

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: P912342

Luminaire Tested: DFN2DIP-SQ4F0-120D070US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912342
REPORT IS A COMBINATION OF REPORTS P900090 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D070US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

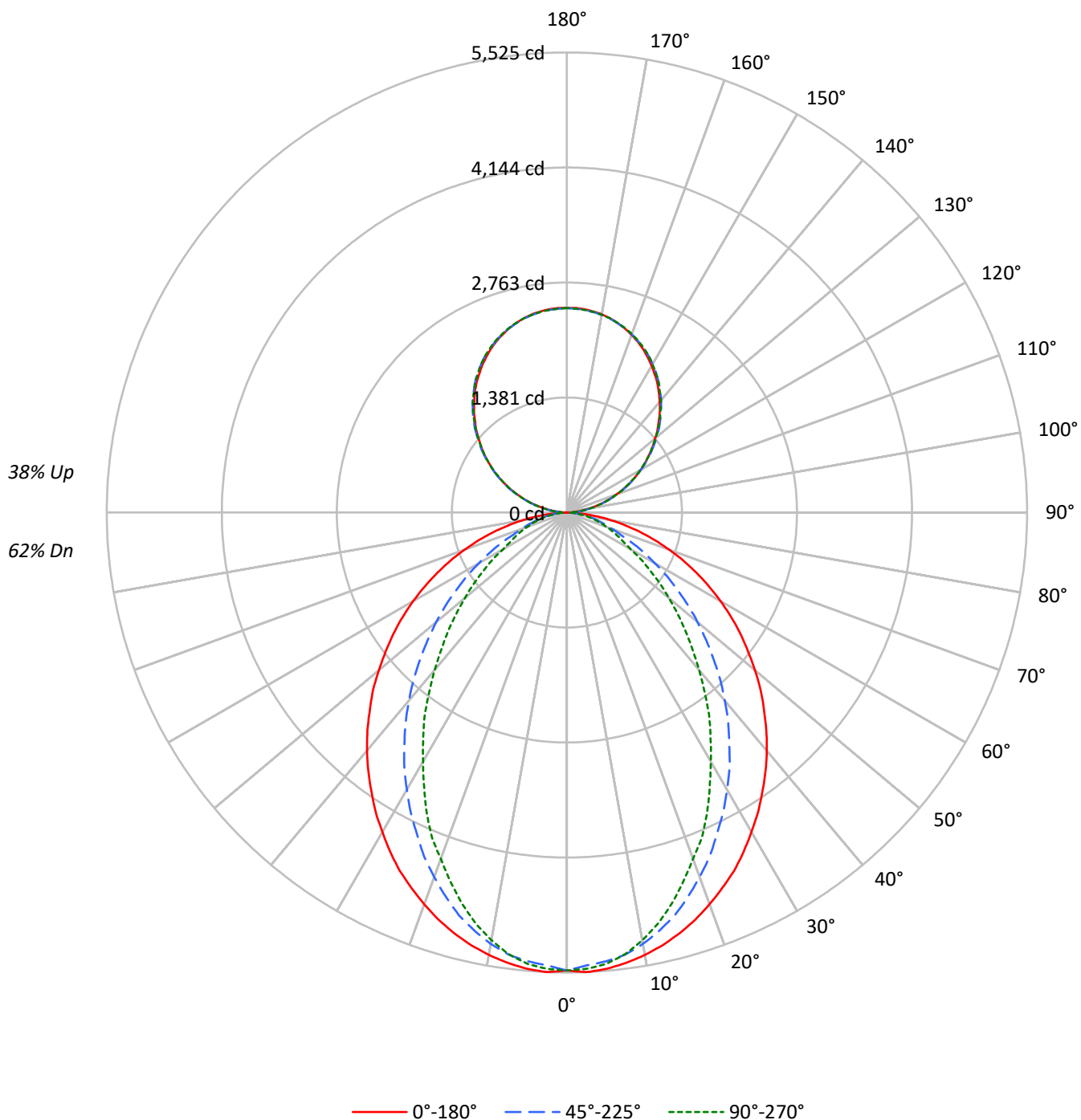
Lumens per Lamp: N/A
Luminaire Lumens: 18182.1 lumens
Efficiency: N/A
Efficacy: 107.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 169.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67
1	101	97	93	90	95	91	88	85	80	78	75	70	68	66	60	59	58
2	93	85	79	74	87	80	75	71	71	67	63	62	59	56	54	52	50
3	85	76	68	63	79	71	65	60	63	58	54	55	52	48	48	46	43
4	78	67	60	54	73	64	57	51	56	51	47	50	46	42	44	40	38
5	72	60	52	47	67	57	50	45	51	45	41	45	41	37	40	36	33
6	66	55	47	41	62	52	44	39	46	40	36	41	36	33	36	32	30
7	62	49	42	36	58	47	40	35	42	36	32	38	33	29	33	29	27
8	57	45	37	32	54	43	36	31	39	33	29	34	30	26	31	27	24
9	54	41	34	29	50	39	33	28	36	30	26	32	27	24	28	25	22
10	50	38	31	26	47	36	30	25	33	27	24	30	25	22	26	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3859	3859	3859
5°	3865	3799	3824
10°	3827	3725	3700
15°	3774	3603	3509
20°	3705	3434	3274
25°	3633	3244	3047
30°	3537	3050	2758
35°	3443	2841	2505
40°	3348	2624	2214
45°	3237	2384	1950
50°	3122	2141	1693
55°	3002	1882	1446
60°	2863	1610	1191
65°	2703	1335	1073
70°	2510	1077	973
75°	2267	951	887
80°	1915	801	773
85°	1333	539	589

