

DELAWDER COMMUNICATIONS, INC.

P.O. Box 1095
Ashburn, Virginia 20146-1095
(703) 299-9222

ENGINEERING REPORT

San Antonio, TX, Channel 213D FM Translator Application

ENGINEERING STATEMENT

All required protections are met by contour non-overlap pursuant to Section 74.1204, with the exception of protection to KYFS, San Antonio, TX 215C1 and KSYM-FM, San Antonio, TX 211A. KYFS and KSYM-FM are protected, as discussed below.

PROTECTION TO KYFS AND KSYM-FM

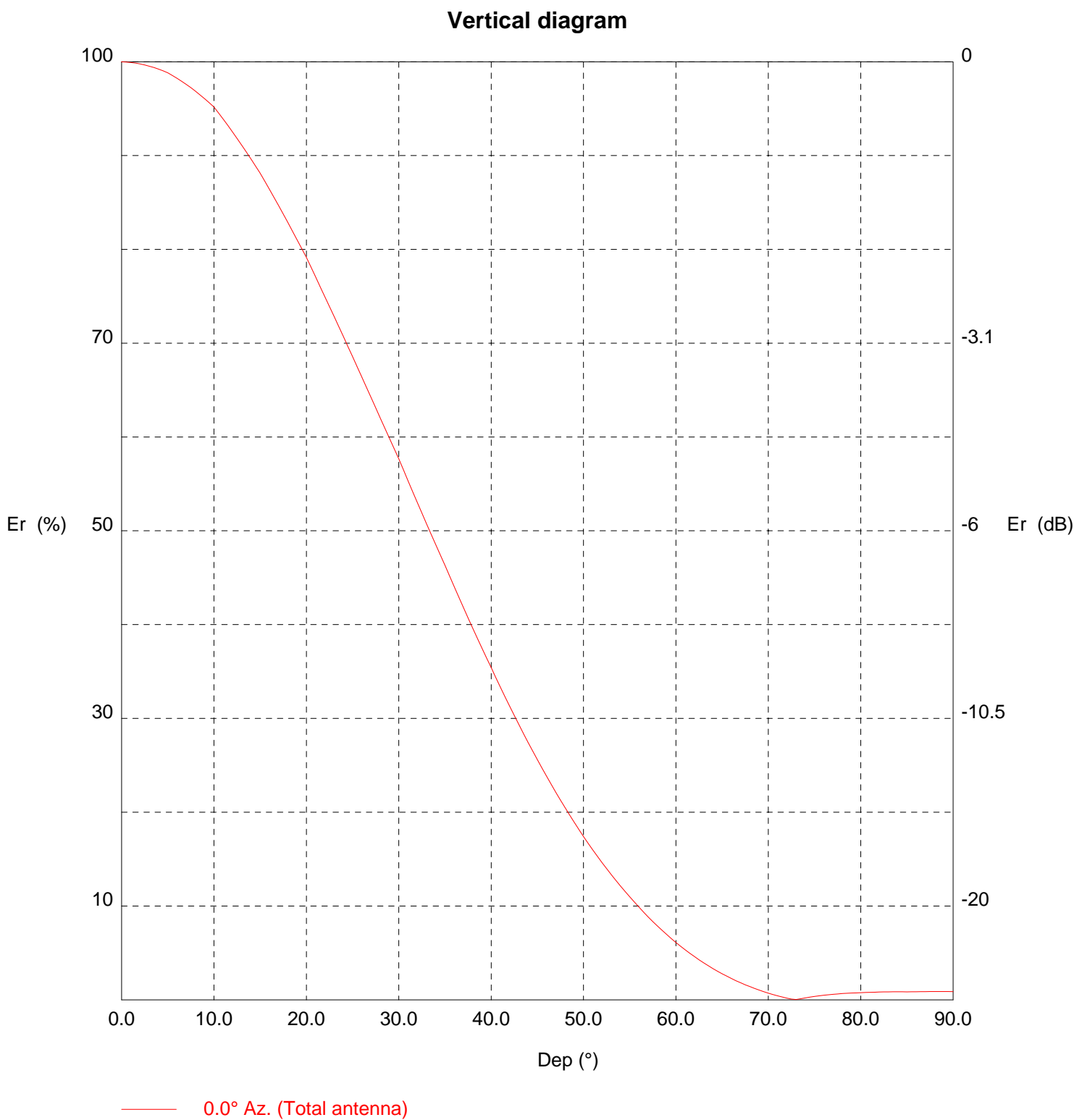
KYFS, San Antonio, TX, 215C1 and KSYM-FM(FM), San Antonio, TX, 211A are second/third adjacent-channel to the proposed channel 213D facility. The 60 dBu F50,50 service contour of both stations extends well beyond the proposed 213D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to KYFS and KSYM-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 these two stations.

The F50,50 signal strength from KYFS at the proposed 213D transmitter site is greater than 70.7 dBu (the “desired” signal for KYFS). The F50,50 signal strength from KSYM-FM at the proposed 213D transmitter site is greater than 90 dBu (the “desired” signal for KSYM-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 the worst-case of these two protected stations is a signal of greater than or equal to 110.7 dBu.

The centerline for the proposed Nicom BKG-77 two bay (halfwave spaced) antenna is 8 feet above the building's concrete platform that rises approximately 6 meters above the rooftop of the building. Because the top interior floors are used to maintain the equipment rooms for the numerous telecommunications that are located at this building site and by the large cooling system for the building, the highest floor where people will reside or have an everyday workplace is at least 88 feet (26.8 meters) from the proposed antenna centerline. The attached table (requested for use by the FCC for these studies) demonstrates that the 110.7 dBu interference signal is

predicted to be at least 2.3 meters above this top floor. Therefore, both KYFS and KSYM-FM are adequately protected by the proposed facility.



TX station: BKG77/2 GENERIC

Site name: 1/2 WAVE SEPARATION

Frequency: 98.10 MHz

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

74.1204(d) Showing

San Antonio, TX 213D
NICOM BKG-77 2-bay (HW), center 8 ft above concrete platform

ERP (kw) 0.017
Hght of Antenna above Top floor of building (m) 26.8 (88 ft)
Translator's IX Contour 110.7

<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 Top Floor (m)</u>
0	1	0.0170	84.3771	26.800
5	0.988	0.0166	83.3645	19.534
10	0.952	0.0154	80.3270	12.851
15	0.881	0.0132	74.3362	7.560
20	0.791	0.0106	66.7423	3.973
25	0.686	0.0080	57.8827	2.338
30	0.577	0.0057	48.6856	2.457
35	0.463	0.0036	39.0666	4.392
40	0.354	0.0021	29.8695	7.600
45	0.256	0.0011	21.6005	11.526
50	0.174	0.0005	14.6816	15.553
55	0.11	0.0002	9.2815	19.197
60	0.061	0.0001	5.1470	22.343
65	0.028	0.0000	2.3626	24.659
70	0.007	0.0000	0.5906	26.245
75	0.004	0.0000	0.3375	26.474
80	0.008	0.0000	0.6750	26.135
85	0.008	0.0000	0.6750	26.128
90	0.009	0.0000	0.7594	26.041

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