

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: P912841

Luminaire Tested: DFN2DIP-TR4F0-070D050US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912841
REPORT IS A COMBINATION OF REPORTS P901914 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-070D050US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

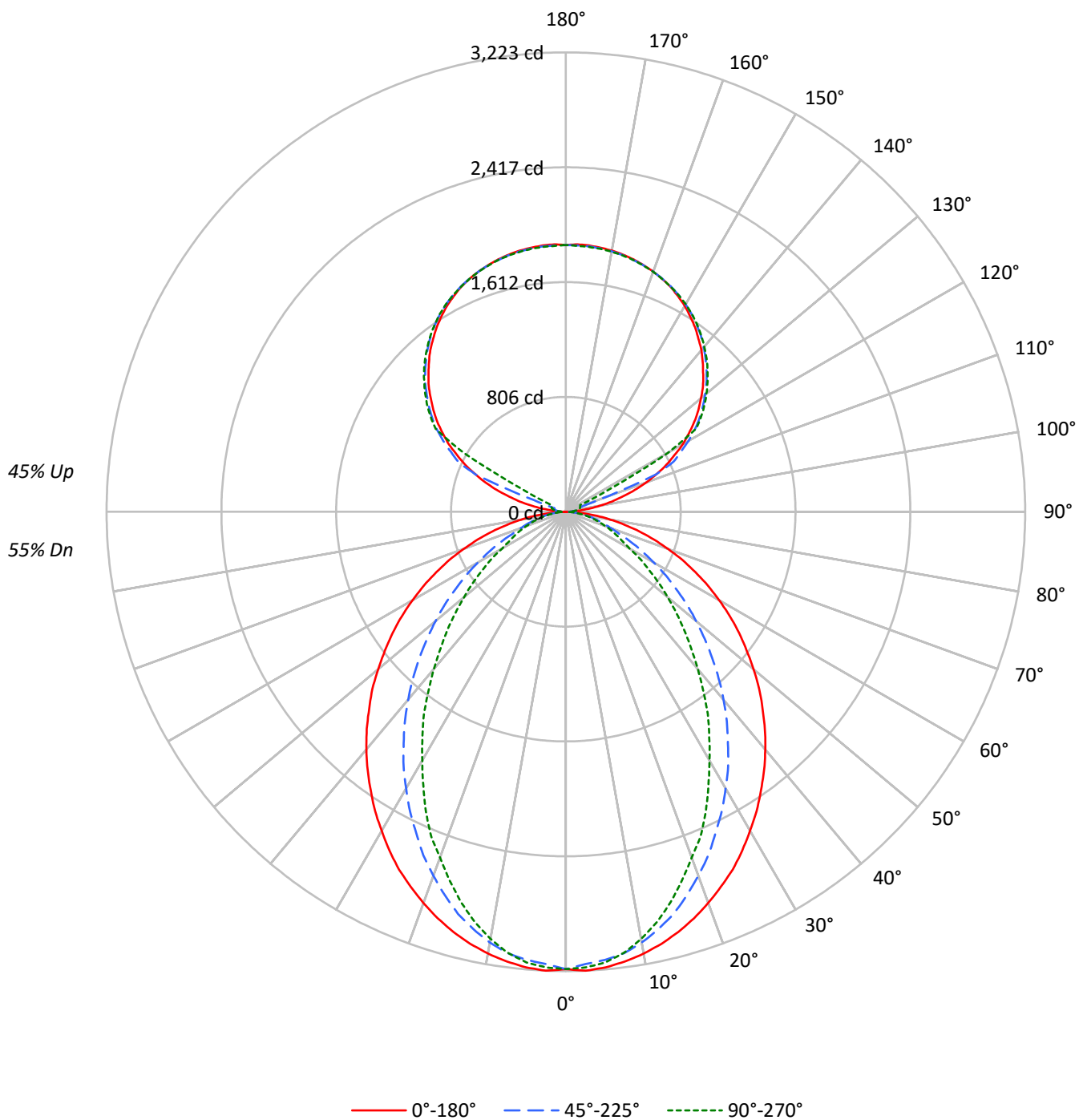
Lumens per Lamp: N/A
Luminaire Lumens: 12088.1 lumens
Efficiency: N/A
Efficacy: 116.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 103.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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Luminous Intensity Polar Plot



