

DELAWDER COMMUNICATIONS, INC.

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ENGINEERING REPORT

W296CQ, Hempstead, NY, Channel 296D Minor Change

ENGINEERING STATEMENT

All required protections are met by contour non-overlap pursuant to Section 74.1204, with the exception of protection to New York stations WLTW (294B) and WBLS (298B). WLTW and WBLS are protected, as discussed below.

PROTECTION TO WLTW AND WBLS

WLTW and WBLS (both 34 kilometers at 276 degrees True bearing from the 296D site) are second adjacent-channel stations to the proposed channel 296D facility. The 54 dBu F50,50 service contour for both WLTW and WBLS extends beyond the 296D transmitter site. Using the well-established *Living Way Ministries* Methodology, no actual interference to any population is predicted to exist to WLTW or WBLS.

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 any station.

The F50,50 signal strength from WLTW at the proposed 296D transmitter site is greater than 67 dBu (the “desired” signal to WLTW). The F50,50 signal strength from WBLS at the proposed 296D transmitter site is greater than 69 dBu (the “desired” signal to WBLS). 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 WLTW and WBLS from the proposed 296D facility is a signal of greater than or equal to 107 dBu.

The attached table (requested for use by the FCC for these studies) demonstrates that the 107 dBu interference signal is predicted to be at least 26 meters above ground level. (A vertical plane pattern tabulation is also attached.) There are no tall buildings near the site and all buildings within the 107 dBu are less than four stories tall. Therefore, WLTW and WBLS are both adequately protected by the proposed facility.

74.1204(d) Showing (or LPFM equivalent)

W296CQ, Hempstead, NY 296D

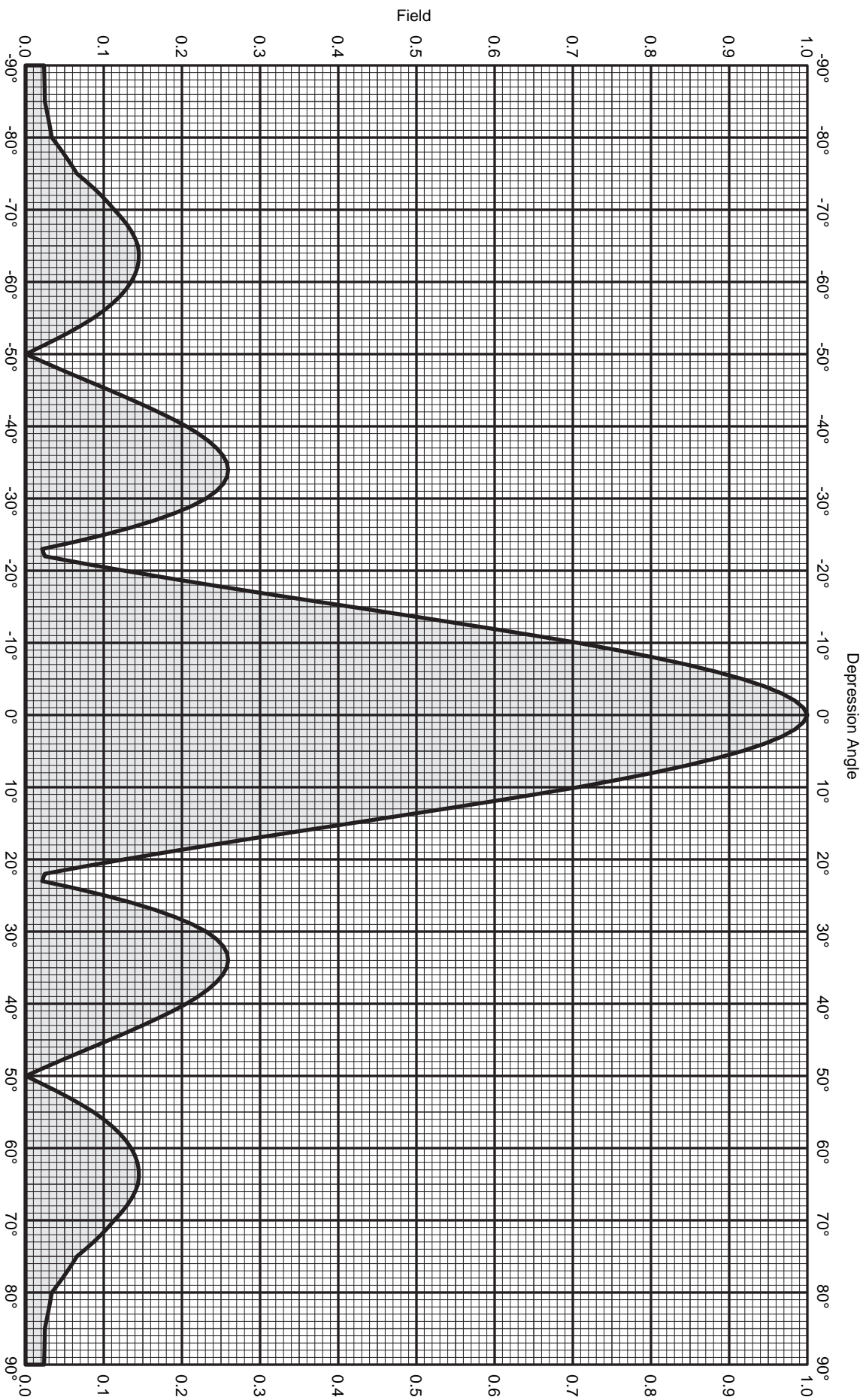
ERP (kw)
Height of Antenna above Ground (m)
Translator's IX Contour

