

DELAWDER COMMUNICATIONS, INC.

P.O. Box 1095
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ENGINEERING REPORT

Oxnard, CA, Channel 273D 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 K271CA, Oxnard, CA 271D and KXLM, Oxnard, CA 275A. K271CA and KXLM are protected, as discussed below.

PROTECTION TO K271CA AND KXLM

K271CA 271D (4.6 kilometers at 150 degrees True from translator site) and KXLM 275A (co-located at proposed translator site) are second/third adjacent-channel stations to the proposed channel 273 translator facility. The 60 dBu F50,50 service contour of both K271CA and KXLM extend beyond the 273D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to K271CA or KXLM.

Note that a rule waiver of Section 74.1204 for this second and 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 K271CA at the proposed 273D transmitter site is greater than 60 dBu (the “desired” signal of K271CA). The F50,50 signal strength from KXLM at the proposed 273D transmitter site is greater than 90 dBu (the “desired” signal of KXLM). The second/third adjacent-channel protection is an undesired-to-desired (“U/D”) dB signal strength ratio of 40:1. Therefore, predicted interference to K271CA or KXLM is a 273D signal of greater than or equal to 100 dBu.

Figure EE1 is the vertical plane relative field pattern for the proposed antenna (a Scala CL-FM 3-bay halfwave spaced antenna). By adjusting for the vertical plane downward relative field values of the proposed antenna, it is herein demonstrated that the 100 dBu interfering signal (using a free space field determination) does not exist at any point two meters above ground level (“AGL”).

Attached as Figure EE2 is a tabulation of various points at two meters AGL 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

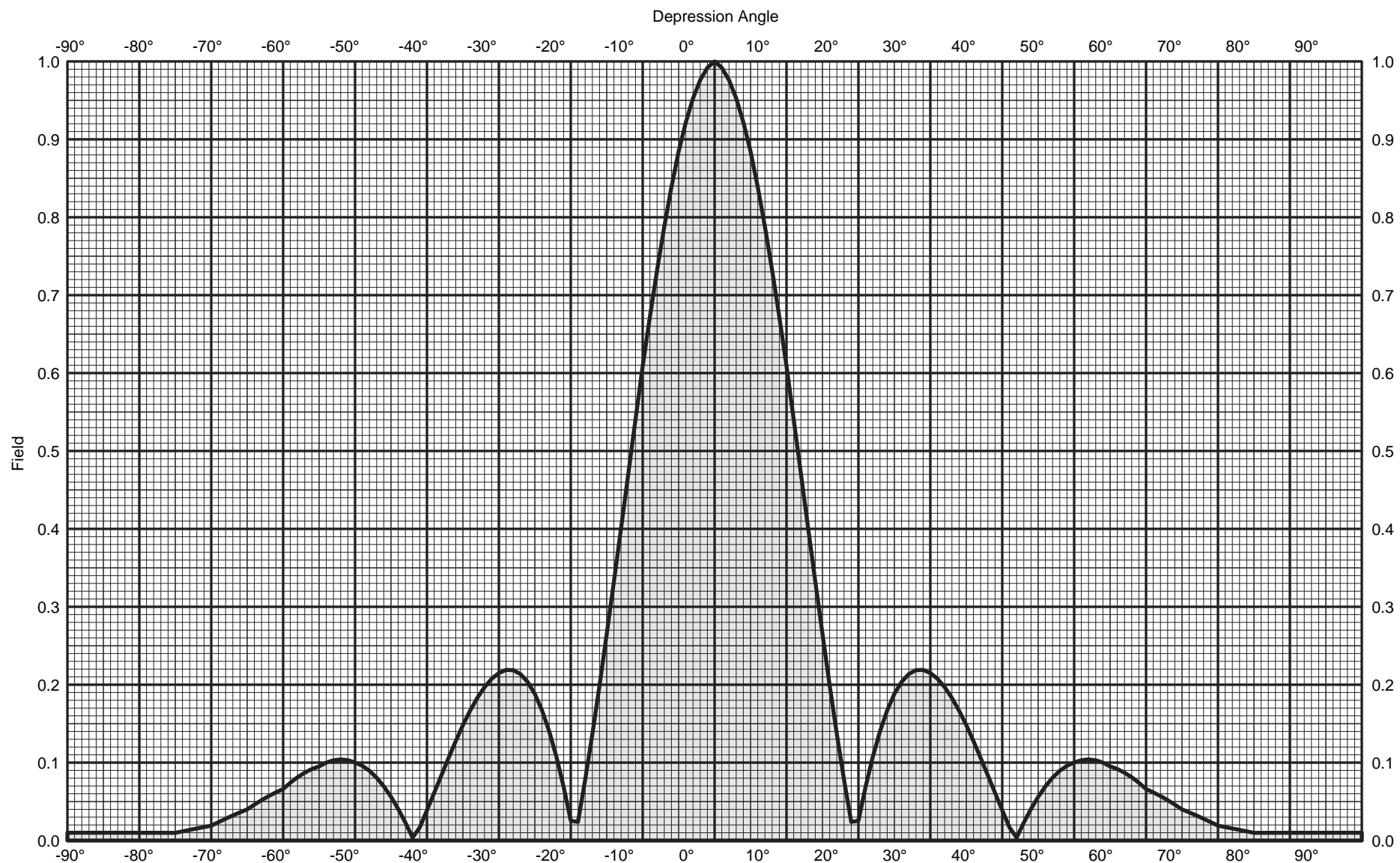
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listed in Column C, the hypotenuse of the vertical height (Column A) and the horizontal distance (Column B). Also, the vertical distance from the antenna bottom to the calculated interference signal for each studied point is provided in Column K. Because 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 of above ground level—the clearance is at least 11 meters.) As shown by the attached aerial photo of the proposed site, there are not tall buildings or major roads within 650 meters (the worst-case study distance) of the proposed site. Also, this is on a hill with a drop off of 10 meters immediately to the south – the direction of the main lobe of the proposed highly directional antenna. (See attached aerial map.) Therefore, pursuant to Section 74.1204(d) of the FCC Rules, K271CA and KXLM are adequately protected by the proposed facility.