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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
RCR																	
0	108	108	108	108	100	100	100	100	86	86	86		73	73	73		60
1	99	95	91	88	92	89	85	82	76	74	72		65	63	62		54
2	91	84	78	73	84	78	73	69	67	63	60		57	55	52		48
3	83	74	67	61	77	69	63	58	60	55	51		51	48	45		43
4	76	66	58	52	71	62	55	50	54	48	44		46	42	39		39
5	70	59	51	45	65	55	48	43	48	43	38		42	37	34		35
6	65	53	45	40	60	50	43	38	44	38	34		38	33	30		32
7	60	48	40	35	56	45	38	33	40	34	30		35	30	27		30
8	56	44	36	31	52	41	34	30	36	31	27		32	27	24		27
9	52	40	33	28	49	38	31	27	34	28	24		29	25	22		25
10	49	37	30	25	46	35	28	24	31	26	22		27	23	20		24

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2549	2549	2549
5°	2553	2508	2524
10°	2528	2459	2442
15°	2493	2378	2315
20°	2447	2266	2159
25°	2400	2140	2009
30°	2337	2011	1818
35°	2275	1873	1650
40°	2211	1730	1458
45°	2138	1571	1284
50°	2062	1410	1113
55°	1983	1239	950
60°	1892	1059	782
65°	1786	877	704
70°	1659	707	636
75°	1498	623	579
80°	1266	523	502
85°	883	349	377

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2138 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	2.5
10°-20°	825.5	6.8
20°-30°	1158.9	9.6
30°-40°	1263.3	10.5
40°-50°	1161.1	9.6
50°-60°	911.9	7.5
60°-70°	593.5	4.9
70°-80°	305.5	2.5
80°-90°	81.3	0.7
90°-100°	61.7	0.5
100°-110°	230.0	1.9
110°-120°	610.1	5.0
120°-130°	1011.9	8.4
130°-140°	1074.8	8.9
140°-150°	999.0	8.3
150°-160°	803.1	6.6
160°-170°	517.5	4.3
170°-180°	178.1	1.5
0°-30°	2285.1	18.9
0°-40°	3548.4	29.4
0°-60°	5621.4	46.5
0°-90°	6601.8	54.6
90°-120°	901.9	7.5
90°-150°	3987.5	33.0
90°-180°	5486.0	45.4
0°-180°	12088.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3208	3208	3208	3208	3208	
5°	3208	3194	3156	3182	3174	304
15°	3052	3020	2921	2866	2837	860
25°	2770	2677	2485	2366	2323	1274
35°	2387	2239	1983	1800	1736	1494
45°	1951	1756	1452	1246	1176	1507
55°	1484	1257	944	770	714	1326
65°	1002	766	505	407	398	993
75°	534	331	232	212	209	565
85°	125	64	55	55	55	143
90°	1	16	27	34	36	11
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3208.4	3208.4	3208.4	3208.4	3208.4
2.5°	3222.9	3208.4	3176.4	3205.7	3199.8
5°	3208.4	3193.9	3156.1	3182.3	3173.6
7.5°	3182.3	3165.0	3124.4	3135.7	3121.3
10°	3147.5	3127.2	3069.2	3060.3	3043.0
12.5°	3104.0	3077.8	2999.3	2982.0	2949.9
15°	3051.6	3019.6	2921.0	2865.9	2836.9
17.5°	2990.6	2944.2	2822.2	2758.3	2711.8
20°	2921.0	2862.8	2717.7	2645.3	2581.2
22.5°	2845.6	2778.7	2610.1	2511.6	2468.2
25°	2770.1	2677.0	2485.4	2366.5	2322.8
27.5°	2680.1	2581.2	2369.3	2232.9	2166.0
30°	2584.3	2473.7	2241.4	2093.6	2015.1
32.5°	2491.3	2357.6	2119.7	1945.4	1872.7
35°	2386.8	2238.6	1983.3	1800.4	1736.3
37.5°	2285.2	2125.3	1855.5	1654.8	1582.5
40°	2177.6	2003.6	1721.7	1515.7	1440.1
42.5°	2067.4	1881.6	1588.3	1373.3	1301.0
45°	1951.3	1756.5	1451.9	1245.5	1175.9
47.5°	1840.9	1634.9	1321.3	1114.9	1051.1
50°	1719.0	1512.9	1193.4	992.9	932.2
52.5°	1599.7	1381.9	1071.4	879.8	824.7
55°	1483.6	1257.2	943.5	769.5	714.4
57.5°	1364.7	1132.4	830.5	667.8	621.4
60°	1242.7	1010.4	711.3	563.5	516.9
62.5°	1123.7	891.5	609.6	470.4	447.3
65°	1001.8	766.4	505.3	406.7	397.7
67.5°	885.6	650.3	406.7	357.0	348.4
70°	763.7	537.2	336.7	307.7	296.0
72.5°	647.5	432.5	281.6	258.5	252.6
75°	534.2	330.8	232.2	211.9	209.2
77.5°	421.1	235.0	183.0	171.2	165.5
80°	316.4	168.5	139.3	127.9	127.9
82.5°	220.6	113.3	95.8	89.9	89.9
85°	124.8	63.8	55.1	55.1	55.1
87.5°	46.5	23.1	23.1	20.3	20.3
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3

