

DELAWDER COMMUNICATIONS, INC.

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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.

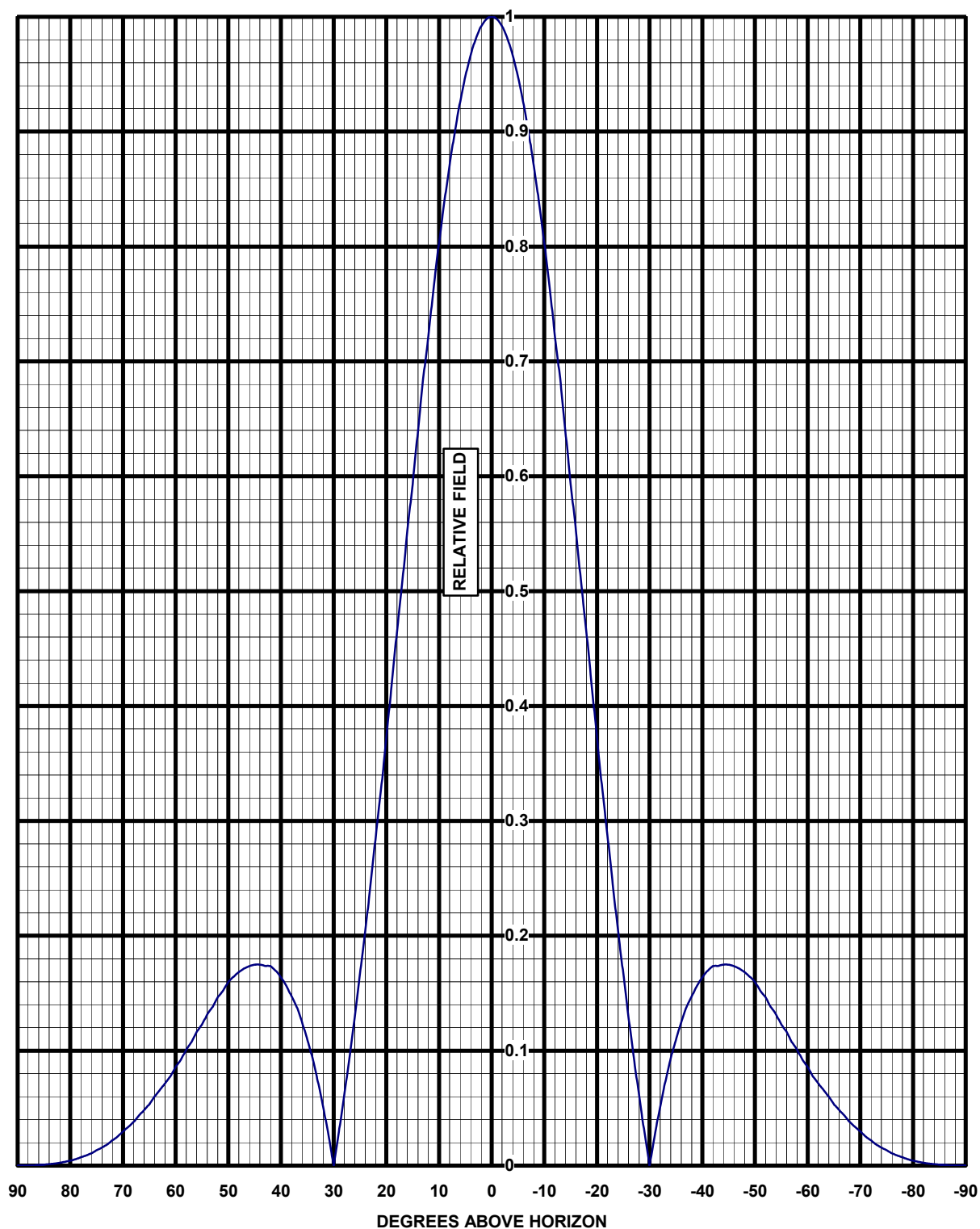
The F50,50 signal strength from KYFS at the proposed 213D transmitter site is greater than 70 dBu (the “desired” signal for KYFS). The F50,50 signal strength from KSYM-FM at the proposed 213D transmitter site is greater than 90 dBu (the “desired” signal for KSYM-FM). The second/third adjacent-channel 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 dBu.

The centerline for the proposed Jampro JLPC four bay (halfwave spaced) antenna is level with 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 80 feet (24.4 meters) from the proposed antenna centerline. 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 2.2 meters above this top floor (except for points on the table that are actually beyond the edges of the building. SEE NOTE on table.) Therefore, both KYFS and KSYM-FM are adequately protected by the proposed facility.



