

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: P903988

Luminaire Tested: DFN2DIP-SQ4F0-070D100US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903988
REPORT IS A COMBINATION OF REPORTS P900133 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D100US830-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

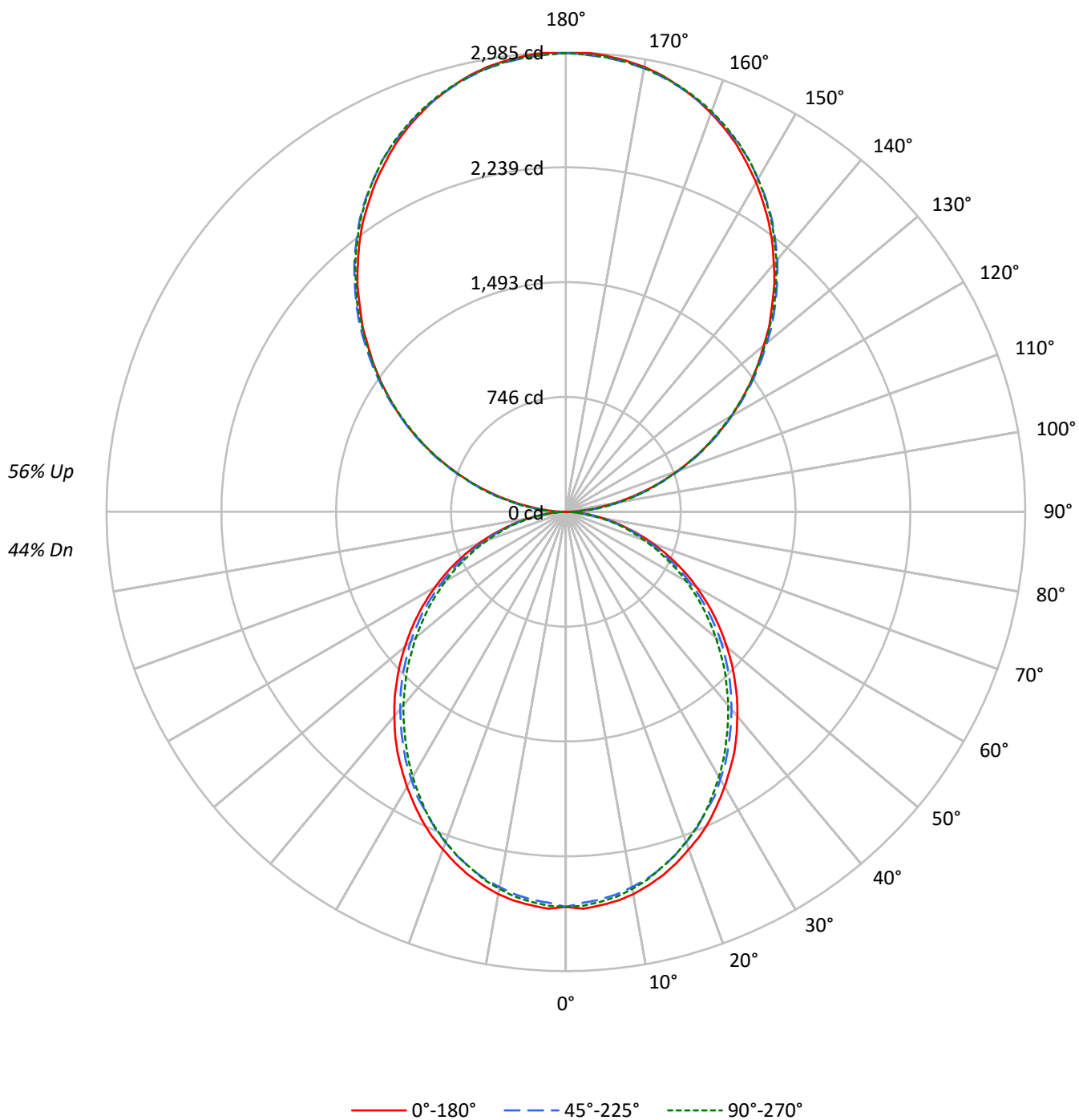
Lumens per Lamp: N/A
Luminaire Lumens: 14873.4 lumens
Efficiency: N/A
Efficacy: 109.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 136
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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	51	51	51
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43
2	88	80	74	69	80	74	69	64	61	58	54	50	47	45	39	38	36
3	80	71	63	58	73	65	59	54	54	49	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	45	48	43	39	39	36	33	31	29	26
5	67	56	48	42	61	51	44	39	43	38	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	39	33	29	32	28	25	25	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	27	23	26	22	19	21	18	16
9	49	37	30	25	45	35	28	23	29	24	20	24	20	17	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1801	1801	1801
5°	1804	1777	1789
10°	1790	1753	1765
15°	1763	1725	1728
20°	1728	1685	1689
25°	1692	1637	1645
30°	1648	1593	1589
35°	1606	1541	1529
40°	1554	1488	1472
45°	1503	1435	1414
50°	1446	1379	1347
55°	1387	1315	1285
60°	1320	1239	1214
65°	1248	1160	1131
70°	1155	1064	1041
75°	1026	949	960
80°	871	803	802
85°	630	549	538