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3237 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	515.5	2.8
10°-20°	1415.1	7.8
20°-30°	1986.8	10.9
30°-40°	2165.7	11.9
40°-50°	1990.5	10.9
50°-60°	1563.2	8.6
60°-70°	1017.5	5.6
70°-80°	523.8	2.9
80°-90°	140.7	0.8
90°-100°	151.9	0.8
100°-110°	482.7	2.7
110°-120°	826.1	4.5
120°-130°	1086.4	6.0
130°-140°	1219.5	6.7
140°-150°	1195.8	6.6
150°-160°	1003.1	5.5
160°-170°	665.3	3.7
170°-180°	232.5	1.3
0°-30°	3917.3	21.5
0°-40°	6083.0	33.5
0°-60°	9636.8	53.0
0°-90°	11318.7	62.3
90°-120°	1460.7	8.0
90°-150°	4962.4	27.3
90°-180°	6863.0	37.7
0°-180°	18182.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5500	5500	5500	5500	5500	
5°	5500	5475	5410	5455	5440	522
15°	5231	5176	5008	4913	4863	1474
25°	4749	4589	4261	4057	3982	2184
35°	4092	3838	3400	3086	2976	2561
45°	3345	3011	2489	2135	2016	2583
55°	2543	2155	1618	1319	1225	2273
65°	1717	1314	866	697	682	1703
75°	916	567	398	363	358	969
85°	214	109	94	94	94	246
90°	2	27	72	68	70	18
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5500.2	5500.2	5500.2	5500.2	5500.2
2.5°	5525.0	5500.2	5445.3	5495.4	5485.3
5°	5500.2	5475.4	5410.4	5455.3	5440.5
7.5°	5455.3	5425.7	5356.0	5375.5	5350.7
10°	5395.6	5360.8	5261.4	5246.1	5216.6
12.5°	5321.1	5276.3	5141.5	5112.0	5057.2
15°	5231.4	5176.5	5007.5	4912.9	4863.3
17.5°	5126.8	5047.1	4837.9	4728.7	4648.9
20°	5007.5	4907.7	4658.9	4534.8	4424.9
22.5°	4878.0	4763.5	4474.6	4305.6	4231.2
25°	4748.7	4589.2	4260.7	4056.8	3981.9
27.5°	4594.5	4424.9	4061.6	3827.7	3713.0
30°	4430.2	4240.7	3842.5	3588.9	3454.3
32.5°	4270.8	4041.5	3633.9	3335.0	3210.3
35°	4091.8	3837.7	3399.9	3086.2	2976.3
37.5°	3917.4	3643.4	3180.7	2836.9	2712.8
40°	3733.1	3434.8	2951.6	2598.3	2468.9
42.5°	3544.0	3225.6	2722.9	2354.3	2230.2
45°	3345.0	3011.3	2488.9	2135.2	2015.7
47.5°	3155.9	2802.7	2265.0	1911.3	1801.9
50°	2946.8	2593.5	2045.9	1702.1	1598.1
52.5°	2742.4	2369.0	1836.7	1508.2	1413.8
55°	2543.4	2155.2	1617.6	1319.2	1224.7
57.5°	2339.4	1941.3	1423.7	1144.9	1065.2
60°	2130.4	1732.1	1219.3	965.9	886.2
62.5°	1926.6	1528.3	1045.1	806.5	766.8
65°	1717.4	1313.9	866.1	697.1	681.8
67.5°	1518.3	1114.8	697.1	612.1	597.3
70°	1309.2	921.0	577.2	527.6	507.5
72.5°	1110.1	741.5	482.6	443.0	433.1
75°	915.7	567.1	398.2	363.3	358.5
77.5°	722.0	402.9	313.7	293.7	283.6
80°	542.4	288.9	238.7	219.1	219.1
82.5°	378.2	194.3	164.2	154.2	154.2
85°	213.9	109.3	94.5	94.5	94.5
87.5°	79.7	39.6	39.6	34.8	34.8
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1

