

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: P910239

Luminaire Tested: DFN2DIP-TR4F0-100D100US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910239
REPORT IS A COMBINATION OF REPORTS P902009 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D100US840-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

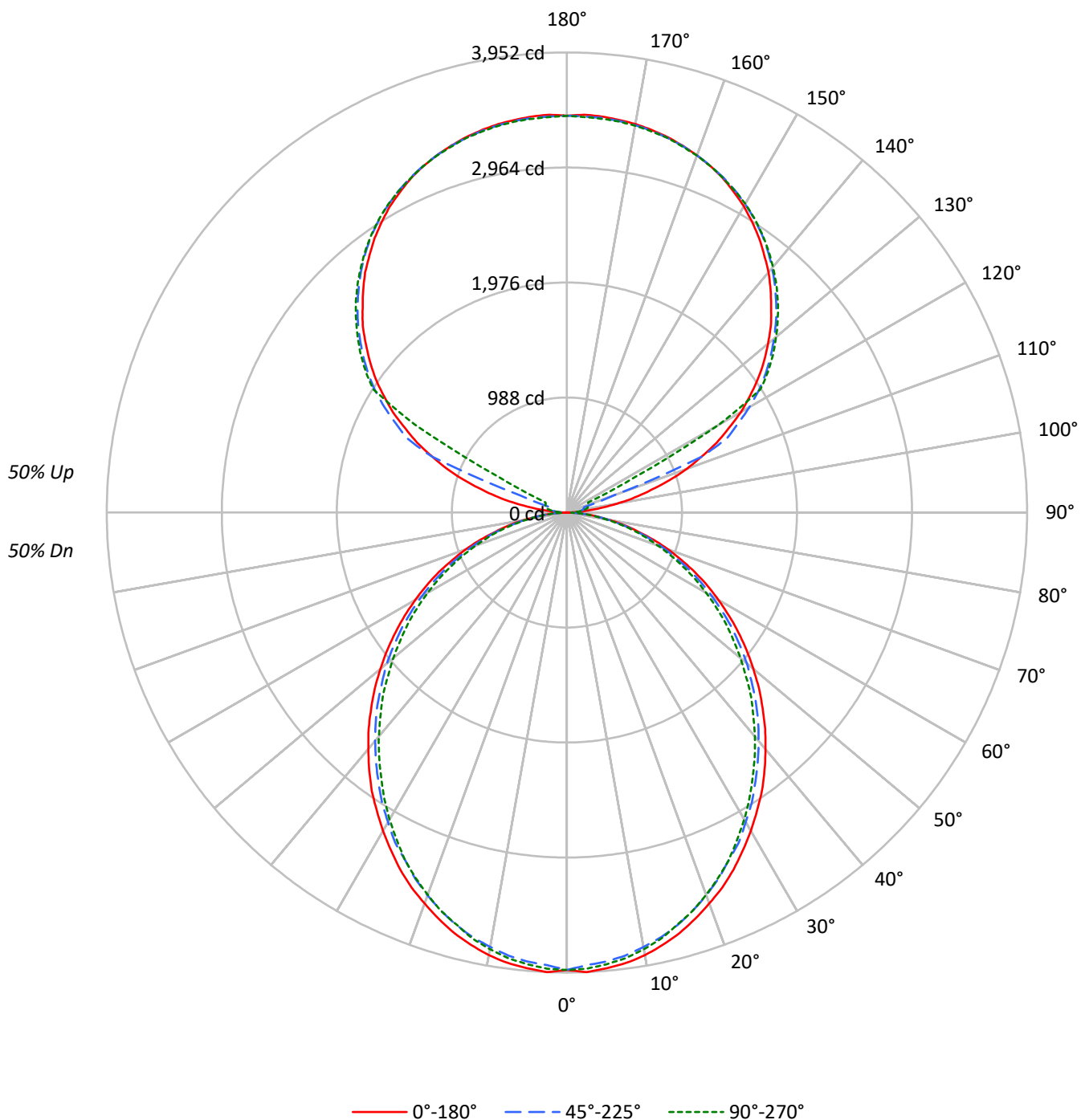
Lumens per Lamp: N/A
Luminaire Lumens: 19995.4 lumens
Efficiency: N/A
Efficacy: 112.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 177.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P910239

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P910239

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US840-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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3122	3122	3122
5°	3127	3078	3099
10°	3101	3037	3057
15°	3056	2987	2991
20°	2994	2917	2924
25°	2933	2834	2846
30°	2856	2757	2747
35°	2783	2666	2643
40°	2694	2573	2544
45°	2604	2481	2442
50°	2507	2384	2324
55°	2405	2272	2216
60°	2289	2139	2092
65°	2163	2001	1945
70°	2002	1833	1788
75°	1780	1632	1642
80°	1512	1376	1364
85°	1094	933	904

