

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: P912909

Luminaire Tested: DFN2DIP-TR4F0-090D040US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912909
REPORT IS A COMBINATION OF REPORTS P901900 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-090D040US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

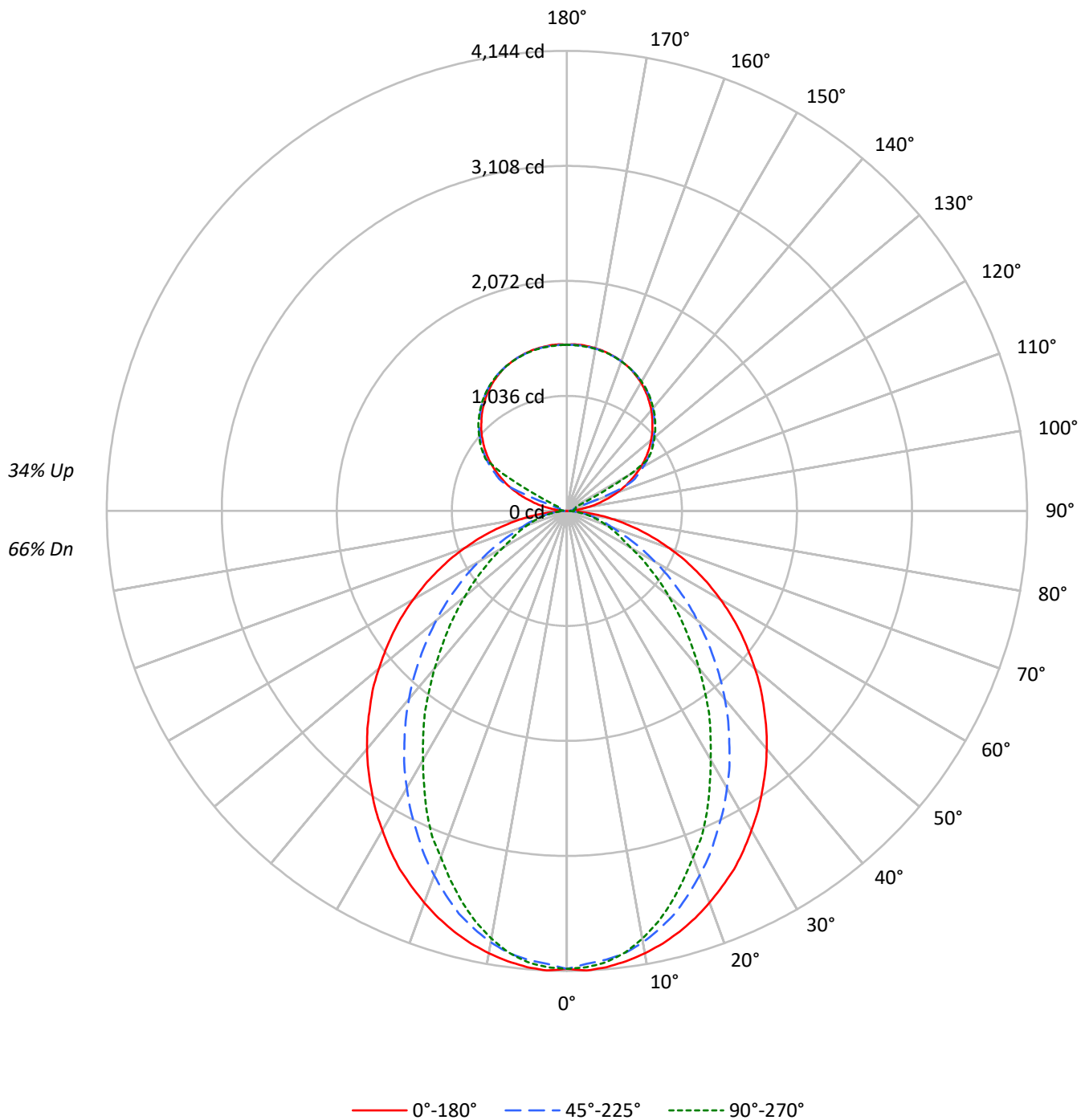
Lumens per Lamp: N/A
Luminaire Lumens: 12875.5 lumens
Efficiency: N/A
Efficacy: 109.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 117.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
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	30	10
RCR																	
0	111	111	111	111	104	104	104	104	92	92	92	81	81	81	71	71	71
1	102	98	94	91	96	92	89	86	82	79	77	72	71	69	64	62	61
2	93	86	80	75	88	81	76	72	73	68	65	64	61	59	57	54	52
3	86	76	69	63	80	72	66	61	65	60	55	57	54	50	51	48	45
4	79	68	60	54	74	65	58	52	58	52	48	52	47	44	46	42	40
5	73	61	53	47	68	58	51	45	52	46	42	47	42	38	42	38	35
6	67	55	47	41	63	52	45	40	47	41	37	43	38	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	37	32	40	34	29	36	31	27	32	28	25
9	54	42	35	29	51	40	33	29	37	31	27	33	28	25	30	26	23
10	51	39	32	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3277	3277	3277
5°	3282	3225	3246
10°	3250	3162	3140
15°	3205	3057	2977
20°	3146	2913	2776
25°	3086	2752	2583
30°	3004	2586	2337
35°	2924	2408	2122
40°	2843	2224	1874
45°	2749	2019	1650
50°	2652	1813	1431
55°	2550	1593	1221
60°	2432	1362	1005
65°	2297	1128	905
70°	2133	910	818
75°	1926	802	744
80°	1628	672	645
85°	1134	449	485