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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	12.92	13.87	13.78	14.73	15.82	8.88	9.83	9.74	10.69	11.78
	3H	14.61	15.46	15.48	16.33	17.45	10.08	10.92	10.95	11.80	12.92
	4H	15.23	16.03	16.11	16.91	18.03	10.54	11.33	11.42	12.22	13.34
	6H	15.66	16.39	16.55	17.28	18.42	10.87	11.60	11.76	12.49	13.63
	8H	15.79	16.49	16.69	17.40	18.54	10.96	11.66	11.86	12.56	13.70
	12H	15.86	16.52	16.77	17.43	18.59	11.01	11.67	11.91	12.57	13.73
4H	2H	12.96	13.75	13.84	14.63	15.76	9.50	10.29	10.38	11.17	12.30
	3H	14.80	15.46	15.70	16.38	17.52	10.86	11.52	11.75	12.43	13.57
	4H	15.50	16.10	16.41	17.01	18.18	11.41	12.01	12.32	12.92	14.09
	6H	16.02	16.54	16.95	17.48	18.65	11.84	12.35	12.76	13.29	14.46
	8H	16.20	16.69	17.13	17.62	18.80	11.97	12.45	12.89	13.38	14.56
	12H	16.31	16.74	17.25	17.69	18.88	12.04	12.47	12.98	13.42	14.61
8H	4H	15.48	15.96	16.40	16.89	18.07	11.70	12.18	12.62	13.11	14.29
	6H	16.05	16.45	17.00	17.42	18.60	12.22	12.62	13.17	13.60	14.78
	8H	16.27	16.62	17.23	17.59	18.78	12.42	12.77	13.38	13.73	14.93
	12H	16.42	16.73	17.38	17.68	18.93	12.54	12.85	13.50	13.81	15.05
12H	4H	15.43	15.87	16.38	16.82	18.00	11.71	12.15	12.65	13.09	14.28
	6H	16.03	16.38	16.99	17.34	18.54	12.27	12.63	13.23	13.59	14.79
	8H	16.25	16.57	17.22	17.52	18.77	12.49	12.80	13.45	13.76	15.01