0.1
73
107

Scala CA2-FM/CP 3 bay (FW spaced)

<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 Ground (m)</u>
0	1	0.1000	313.3286	73.000
5	0.917	0.0841	287.3223	47.958
10	0.707	0.0500	221.5233	34.533
15	0.416	0.0173	130.3447	39.264
20	0.126	0.0016	39.4794	59.497
25	0.102	0.0010	31.9595	59.493
30	0.231	0.0053	72.3789	36.811
35	0.257	0.0066	80.5254	26.813
40	0.206	0.0042	64.5457	31.511
45	0.108	0.0012	33.8395	49.072
50	0.01	0.0000	3.1333	70.600
55	0.087	0.0008	27.2596	50.670
60	0.135	0.0018	42.2994	36.368
65	0.144	0.0021	45.1193	32.108
70	0.113	0.0013	35.4061	39.729
75	0.066	0.0004	20.6797	53.025
80	0.034	0.0001	10.6532	62.509
85	0.025	0.0001	7.8332	65.197
90	0.024	0.0001	7.5199	65.480

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



Three CA2-FW/CP yagis

Maximum array gain: 4.9 dBd (x 3.09)

Circular polarization

Vertical stack at 0.87 wavelength



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Three CA2-FM/CP yagis

Vertical plane pattern

Maximum array gain: 4.9 dBd (x 3.09)

