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ENGINEERING REPORT

K287BQ, Houston, TX, Channel 287D FM Translator Application

ENGINEERING STATEMENT

Applicant proposes this minor change to the K287CN FM translator station to change the proposed tower site to a downtown Houston location (the 300 meter tall, with appurtenances, Wells Fargo Plaza Building). (Note that ASR 1053112 has a listed status of "dismantled". This "dismantled" status must reflect a previous antenna mount on the building. The building itself still exists.)

PROTECTION TO KHCB-FM AND KAMA-FM

KHCB-FM, Houston 289C (24.6 kilometers at 211 degrees True from proposed translator site) and KAMA-FM, Deer Park 285C2 (2.8 kilometers at 93 degrees True from proposed translator site) are second-adjacent channel facilities to the proposed channel 287D facility. The 60 dBu F50,50 service contour of these two full-powered FM stations extends well beyond the proposed channel 287D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to either KHCB-FM or KAMA-FM.

The F50,50 signal strength from KHCB-FM at the proposed 287D transmitter site is greater than 88 dBu (the "desired" KHCB-FM signal). The F50,50 signal strength from KAMA-FM at the proposed 287D transmitter site is greater than 107 dBu (the "desired" KAMA-FM 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, lowest predicted interference level that will cause interference to either of these full-powered FM stations is a signal of greater than or equal to 128 dBu.

Figure EE1 is the vertical plane relative field pattern for the proposed Nicom BKG-77 two-bay halfwave-spaced antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 128 dBu interfering signal (using a free space field determination) does not exist at any point below the rooftop mount of the antenna where the public has access. (The top floor of the building is more than 12 meters below the proposed transmit antenna.)

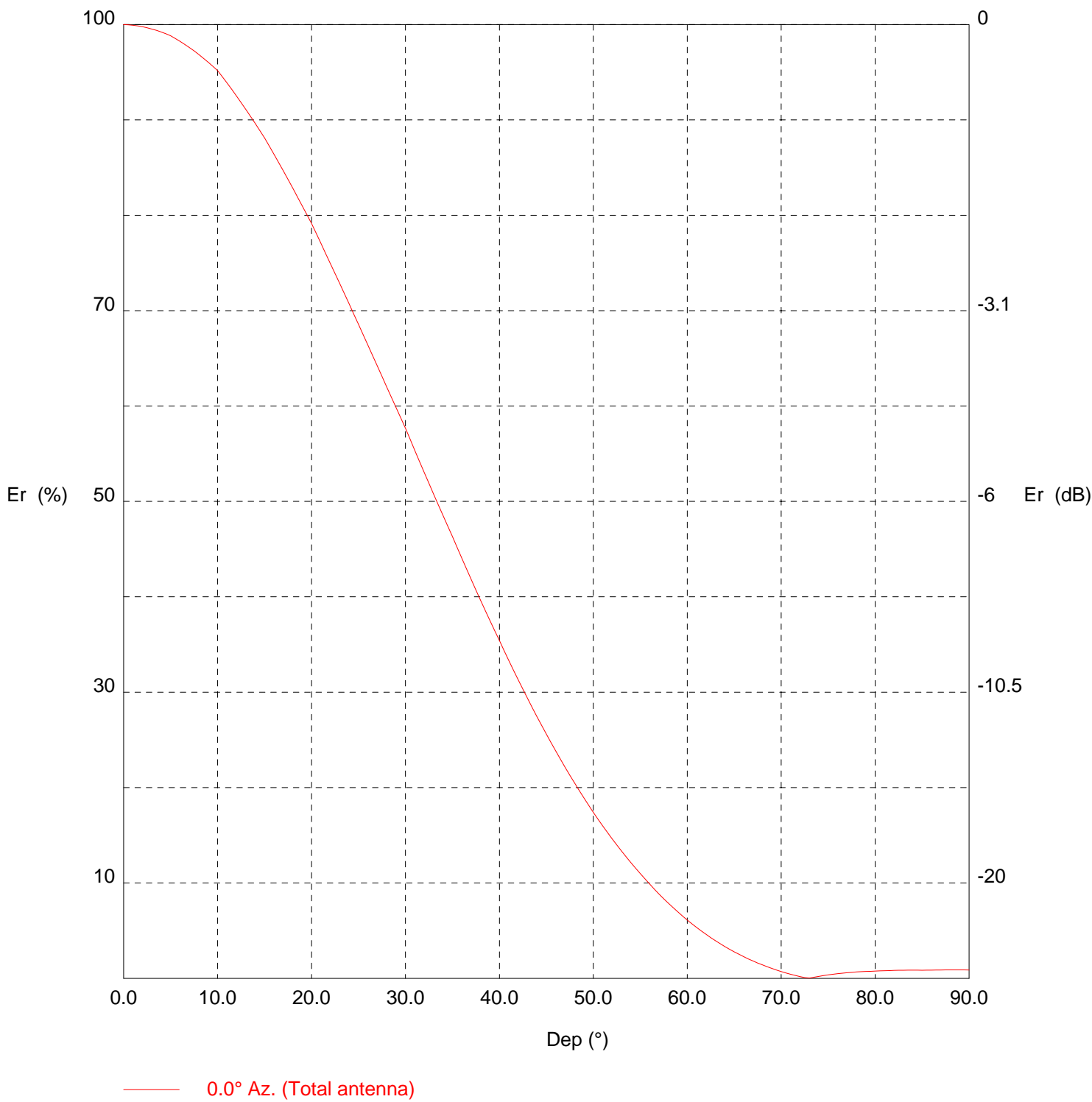
Attached as Figure EE2 is a tabulation of various points (along a horizontal plane