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2604 cd/sqm

TEST NUMBER: P910239

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	369.8	1.8
10°-20°	1040.6	5.2
20°-30°	1529.3	7.6
30°-40°	1776.1	8.9
40°-50°	1773.9	8.9
50°-60°	1546.8	7.7
60°-70°	1143.4	5.7
70°-80°	646.9	3.2
80°-90°	176.8	0.9
90°-100°	112.4	0.6
100°-110°	418.9	2.1
110°-120°	1111.1	5.6
120°-130°	1842.9	9.2
130°-140°	1957.5	9.8
140°-150°	1819.3	9.1
150°-160°	1462.7	7.3
160°-170°	942.5	4.7
170°-180°	324.4	1.6
0°-30°	2939.7	14.7
0°-40°	4715.8	23.6
0°-60°	8036.5	40.2
0°-90°	10003.7	50.0
90°-120°	1642.4	8.2
90°-150°	7262.1	36.3
90°-180°	9992.0	50.0
0°-180°	19995.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3930	3930	3930	3930	3930	
5°	3930	3915	3873	3903	3896	373
15°	3741	3718	3669	3684	3665	1054
25°	3386	3355	3291	3298	3291	1558
35°	2921	2883	2823	2800	2781	1824
45°	2377	2350	2293	2252	2237	1834
55°	1799	1776	1731	1685	1666	1608
65°	1213	1190	1153	1118	1100	1199
75°	635	627	608	586	593	677
85°	155	151	148	136	132	173
90°	2	30	49	62	66	18
95°	160	79	96	109	106	190
105°	750	824	151	177	187	801
115°	1418	1460	1522	380	202	1396
125°	2005	2037	2084	2101	2108	1788
135°	2481	2520	2542	2567	2562	1916
145°	2878	2876	2917	2935	2922	1800
155°	3169	3147	3176	3191	3172	1460
165°	3339	3324	3332	3349	3332	943
175°	3416	3398	3403	3420	3396	325
180°	3408	3408	3408	3408	3408	

TEST NUMBER: P910239

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3929.5	3929.5	3929.5	3929.5	3929.5
2.5°	3952.3	3933.4	3891.7	3929.5	3922.2
5°	3929.5	3914.6	3872.9	3903.0	3895.8
7.5°	3903.0	3880.5	3838.8	3869.3	3861.7
10°	3861.7	3835.3	3789.9	3820.0	3808.8
12.5°	3804.8	3782.4	3737.0	3755.9	3748.2
15°	3740.6	3718.2	3668.8	3684.1	3665.3
17.5°	3661.3	3638.8	3589.5	3608.4	3589.5
20°	3574.2	3551.8	3498.9	3510.1	3495.2
22.5°	3487.7	3453.6	3404.3	3404.3	3396.7
25°	3385.5	3355.4	3291.3	3298.4	3291.3
27.5°	3272.0	3245.5	3196.6	3185.4	3166.5
30°	3159.0	3128.5	3071.9	3060.7	3045.5
32.5°	3037.9	3015.5	2954.9	2932.0	2916.8
35°	2920.8	2883.2	2822.6	2799.8	2780.9
37.5°	2788.5	2754.4	2693.9	2667.5	2648.6
40°	2652.6	2622.1	2561.6	2528.0	2512.7
42.5°	2520.3	2489.8	2429.7	2391.7	2369.2
45°	2376.8	2350.4	2293.4	2252.1	2237.0
47.5°	2237.0	2210.5	2149.9	2108.2	2085.8
50°	2089.4	2070.5	2017.6	1964.7	1945.9
52.5°	1945.9	1919.5	1870.5	1828.9	1802.4
55°	1798.8	1775.9	1730.6	1685.3	1666.5
57.5°	1651.2	1632.3	1583.1	1537.8	1522.6
60°	1503.7	1488.8	1435.9	1394.2	1383.0
62.5°	1360.2	1333.7	1296.1	1258.4	1243.1
65°	1213.1	1190.2	1152.6	1118.4	1099.6
67.5°	1062.0	1042.7	1009.1	982.6	967.4
70°	922.0	906.8	872.7	846.3	831.4
72.5°	778.5	763.3	744.5	718.0	706.7
75°	634.6	627.4	608.1	585.7	593.3
77.5°	506.3	491.1	483.4	472.2	461.0
80°	378.0	374.1	366.4	355.2	347.6
82.5°	257.0	257.0	253.4	238.1	238.1
85°	154.7	151.2	147.5	135.9	132.3
87.5°	68.2	60.5	52.9	41.7	37.7
90°	2.3	29.6	49.2	61.8	66.4
92.5°	61.8	51.8	59.2	64.1	66.4
95°	160.2	78.8	96.0	108.7	106.0
97.5°	288.4	86.3	125.6	133.2	135.6
100°	436.7	98.7	140.6	160.2	165.2
102.5°	599.2	594.5	145.5	172.5	180.1
105°	749.7	823.7	150.6	177.4	187.4
107.5°	924.8	986.3	155.5	182.5	192.4
110°	1092.6	1144.2	431.6	185.1	194.7

