

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P910171

Luminaire Tested: DFN2DIP-TR4F0-080D110US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910171
REPORT IS A COMBINATION OF REPORTS P902023 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D110US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

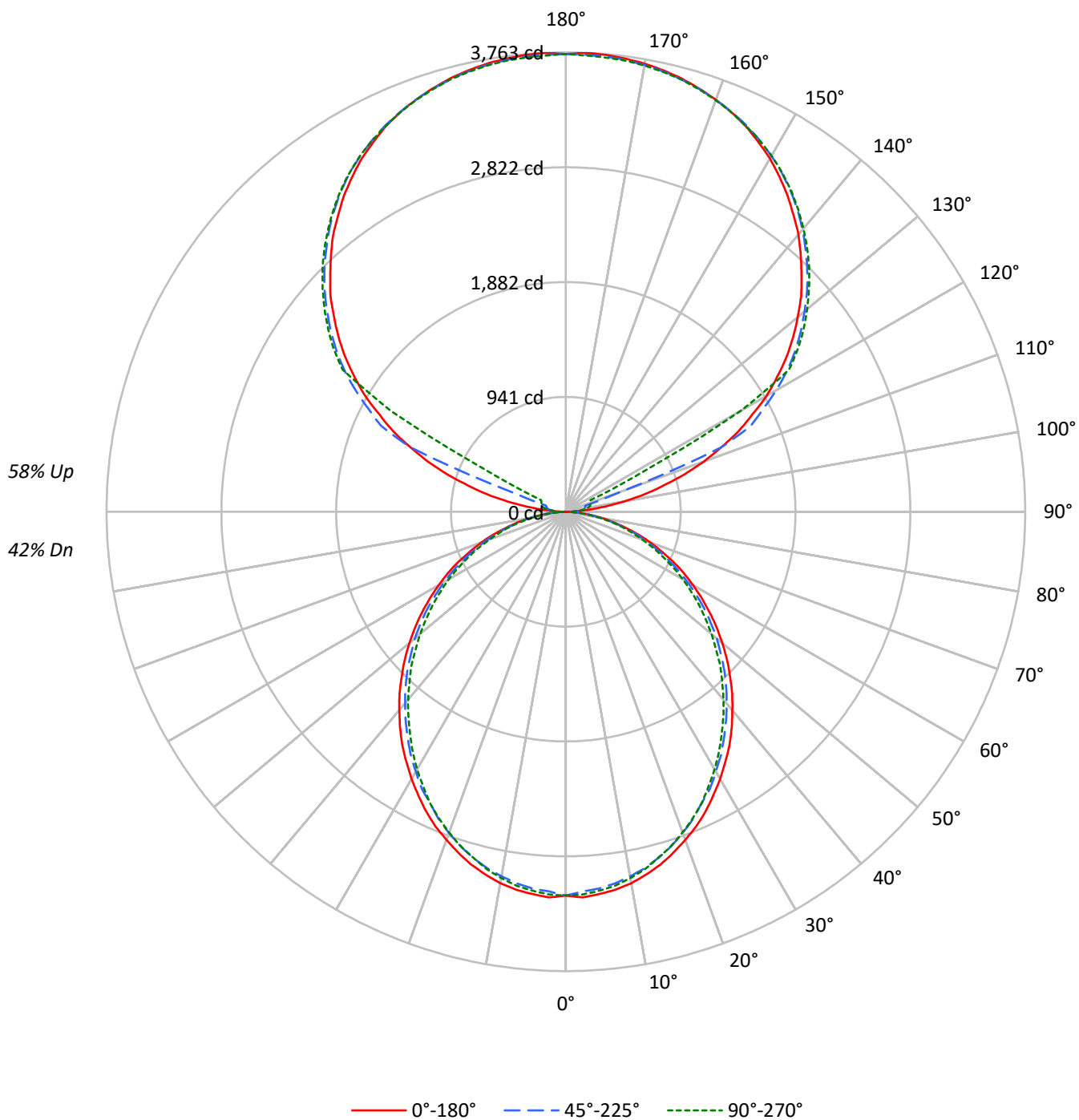
Lumens per Lamp: N/A
Luminaire Lumens: 18995.6 lumens
Efficiency: N/A
Efficacy: 118.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 159.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910171

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910171

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US840-FLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	88	84	88	84	81	78	69	67	65	56	54	53	43	42	41
2	87	80	74	69	80	73	68	64	61	57	54	49	46	44	38	36	35
3	80	70	63	57	72	65	58	53	53	49	45	43	40	37	34	31	30
4	73	62	54	49	66	57	50	45	47	42	38	38	35	32	30	28	25
5	67	55	47	41	61	51	44	39	42	37	33	35	31	28	27	24	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	28	24	21	22	20	17
8	53	41	33	28	48	37	31	26	32	26	22	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2497	2497	2497
5°	2501	2463	2479
10°	2481	2429	2445
15°	2445	2389	2393
20°	2395	2334	2339
25°	2346	2267	2277
30°	2285	2205	2198
35°	2227	2132	2114
40°	2155	2059	2035
45°	2084	1985	1954
50°	2005	1907	1859
55°	1924	1818	1773
60°	1831	1711	1673
65°	1731	1601	1556
70°	1602	1467	1430
75°	1424	1306	1314
80°	1210	1101	1091
85°	875	747	723