at 10 meters vertical distance below the antenna). (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.) The clearance in all cases is at least two meters.

Therefore, pursuant to Section 74.1204(d) of the FCC Rules, KHCB-FM and KAMA-FM are adequately protected by the proposed facility.

FIGURE EE1 (1 of 2)

Vertical diagram



TX station: BKG77/2 GENERIC

Site name: 1/2 WAVE SEPARATION

Frequency: 98.10 MHz

FIGURE EE1 (2 of 2)

Vertical diagram at an azimuth of 0° degrees

Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)	Dep (°)	Er (%)	ERP (W)
0.0	100.0	914.2	30.0	57.7	304.2	60.0	6.1	3.4
0.5	100.0	913.7	30.5	56.5	292.0	60.5	5.7	3.0
1.0	99.9	912.9	31.0	55.3	280.1	61.0	5.3	2.6
1.5	99.9	911.6	31.5	54.2	268.5	61.5	5.0	2.3
2.0	99.8	910.0	32.0	53.0	257.2	62.0	4.6	1.9
2.5	99.7	908.1	32.5	51.9	246.3	62.5	4.3	1.7
3.0	99.5	905.7	33.0	50.8	235.6	63.0	3.9	1.4
3.5	99.4	903.0	33.5	49.6	225.3	63.5	3.6	1.2
4.0	99.2	899.9	34.0	48.5	215.3	64.0	3.3	1.0
4.5	99.0	896.5	34.5	47.4	205.5	64.5	3.1	0.9
5.0	98.8	892.7	35.0	46.3	196.1	65.0	2.8	0.7
5.5	98.5	887.7	35.5	45.2	186.5	65.5	2.5	0.6
6.0	98.2	882.4	36.0	44.0	177.3	66.0	2.3	0.5
6.5	97.9	876.7	36.5	42.9	168.4	66.5	2.0	0.4
7.0	97.6	870.7	37.0	41.8	159.8	67.0	1.8	0.3
7.5	97.2	864.3	37.5	40.7	151.5	67.5	1.6	0.2
8.0	96.9	857.7	38.0	39.6	143.5	68.0	1.4	0.2
8.5	96.5	850.8	38.5	38.5	135.8	68.5	1.2	0.1
9.0	96.1	843.5	39.0	37.5	128.5	69.0	1.0	0.1
9.5	95.6	836.0	39.5	36.4	121.4	69.5	0.9	0.1
10.0	95.2	828.2	40.0	35.4	114.6	70.0	0.7	0.0
10.5	94.5	817.1	40.5	34.4	107.9	70.5	0.6	0.0
11.0	93.9	805.8	41.0	33.3	101.5	71.0	0.4	0.0
11.5	93.2	794.4	41.5	32.3	95.4	71.5	0.3	0.0
12.0	92.5	782.7	42.0	31.3	89.5	72.0	0.2	0.0
12.5	91.8	770.9	42.5	30.3	84.0	72.5	0.1	0.0
13.0	91.1	759.0	43.0	29.3	78.7	73.0	0.0	0.0
13.5	90.4	746.9	43.5	28.4	73.6	73.5	0.1	0.0
14.0	89.6	734.6	44.0	27.4	68.8	74.0	0.2	0.0
14.5	88.9	722.3	44.5	26.5	64.3	74.5	0.3	0.0
15.0	88.1	709.8	45.0	25.6	59.9	75.0	0.4	0.0
15.5	87.3	696.2	45.5	24.7	55.8	75.5	0.4	0.0
16.0	86.4	682.5	46.0	23.8	51.9	76.0	0.5	0.0
16.5	85.5	668.7	46.5	23.0	48.2	76.5	0.5	0.0
17.0	84.6	655.0	47.0	22.1	44.7	77.0	0.6	0.0
17.5	83.8	641.2	47.5	21.3	41.5	77.5	0.6	0.0
18.0	82.8	627.4	48.0	20.5	38.4	78.0	0.7	0.0
18.5	81.9	613.7	48.5	19.7	35.4	78.5	0.7	0.0
19.0	81.0	599.9	49.0	18.9	32.7	79.0	0.7	0.0
19.5	80.1	586.2	49.5	18.2	30.1	79.5	0.7	0.1
20.0	79.1	572.5	50.0	17.4	27.7	80.0	0.8	0.1
20.5	78.1	557.6	50.5	16.7	25.5	80.5	0.8	0.1
21.0	77.1	542.9	51.0	16.0	23.4	81.0	0.8	0.1
21.5	76.0	528.2	51.5	15.3	21.4	81.5	0.8	0.1
22.0	75.0	513.7	52.0	14.6	19.6	82.0	0.8	0.1
22.5	73.9	499.3	52.5	14.0	17.9	82.5	0.8	0.1
23.0	72.8	485.1	53.0	13.3	16.3	83.0	0.8	0.1
23.5	71.8	471.1	53.5	12.7	14.8	83.5	0.9	0.1
24.0	70.7	457.2	54.0	12.1	13.4	84.0	0.9	0.1
24.5	69.6	443.5	54.5	11.5	12.2	84.5	0.9	0.1
25.0	68.6	429.9	55.0	11.0	11.0	85.0	0.8	0.1
25.5	67.5	416.4	55.5	10.4	9.9	85.5	0.9	0.1
26.0	66.4	403.0	56.0	9.9	8.9	86.0	0.9	0.1
26.5	65.3	389.8	56.5	9.3	8.0	86.5	0.9	0.1
27.0	64.2	376.9	57.0	8.8	7.1	87.0	0.9	0.1
27.5	63.1	364.2	57.5	8.3	6.4	87.5	0.9	0.1
28.0	62.0	351.7	58.0	7.9	5.6	88.0	0.9	0.1
28.5	60.9	339.4	58.5	7.4	5.0	88.5	0.9	0.1
29.0	59.8	327.4	59.0	7.0	4.4	89.0	0.9	0.1
29.5	58.8	315.7	59.5	6.5	3.9	89.5	0.9	0.1