TEST NUMBER: P910239

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1250.4	1294.6	1252.8	189.8	197.4
115°	1418.0	1459.9	1521.7	379.8	202.4
117.5°	1563.5	1612.8	1654.9	1302.0	656.0
120°	1726.4	1763.2	1807.8	1837.3	1504.4
122.5°	1864.3	1903.8	1953.3	1967.9	1970.6
125°	2004.9	2037.1	2084.0	2101.2	2108.5
127.5°	2133.1	2167.7	2204.8	2229.5	2231.8
130°	2254.0	2293.6	2320.6	2347.7	2345.4
132.5°	2377.3	2409.5	2436.5	2458.7	2456.4
135°	2481.0	2520.5	2542.5	2567.4	2562.4
137.5°	2589.4	2619.0	2643.8	2668.5	2661.1
140°	2695.3	2715.3	2742.2	2764.5	2752.2
142.5°	2784.4	2801.7	2833.6	2853.2	2841.0
145°	2878.1	2875.5	2917.4	2934.7	2922.3
147.5°	2959.2	2951.9	2993.7	3006.1	2996.5
150°	3038.3	3021.0	3060.6	3075.2	3062.9
152.5°	3104.7	3085.1	3122.1	3136.9	3119.7
155°	3169.0	3146.9	3176.5	3191.2	3171.6
157.5°	3220.8	3201.2	3223.4	3240.7	3220.8
160°	3265.3	3250.4	3265.3	3279.9	3262.7
162.5°	3304.5	3289.8	3302.2	3319.4	3297.2
165°	3339.0	3324.4	3331.7	3349.0	3331.7
167.5°	3366.3	3351.3	3359.0	3376.3	3354.0
170°	3388.5	3373.7	3378.6	3395.9	3373.7
172.5°	3403.1	3388.5	3393.6	3410.8	3388.5
175°	3415.5	3398.2	3403.1	3420.5	3395.9
177.5°	3420.5	3403.1	3405.9	3423.1	3400.8
180°	3408.2	3408.2	3408.2	3408.2	3408.2

TEST NUMBER: P910239

CATALOG NUMBER: DFN2DIP-TR4F0-100D100US840-FLONL

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	11.22	12.09	12.18	13.06	14.33	10.79	11.65	11.75	12.63	13.90
	3H	12.88	13.66	13.85	14.64	15.93	12.41	13.19	13.38	14.17	15.46
	4H	13.47	14.20	14.45	15.19	16.49	13.00	13.73	13.98	14.72	16.02
	6H	13.87	14.55	14.86	15.54	16.85	13.40	14.07	14.39	15.06	16.38
	8H	13.98	14.62	14.98	15.63	16.94	13.50	14.14	14.50	15.15	16.46
	12H	14.02	14.64	15.03	15.64	16.97	13.54	14.15	14.55	15.16	16.49
4H	2H	11.69	12.42	12.67	13.40	14.70	11.34	12.07	12.33	13.06	14.36
	3H	13.55	14.16	14.55	15.18	16.49	13.16	13.77	14.16	14.78	16.10
	4H	14.27	14.83	15.27	15.83	17.17	13.86	14.42	14.87	15.43	16.77
	6H	14.78	15.26	15.80	16.29	17.63	14.37	14.85	15.39	15.88	17.22
	8H	14.93	15.38	15.95	16.40	17.76	14.52	14.97	15.54	15.99	17.34
	12H	15.00	15.41	16.04	16.45	17.81	14.58	14.99	15.62	16.03	17.38
8H	4H	14.46	14.91	15.48	15.94	17.29	14.10	14.55	15.12	15.58	16.93
	6H	15.09	15.47	16.14	16.53	17.88	14.73	15.10	15.77	16.17	17.52
	8H	15.32	15.64	16.37	16.69	18.06	14.95	15.27	16.00	16.32	17.69
	12H	15.45	15.73	16.50	16.78	18.19	15.06	15.35	16.12	16.40	17.81
12H	4H	14.45	14.85	15.49	15.89	17.25	14.10	14.50	15.13	15.54	16.90
	6H	15.12	15.45	16.17	16.50	17.87	14.77	15.10	15.82	16.15	17.52
	8H	15.37	15.65	16.42	16.70	18.11	15.01	15.30	16.06	16.34	17.75