Circular polarization

Vertical stack at 0.87 wavelength

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
-90	0.024	-32.51	-27.61	0.00	-45	0.108	-19.37	-14.47	0.04
-89	0.024	-32.42	-27.52	0.00	-44	0.129	-17.80	-12.90	0.05
-88	0.024	-32.34	-27.44	0.00	-43	0.150	-16.50	-11.60	0.07
-87	0.024	-32.26	-27.36	0.00	-42	0.170	-15.42	-10.52	0.09
-86	0.025	-32.20	-27.30	0.00	-41	0.188	-14.50	-9.60	0.11
-85	0.025	-32.15	-27.25	0.00	-40	0.206	-13.73	-8.83	0.13
-84	0.027	-31.50	-26.60	0.00	-39	0.221	-13.12	-8.22	0.15
-83	0.028	-30.91	-26.01	0.00	-38	0.234	-12.63	-7.73	0.17
-82	0.030	-30.38	-25.48	0.00	-37	0.244	-12.24	-7.34	0.18
-81	0.032	-29.90	-25.00	0.00	-36	0.252	-11.97	-7.07	0.20
-80	0.034	-29.46	-24.56	0.00	-35	0.257	-11.79	-6.89	0.20
-79	0.041	-27.82	-22.92	0.01	-34	0.259	-11.73	-6.83	0.21
-78	0.047	-26.49	-21.59	0.01	-33	0.258	-11.78	-6.88	0.21
-77	0.054	-25.39	-20.49	0.01	-32	0.253	-11.95	-7.05	0.20
-76	0.060	-24.45	-19.55	0.01	-31	0.244	-12.26	-7.36	0.18
-75	0.066	-23.65	-18.75	0.01	-30	0.231	-12.73	-7.83	0.16
-74	0.077	-22.30	-17.40	0.02	-29	0.213	-13.42	-8.52	0.14
-73	0.087	-21.20	-16.30	0.02	-28	0.192	-14.35	-9.45	0.11
-72	0.097	-20.29	-15.39	0.03	-27	0.166	-15.61	-10.71	0.08
-71	0.106	-19.53	-14.63	0.03	-26	0.136	-17.34	-12.44	0.06
-70	0.113	-18.90	-14.00	0.04	-25	0.102	-19.86	-14.96	0.03
-69	0.122	-18.28	-13.38	0.05	-24	0.063	-23.98	-19.08	0.01
-68	0.129	-17.77	-12.87	0.05	-23	0.021	-33.50	-28.60	0.00
-67	0.135	-17.36	-12.46	0.06	-22	0.025	-32.16	-27.26	0.00
-66	0.140	-17.06	-12.16	0.06	-21	0.074	-22.63	-17.73	0.02
-65	0.144	-16.85	-11.95	0.06	-20	0.126	-17.98	-13.08	0.05
-64	0.145	-16.77	-11.87	0.06	-19	0.181	-14.86	-9.96	0.10
-63	0.145	-16.79	-11.89	0.06	-18	0.238	-12.49	-7.59	0.17
-62	0.143	-16.89	-11.99	0.06	-17	0.296	-10.57	-5.67	0.27
-61	0.140	-17.09	-12.19	0.06	-16	0.356	-8.98	-4.08	0.39
-60	0.135	-17.39	-12.49	0.06	-15	0.416	-7.61	-2.71	0.54
-59	0.129	-17.81	-12.91	0.05	-14	0.476	-6.44	-1.54	0.70
-58	0.121	-18.37	-13.47	0.05	-13	0.536	-5.42	-0.52	0.89
-57	0.111	-19.09	-14.19	0.04	-12	0.595	-4.52	0.38	1.09
-56	0.100	-20.02	-15.12	0.03	-11	0.652	-3.72	1.18	1.31
-55	0.087	-21.23	-16.33	0.02	-10	0.707	-3.02	1.88	1.54
-54	0.072	-22.88	-17.98	0.02	-9	0.756	-2.43	2.47	1.77
-53	0.055	-25.12	-20.22	0.01	-8	0.803	-1.91	2.99	1.99
-52	0.038	-28.42	-23.52	0.00	-7	0.845	-1.46	3.44	2.21
-51	0.019	-34.31	-29.41	0.00	-6	0.883	-1.08	3.82	2.41
-50	0.010	-40.00	-35.10	0.00	-5	0.916	-0.76	4.14	2.60
-49	0.021	-33.55	-28.65	0.00	-4	0.944	-0.50	4.40	2.76
-48	0.042	-27.50	-22.60	0.01	-3	0.967	-0.29	4.61	2.89
-47	0.064	-23.90	-19.00	0.01	-2	0.984	-0.14	4.76	2.99
-46	0.086	-21.35	-16.45	0.02	-1	0.995	-0.04	4.86	3.06
					0	1.000	0.00	4.90	3.09



Three CA2-FM/CP yagis

Vertical plane pattern

Maximum array gain: 4.9 dBd (x 3.09)

