

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: P912871

Luminaire Tested: DFN2DIP-TR4F0-080D040US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912871
REPORT IS A COMBINATION OF REPORTS P901897 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-080D040US850-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

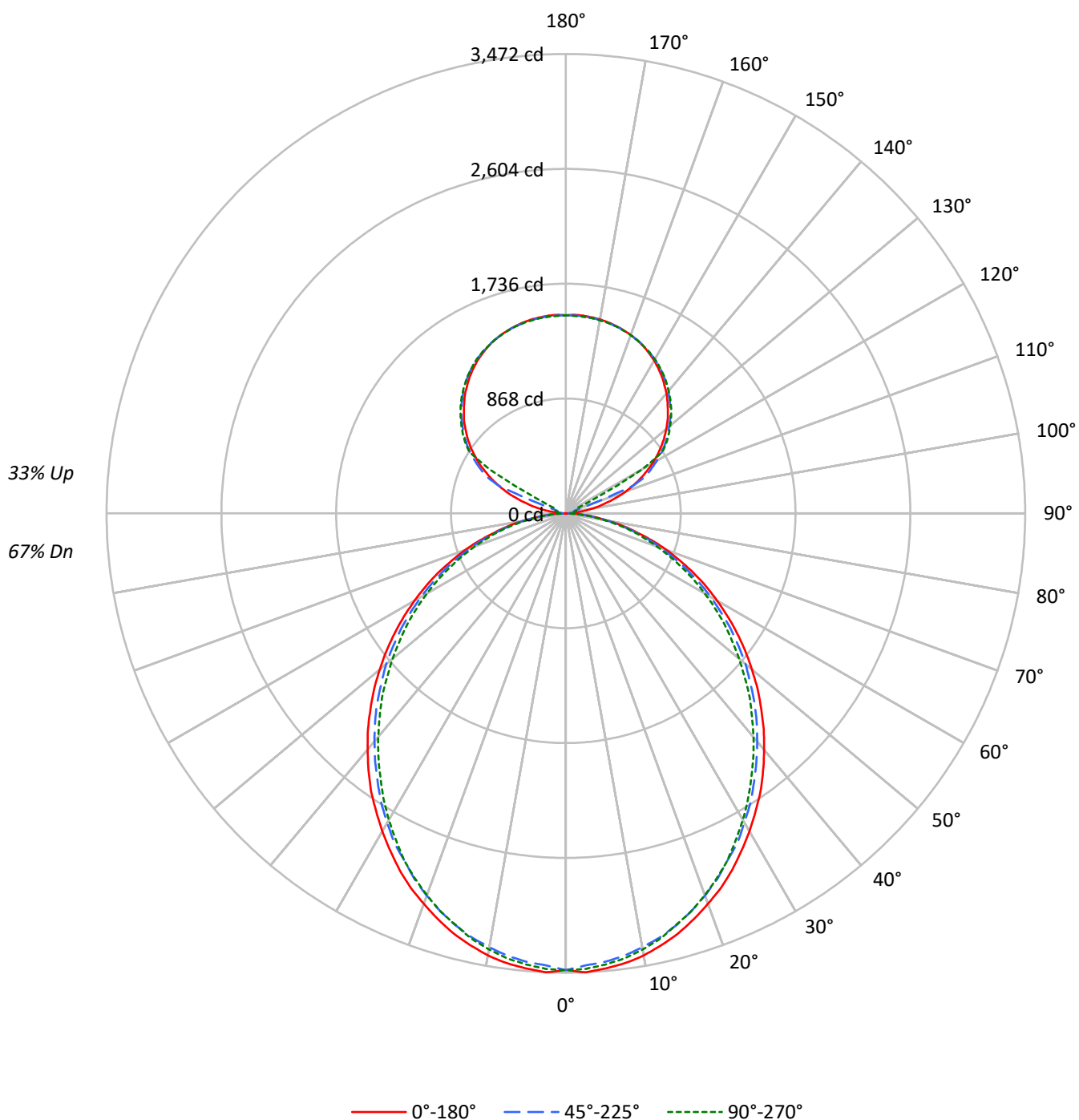
Lumens per Lamp: N/A
Luminaire Lumens: 13174.9 lumens
Efficiency: N/A
Efficacy: 125.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 105.4
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