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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	10.81	11.68	11.74	12.62	13.83	6.79	7.66	7.71	8.59	9.80
	3H	12.49	13.27	13.43	14.22	15.45	7.98	8.76	8.91	9.70	10.93
	4H	13.10	13.84	14.05	14.79	16.03	8.43	9.17	9.38	10.12	11.36
	6H	13.53	14.20	14.49	15.16	16.41	8.76	9.43	9.72	10.39	11.64
	8H	13.65	14.30	14.62	15.27	16.52	8.85	9.49	9.82	10.46	11.71
	12H	13.72	14.33	14.69	15.30	16.57	8.89	9.51	9.87	10.47	11.75
4H	2H	10.84	11.57	11.79	12.52	13.76	7.39	8.12	8.34	9.07	10.31
	3H	12.67	13.28	13.63	14.26	15.51	8.74	9.35	9.71	10.33	11.59
	4H	13.36	13.92	14.34	14.89	16.17	9.29	9.85	10.27	10.82	12.10
	6H	13.88	14.36	14.87	15.36	16.63	9.71	10.19	10.70	11.19	12.47
	8H	14.06	14.50	15.04	15.49	16.79	9.84	10.29	10.83	11.28	12.57
	12H	14.15	14.56	15.16	15.56	16.86	9.91	10.31	10.92	11.32	12.62
8H	4H	13.33	13.78	14.32	14.77	16.06	9.57	10.02	10.56	11.01	12.30
	6H	13.90	14.27	14.91	15.30	16.59	10.10	10.46	11.11	11.50	12.79
	8H	14.12	14.44	15.14	15.46	16.77	10.29	10.61	11.31	11.63	12.94
	12H	14.26	14.54	15.28	15.56	16.91	10.41	10.70	11.43	11.71	13.06
12H	4H	13.29	13.69	14.29	14.70	15.99	9.58	9.98	10.59	10.99	12.29
	6H	13.88	14.20	14.90	15.22	16.53	10.15	10.47	11.17	11.49	12.80
	8H	14.10	14.39	15.12	15.40	16.75	10.36	10.64	11.38	11.66	13.01