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2084 cd/sqm

TEST NUMBER: P910171

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.9	1.6
10°-20°	832.5	4.4
20°-30°	1223.4	6.4
30°-40°	1420.9	7.5
40°-50°	1419.1	7.5
50°-60°	1237.5	6.5
60°-70°	914.7	4.8
70°-80°	517.6	2.7
80°-90°	143.2	0.8
90°-100°	123.6	0.7
100°-110°	460.8	2.4
110°-120°	1222.2	6.4
120°-130°	2027.1	10.7
130°-140°	2153.3	11.3
140°-150°	2001.2	10.5
150°-160°	1608.9	8.5
160°-170°	1036.7	5.5
170°-180°	356.8	1.9
0°-30°	2351.8	12.4
0°-40°	3772.7	19.9
0°-60°	6429.3	33.8
0°-90°	8004.8	42.1
90°-120°	1806.7	9.5
90°-150°	7988.3	42.1
90°-180°	10991.0	57.9
0°-180°	18995.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3144	3144	3144	3144	3144	
5°	3144	3132	3098	3122	3117	298
15°	2992	2975	2935	2947	2932	843
25°	2708	2684	2633	2639	2633	1246
35°	2337	2306	2258	2240	2225	1459
45°	1902	1880	1835	1802	1790	1467
55°	1439	1421	1384	1348	1333	1287
65°	970	952	922	895	880	959
75°	508	502	487	469	475	542
85°	124	121	118	109	106	138
90°	3	32	54	68	73	17
95°	176	87	106	120	117	209
105°	825	906	166	195	206	881
115°	1560	1606	1674	418	223	1536
125°	2205	2241	2292	2311	2319	1967
135°	2729	2773	2797	2824	2819	2108
145°	3166	3163	3209	3228	3215	1980
155°	3486	3462	3494	3510	3489	1606
165°	3673	3657	3665	3684	3665	1038
175°	3757	3738	3744	3763	3736	358
180°	3749	3749	3749	3749	3749	

TEST NUMBER: P910171

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3143.5	3143.5	3143.5	3143.5	3143.5
2.5°	3161.8	3146.7	3113.4	3143.5	3137.8
5°	3143.5	3131.7	3098.4	3122.4	3116.6
7.5°	3122.4	3104.4	3071.1	3095.4	3089.4
10°	3089.4	3068.2	3031.9	3056.0	3047.1
12.5°	3043.8	3025.9	2989.6	3004.7	2998.6
15°	2992.5	2974.6	2935.1	2947.3	2932.2
17.5°	2929.0	2911.0	2871.6	2886.7	2871.6
20°	2859.4	2841.5	2799.1	2808.1	2796.2
22.5°	2790.2	2762.9	2723.4	2723.4	2717.3
25°	2708.4	2684.3	2633.0	2638.8	2633.0
27.5°	2617.6	2596.5	2557.3	2548.3	2533.2
30°	2527.2	2502.7	2457.6	2448.6	2436.4
32.5°	2430.3	2412.4	2363.9	2345.6	2333.5
35°	2336.6	2306.5	2258.1	2239.8	2224.7
37.5°	2230.8	2203.5	2155.2	2133.9	2118.9
40°	2122.1	2097.7	2049.3	2022.4	2010.1
42.5°	2016.3	1991.9	1943.8	1913.3	1895.4
45°	1901.5	1880.3	1834.7	1801.7	1789.6
47.5°	1789.6	1768.4	1719.9	1686.6	1668.6
50°	1671.5	1656.5	1614.1	1571.8	1556.7
52.5°	1556.7	1535.5	1496.4	1463.1	1441.9
55°	1439.0	1420.7	1384.5	1348.3	1333.1
57.5°	1321.0	1306.0	1266.5	1230.2	1218.0
60°	1203.0	1191.1	1148.7	1115.4	1106.4
62.5°	1088.1	1067.0	1036.8	1006.7	994.5
65°	970.5	952.2	922.0	894.7	879.7
67.5°	849.5	834.1	807.2	786.1	773.9
70°	737.6	725.4	698.2	677.0	665.1
72.5°	622.8	610.7	595.5	574.4	565.4
75°	507.7	501.9	486.6	468.6	474.6
77.5°	405.1	392.8	386.8	377.8	368.8
80°	302.5	299.2	293.2	284.2	278.0
82.5°	205.6	205.6	202.7	190.5	190.5
85°	123.8	120.9	118.1	108.8	105.8
87.5°	54.5	48.5	42.3	33.3	30.2
90°	2.6	32.5	54.1	68.0	73.1
92.5°	68.0	57.1	65.0	70.6	73.1
95°	176.2	86.6	105.6	119.5	116.6
97.5°	317.3	95.0	138.1	146.5	149.2
100°	480.3	108.6	154.6	176.2	181.7
102.5°	659.0	653.9	160.1	189.8	198.1
105°	824.7	906.2	165.6	195.2	206.2
107.5°	1017.3	1084.9	171.1	200.7	211.7
110°	1201.8	1258.6	474.8	203.6	214.2

