

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: P904013

Luminaire Tested: DFN2DIP-SQ4F0-080D070US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904013
REPORT IS A COMBINATION OF REPORTS P901601 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D070US830-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

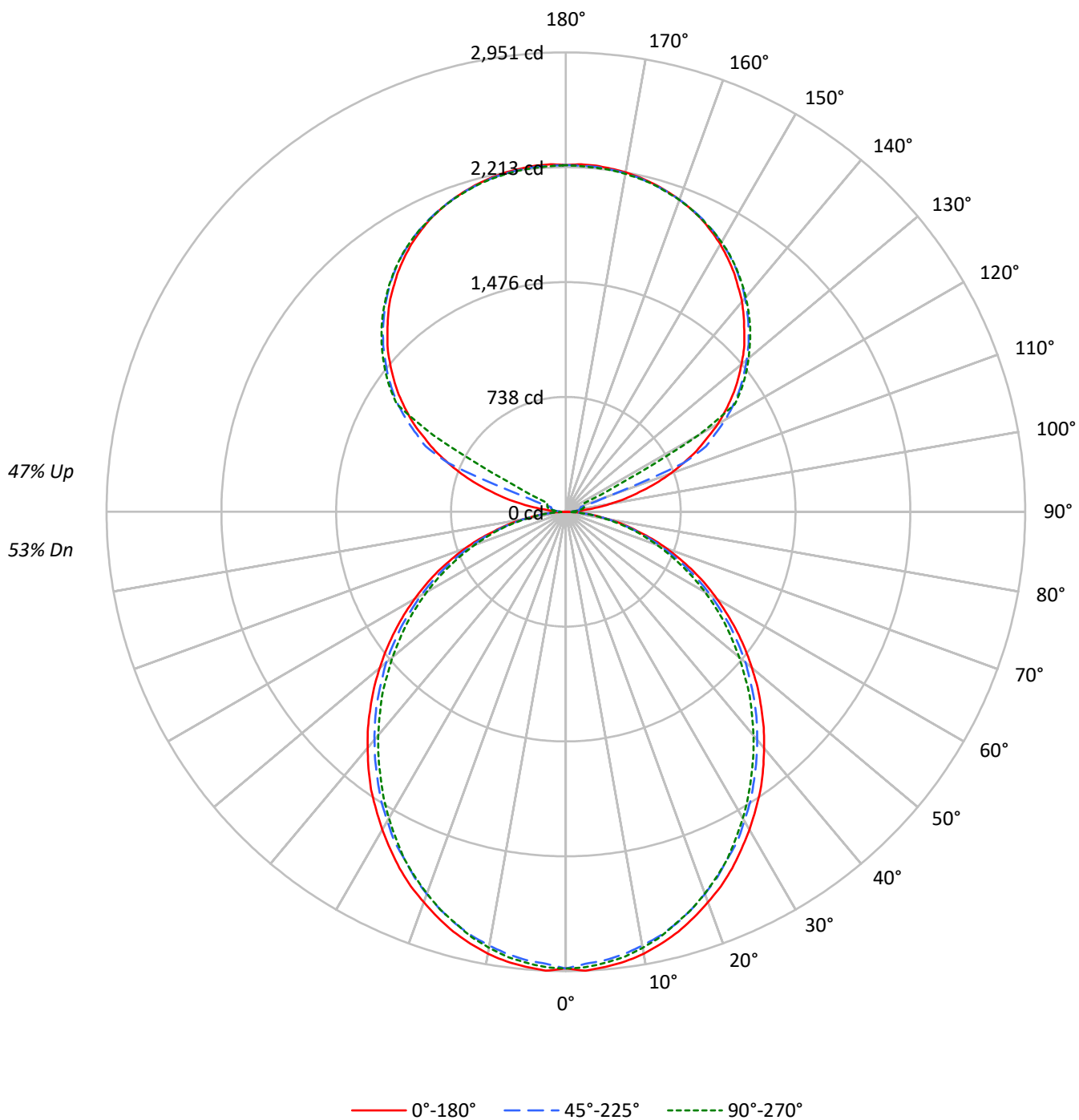
Lumens per Lamp: N/A
Luminaire Lumens: 13996.7 lumens
Efficiency: N/A
Efficacy: 113.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 123.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	108	108	108	108	100	100	100	100	85	85	85	72	72	72	59	59	59	59	59	59
1	99	94	90	87	91	87	84	81	75	72	70	63	61	60	52	51	50	50	50	45
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42	42	42	38
3	82	72	65	59	76	67	61	56	58	53	49	49	45	42	41	38	36	36	36	32
4	75	64	56	50	69	60	53	47	51	46	42	44	40	36	37	33	31	31	31	27
5	69	57	49	43	63	53	46	41	46	40	36	39	35	31	33	30	27	27	27	24
6	63	51	43	37	59	48	41	35	41	36	31	35	31	28	30	26	24	24	24	21
7	59	46	38	33	54	43	36	31	38	32	28	32	28	24	27	24	21	21	21	19
8	54	42	34	29	50	39	32	27	34	29	25	30	25	22	25	22	19	19	19	17
9	51	38	31	26	47	36	29	25	31	26	22	27	23	20	23	20	17	17	17	15
10	47	35	28	23	44	33	26	22	29	24	20	25	21	18	21	18	16	16	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2059	2059	2059
5°	2062	2030	2044
10°	2045	2003	2017
15°	2015	1971	1975
20°	1974	1925	1931
25°	1934	1871	1880
30°	1883	1821	1816
35°	1835	1761	1747
40°	1776	1700	1682
45°	1717	1640	1616
50°	1653	1577	1539
55°	1585	1503	1469
60°	1509	1416	1388
65°	1426	1326	1292
70°	1320	1216	1190
75°	1173	1085	1097
80°	996	918	916
85°	720	628	616