COMPUTED ELEVATION PATTERN

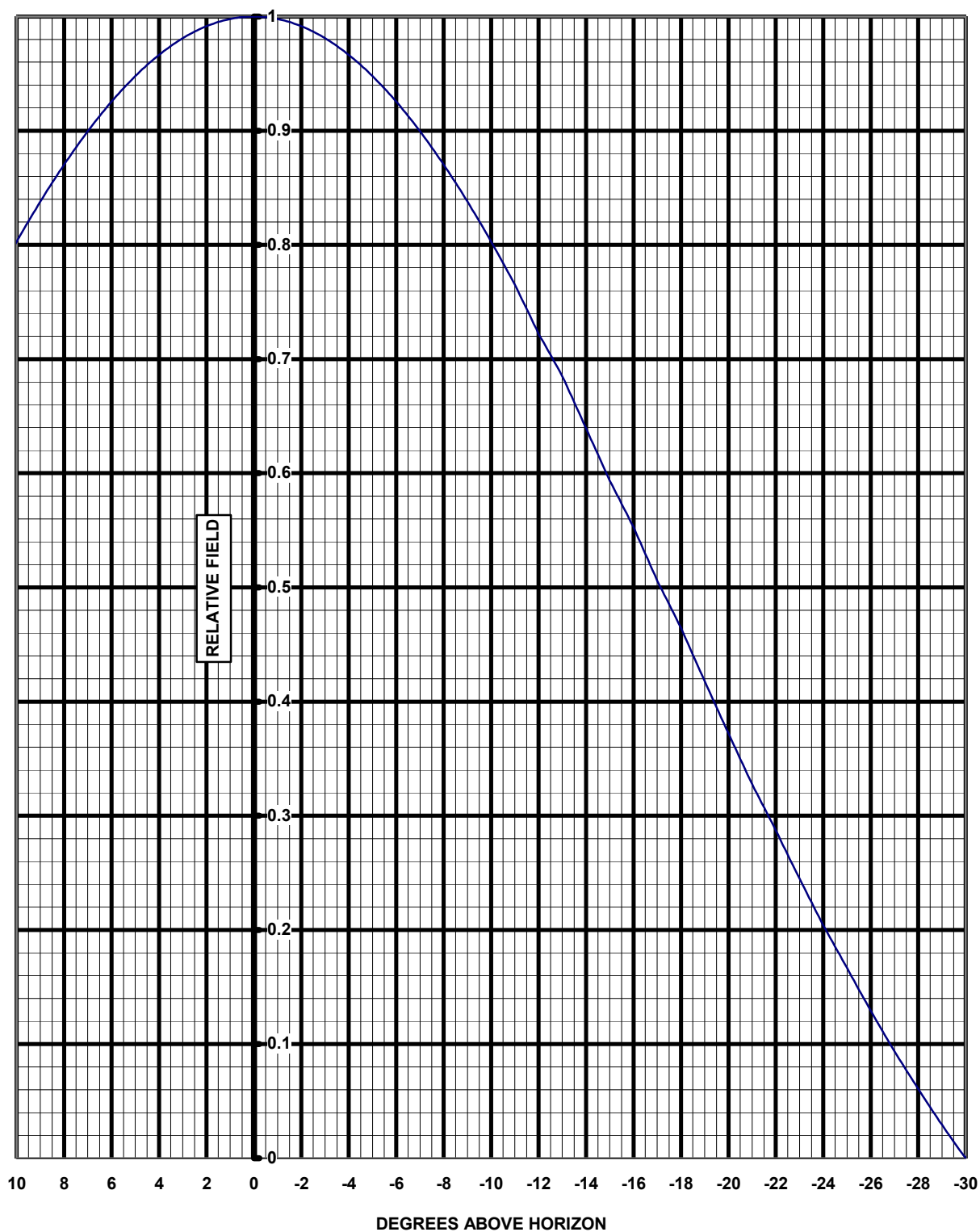


Frequency: 90.5 MHz (Ch.213)

Model: JLPC-4 RFR.5
Description: FM Sidemount Antenna
-0° Beam Tilt, 0% Null Fill



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Elevation Pattern Tabulation