TEST NUMBER: P910171

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1375.5	1424.1	1378.1	208.7	217.1
115°	1559.7	1605.8	1673.9	417.8	222.6
117.5°	1719.9	1774.0	1820.4	1432.2	721.5
120°	1899.0	1939.5	1988.5	2021.0	1654.8
122.5°	2050.7	2094.2	2148.6	2164.7	2167.7
125°	2205.3	2240.8	2292.3	2311.3	2319.4
127.5°	2346.4	2384.4	2425.3	2452.4	2455.0
130°	2479.4	2522.9	2552.5	2582.5	2580.0
132.5°	2615.0	2650.5	2680.2	2704.6	2702.1
135°	2729.2	2772.6	2796.7	2824.2	2818.6
137.5°	2848.3	2880.8	2908.2	2935.3	2927.2
140°	2965.0	2986.8	3016.5	3040.9	3027.4
142.5°	3062.8	3081.8	3116.9	3138.6	3125.0
145°	3165.9	3163.0	3209.0	3228.1	3214.6
147.5°	3255.2	3247.1	3293.2	3306.7	3296.1
150°	3342.2	3323.2	3366.6	3382.7	3369.2
152.5°	3415.3	3393.7	3434.2	3450.7	3431.7
155°	3485.9	3461.6	3494.1	3510.3	3488.7
157.5°	3542.8	3521.2	3545.7	3564.7	3542.8
160°	3591.8	3575.3	3591.8	3607.8	3588.9
162.5°	3634.9	3618.9	3632.4	3651.4	3626.9
165°	3673.0	3656.8	3664.9	3683.9	3664.9
167.5°	3702.9	3686.5	3694.9	3713.9	3689.4
170°	3727.4	3711.0	3716.4	3735.5	3711.0
172.5°	3743.5	3727.4	3732.9	3751.9	3727.4
175°	3757.0	3738.0	3743.5	3762.6	3735.5
177.5°	3762.6	3743.5	3746.4	3765.4	3740.9
180°	3749.0	3749.0	3749.0	3749.0	3749.0

TEST NUMBER: P910171

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US840-FLLONL

CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	9.67	10.47	10.70	11.50	12.88	9.24	10.04	10.26	11.07	12.45
	3H	11.33	12.04	12.36	13.08	14.48	10.86	11.57	11.89	12.61	14.01
	4H	11.91	12.59	12.96	13.63	15.04	11.44	12.12	12.48	13.16	14.56
	6H	12.31	12.93	13.36	13.98	15.40	11.83	12.46	12.89	13.50	14.92
	8H	12.41	13.00	13.47	14.07	15.48	11.94	12.53	13.00	13.59	15.00
	12H	12.46	13.02	13.52	14.08	15.51	11.98	12.54	13.04	13.60	15.03
4H	2H	10.13	10.80	11.18	11.84	13.25	9.78	10.46	10.83	11.50	12.91
	3H	11.99	12.55	13.05	13.62	15.04	11.59	12.16	12.65	13.23	14.65
	4H	12.70	13.22	13.76	14.28	15.72	12.29	12.81	13.36	13.87	15.31
	6H	13.21	13.65	14.28	14.74	16.17	12.80	13.24	13.87	14.33	15.76
	8H	13.36	13.77	14.43	14.85	16.30	12.95	13.36	14.02	14.44	15.89
	12H	13.43	13.80	14.52	14.89	16.35	13.01	13.38	14.10	14.47	15.93
8H	4H	12.89	13.30	13.96	14.38	15.83	12.53	12.94	13.60	14.02	15.47
	6H	13.52	13.86	14.62	14.98	16.43	13.16	13.50	14.25	14.62	16.06
	8H	13.74	14.04	14.84	15.14	16.61	13.37	13.67	14.47	14.77	16.24
	12H	13.87	14.13	14.97	15.23	16.73	13.48	13.75	14.59	14.84	16.35
12H	4H	12.87	13.25	13.96	14.34	15.79	12.52	12.90	13.61	13.99	15.44
	6H	13.55	13.85	14.65	14.95	16.42	13.20	13.50	14.30	14.60	16.07
	8H	13.79	14.05	14.89	15.15	16.65	13.43	13.69	14.54	14.79	16.30