3 x CL-FM/VRM/50N Log-periodic Array

Frequency: 98.3 MHz

Gain: 10.9 dBd (x 12.3)

Vertical polarization

Vertical stacked 1.0 Wavelength

Vertical plane Pattern



FIGURE EE1 (2 of 3)

3 x CL-FM/VRM/50N Log-periodic Array

Frequency: 98.3 MHz

Gain: 10.9 dBd (x 12.3)

Vertical polarization

Vertical stacked 1.0 Wavelength

Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.010	-40.00	-29.10	0.00	-45	0.056	-25.03	-14.13	0.04
-89	0.010	-40.00	-29.10	0.00	-44	0.041	-27.85	-16.95	0.02
-88	0.010	-40.00	-29.10	0.00	-43	0.023	-32.75	-21.85	0.01
-87	0.010	-40.00	-29.10	0.00	-42	0.010	-40.00	-29.10	0.00
-86	0.010	-40.00	-29.10	0.00	-41	0.017	-35.43	-24.53	0.00
-85	0.010	-40.00	-29.10	0.00	-40	0.039	-28.22	-17.32	0.02
-84	0.010	-40.00	-29.10	0.00	-39	0.061	-24.27	-13.37	0.05
-83	0.010	-40.00	-29.10	0.00	-38	0.084	-21.55	-10.65	0.09
-82	0.010	-40.00	-29.10	0.00	-37	0.106	-19.50	-8.60	0.14
-81	0.010	-40.00	-29.10	0.00	-36	0.128	-17.89	-6.99	0.20
-80	0.010	-40.00	-29.10	0.00	-35	0.148	-16.59	-5.69	0.27
-79	0.010	-40.00	-29.10	0.00	-34	0.167	-15.57	-4.67	0.34
-78	0.010	-40.00	-29.10	0.00	-33	0.183	-14.75	-3.85	0.41
-77	0.010	-40.00	-29.10	0.00	-32	0.197	-14.12	-3.22	0.48
-76	0.010	-40.00	-29.10	0.00	-31	0.208	-13.65	-2.75	0.53
-75	0.010	-40.00	-29.10	0.00	-30	0.215	-13.35	-2.45	0.57
-74	0.012	-38.59	-27.69	0.00	-29	0.219	-13.19	-2.29	0.59
-73	0.014	-37.30	-26.40	0.00	-28	0.219	-13.20	-2.30	0.59
-72	0.015	-36.19	-25.29	0.00	-27	0.214	-13.41	-2.51	0.56
-71	0.017	-35.24	-24.34	0.00	-26	0.204	-13.82	-2.92	0.51
-70	0.019	-34.40	-23.50	0.00	-25	0.188	-14.51	-3.61	0.44
-69	0.024	-32.55	-21.65	0.01	-24	0.167	-15.55	-4.65	0.34
-68	0.028	-31.08	-20.18	0.01	-23	0.140	-17.07	-6.17	0.24
-67	0.032	-29.86	-18.96	0.01	-22	0.108	-19.36	-8.46	0.14
-66	0.036	-28.84	-17.94	0.02	-21	0.069	-23.19	-12.29	0.06
-65	0.040	-27.97	-17.07	0.02	-20	0.025	-31.90	-21.00	0.01
-64	0.046	-26.73	-15.83	0.03	-19	0.024	-32.45	-21.55	0.01
-63	0.052	-25.71	-14.81	0.03	-18	0.078	-22.16	-11.26	0.07
-62	0.057	-24.87	-13.97	0.04	-17	0.137	-17.29	-6.39	0.23
-61	0.062	-24.17	-13.27	0.05	-16	0.199	-14.01	-3.11	0.49
-60	0.066	-23.60	-12.70	0.05	-15	0.265	-11.53	-0.63	0.87
-59	0.074	-22.60	-11.70	0.07	-14	0.333	-9.56	1.34	1.36
-58	0.081	-21.81	-10.91	0.08	-13	0.401	-7.93	2.97	1.98
-57	0.087	-21.20	-10.30	0.09	-12	0.471	-6.54	4.36	2.73
-56	0.092	-20.75	-9.85	0.10	-11	0.540	-5.34	5.56	3.59
-55	0.095	-20.43	-9.53	0.11	-10	0.609	-4.31	6.59	4.56
-54	0.100	-20.00	-9.10	0.12	-9	0.672	-3.45	7.45	5.56
-53	0.103	-19.74	-8.84	0.13	-8	0.732	-2.71	8.19	6.59
-52	0.104	-19.65	-8.75	0.13	-7	0.788	-2.07	8.83	7.64
-51	0.103	-19.73	-8.83	0.13	-6	0.839	-1.53	9.37	8.66
-50	0.100	-19.99	-9.09	0.12	-5	0.884	-1.07	9.83	9.62
-49	0.096	-20.35	-9.45	0.11	-4	0.922	-0.71	10.19	10.46
-48	0.090	-20.96	-10.06	0.10	-3	0.953	-0.42	10.48	11.17
-47	0.081	-21.86	-10.96	0.08	-2	0.976	-0.21	10.69	11.72
-46	0.069	-23.16	-12.26	0.06	-1	0.992	-0.07	10.83	12.11
					0	1.000	0.00	10.90	12.30



FIGURE EE1 (3 of 3)

3 x CL-FM/VRM/50N Log-periodic Array

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Gain: 10.9 dBd (x 12.3)

