

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: P912179

Luminaire Tested: DFN2DIP-SQ4F0-070D110US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912179
REPORT IS A COMBINATION OF REPORTS P901672 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D110US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

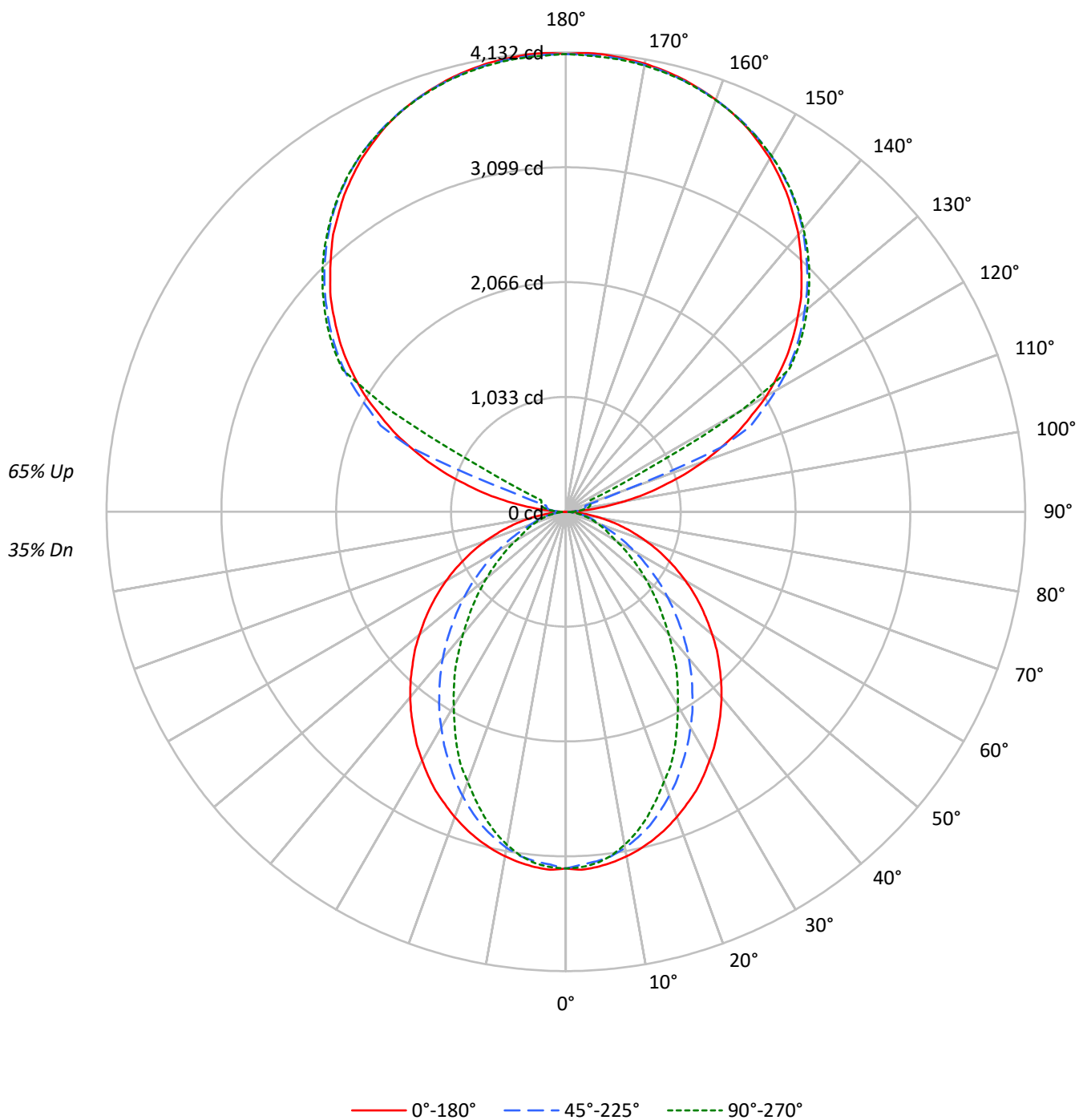
Lumens per Lamp: N/A
Luminaire Lumens: 18675.5 lumens
Efficiency: N/A
Efficacy: 129.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 144.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	104	104	104	104	94	94	94	94	75	75	75	58	58	58	43	43	43
1	95	91	87	84	86	82	79	76	66	64	62	52	50	49	38	37	37
2	87	80	74	69	78	72	67	63	58	55	52	46	44	41	34	33	31
3	79	70	63	58	71	64	58	53	52	48	44	41	38	35	30	29	27
4	73	62	55	49	65	57	50	45	46	42	38	36	33	31	27	25	24
5	67	56	48	42	60	51	44	39	41	37	33	33	29	27	25	23	21
6	61	50	42	37	55	46	39	34	37	32	29	30	26	24	23	20	18
7	57	45	37	32	51	41	35	30	34	29	25	27	24	21	21	18	16
8	53	41	33	28	48	37	31	26	31	26	23	25	21	19	19	17	15
9	49	37	30	25	44	34	28	24	28	24	20	23	19	17	18	15	13
10	46	34	27	23	42	31	25	21	26	21	18	21	18	15	16	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2251	2251	2251
5°	2255	2216	2230
10°	2233	2173	2158
15°	2202	2102	2047
20°	2161	2003	1910
25°	2119	1892	1777
30°	2063	1779	1609
35°	2009	1657	1461
40°	1953	1531	1291
45°	1888	1391	1138
50°	1821	1249	988
55°	1751	1098	843
60°	1670	939	695
65°	1577	779	626
70°	1464	628	567
75°	1322	555	518
80°	1117	467	451
85°	778	314	343

