

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: P923813

Luminaire Tested: DFN2DIP-TR4F0-080D110US940-RLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923813
REPORT IS A COMBINATION OF REPORTS P902024 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D110US940-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

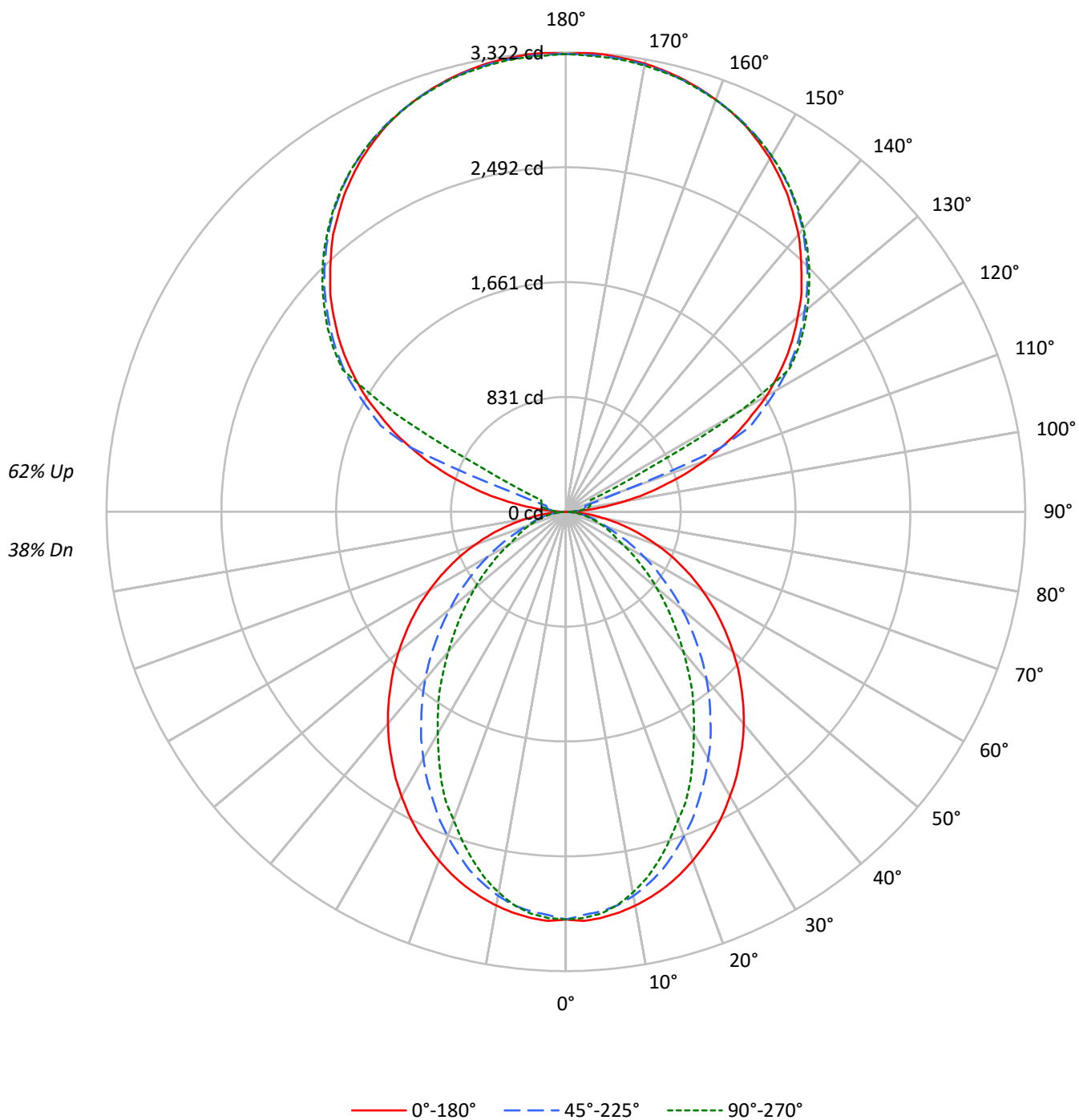
Lumens per Lamp: N/A
Luminaire Lumens: 15774.3 lumens
Efficiency: N/A
Efficacy: 98.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

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: P923813

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US940-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P923813

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US940-RLLONL

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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2342	2342	2342
5°	2346	2305	2320
10°	2323	2260	2244
15°	2291	2185	2127
20°	2249	2082	1984
25°	2205	1967	1846
30°	2147	1848	1670
35°	2090	1721	1516
40°	2032	1589	1340
45°	1965	1443	1180
50°	1895	1296	1023
55°	1822	1138	873
60°	1738	974	718
65°	1642	806	646
70°	1524	650	585
75°	1377	573	532
80°	1163	481	461
85°	811	320	346