Vertical polarization

Vertical stacked 1.0 Wavelength

Vertical plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	10.90	12.30	45	0.056	-25.03	-14.13	0.04
1	0.992	-0.07	10.83	12.11	46	0.069	-23.16	-12.26	0.06
2	0.976	-0.21	10.69	11.72	47	0.081	-21.86	-10.96	0.08
3	0.953	-0.42	10.48	11.17	48	0.090	-20.96	-10.06	0.10
4	0.922	-0.71	10.19	10.46	49	0.096	-20.35	-9.45	0.11
5	0.884	-1.07	9.83	9.62	50	0.100	-19.99	-9.09	0.12
6	0.839	-1.53	9.37	8.66	51	0.103	-19.73	-8.83	0.13
7	0.788	-2.07	8.83	7.64	52	0.104	-19.65	-8.75	0.13
8	0.732	-2.71	8.19	6.59	53	0.103	-19.74	-8.84	0.13
9	0.672	-3.45	7.45	5.56	54	0.100	-20.00	-9.10	0.12
10	0.609	-4.31	6.59	4.56	55	0.095	-20.43	-9.53	0.11
11	0.541	-5.34	5.56	3.59	56	0.092	-20.75	-9.85	0.10
12	0.471	-6.54	4.36	2.73	57	0.087	-21.20	-10.30	0.09
13	0.402	-7.93	2.97	1.98	58	0.081	-21.81	-10.91	0.08
14	0.333	-9.56	1.34	1.36	59	0.074	-22.60	-11.70	0.07
15	0.265	-11.52	-0.62	0.87	60	0.066	-23.60	-12.70	0.05
16	0.199	-14.01	-3.11	0.49	61	0.062	-24.17	-13.27	0.05
17	0.137	-17.29	-6.39	0.23	62	0.057	-24.87	-13.97	0.04
18	0.078	-22.16	-11.26	0.07	63	0.052	-25.71	-14.81	0.03
19	0.024	-32.44	-21.54	0.01	64	0.046	-26.73	-15.83	0.03
20	0.025	-31.91	-21.01	0.01	65	0.040	-27.97	-17.07	0.02
21	0.069	-23.19	-12.29	0.06	66	0.036	-28.84	-17.94	0.02
22	0.108	-19.37	-8.47	0.14	67	0.032	-29.86	-18.96	0.01
23	0.140	-17.07	-6.17	0.24	68	0.028	-31.08	-20.18	0.01
24	0.167	-15.55	-4.65	0.34	69	0.024	-32.55	-21.65	0.01
25	0.188	-14.51	-3.61	0.44	70	0.019	-34.40	-23.50	0.00
26	0.204	-13.82	-2.92	0.51	71	0.017	-35.24	-24.34	0.00
27	0.214	-13.41	-2.51	0.56	72	0.015	-36.19	-25.29	0.00
28	0.219	-13.20	-2.30	0.59	73	0.014	-37.30	-26.40	0.00
29	0.219	-13.19	-2.29	0.59	74	0.012	-38.59	-27.69	0.00
30	0.215	-13.35	-2.45	0.57	75	0.010	-40.00	-29.10	0.00
31	0.208	-13.65	-2.75	0.53	76	0.010	-40.00	-29.10	0.00
32	0.197	-14.12	-3.22	0.48	77	0.010	-40.00	-29.10	0.00
33	0.183	-14.75	-3.85	0.41	78	0.010	-40.00	-29.10	0.00