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2749 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	386.6	3.0
10°-20°	1061.3	8.2
20°-30°	1490.1	11.6
30°-40°	1624.3	12.6
40°-50°	1492.9	11.6
50°-60°	1172.4	9.1
60°-70°	763.1	5.9
70°-80°	392.8	3.1
80°-90°	102.9	0.8
90°-100°	49.4	0.4
100°-110°	184.0	1.4
110°-120°	488.1	3.8
120°-130°	809.5	6.3
130°-140°	859.9	6.7
140°-150°	799.2	6.2
150°-160°	642.5	5.0
160°-170°	414.0	3.2
170°-180°	142.5	1.1
0°-30°	2938.0	22.8
0°-40°	4562.3	35.4
0°-60°	7227.6	56.1
0°-90°	8486.5	65.9
90°-120°	721.5	5.6
90°-150°	3190.0	24.8
90°-180°	4389.0	34.1
0°-180°	12875.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4125	4125	4125	4125	4125	
5°	4125	4106	4058	4091	4080	391
15°	3924	3882	3756	3685	3648	1106
25°	3562	3442	3196	3043	2986	1638
35°	3069	2878	2550	2315	2232	1921
45°	2509	2258	1867	1601	1512	1937
55°	1908	1616	1213	989	918	1705
65°	1288	986	650	523	511	1277
75°	687	425	299	272	269	726
85°	160	82	71	71	71	184
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°	4125.1	4125.1	4125.1	4125.1	4125.1
2.5°	4143.8	4125.1	4083.9	4121.6	4114.1
5°	4125.1	4106.5	4057.8	4091.4	4080.3
7.5°	4091.4	4069.3	4017.0	4031.7	4013.0
10°	4046.7	4020.6	3946.2	3934.6	3912.4
12.5°	3990.8	3957.2	3856.2	3834.0	3792.8
15°	3923.5	3882.4	3755.6	3684.7	3647.5
17.5°	3845.1	3785.3	3628.4	3546.5	3486.7
20°	3755.6	3680.8	3494.1	3401.1	3318.7
22.5°	3658.6	3572.6	3355.9	3229.2	3173.4
25°	3561.6	3441.9	3195.6	3042.7	2986.4
27.5°	3445.9	3318.7	3046.2	2870.8	2784.8
30°	3322.7	3180.5	2881.8	2691.8	2590.7
32.5°	3203.0	3031.1	2725.4	2501.2	2407.7
35°	3068.8	2878.3	2549.9	2314.7	2232.3
37.5°	2938.1	2732.6	2385.6	2127.7	2034.7
40°	2799.9	2576.1	2213.7	1948.7	1851.7
42.5°	2658.1	2419.3	2042.1	1765.7	1672.6
45°	2508.8	2258.5	1866.7	1601.3	1511.8
47.5°	2366.9	2102.0	1698.8	1433.4	1351.4
50°	2210.1	1945.1	1534.4	1276.6	1198.5
52.5°	2056.9	1776.8	1377.6	1131.2	1060.3
55°	1907.5	1616.4	1213.1	989.4	918.5
57.5°	1754.7	1456.0	1067.9	858.7	798.9
60°	1597.7	1299.1	914.6	724.4	664.6
62.5°	1444.9	1146.3	783.8	604.8	575.1
65°	1288.0	985.5	649.5	522.8	511.4
67.5°	1138.7	836.1	522.8	459.0	447.9
70°	981.9	690.8	433.0	395.7	380.6
72.5°	832.5	556.1	362.0	332.3	324.8
75°	686.8	425.4	298.7	272.5	268.9
77.5°	541.4	302.2	235.2	220.2	212.7
80°	406.8	216.7	179.0	164.4	164.4
82.5°	283.6	145.7	123.2	115.7	115.7
85°	160.4	82.0	70.9	70.9	70.9
87.5°	59.8	29.7	29.7	26.2	26.2
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	12.64	13.62	13.45	14.45	15.47	8.61	9.59	9.42	10.42	11.45
	3H	14.32	15.20	15.15	16.04	17.10	9.81	10.69	10.64	11.53	12.58
	4H	14.94	15.77	15.78	16.61	17.68	10.27	11.09	11.11	11.94	13.01
	6H	15.37	16.13	16.23	16.99	18.07	10.60	11.36	11.45	12.22	13.29
	8H	15.50	16.22	16.36	17.10	18.18	10.69	11.42	11.56	12.29	13.37
	12H	15.57	16.26	16.44	17.12	18.23	10.74	11.43	11.61	12.30	13.40
4H	2H	12.67	13.50	13.52	14.35	15.41	9.22	10.05	10.07	10.90	11.96
	3H	14.52	15.20	15.38	16.08	17.17	10.59	11.27	11.45	12.16	13.24
	4H	15.21	15.84	16.09	16.72	17.83	11.14	11.77	12.01	12.64	13.75
	6H	15.74	16.27	16.62	17.18	18.29	11.57	12.11	12.46	13.01	14.12
	8H	15.91	16.42	16.80	17.31	18.44	11.70	12.20	12.59	13.10	14.23
	12H	16.02	16.47	16.93	17.38	18.51	11.78	12.23	12.69	13.14	14.27
8H	4H	15.19	15.69	16.08	16.59	17.72	11.43	11.94	12.32	12.83	13.96
	6H	15.76	16.18	16.68	17.12	18.24	11.96	12.37	12.88	13.31	14.44
	8H	15.98	16.35	16.91	17.28	18.42	12.15	12.52	13.08	13.45	14.59
	12H	16.13	16.45	17.06	17.37	18.57	12.28	12.60	13.21	13.52	14.72
12H	4H	15.15	15.60	16.06	16.52	17.65	11.44	11.90	12.35	12.81	13.94
	6H	15.74	16.11	16.67	17.04	18.18	12.01	12.38	12.94	13.31	14.45
	8H	15.97	16.29	16.90	17.21	18.41	12.23	12.55	13.16	13.47	14.67