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ENGINEERING REPORT

K254BZ, Houston, TX, Channel 254D FM Translator Minor Mod

ENGINEERING STATEMENT

PROTECTION TO KODA AND K252FR

All contour non-overlap protection requirements are met with the exception of Houston, TX stations K252FR (252D) and KODA (256C), discussed below.

K252FR (7.9 kilometers at 149 degrees True) and KODA (6.6 kilometers at 142 degrees True) are second adjacent-channel stations to the proposed channel 254D facility. For both of these existing FM stations, the 60 dBu F50,50 service contour extends beyond the proposed 254D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to K252FR or KODA.

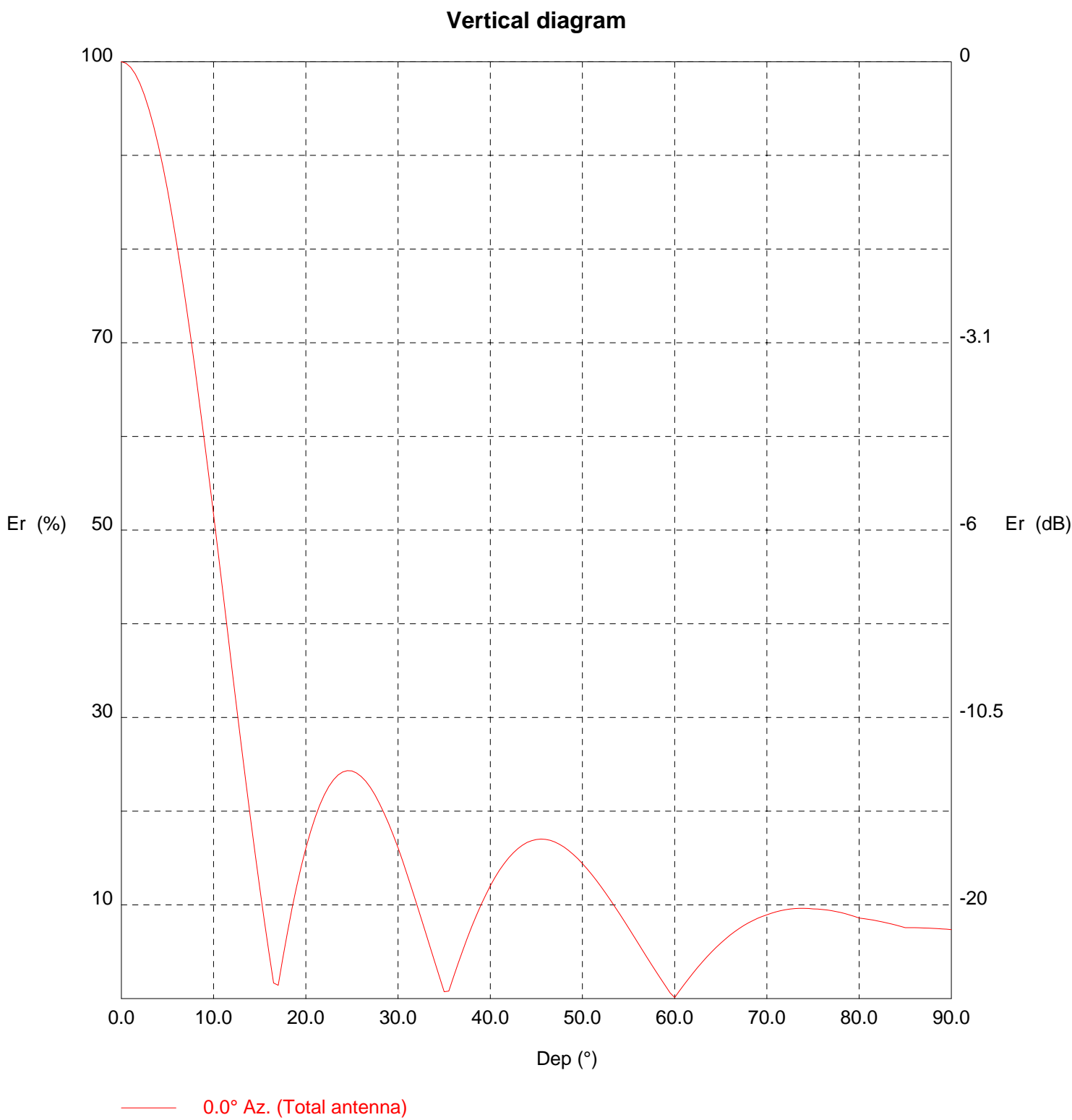
Note that a rule waiver of Section 74.1204 for this second/third adjacent-channel protection using the well-established *Living Way Ministries* Methodology is respectfully requested if such a rule waiver is deemed necessary for protection to any station.

