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ENGINEERING REPORT

W228DF, Orlando, FL, Channel 228D Minor Modification

ENGINEERING STATEMENT

For this minor change to W228DF, all required protections are met by contour non-overlap pursuant to Section 74.1204, with the exception of protection to W226BT, Orlando, 226D. W226BT is protected, as discussed below.

PROTECTION TO W226BT

W226BT, Orlando, FL, 226D, is second adjacent-channel to the proposed channel 228D facility and is located only 12.9 kilometers (at 91 degrees True bearing) from the proposed 228D transmitter site. The 60 dBu F50,50 service contour extends beyond the proposed 228D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to W226BT.

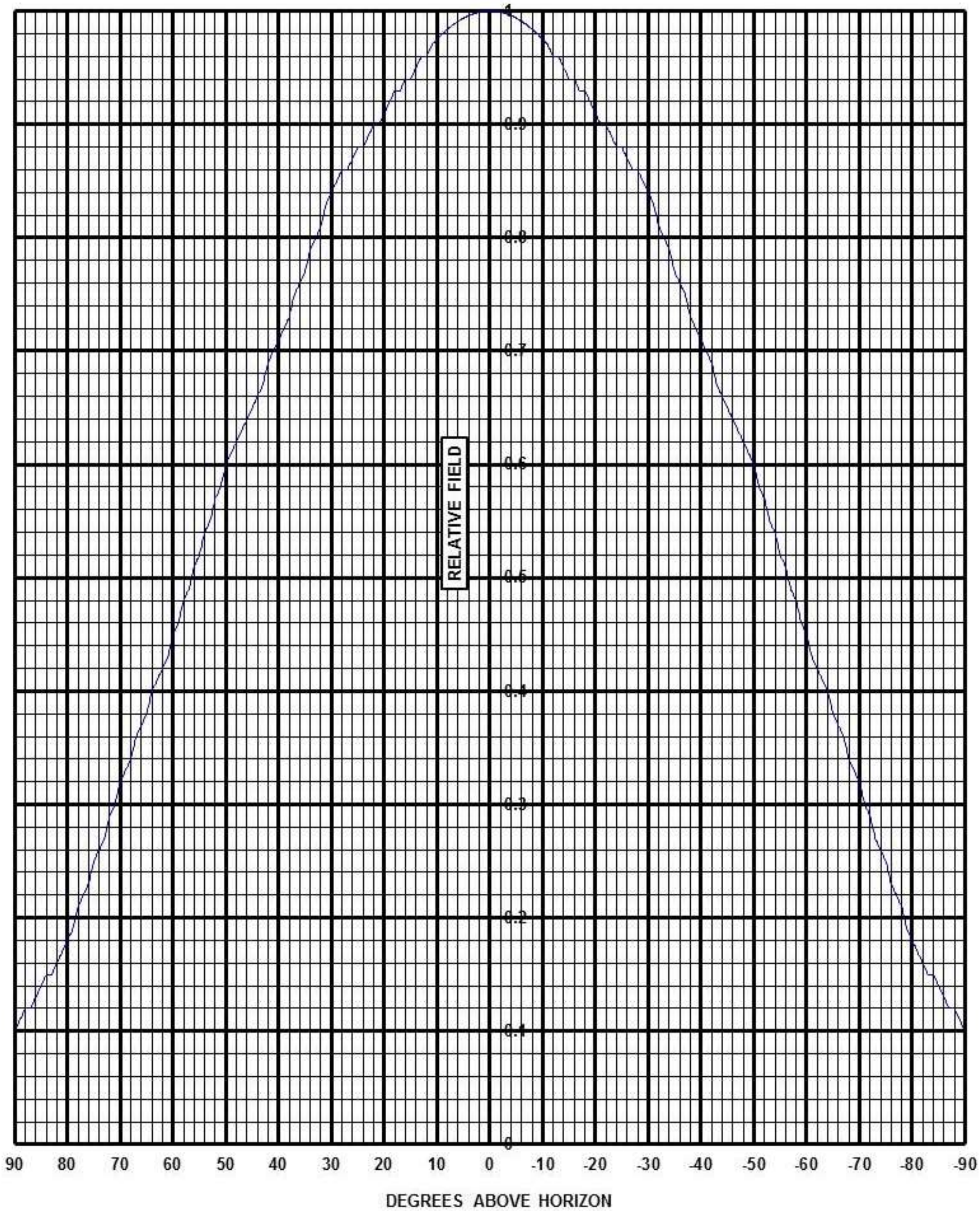
Note that a rule waiver of Section 74.1204 for this second/third adjacent-channel protection using the well-established *Living Way Ministries* Methodology is respectfully requested if such a rule waiver is deemed necessary for protection to this station.