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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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93	82	82	82	71	71	71	67	67	67
1	102	97	93	90	95	92	88	85	81	79	76	72	70	68	63	62	60	56	56	56
2	92	85	79	73	87	80	75	70	71	67	63	63	60	57	56	53	51	47	47	47
3	84	75	67	61	79	71	64	58	63	58	53	56	52	48	49	46	43	40	40	40
4	77	66	58	52	72	63	55	50	56	50	45	50	45	41	44	40	37	34	34	34
5	71	59	51	44	67	56	48	43	50	44	39	45	40	36	40	36	33	30	30	30
6	66	53	45	39	62	50	43	37	45	39	34	41	35	32	36	32	29	26	26	26
7	61	48	40	34	57	46	38	33	41	35	30	37	32	28	33	29	26	23	23	23
8	56	44	36	30	53	42	34	29	38	31	27	34	29	25	30	26	23	21	21	21
9	53	40	32	27	50	38	31	26	35	29	24	31	26	23	28	24	21	19	19	19
10	49	37	29	24	46	35	28	24	32	26	22	29	24	20	26	22	19	17	17	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2742	2742	2742
5°	2747	2704	2722
10°	2725	2668	2686
15°	2685	2624	2628
20°	2630	2563	2569
25°	2577	2490	2501
30°	2509	2422	2414
35°	2445	2342	2322
40°	2367	2261	2235
45°	2288	2180	2145
50°	2202	2095	2042
55°	2112	1996	1947
60°	2011	1879	1838
65°	1900	1758	1709
70°	1759	1611	1571
75°	1564	1434	1443
80°	1329	1209	1198
85°	962	820	794

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2288 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	2.5
10°-20°	914.2	6.9
20°-30°	1343.5	10.2
30°-40°	1560.4	11.8
40°-50°	1558.4	11.8
50°-60°	1358.9	10.3
60°-70°	1004.5	7.6
70°-80°	568.4	4.3
80°-90°	152.7	1.2
90°-100°	49.4	0.4
100°-110°	184.0	1.4
110°-120°	488.1	3.7
120°-130°	809.5	6.1
130°-140°	859.9	6.5
140°-150°	799.2	6.1
150°-160°	642.5	4.9
160°-170°	414.0	3.1
170°-180°	142.5	1.1
0°-30°	2582.6	19.6
0°-40°	4143.0	31.4
0°-60°	7060.4	53.6
0°-90°	8785.9	66.7
90°-120°	721.5	5.5
90°-150°	3190.0	24.2
90°-180°	4389.0	33.3
0°-180°	13174.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	1	13	22	27	29	12
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2

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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	12.19	13.22	12.98	14.04	15.05	11.75	12.79	12.55	13.61	14.62
	3H	13.86	14.79	14.67	15.62	16.66	13.39	14.31	14.20	15.15	16.19
	4H	14.45	15.33	15.28	16.17	17.22	13.98	14.86	14.81	15.70	16.75
	6H	14.86	15.67	15.70	16.52	17.58	14.39	15.20	15.23	16.04	17.11
	8H	14.97	15.74	15.82	16.61	17.67	14.50	15.27	15.35	16.13	17.20
	12H	15.03	15.76	15.88	16.62	17.71	14.54	15.28	15.40	16.14	17.23
4H	2H	12.67	13.54	13.50	14.38	15.43	12.32	13.20	13.16	14.04	15.09
	3H	14.55	15.28	15.39	16.15	17.22	14.16	14.89	15.00	15.76	16.83
	4H	15.27	15.94	16.13	16.81	17.90	14.86	15.53	15.72	16.40	17.50
	6H	15.79	16.37	16.67	17.27	18.36	15.39	15.96	16.26	16.86	17.95
	8H	15.95	16.49	16.83	17.38	18.49	15.54	16.08	16.41	16.96	18.07
	12H	16.03	16.52	16.93	17.42	18.54	15.61	16.09	16.51	17.00	18.12
8H	4H	15.48	16.02	16.36	16.91	18.02	15.12	15.66	16.00	16.55	17.66
	6H	16.12	16.57	17.02	17.50	18.61	15.76	16.20	16.66	17.13	18.24
	8H	16.34	16.74	17.26	17.66	18.79	15.97	16.37	16.89	17.29	18.42
	12H	16.48	16.83	17.40	17.75	18.92	16.10	16.45	17.01	17.36	18.54
12H	4H	15.47	15.96	16.37	16.87	17.98	15.12	15.61	16.02	16.52	17.63
	6H	16.15	16.55	17.07	17.47	18.60	15.80	16.20	16.71	17.12	18.25
	8H	16.40	16.75	17.32	17.67	18.84	16.04	16.39	16.96	17.31	18.49