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1965 cd/sqm

TEST NUMBER: P923813

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US940-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.3	1.8
10°-20°	758.6	4.8
20°-30°	1065.0	6.8
30°-40°	1160.9	7.4
40°-50°	1067.0	6.8
50°-60°	838.0	5.3
60°-70°	545.4	3.5
70°-80°	280.8	1.8
80°-90°	77.5	0.5
90°-100°	109.2	0.7
100°-110°	406.9	2.6
110°-120°	1079.2	6.8
120°-130°	1789.9	11.3
130°-140°	1901.3	12.1
140°-150°	1767.1	11.2
150°-160°	1420.7	9.0
160°-170°	915.4	5.8
170°-180°	315.1	2.0
0°-30°	2099.9	13.3
0°-40°	3260.8	20.7
0°-60°	5165.8	32.7
0°-90°	6069.5	38.5
90°-120°	1595.3	10.1
90°-150°	7053.7	44.7
90°-180°	9705.0	61.5
0°-180°	15774.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2948	2948	2948	2948	2948	
5°	2948	2935	2900	2924	2916	280
15°	2804	2775	2684	2634	2607	790
25°	2546	2460	2284	2175	2134	1171
35°	2193	2057	1822	1654	1595	1373
45°	1793	1614	1334	1144	1081	1385
55°	1363	1155	867	707	656	1218
65°	921	704	464	374	365	913
75°	491	304	214	195	192	519
85°	115	59	51	51	51	132
90°	2	29	48	60	65	15
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1377	1418	1478	369	196	1356
125°	1947	1979	2024	2041	2048	1737
135°	2410	2448	2470	2494	2489	1862
145°	2796	2793	2834	2850	2838	1748
155°	3078	3057	3085	3100	3080	1418
165°	3243	3229	3236	3253	3236	916
175°	3317	3301	3306	3322	3298	316
180°	3310	3310	3310	3310	3310	

TEST NUMBER: P923813

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US940-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2948.4	2948.4	2948.4	2948.4	2948.4
2.5°	2961.6	2948.4	2918.9	2945.8	2940.4
5°	2948.4	2935.1	2900.2	2924.3	2916.3
7.5°	2924.3	2908.4	2871.0	2881.6	2868.2
10°	2892.3	2873.6	2820.4	2812.2	2796.3
12.5°	2852.4	2828.3	2756.1	2740.2	2710.8
15°	2804.3	2774.8	2684.2	2633.6	2606.9
17.5°	2748.2	2705.4	2593.4	2534.8	2492.0
20°	2684.2	2630.7	2497.4	2430.9	2371.9
22.5°	2614.9	2553.4	2398.6	2308.0	2268.1
25°	2545.5	2460.1	2283.9	2174.7	2134.5
27.5°	2462.8	2371.9	2177.2	2051.8	1990.4
30°	2374.8	2273.1	2059.8	1923.9	1851.6
32.5°	2289.3	2166.5	1947.9	1787.7	1720.9
35°	2193.3	2057.2	1822.5	1654.4	1595.4
37.5°	2099.9	1953.0	1705.0	1520.7	1454.2
40°	2001.2	1841.2	1582.2	1392.8	1323.4
42.5°	1899.8	1729.1	1459.6	1262.0	1195.4
45°	1793.1	1614.2	1334.2	1144.5	1080.6
47.5°	1691.8	1502.4	1214.2	1024.5	965.9
50°	1579.6	1390.3	1096.7	912.4	856.6
52.5°	1470.1	1269.9	984.5	808.5	757.9
55°	1363.3	1155.3	867.1	707.1	656.5
57.5°	1254.1	1040.6	763.2	613.8	571.0
60°	1141.9	928.5	653.6	517.7	475.0
62.5°	1032.7	819.2	560.3	432.3	411.1
65°	920.6	704.3	464.2	373.7	365.4
67.5°	813.9	597.6	373.7	328.1	320.2
70°	701.8	493.7	309.4	282.8	272.1
72.5°	595.0	397.4	258.8	237.6	232.1
75°	490.9	304.1	213.5	194.7	192.3
77.5°	387.0	216.0	168.2	157.4	152.0
80°	290.7	154.9	128.0	117.4	117.4
82.5°	202.7	104.2	88.0	82.7	82.7
85°	114.7	58.6	50.6	50.6	50.6
87.5°	42.7	21.2	21.2	18.7	18.7
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.3	64.6
95°	155.6	76.5	93.3	105.5	103.0
97.5°	280.2	83.9	122.0	129.4	131.7
100°	424.1	95.9	136.5	155.6	160.4
102.5°	581.9	577.4	141.3	167.6	175.0
105°	728.2	800.1	146.2	172.4	182.1
107.5°	898.3	958.0	151.1	177.2	186.9
110°	1061.2	1111.3	419.3	179.8	189.1