The F50,50 signal strength from W226BT at the proposed 228D transmitter site is 62 dBu (the “desired” 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, predicted interference to W226BT from the proposed 228D facility is a signal of greater than or equal to 102 dBu.

Figure EE1 is the vertical plane relative field pattern for the proposed Jampro JLLP one-bay antenna. By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 102 dBu interfering signal (using a free space field determination) does not exist at any point a ground level. (Actually, the study is made to 2 meters above ground level to account for a person’s height.)

Attached as Figure EE2 is a tabulation of various points (at 2 meters above ground level) from the proposed translator tower base. (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 shown by Figure EE2 is at least 30 meters in all instances. Since there are no tall buildings within the worst-case study distance of 177 meters of the transmitter site, pursuant to Section 74.1204(d) of the FCC Rules, W226BT is adequately protected by the proposed facility.

FIGURE EE1 (1 of 3)



Model: JLLP-1

Description: FM Sidemount Antenna

Frequency: 98.1 MHz

-0° Beam Tilt, 0% Null Fill

FIGURE EE1 (2 of 3)

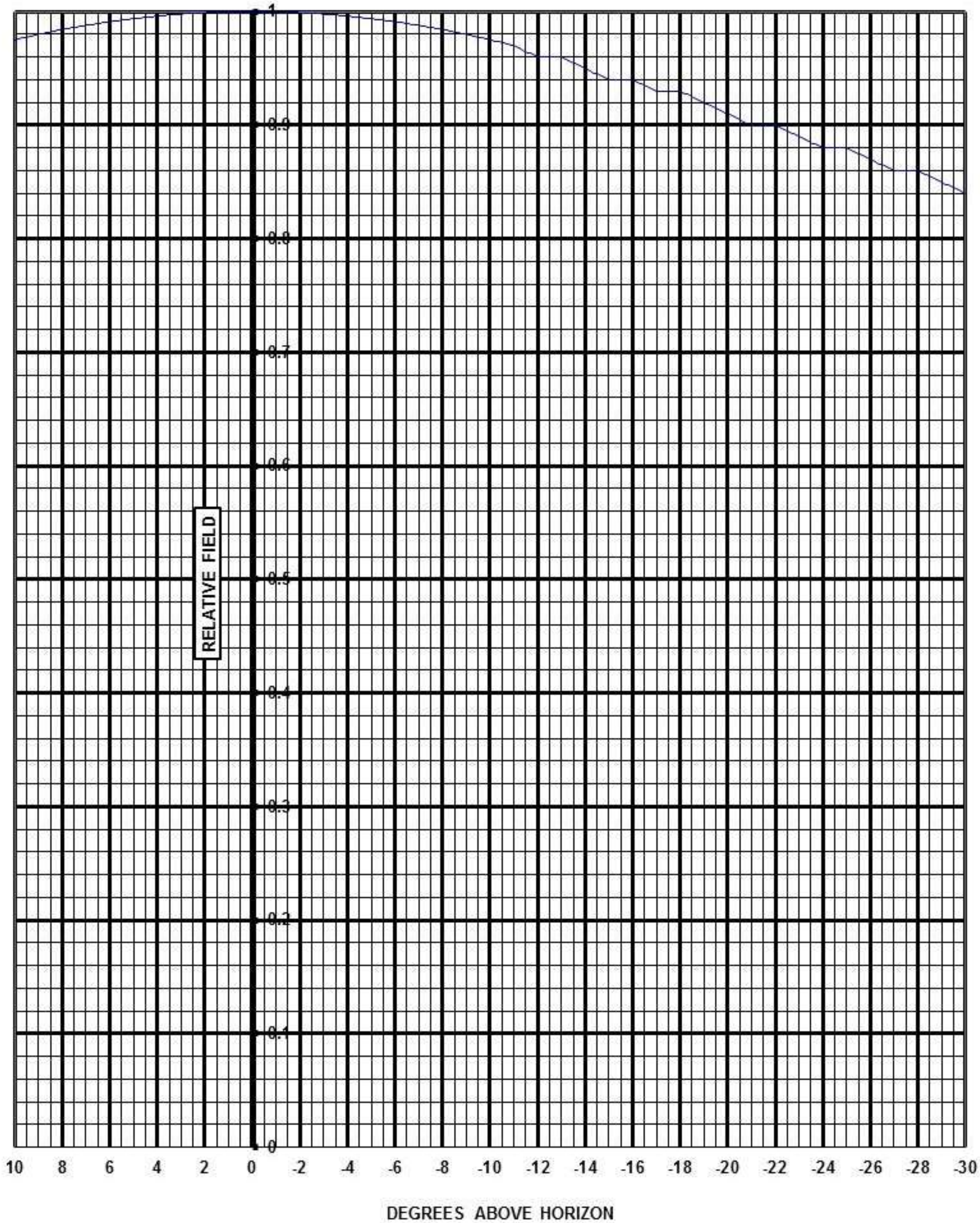


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FIGURE EE1 (3 of 3)