ELEVATION PATTERN TABULATION

RELATIVE FIELD VS ELEVATION ANGLE

| <u>ELEVATION ANGLE</u> | <u>RELATIVE FIELD</u> | <u>ELEVATION ANGLE</u> | <u>RELATIVE FIELD</u> | <u>ELEVATION ANGLE</u> | <u>RELATIVE FIELD</u> |
|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|
| 10 | 0.803 | -26 | 0.129 | -61 | 0.078 |
| 9 | 0.838 | -27 | 0.094 | -62 | 0.072 |
| 8 | 0.870 | -28 | 0.061 | -63 | 0.066 |
| 7 | 0.900 | -29 | 0.029 | -64 | 0.060 |
| 6 | 0.925 | -30 | 0.000 | -65 | 0.053 |
| 5 | 0.948 | -31 | 0.027 | -66 | 0.048 |
| 4 | 0.966 | -32 | 0.051 | -67 | 0.043 |
| 3 | 0.981 | -33 | 0.073 | -68 | 0.038 |
| 2 | 0.992 | -34 | 0.093 | -69 | 0.034 |
| 1 | 0.998 | -35 | 0.110 | -70 | 0.030 |
| 0 | 1.000 | -36 | 0.125 | -71 | 0.025 |
| -1 | 0.998 | -37 | 0.138 | -72 | 0.022 |
| -2 | 0.992 | -38 | 0.147 | -73 | 0.018 |
| -3 | 0.981 | -39 | 0.156 | -74 | 0.016 |
| -4 | 0.966 | -40 | 0.164 | -75 | 0.013 |
| -5 | 0.948 | -41 | 0.170 | -76 | 0.011 |
| -6 | 0.925 | -42 | 0.174 | -77 | 0.009 |
| -7 | 0.900 | -43 | 0.174 | -78 | 0.007 |
| -8 | 0.870 | -44 | 0.175 | -79 | 0.005 |
| -9 | 0.838 | -45 | 0.175 | -80 | 0.004 |
| -10 | 0.803 | -46 | 0.174 | -81 | 0.003 |
| -11 | 0.765 | -47 | 0.171 | -82 | 0.002 |
| -12 | 0.722 | -48 | 0.168 | -83 | 0.002 |
| -13 | 0.685 | -49 | 0.164 | -84 | 0.001 |
| -14 | 0.639 | -50 | 0.160 | -85 | 0.001 |
| -15 | 0.593 | -51 | 0.152 | -86 | 0.000 |
| -16 | 0.553 | -52 | 0.147 | -87 | 0.000 |
| -17 | 0.506 | -53 | 0.138 | -88 | 0.000 |
| -18 | 0.464 | -54 | 0.132 | -89 | 0.000 |
| -19 | 0.418 | -55 | 0.123 | -90 | 0.000 |
| -20 | 0.372 | -56 | 0.116 | | |
| -21 | 0.328 | -57 | 0.107 | | |
| -22 | 0.287 | -58 | 0.101 | | |
| -23 | 0.245 | -59 | 0.092 | | |
| -24 | 0.204 | -60 | 0.086 | | |
| -25 | 0.167 | | | | |

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74.1204(d) Showing

San Antonio, TX 213D
Jampro JLPC 4 bay (HW)

ERP (kw) 0.065
Hght of Antenna above Top floor of building (m) 24.4 (80 ft)
Translator's IX Contour 110

| 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 | 0.0650 | 178.8367 | 24.400 | |
| 5 | 0.948 | 0.0584 | 169.5372 | 9.624 | |
| 10 | 0.803 | 0.0419 | 143.6059 | -0.537 | SEE NOTE BELOW |
| 15 | 0.593 | 0.0229 | 106.0502 | -3.048 | SEE NOTE BELOW |
| 20 | 0.372 | 0.0090 | 66.5273 | 1.646 | SEE NOTE BELOW |
| 25 | 0.167 | 0.0018 | 29.8657 | 11.778 | |
| 30 | 0.001 | 0.0000 | 0.1788 | 24.311 | |
| 35 | 0.11 | 0.0008 | 19.6720 | 13.117 | |
| 40 | 0.164 | 0.0017 | 29.3292 | 5.548 | |
| 45 | 0.175 | 0.0020 | 31.2964 | 2.270 | |
| 50 | 0.16 | 0.0017 | 28.6139 | 2.481 | |
| 55 | 0.123 | 0.0010 | 21.9969 | 6.381 | |
| 60 | 0.086 | 0.0005 | 15.3800 | 11.081 | |
| 65 | 0.053 | 0.0002 | 9.4783 | 15.810 | |
| 70 | 0.03 | 0.0001 | 5.3651 | 19.358 | |
| 75 | 0.013 | 0.0000 | 2.3249 | 22.154 | |
| 80 | 0.004 | 0.0000 | 0.7153 | 23.696 | |
| 85 | 0.001 | 0.0000 | 0.1788 | 24.222 | |
| 90 | 0.001 | 0.0000 | 0.1788 | 24.221 | |

NOTE: At depression angles below 25 degrees, the predicted interference occurs beyond the edge of the building at 74 feet below the centerline of the antenna at the top floor where the general public has access. So these points are not interference points.

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