The F50,50 signal strength from K252FR at the proposed 254D transmitter site is greater than 63 dBu (the “desired” signal of K252FR). The F50,50 signal strength from KODA at the proposed 254D transmitter site is at least 90 dBu (the “desired” signal of KODA). 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 K252FR and KODA from the proposed 254D facility is a signal of greater than or equal to 103 dBu.

Attached is the vertical plane relative field pattern for the proposed Nicom BKG-77 four-bay 0.85 wavelength-spaced antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 103 dBu interfering signal (using a free space field determination) does not exist at any point on ground level. (The clearance is at least 40 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: NICOM 4 BKG88
Frequency: 100.00 MHz

Site name:



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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	1.79	30.0	16.1	0.05	60.0	0.1	0.00
0.5	99.8	1.78	30.5	14.7	0.04	60.5	0.8	0.00
1.0	99.4	1.77	31.0	13.2	0.03	61.0	1.5	0.00
1.5	98.7	1.74	31.5	11.7	0.02	61.5	2.1	0.00
2.0	97.7	1.71	32.0	10.2	0.02	62.0	2.7	0.00
2.5	96.4	1.66	32.5	8.6	0.01	62.5	3.3	0.00
3.0	94.9	1.61	33.0	7.0	0.01	63.0	3.9	0.00
3.5	93.1	1.55	33.5	5.4	0.01	63.5	4.5	0.00
4.0	91.1	1.48	34.0	3.8	0.00	64.0	5.0	0.00
4.5	88.8	1.41	34.5	2.3	0.00	64.5	5.5	0.01
5.0	86.3	1.33	35.0	0.7	0.00	65.0	5.9	0.01
5.5	83.6	1.25	35.5	0.8	0.00	65.5	6.4	0.01
6.0	80.6	1.16	36.0	2.3	0.00	66.0	6.8	0.01
6.5	77.5	1.07	36.5	3.7	0.00	66.5	7.1	0.01
7.0	74.2	0.98	37.0	5.1	0.00	67.0	7.5	0.01
7.5	70.7	0.89	37.5	6.4	0.01	67.5	7.8	0.01
8.0	67.1	0.80	38.0	7.7	0.01	68.0	8.1	0.01
8.5	63.4	0.72	38.5	8.9	0.01	68.5	8.3	0.01
9.0	59.6	0.63	39.0	10.0	0.02	69.0	8.6	0.01
9.5	55.7	0.55	39.5	11.1	0.02	69.5	8.8	0.01
10.0	51.7	0.48	40.0	12.0	0.03	70.0	8.9	0.01
10.5	47.6	0.40	40.5	12.9	0.03	70.5	9.1	0.01
11.0	43.4	0.34	41.0	13.7	0.03	71.0	9.3	0.02
11.5	39.3	0.28	41.5	14.4	0.04	71.5	9.4	0.02
12.0	35.2	0.22	42.0	15.0	0.04	72.0	9.5	0.02
12.5	31.1	0.17	42.5	15.6	0.04	72.5	9.5	0.02
13.0	27.1	0.13	43.0	16.0	0.05	73.0	9.6	0.02
13.5	23.1	0.10	43.5	16.4	0.05	73.5	9.6	0.02
14.0	19.3	0.07	44.0	16.7	0.05	74.0	9.6	0.02
14.5	15.5	0.04	44.5	16.9	0.05	74.5	9.6	0.02
15.0	11.8	0.03	45.0	17.0	0.05	75.0	9.6	0.02
15.5	8.3	0.01	45.5	17.0	0.05	75.5	9.6	0.02
16.0	4.9	0.00	46.0	17.0	0.05	76.0	9.5	0.02
16.5	1.7	0.00	46.5	16.9	0.05	76.5	9.5	0.02
17.0	1.4	0.00	47.0	16.7	0.05	77.0	9.4	0.02
17.5	4.3	0.00	47.5	16.5	0.05	77.5	9.3	0.02
18.0	7.1	0.01	48.0	16.2	0.05	78.0	9.2	0.02
18.5	9.6	0.02	48.5	15.8	0.04	78.5	9.0	0.01
19.0	11.9	0.03	49.0	15.4	0.04	79.0	8.9	0.01
19.5	14.1	0.04	49.5	14.9	0.04	79.5	8.8	0.01
20.0	16.1	0.05	50.0	14.4	0.04	80.0	8.6	0.01
20.5	17.8	0.06	50.5	13.8	0.03	80.5	8.5	0.01
21.0	19.3	0.07	51.0	13.3	0.03	81.0	8.5	0.01
21.5	20.6	0.08	51.5	12.6	0.03	81.5	8.4	0.01
22.0	21.7	0.08	52.0	12.0	0.03	82.0	8.3	0.01
22.5	22.6	0.09	52.5	11.3	0.02	82.5	8.2	0.01
23.0	23.3	0.10	53.0	10.6	0.02	83.0	8.1	0.01
23.5	23.9	0.10	53.5	9.8	0.02	83.5	8.0	0.01
24.0	24.2	0.10	54.0	9.1	0.01	84.0	7.8	0.01
24.5	24.3	0.11	54.5	8.3	0.01	84.5	7.7	0.01
25.0	24.3	0.11	55.0	7.5	0.01	85.0	7.6	0.01
25.5	24.1	0.10	55.5	6.7	0.01	85.5	7.6	0.01
26.0	23.7	0.10	56.0	6.0	0.01	86.0	7.6	0.01
26.5	23.2	0.10	56.5	5.2	0.00	86.5	7.5	0.01
27.0	22.5	0.09	57.0	4.4	0.00	87.0	7.5	0.01
27.5	21.7	0.08	57.5	3.6	0.00	87.5	7.5	0.01
28.0	20.8	0.08	58.0	2.8	0.00	88.0	7.5	0.01
28.5	19.8	0.07	58.5	2.1	0.00	88.5	7.5	0.01
29.0	18.6	0.06	59.0	1.3	0.00	89.0	7.4	0.01
29.5	17.4	0.05	59.5	0.6	0.00	89.5	7.4	0.01