Elevation Pattern Tabulation

RELATIVE FIELD VS ELEVATION ANGLE

ELEVATION ANGLE	RELATIVE FIELD	ELEVATION ANGLE	RELATIVE FIELD	ELEVATION ANGLE	RELATIVE FIELD
10	0.975	-26	0.870	-61	0.430
9	0.980	-27	0.860	-62	0.420
8	0.984	-28	0.860	-63	0.410
7	0.988	-29	0.850	-64	0.400
6	0.991	-30	0.840	-65	0.380
5	0.994	-31	0.830	-66	0.370
4	0.996	-32	0.810	-67	0.360
3	0.998	-33	0.800	-68	0.340
2	0.999	-34	0.790	-69	0.330
1	1.000	-35	0.770	-70	0.320
0	1.000	-36	0.760	-71	0.300
-1	1.000	-37	0.750	-72	0.290
-2	0.999	-38	0.730	-73	0.270
-3	0.998	-39	0.720	-74	0.260
-4	0.996	-40	0.710	-75	0.250
-5	0.994	-41	0.700	-76	0.230
-6	0.991	-42	0.690	-77	0.220
-7	0.988	-43	0.670	-78	0.210
-8	0.984	-44	0.660	-79	0.190
-9	0.980	-45	0.650	-80	0.180
-10	0.975	-46	0.640	-81	0.170
-11	0.970	-47	0.630	-82	0.160
-12	0.960	-48	0.620	-83	0.150
-13	0.960	-49	0.610	-84	0.150
-14	0.950	-50	0.600	-85	0.140
-15	0.940	-51	0.580	-86	0.130
-16	0.940	-52	0.570	-87	0.120
-17	0.930	-53	0.550	-88	0.120
-18	0.930	-54	0.540	-89	0.110
-19	0.920	-55	0.520	-90	0.100
-20	0.910	-56	0.510		
-21	0.900	-57	0.490		
-22	0.900	-58	0.480		
-23	0.890	-59	0.460		
-24	0.880	-60	0.450		
-25	0.880				

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FIGURE EE2
FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

PROJECT: ORLANDO, FL, CHANNEL 228D

12-Oct-16

Pt	Column A Vert Dist From Ant Bottom (meters)	Column B Horiz Dist From Tower Base (meters)	Column C Hypot-enuse Dist fr Ant Bottom (meters)	Column D Down-ward Angle fr Ant Bottom (degrees)	Column E Max ERP (watts)	Column F Max ERP (dBmw)	Column G Pattern Relative Field at Down-ward Angle	Column H Free Space Inter-ferring Signal (dBu)	Column I Adjusted ERP in Down-ward Angle (dBmW)	Column J Interf Distance along Hypot-enuse (meters)	**Column K Vert Interf Distance below Antenna (meters)**
1	114	0.1	**114.0**	89.9	10	40.00	0.110	102.0	20.83	19.4	19.4
2	114	20	**115.7**	80.0	10	40.00	0.180	102.0	25.11	31.8	31.3
3	114	30	**117.9**	75.3	10	40.00	0.250	102.0	27.96	44.2	42.7
4	114	40	**120.8**	70.7	10	40.00	0.320	102.0	30.10	56.6	53.4
5	114	50	**124.5**	66.3	10	40.00	0.370	102.0	31.36	65.4	59.9
6	114	60	**128.8**	62.2	10	40.00	0.420	102.0	32.46	74.3	65.7
7	114	70	**133.8**	58.4	10	40.00	0.480	102.0	33.62	84.9	72.3
8	114	80	**139.3**	54.9	10	40.00	0.540	102.0	34.65	95.5	78.2
9	114	90	**145.2**	51.7	10	40.00	0.580	102.0	35.27	102.5	80.5
10	114	100	**151.6**	48.7	10	40.00	0.620	102.0	35.85	109.6	82.4
11	114	110	**158.4**	46.0	10	40.00	0.640	102.0	36.12	113.2	81.4
12	114	130	**172.9**	41.2	10	40.00	0.700	102.0	36.90	123.8	81.6
13	114	150	**188.4**	37.2	10	40.00	0.750	102.0	37.50	132.6	80.2
14	114	170	**204.7**	33.8	10	40.00	0.800	102.0	38.06	141.4	78.8
15	114	177	**210.5**	32.8	10	40.00	0.810	102.0	38.17	143.2	77.5

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)

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