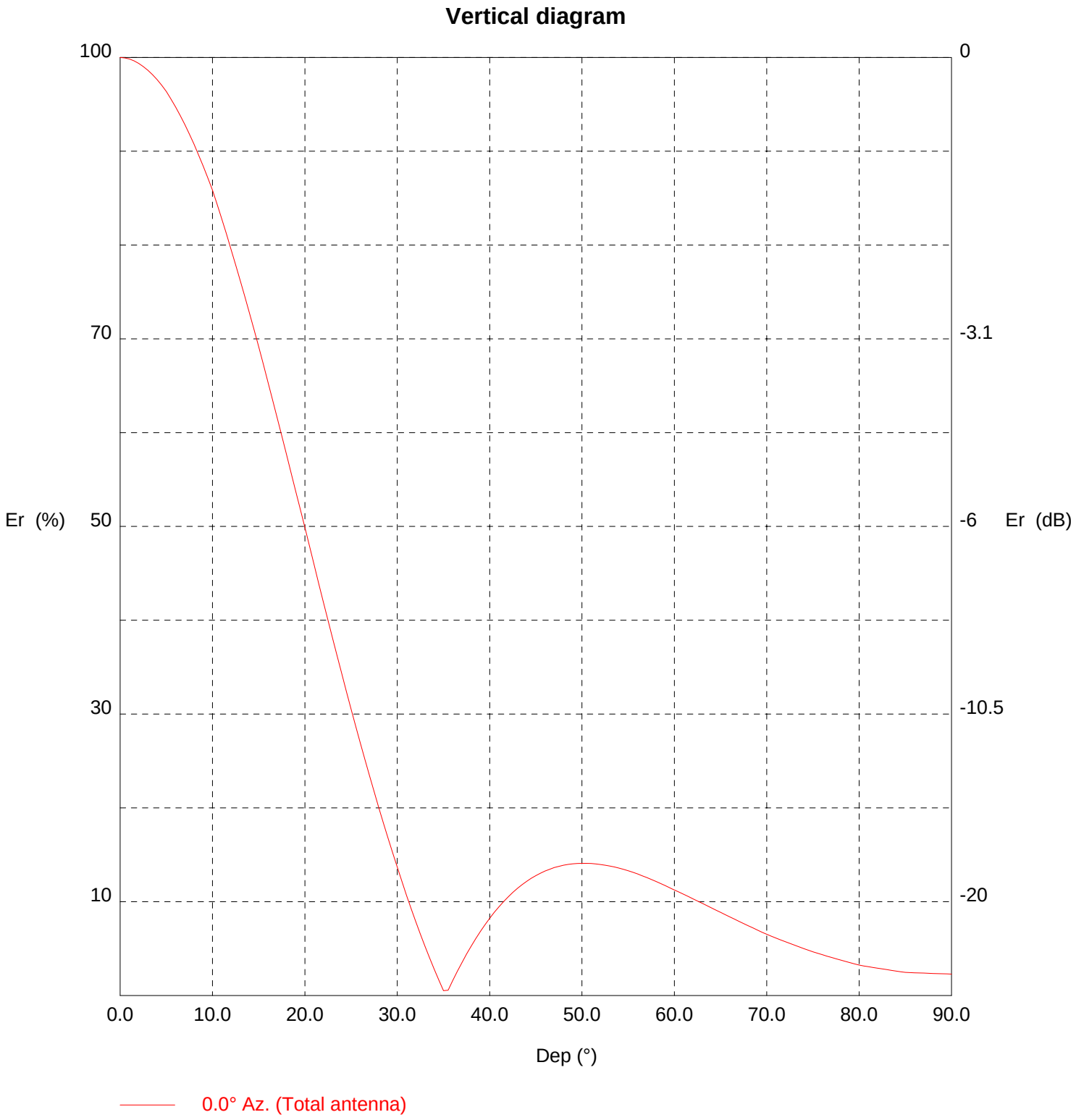
The F50,50 signal strength from KHCB-FM at the proposed 291D transmitter site is at least 88.8 dBu (the “desired” signal to KHCB-FM). The F50,50 signal strength from KOVE-FM at the proposed 291D transmitter site is at least 74.5 dBu (the “desired” signal to KOVE-FM). The second/third adjacent-channel protection of Section 74.1204 is an undesired-to-desired (“U/D”) dB signal strength ratio of 40:1. Therefore, predicted interference to KHCB-FM and KOVE-FM from the proposed 291D facility is a signal of greater than or equal to 114.5 dBu.

