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ENGINEERING REPORT

K213FJ (formerly K212GK), San Antonio, TX, to Channel 213D Site-Move Minor Mod

ENGINEERING STATEMENT

PROTECTION TO KSYM-FM AND KYFS

All contour non-overlap protection requirements are met with the exception of KSYM-FM, San Antonio, TX (211A) and KYFS, San Antonio, TX (215C1), discussed below.

KSYM-FM (1.0 kilometers at 48 degrees True) and KYFS (36 kilometers at 44 degrees True) are second adjacent-channel to the proposed channel 213D facility. The 60 dBu F50,50 service contour of each extends well beyond the proposed 213D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to KSYM-FM or KYFS.

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.

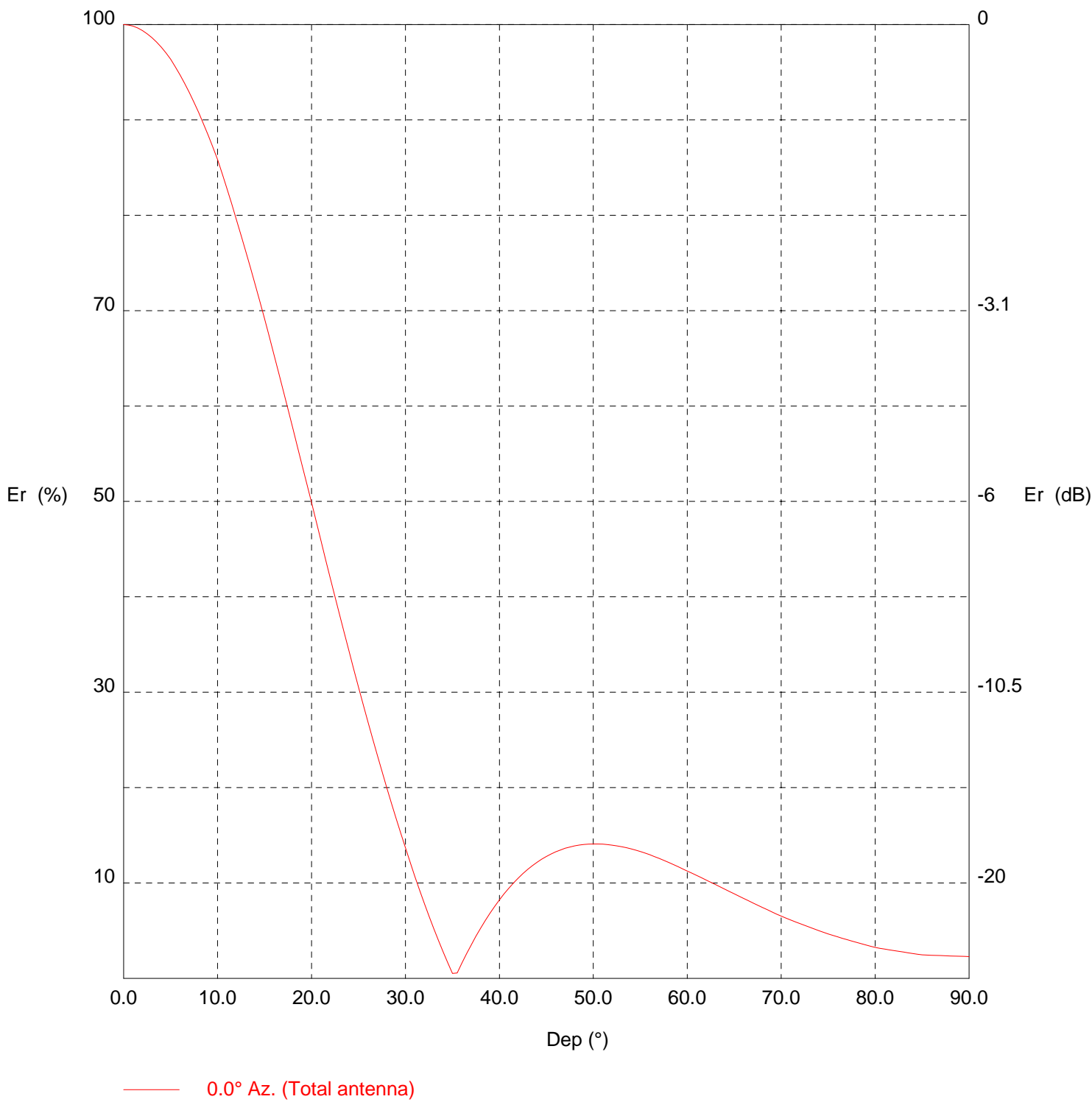
The F50,50 signal strength from KSYM-FM at the proposed 213D transmitter site is at least 100 dBu (the “desired” signal of KSYM-FM). The F50,50 signal strength from KYFS at the proposed 213D transmitter site is at least 70 dBu (the other “desired” signal, that of KYFS). The second/third adjacent-channel protection of Section 74.1204 is an undesired-to-desired (“U/D”) dB signal strength ratio of 40:1. Therefore, predicted interference to KSYM-FM and KYFS from the proposed 213D facility is a signal of greater than or equal to 110 dBu.

A vertical plane relative field pattern for the proposed Nicom BKG-77 four-bay (halfwave spaced) antenna is attached. The attached table (requested for use by the FCC for these studies) demonstrates that the 110 dBu interference signal is predicted to be at least 18 meters above ground level. There are no tall buildings (more than 3 stories tall) within the study distance of 352 meters of the proposed site. Therefore, pursuant to Section 74.1204(d) of the FCC Rules, KSYM-FM and KYFS are adequately protected by the proposed facility.

TX station: GENERIC
Frequency: 100.00 MHz

Site name:

Vertical diagram



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

San Antonio, TX 213D
NICOM BKG-77 4 Bay (half)

ERP (kw)	0.25
Height of Antenna above Ground (m)	81
Translator's IX Contour	110

<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	0.2500	350.7276	81.000
5	0.964	0.2323	338.1015	51.533
10	0.859	0.1845	301.2751	28.684
15	0.692	0.1197	242.7035	18.184
20	0.479	0.0574	167.9985	23.541
25	0.305	0.0233	106.9719	35.792
30	0.122	0.0037	42.7888	59.606
35	0.005	0.0000	1.7536	79.994
40	0.082	0.0017	28.7597	62.514
45	0.128	0.0041	44.8931	49.256
50	0.141	0.0050	49.4526	43.117
55	0.133	0.0044	46.6468	42.789
60	0.112	0.0031	39.2815	46.981
65	0.086	0.0018	30.1626	53.663
70	0.065	0.0011	22.7973	59.578
75	0.047	0.0006	16.4842	65.077
80	0.032	0.0003	11.2233	69.947
85	0.025	0.0002	8.7682	72.265
90	0.023	0.0001	8.0667	72.933

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