TEST NUMBER: P923813

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US940-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1214.6	1257.5	1216.8	184.3	191.7
115°	1377.2	1417.9	1478.0	368.9	196.5
117.5°	1518.7	1566.5	1607.4	1264.6	637.1
120°	1676.8	1712.6	1755.9	1784.6	1461.2
122.5°	1810.8	1849.1	1897.2	1911.5	1914.1
125°	1947.3	1978.6	2024.1	2040.9	2048.0
127.5°	2071.9	2105.4	2141.5	2165.4	2167.7
130°	2189.3	2227.8	2253.9	2280.4	2278.1
132.5°	2309.1	2340.4	2366.6	2388.2	2385.9
135°	2409.8	2448.2	2469.5	2493.8	2488.9
137.5°	2515.1	2543.8	2567.9	2591.8	2584.7
140°	2618.1	2637.3	2663.5	2685.1	2673.2
142.5°	2704.5	2721.2	2752.3	2771.3	2759.4
145°	2795.5	2792.9	2833.6	2850.4	2838.5
147.5°	2874.3	2867.2	2907.9	2919.8	2910.5
150°	2951.1	2934.4	2972.7	2987.0	2975.0
152.5°	3015.7	2996.6	3032.4	3047.0	3030.2
155°	3078.0	3056.6	3085.3	3099.6	3080.5
157.5°	3128.3	3109.2	3130.9	3147.6	3128.3
160°	3171.5	3157.0	3171.5	3185.7	3169.0
162.5°	3209.6	3195.4	3207.4	3224.2	3202.6
165°	3243.2	3229.0	3236.1	3252.9	3236.1
167.5°	3269.6	3255.2	3262.6	3279.4	3257.8
170°	3291.3	3276.8	3281.6	3298.4	3276.8
172.5°	3305.5	3291.3	3296.1	3312.9	3291.3
175°	3317.4	3300.7	3305.5	3322.3	3298.4
177.5°	3322.3	3305.5	3308.1	3324.8	3303.3
180°	3310.4	3310.4	3310.4	3310.4	3310.4

TEST NUMBER: P923813

CATALOG NUMBER: DFN2DIP-TR4F0-080D110US940-RLONL

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	8.92	9.66	9.97	10.72	12.15	4.89	5.64	5.95	6.69	8.12
	3H	10.59	11.25	11.65	12.32	13.77	6.08	6.74	7.14	7.81	9.25
	4H	11.19	11.82	12.27	12.89	14.35	6.52	7.15	7.60	8.22	9.67
	6H	11.61	12.19	12.70	13.26	14.73	6.84	7.42	7.93	8.49	9.96
	8H	11.73	12.29	12.82	13.37	14.83	6.93	7.48	8.02	8.57	10.03
	12H	11.79	12.32	12.89	13.40	14.88	6.97	7.49	8.06	8.57	10.06
4H	2H	8.93	9.56	10.01	10.62	12.08	5.48	6.11	6.56	7.17	8.63
	3H	10.75	11.27	11.84	12.37	13.83	6.82	7.34	7.91	8.44	9.91
	4H	11.44	11.92	12.53	13.00	14.49	7.37	7.85	8.46	8.93	10.42
	6H	11.95	12.36	13.05	13.47	14.95	7.78	8.19	8.88	9.30	10.78
	8H	12.12	12.50	13.22	13.60	15.10	7.91	8.29	9.01	9.39	10.89
	12H	12.21	12.56	13.33	13.67	15.17	7.97	8.32	9.09	9.43	10.93
8H	4H	11.40	11.78	12.50	12.88	14.38	7.64	8.02	8.74	9.12	10.62
	6H	11.96	12.28	13.09	13.42	14.91	8.16	8.47	9.28	9.61	11.11
	8H	12.18	12.45	13.31	13.58	15.09	8.35	8.62	9.48	9.75	11.26
	12H	12.31	12.56	13.45	13.67	15.23	8.46	8.71	9.60	9.83	11.38
12H	4H	11.35	11.69	12.47	12.81	14.31	7.64	7.99	8.76	9.10	10.60
	6H	11.94	12.21	13.07	13.34	14.85	8.20	8.48	9.34	9.60	11.12
	8H	12.15	12.40	13.29	13.52	15.07	8.41	8.66	9.55	9.77	11.33