The centerline of the antenna is 18 meters above the top floor of the building. Attached is the vertical plane relative field pattern for the proposed Nicom BKG-77 four-bay half wavelength-spaced antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 114.5 dBu interfering signal (using a free space field determination) does not exist at any point on the top floor of the building. (The clearance is at least 2.8 meters.) This is demonstrated by the attached table (requested for use by the FCC for these studies). Therefore, K252FR and KODA is adequately protected by the proposed facility.

TX station: GENERIC

Site name:

Frequency: 100.00 MHz



TX station: GENERIC

Site name:

Frequency: 100.00 MHz

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)	Dep (°)	Er (%)	ERP (KW)
0.0	100.0	1.56	30.0	13.7	0.03	60.0	11.2	0.02
0.5	99.9	1.55	30.5	12.2	0.02	60.5	11.0	0.02
1.0	99.8	1.55	31.0	10.7	0.02	61.0	10.8	0.02
1.5	99.6	1.54	31.5	9.3	0.01	61.5	10.6	0.02
2.0	99.4	1.54	32.0	7.9	0.01	62.0	10.3	0.02
2.5	99.0	1.53	32.5	6.6	0.01	62.5	10.1	0.02
3.0	98.6	1.51	33.0	5.3	0.00	63.0	9.8	0.02
3.5	98.2	1.50	33.5	4.0	0.00	63.5	9.6	0.01
4.0	97.6	1.48	34.0	2.8	0.00	64.0	9.3	0.01
4.5	97.0	1.47	34.5	1.6	0.00	64.5	9.1	0.01
5.0	96.4	1.45	35.0	0.5	0.00	65.0	8.9	0.01
5.5	95.6	1.42	35.5	0.6	0.00	65.5	8.6	0.01
6.0	94.7	1.40	36.0	1.6	0.00	66.0	8.4	0.01
6.5	93.8	1.37	36.5	2.6	0.00	66.5	8.1	0.01
7.0	92.9	1.34	37.0	3.5	0.00	67.0	7.9	0.01
7.5	91.8	1.31	37.5	4.4	0.00	67.5	7.7	0.01
8.0	90.7	1.28	38.0	5.3	0.00	68.0	7.4	0.01
8.5	89.6	1.25	38.5	6.1	0.01	68.5	7.2	0.01
9.0	88.4	1.22	39.0	6.8	0.01	69.0	7.0	0.01
9.5	87.2	1.18	39.5	7.6	0.01	69.5	6.7	0.01
10.0	85.9	1.15	40.0	8.2	0.01	70.0	6.5	0.01
10.5	84.4	1.11	40.5	8.9	0.01	70.5	6.3	0.01
11.0	82.8	1.07	41.0	9.4	0.01	71.0	6.1	0.01
11.5	81.2	1.03	41.5	10.0	0.02	71.5	5.9	0.01
12.0	79.6	0.99	42.0	10.5	0.02	72.0	5.7	0.01
12.5	77.9	0.95	42.5	11.0	0.02	72.5	5.6	0.00
13.0	76.2	0.90	43.0	11.4	0.02	73.0	5.4	0.00
13.5	74.5	0.86	43.5	11.8	0.02	73.5	5.2	0.00
14.0	72.8	0.82	44.0	12.2	0.02	74.0	5.0	0.00
14.5	71.0	0.78	44.5	12.5	0.02	74.5	4.8	0.00
15.0	69.2	0.74	45.0	12.8	0.03	75.0	4.7	0.00
15.5	67.3	0.70	45.5	13.0	0.03	75.5	4.5	0.00
16.0	65.4	0.67	46.0	13.3	0.03	76.0	4.3	0.00
16.5	63.5	0.63	46.5	13.5	0.03	76.5	4.2	0.00
17.0	61.6	0.59	47.0	13.6	0.03	77.0	4.1	0.00
17.5	59.6	0.55	47.5	13.8	0.03	77.5	3.9	0.00
18.0	57.7	0.52	48.0	13.9	0.03	78.0	3.8	0.00
18.5	55.7	0.48	48.5	14.0	0.03	78.5	3.6	0.00
19.0	53.8	0.45	49.0	14.0	0.03	79.0	3.5	0.00
19.5	51.8	0.42	49.5	14.1	0.03	79.5	3.4	0.00
20.0	49.9	0.39	50.0	14.1	0.03	80.0	3.2	0.00
20.5	47.9	0.36	50.5	14.1	0.03	80.5	3.2	0.00
21.0	45.9	0.33	51.0	14.1	0.03	81.0	3.1	0.00
21.5	43.9	0.30	51.5	14.0	0.03	81.5	3.0	0.00
22.0	41.9	0.27	52.0	14.0	0.03	82.0	2.9	0.00
22.5	40.0	0.25	52.5	13.9	0.03	82.5	2.8	0.00
23.0	38.1	0.23	53.0	13.8	0.03	83.0	2.8	0.00
23.5	36.2	0.20	53.5	13.7	0.03	83.5	2.7	0.00
24.0	34.3	0.18	54.0	13.6	0.03	84.0	2.6	0.00
24.5	32.4	0.16	54.5	13.4	0.03	84.5	2.5	0.00
25.0	30.5	0.15	55.0	13.3	0.03	85.0	2.5	0.00
25.5	28.7	0.13	55.5	13.1	0.03	85.5	2.4	0.00
26.0	26.9	0.11	56.0	13.0	0.03	86.0	2.4	0.00
26.5	25.2	0.10	56.5	12.8	0.03	86.5	2.4	0.00
27.0	23.4	0.09	57.0	12.6	0.02	87.0	2.4	0.00
27.5	21.7	0.07	57.5	12.4	0.02	87.5	2.4	0.00
28.0	20.0	0.06	58.0	12.2	0.02	88.0	2.3	0.00
28.5	18.4	0.05	58.5	11.9	0.02	88.5	2.3	0.00
29.0	16.8	0.04	59.0	11.7	0.02	89.0	2.3	0.00
29.5	15.2	0.04	59.5	11.5	0.02	89.5	2.3	0.00