FIGURE EE2

FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

PROJECT: HOUSTON, TX, CHANNEL 287D

2-Mar-17

	Column A	Column B	Column C	Column D	Column E	Column F	Column G	Column H	Column I	Column J	Column K
	Vert	Horiz	Hypot-	Down-			Pattern	Free	Adjusted	Interf	Vert
	Dist	Dist	enuse	ward			Relative	Space	ERP in	Distance	Interf
	From	From	Dist	Angle			Field at	Inter-	Down-	along	Distance
	Ant	Tower	fr Ant	fr Ant	Max	Max	Down-	ferring	ward	Hypot-	below
	Bottom	Base	Bottom	Bottom	ERP	ERP	ward	Signal	Angle	enuse	Antenna
Pt	(meters)	(meters)	(meters)	(degrees)	(watts)	(dBmW)	Angle	(dBu)	(dBmW)	(meters)	(meters)
1	10	0.1	10.0	89.4	99	49.96	0.010	128.0	9.96	0.3	0.3
2	10	1	10.0	84.3	99	49.96	0.010	128.0	9.96	0.3	0.3
3	10	2	10.2	78.7	99	49.96	0.010	128.0	9.96	0.3	0.3
4	10	3	10.4	73.3	99	49.96	0.010	128.0	9.96	0.3	0.3
5	10	4	10.8	68.2	99	49.96	0.014	128.0	12.88	0.4	0.4
6	10	5	11.2	63.4	99	49.96	0.039	128.0	21.78	1.1	1.0
7	10	7	12.2	55.0	99	49.96	0.110	128.0	30.78	3.1	2.5
8	10	9	13.5	48.0	99	49.96	0.205	128.0	36.19	5.7	4.2
9	10	11	14.9	42.3	99	49.96	0.313	128.0	39.87	8.7	5.9
10	10	13	16.4	37.6	99	49.96	0.407	128.0	42.15	11.3	6.9
11	10	15	18.0	33.7	99	49.96	0.496	128.0	43.87	13.8	7.7
12	10	17	19.7	30.5	99	49.96	0.565	128.0	45.00	15.8	8.0
13	10	19	21.5	27.8	99	49.96	0.631	128.0	45.96	17.6	8.2
14	10	21	23.3	25.5	99	49.96	0.675	128.0	46.54	18.8	8.1
15	10	23	25.1	23.5	99	49.96	0.718	128.0	47.08	20.0	8.0
16	10	25	26.9	21.8	99	49.96	0.760	128.0	47.57	21.2	7.9
17	10	27	28.8	20.3	99	49.96	0.791	128.0	47.92	22.1	7.7
18	10	29	30.7	19.0	99	49.96	0.810	128.0	48.13	22.6	7.4

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)