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2207 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	300.7	1.6
10°-20°	825.5	4.4
20°-30°	1158.9	6.2
30°-40°	1263.3	6.8
40°-50°	1161.1	6.2
50°-60°	911.9	4.9
60°-70°	593.5	3.2
70°-80°	305.5	1.6
80°-90°	85.2	0.5
90°-100°	135.7	0.7
100°-110°	506.1	2.7
110°-120°	1342.2	7.2
120°-130°	2226.1	11.9
130°-140°	2364.7	12.7
140°-150°	2197.7	11.8
150°-160°	1766.9	9.5
160°-170°	1138.5	6.1
170°-180°	391.9	2.1
0°-30°	2285.1	12.2
0°-40°	3548.4	19.0
0°-60°	5621.4	30.1
0°-90°	6605.7	35.4
90°-120°	1984.0	10.6
90°-150°	8772.5	47.0
90°-180°	12070.0	64.6
0°-180°	18675.5	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°	3	36	59	75	80	17
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

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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°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

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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	8.44	9.16	9.52	10.24	11.70	4.40	5.12	5.48	6.20	7.66
	3H	10.11	10.76	11.20	11.84	13.33	5.58	6.22	6.67	7.31	8.79
	4H	10.72	11.33	11.82	12.42	13.91	6.02	6.64	7.12	7.72	9.21
	6H	11.14	11.70	12.24	12.79	14.29	6.34	6.90	7.45	7.99	9.50
	8H	11.26	11.80	12.37	12.90	14.40	6.43	6.96	7.54	8.07	9.57
	12H	11.32	11.83	12.44	12.93	14.45	6.47	6.98	7.58	8.08	9.60
4H	2H	8.44	9.05	9.55	10.14	11.63	4.98	5.60	6.09	6.68	8.17
	3H	10.27	10.78	11.38	11.89	13.39	6.32	6.83	7.44	7.95	9.45
	4H	10.96	11.43	12.07	12.53	14.05	6.87	7.34	7.98	8.44	9.96
	6H	11.47	11.87	12.59	13.00	14.51	7.28	7.68	8.41	8.81	10.33
	8H	11.65	12.02	12.77	13.14	14.67	7.41	7.78	8.53	8.90	10.43
	12H	11.74	12.08	12.88	13.21	14.75	7.47	7.81	8.61	8.94	10.48
8H	4H	10.92	11.29	12.04	12.41	13.94	7.14	7.52	8.27	8.63	10.17
	6H	11.48	11.79	12.63	12.95	14.48	7.66	7.97	8.80	9.13	10.66
	8H	11.70	11.97	12.85	13.11	14.66	7.85	8.12	9.00	9.26	10.81
	12H	11.84	12.08	12.99	13.21	14.80	7.96	8.20	9.12	9.34	10.92
12H	4H	10.86	11.20	12.00	12.33	13.87	7.14	7.48	8.28	8.61	10.15
	6H	11.46	11.73	12.61	12.87	14.42	7.71	7.98	8.86	9.12	10.67
	8H	11.68	11.92	12.83	13.05	14.64	7.92	8.15	9.07	9.29	10.87

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

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