74.1204(d) Showing (or LPFM equivalent)

K254BZ, Houston, TX 254D

ERP (kw)
Height of Antenna above Ground (m)
Translator's IX Contour

0.19
123
103
Nicom BKG77 4 bay (0.85 W spaced)

<u>Depression Angle from Horizon</u>	<u>Antenna Relative Field</u>	<u>ERP (kw) from the Antenna RF</u>	<u>Dist. To IX Contour (m)</u>	<u>Height IX Contour Above Ground (m)</u>
0	1	0.1900	684.5053	123.000
5	0.863	0.1415	590.7281	71.515
10	0.517	0.0508	353.8892	61.548
15	0.118	0.0026	80.7716	102.095
20	0.161	0.0049	110.2053	85.308
25	0.243	0.0112	166.3348	52.704
30	0.161	0.0049	110.2053	67.897
35	0.007	0.0000	4.7915	120.252
40	0.12	0.0027	82.1406	70.201
45	0.17	0.0055	116.3659	40.717
50	0.144	0.0039	98.5688	47.492
55	0.075	0.0011	51.3379	80.946
60	0.001	0.0000	0.6845	122.407
65	0.059	0.0007	40.3858	86.398
70	0.089	0.0015	60.9210	65.753
75	0.096	0.0018	65.7125	59.527
80	0.086	0.0014	58.8675	65.027
85	0.076	0.0011	52.0224	71.176
90	0.074	0.0010	50.6534	72.347

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