74.1204(d) Showing

K291CE, Houston, TX 291D

ERP (kw)	0.04
Height of Antenna above top floor (m)	18
Translator's IX Contour	114.4

NIC BKG-77 4-bay (HW)

Depression Angle from Horizon	**Antenna Relative Field**	**ERP (kw) from the Antenna RF**	**Dist. To IX Contour (m)**	**Height IX Contour Above Top floor (m)**
0	1	0.0400	84.5337	18.000
5	0.964	0.0372	81.4905	10.898
10	0.859	0.0295	72.6145	5.391
15	0.692	0.0192	58.4973	2.860
20	0.499	0.0100	42.1823	3.573
25	0.305	0.0037	25.7828	7.104
30	0.137	0.0008	11.5811	12.209
35	0.005	0.0000	0.4227	17.758
40	0.082	0.0003	6.9318	13.544
45	0.128	0.0007	10.8203	10.349
50	0.141	0.0008	11.9193	8.869
55	0.133	0.0007	11.2430	8.790
60	0.112	0.0005	9.4678	9.801
65	0.089	0.0003	7.5235	11.181
70	0.065	0.0002	5.4947	12.837
75	0.047	0.0001	3.9731	14.162
80	0.032	0.0000	2.7051	15.336
85	0.025	0.0000	2.1133	15.895
90	0.023	0.0000	1.9443	16.056

Note: Input the ERP, Height of the antenna above Ground, the Calculated Translator IX contour, and the specified Antenna Relative Field Pat