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2347 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	1.6
10°-20°	679.9	4.6
20°-30°	999.1	6.7
30°-40°	1160.4	7.8
40°-50°	1159.0	7.8
50°-60°	1010.6	6.8
60°-70°	747.1	5.0
70°-80°	422.7	2.8
80°-90°	120.0	0.8
90°-100°	184.5	1.2
100°-110°	586.1	3.9
110°-120°	1003.0	6.7
120°-130°	1319.1	8.9
130°-140°	1480.6	10.0
140°-150°	1451.9	9.8
150°-160°	1217.9	8.2
160°-170°	807.7	5.4
170°-180°	282.3	1.9
0°-30°	1920.6	12.9
0°-40°	3081.0	20.7
0°-60°	5250.6	35.3
0°-90°	6540.3	44.0
90°-120°	1773.5	11.9
90°-150°	6025.1	40.5
90°-180°	8333.0	56.0
0°-180°	14873.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2395	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	793	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	3	32	88	83	85	14
95°	131	156	161	161	156	146
105°	541	548	554	558	558	571
115°	1006	1021	1016	1014	1006	996
125°	1464	1486	1479	1471	1468	1308
135°	1894	1921	1927	1924	1917	1464
145°	2299	2317	2331	2334	2324	1436
155°	2629	2636	2644	2656	2648	1210
165°	2860	2857	2857	2875	2862	807
175°	2976	2968	2963	2981	2966	283
180°	2981	2981	2981	2981	2981	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.2	2567.2	2567.2	2567.2	2567.2
2.5°	2582.2	2569.8	2542.6	2567.2	2562.5
5°	2567.2	2557.6	2530.3	2550.0	2545.2
7.5°	2550.0	2535.3	2508.0	2528.0	2523.0
10°	2523.0	2505.7	2476.1	2495.8	2488.4
12.5°	2485.8	2471.2	2441.6	2453.8	2448.8
15°	2443.9	2429.2	2397.0	2407.0	2394.6
17.5°	2392.0	2377.4	2345.1	2357.5	2345.1
20°	2335.1	2320.5	2285.9	2293.3	2283.6
22.5°	2278.6	2256.4	2224.1	2224.1	2219.1
25°	2211.9	2192.2	2150.3	2155.0	2150.3
27.5°	2137.7	2120.4	2088.5	2081.1	2068.8
30°	2063.9	2043.9	2007.0	1999.7	1989.7
32.5°	1984.7	1970.1	1930.5	1915.6	1905.6
35°	1908.3	1883.7	1844.1	1829.2	1816.8
37.5°	1821.8	1799.6	1760.0	1742.8	1730.4
40°	1733.1	1713.2	1673.6	1651.6	1641.6
42.5°	1646.6	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.6	1498.4	1471.4	1461.4
47.5°	1461.4	1444.2	1404.6	1377.3	1362.7
50°	1365.1	1352.7	1318.1	1283.6	1271.3
52.5°	1271.3	1254.1	1222.1	1194.9	1177.5
55°	1175.2	1160.3	1130.7	1101.1	1088.7
57.5°	1078.8	1066.5	1034.3	1004.7	994.8
60°	982.4	972.7	938.2	911.0	903.6
62.5°	888.6	871.4	846.8	822.2	812.2
65°	792.6	777.6	753.0	730.8	718.4
67.5°	693.8	681.3	659.2	642.0	632.0
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.4	469.1	461.8
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.1	227.1
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	2.7	32.3	88.0	82.7	85.4
92.5°	55.7	75.5	78.2	80.9	80.9
95°	131.2	156.4	160.9	160.9	156.4
97.5°	218.4	241.8	251.7	251.7	251.7
100°	319.1	339.7	346.9	346.9	344.2
102.5°	425.1	440.4	450.3	452.9	450.3
105°	541.0	548.2	553.6	558.1	558.1
107.5°	656.0	666.8	666.8	668.6	656.0
110°	767.5	781.8	781.8	781.8	774.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	887.9	903.1	900.5	893.2	887.9
115°	1006.5	1020.9	1016.4	1013.7	1006.5
117.5°	1124.3	1144.1	1131.4	1124.3	1117.0
120°	1242.8	1262.6	1242.8	1242.8	1234.8
122.5°	1350.7	1375.8	1363.3	1356.1	1350.7
125°	1464.0	1486.4	1479.2	1471.1	1468.5
127.5°	1574.5	1602.3	1592.4	1581.7	1574.5
130°	1677.8	1710.1	1705.7	1700.3	1690.4
132.5°	1793.8	1818.9	1820.7	1808.2	1800.9
135°	1893.5	1921.4	1926.7	1924.1	1916.8
137.5°	2005.0	2027.4	2031.9	2030.1	2019.3
140°	2102.9	2125.3	2138.0	2138.0	2128.1
142.5°	2203.6	2226.0	2233.2	2235.9	2226.0
145°	2298.8	2316.8	2331.2	2333.8	2323.9
147.5°	2384.2	2406.7	2417.4	2422.0	2412.1
150°	2472.3	2487.6	2497.5	2505.5	2497.5
152.5°	2550.4	2565.7	2578.3	2588.2	2578.3
155°	2628.7	2635.8	2643.9	2656.5	2648.4
157.5°	2696.0	2701.4	2705.9	2723.9	2711.3
160°	2756.3	2761.6	2764.3	2779.6	2768.8
162.5°	2812.0	2812.0	2814.6	2831.7	2819.1
165°	2859.6	2856.8	2856.8	2874.8	2862.3
167.5°	2902.7	2894.6	2894.6	2912.6	2900.0
170°	2935.1	2927.9	2925.2	2943.2	2927.9
172.5°	2957.5	2950.3	2947.6	2965.6	2950.3
175°	2975.5	2968.3	2963.0	2980.9	2965.6
177.5°	2985.4	2978.2	2972.8	2988.0	2972.8
180°	2980.9	2980.9	2980.9	2980.9	2980.9