Circular polarization

Vertical stack at 0.87 wavelength

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	1.000	0.00	4.90	3.09	45	0.108	-19.37	-14.47	0.04
1	0.995	-0.04	4.86	3.06	46	0.086	-21.34	-16.44	0.02
2	0.984	-0.14	4.76	2.99	47	0.064	-23.90	-19.00	0.01
3	0.967	-0.29	4.61	2.89	48	0.042	-27.50	-22.60	0.01
4	0.945	-0.50	4.40	2.76	49	0.021	-33.55	-28.65	0.00
5	0.917	-0.76	4.14	2.60	50	0.010	-40.00	-35.10	0.00
6	0.883	-1.08	3.82	2.41	51	0.019	-34.32	-29.42	0.00
7	0.845	-1.46	3.44	2.21	52	0.038	-28.42	-23.52	0.00
8	0.803	-1.91	2.99	1.99	53	0.055	-25.12	-20.22	0.01
9	0.756	-2.43	2.47	1.77	54	0.072	-22.88	-17.98	0.02
10	0.707	-3.02	1.88	1.54	55	0.087	-21.23	-16.33	0.02
11	0.652	-3.72	1.18	1.31	56	0.100	-20.02	-15.12	0.03
12	0.595	-4.52	0.38	1.09	57	0.111	-19.09	-14.19	0.04
13	0.536	-5.42	-0.52	0.89	58	0.121	-18.37	-13.47	0.05
14	0.476	-6.44	-1.54	0.70	59	0.129	-17.81	-12.91	0.05
15	0.416	-7.61	-2.71	0.54	60	0.135	-17.39	-12.49	0.06
16	0.356	-8.98	-4.08	0.39	61	0.140	-17.09	-12.19	0.06
17	0.296	-10.57	-5.67	0.27	62	0.143	-16.89	-11.99	0.06
18	0.238	-12.48	-7.58	0.17	63	0.145	-16.79	-11.89	0.06
19	0.181	-14.86	-9.96	0.10	64	0.145	-16.77	-11.87	0.06
20	0.126	-17.98	-13.08	0.05	65	0.144	-16.85	-11.95	0.06
21	0.074	-22.63	-17.73	0.02	66	0.140	-17.06	-12.16	0.06
22	0.025	-32.16	-27.26	0.00	67	0.135	-17.36	-12.46	0.06
23	0.021	-33.51	-28.61	0.00	68	0.129	-17.77	-12.87	0.05
24	0.063	-23.98	-19.08	0.01	69	0.122	-18.28	-13.38	0.05
25	0.102	-19.86	-14.96	0.03	70	0.113	-18.90	-14.00	0.04
26	0.136	-17.34	-12.44	0.06	71	0.106	-19.53	-14.63	0.03
27	0.166	-15.61	-10.71	0.08	72	0.097	-20.29	-15.39	0.03
28	0.192	-14.35	-9.45	0.11	73	0.087	-21.20	-16.30	0.02
29	0.213	-13.42	-8.52	0.14	74	0.077	-22.30	-17.40	0.02
30	0.231	-12.73	-7.83	0.16	75	0.066	-23.65	-18.75	0.01
31	0.244	-12.26	-7.36	0.18	76	0.060	-24.45	-19.55	0.01
32	0.253	-11.95	-7.05	0.20	77	0.054	-25.39	-20.49	0.01
33	0.258	-11.78	-6.88	0.21	78	0.047	-26.49	-21.59	0.01
34	0.259	-11.73	-6.83	0.21	79	0.041	-27.82	-22.92	0.01
35	0.257	-11.79	-6.89	0.20	80	0.034	-29.46	-24.56	0.00
36	0.252	-11.97	-7.07	0.20	81	0.032	-29.90	-25.00	0.00
37	0.244	-12.24	-7.34	0.18	82	0.030	-30.38	-25.48	0.00
38	0.234	-12.63	-7.73	0.17	83	0.028	-30.91	-26.01	0.00
39	0.221	-13.12	-8.22	0.15	84	0.027	-31.50	-26.60	0.00
40	0.206	-13.73	-8.83	0.13	85	0.025	-32.15	-27.25	0.00
41	0.188	-14.50	-9.60	0.11	86	0.025	-32.20	-27.30	0.00
42	0.170	-15.42	-10.52	0.09	87	0.024	-32.26	-27.36	0.00
43	0.150	-16.50	-11.60	0.07	88	0.024	-32.34	-27.44	0.00
44	0.129	-17.80	-12.90	0.05	89	0.024	-32.42	-27.52	0.00
					90	0.024	-32.51	-27.61	0.00