34	0.167	-15.57	-4.67	0.34	79	0.010	-40.00	-29.10	0.00
35	0.148	-16.59	-5.69	0.27	80	0.010	-40.00	-29.10	0.00
36	0.128	-17.88	-6.98	0.20	81	0.010	-40.00	-29.10	0.00
37	0.106	-19.50	-8.60	0.14	82	0.010	-40.00	-29.10	0.00
38	0.084	-21.55	-10.65	0.09	83	0.010	-40.00	-29.10	0.00
39	0.061	-24.27	-13.37	0.05	84	0.010	-40.00	-29.10	0.00
40	0.039	-28.22	-17.32	0.02	85	0.010	-40.00	-29.10	0.00
41	0.017	-35.43	-24.53	0.00	86	0.010	-40.00	-29.10	0.00
42	0.010	-40.00	-29.10	0.00	87	0.010	-40.00	-29.10	0.00
43	0.023	-32.76	-21.86	0.01	88	0.010	-40.00	-29.10	0.00
44	0.041	-27.85	-16.95	0.02	89	0.010	-40.00	-29.10	0.00
					90	0.010	-40.00	-29.10	0.00

FIGURE EE2

FREE SPACE FIELD STRENGTH AT A DISTANCE STUDY RESULTS

PROJECT: OXNARD, CA, CHANNEL 273D

29-Jan-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	88	0.1	88.0	89.9	100	50.00	0.010	100.0	10.00	7.0	7.0
2	88	10	88.6	83.5	100	50.00	0.010	100.0	10.00	7.0	7.0
3	88	50	101.2	60.4	100	50.00	0.066	100.0	26.39	46.5	40.4
4	88	100	133.2	41.3	100	50.00	0.017	100.0	14.61	12.0	7.9
5	88	150	173.9	30.4	100	50.00	0.215	100.0	36.65	151.3	76.6
6	88	200	218.5	23.7	100	50.00	0.167	100.0	34.45	117.5	47.3
7	88	250	265.0	19.4	100	50.00	0.025	100.0	17.96	17.6	5.8
8	88	300	312.6	16.3	100	50.00	0.199	100.0	35.98	140.1	39.4
9	88	350	360.9	14.1	100	50.00	0.333	100.0	40.45	234.4	57.2
10	88	400	409.6	12.4	100	50.00	0.471	100.0	43.46	331.5	71.2
11	88	450	458.5	11.1	100	50.00	0.540	100.0	44.65	380.1	72.9
12	88	500	507.7	10.0	100	50.00	0.609	100.0	45.69	428.7	74.3
13	88	550	557.0	9.1	100	50.00	0.672	100.0	46.55	473.0	74.7
14	88	600	606.4	8.3	100	50.00	0.732	100.0	47.29	515.2	74.8
15	88	650	655.9	7.7	100	50.00	0.788	100.0	47.93	554.7	74.4

NOTE: Study point at 2 meters above ground (or rooftop, see write-up) level.

Worst-case relative field of 1.000 used for last examined point.

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)



Google earth

feet 2000
meters 700