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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	8.74	9.55	9.75	10.57	11.93	8.30	9.11	9.31	10.13	11.48
	3H	10.40	11.13	11.42	12.16	13.53	9.91	10.64	10.93	11.67	13.04
	4H	10.99	11.68	12.02	12.71	14.09	10.50	11.19	11.53	12.22	13.60
	6H	11.39	12.03	12.43	13.06	14.45	10.89	11.53	11.93	12.56	13.95
	8H	11.50	12.10	12.54	13.15	14.54	11.00	11.60	12.04	12.65	14.04
	12H	11.55	12.12	12.60	13.16	14.58	11.04	11.61	12.09	12.65	14.07
4H	2H	9.20	9.89	10.24	10.92	12.30	8.84	9.53	9.88	10.56	11.94
	3H	11.06	11.64	12.11	12.70	14.09	10.66	11.23	11.70	12.29	13.68
	4H	11.78	12.31	12.83	13.35	14.77	11.36	11.88	12.41	12.93	14.35
	6H	12.30	12.75	13.36	13.82	15.23	11.86	12.32	12.93	13.39	14.80
	8H	12.45	12.87	13.51	13.93	15.36	12.01	12.43	13.07	13.50	14.93
	12H	12.52	12.90	13.60	13.98	15.41	12.07	12.45	13.15	13.53	14.97
8H	4H	11.97	12.40	13.03	13.46	14.89	11.60	12.02	12.66	13.08	14.51
	6H	12.61	12.96	13.69	14.06	15.49	12.22	12.57	13.31	13.68	15.10
	8H	12.83	13.14	13.92	14.23	15.67	12.44	12.74	13.53	13.83	15.28
	12H	12.96	13.23	14.06	14.32	15.80	12.55	12.82	13.65	13.91	15.39
12H	4H	11.96	12.34	13.04	13.42	14.85	11.59	11.97	12.67	13.05	14.48
	6H	12.64	12.94	13.73	14.03	15.48	12.26	12.57	13.36	13.66	15.11
	8H	12.88	13.15	13.98	14.23	15.72	12.50	12.77	13.60	13.85	15.34