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1717 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	2.0
10°-20°	777.0	5.6
20°-30°	1141.8	8.2
30°-40°	1326.2	9.5
40°-50°	1324.5	9.5
50°-60°	1155.0	8.3
60°-70°	853.8	6.1
70°-80°	483.0	3.5
80°-90°	131.4	0.9
90°-100°	73.4	0.5
100°-110°	273.7	2.0
110°-120°	725.9	5.2
120°-130°	1204.0	8.6
130°-140°	1278.9	9.1
140°-150°	1188.6	8.5
150°-160°	955.6	6.8
160°-170°	615.8	4.4
170°-180°	211.9	1.5
0°-30°	2195.0	15.7
0°-40°	3521.1	25.2
0°-60°	6000.6	42.9
0°-90°	7468.8	53.4
90°-120°	1073.0	7.7
90°-150°	4744.6	33.9
90°-180°	6528.0	46.6
0°-180°	13996.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	279
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2458	2463	2458	1163
35°	2181	2153	2108	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	896
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	2	19	32	40	44	13
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1362	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2182	2172	2177	2188	2177	616
175°	2232	2220	2224	2235	2219	212
180°	2227	2227	2227	2227	2227	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.9	2933.9	2933.9	2933.9	2933.9
2.5°	2951.0	2937.0	2905.9	2933.9	2928.6
5°	2933.9	2922.9	2891.8	2914.2	2908.9
7.5°	2914.2	2897.5	2866.4	2889.1	2883.4
10°	2883.4	2863.6	2829.8	2852.2	2843.9
12.5°	2840.9	2824.1	2790.3	2804.3	2798.7
15°	2793.0	2776.3	2739.4	2750.8	2736.8
17.5°	2733.7	2717.0	2680.1	2694.3	2680.1
20°	2668.8	2652.0	2612.5	2620.9	2609.8
22.5°	2604.2	2578.7	2541.8	2541.8	2536.2
25°	2527.8	2505.4	2457.5	2462.9	2457.5
27.5°	2443.1	2423.4	2386.8	2378.4	2364.4
30°	2358.7	2335.9	2293.8	2285.4	2274.0
32.5°	2268.3	2251.5	2206.3	2189.2	2177.9
35°	2180.9	2152.8	2107.5	2090.5	2076.4
37.5°	2082.1	2056.6	2011.5	1991.7	1977.6
40°	1980.7	1957.8	1912.7	1887.5	1876.1
42.5°	1881.9	1859.1	1814.2	1785.7	1769.1
45°	1774.7	1754.9	1712.4	1681.6	1670.3
47.5°	1670.3	1650.5	1605.2	1574.1	1557.4
50°	1560.1	1546.1	1506.5	1467.0	1452.9
52.5°	1452.9	1433.1	1396.7	1365.6	1345.8
55°	1343.0	1326.0	1292.2	1258.4	1244.3
57.5°	1232.9	1218.9	1182.0	1148.2	1136.8
60°	1122.8	1111.7	1072.1	1041.0	1032.6
62.5°	1015.6	995.9	967.7	939.6	928.2
65°	905.8	888.7	860.5	835.1	821.0
67.5°	792.9	778.5	753.4	733.7	722.3
70°	688.4	677.0	651.7	631.9	620.8
72.5°	581.3	570.0	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.1	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	1.5	19.3	32.1	40.3	43.5
92.5°	40.3	33.8	38.6	41.9	43.5
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.2	644.4	101.6	119.2	125.7
110°	713.9	747.5	282.0	120.9	127.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.8	994.1	248.2	132.2
117.5°	1021.5	1053.7	1081.2	850.6	428.6
120°	1127.8	1152.0	1181.1	1200.4	982.9
122.5°	1218.0	1243.8	1276.2	1285.7	1287.4
125°	1309.9	1330.9	1361.5	1372.8	1377.5
127.5°	1393.6	1416.2	1440.5	1456.6	1458.1
130°	1472.6	1498.5	1516.1	1533.9	1532.4
132.5°	1553.2	1574.2	1591.9	1606.4	1604.9
135°	1620.9	1646.7	1661.1	1677.3	1674.1
137.5°	1691.7	1711.1	1727.3	1743.4	1738.6
140°	1761.0	1774.0	1791.6	1806.1	1798.1
142.5°	1819.1	1830.4	1851.2	1864.1	1856.1
145°	1880.4	1878.7	1906.0	1917.3	1909.3
147.5°	1933.3	1928.6	1956.0	1964.0	1957.7
150°	1985.0	1973.8	1999.6	2009.1	2001.1
152.5°	2028.4	2015.6	2039.8	2049.5	2038.2
155°	2070.4	2056.0	2075.3	2084.9	2072.1
157.5°	2104.2	2091.4	2105.9	2117.2	2104.2
160°	2133.4	2123.5	2133.4	2142.9	2131.6
162.5°	2159.0	2149.4	2157.4	2168.7	2154.2
165°	2181.5	2172.0	2176.7	2188.0	2176.7
167.5°	2199.3	2189.5	2194.5	2205.8	2191.3
170°	2213.8	2204.1	2207.3	2218.7	2204.1
172.5°	2223.5	2213.8	2217.1	2228.4	2213.8
175°	2231.5	2220.2	2223.5	2234.7	2218.7
177.5°	2234.7	2223.5	2225.2	2236.5	2221.9
180°	2226.7	2226.7	2226.7	2226.7	2226.7

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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	10.10	10.99	11.03	11.94	13.16	9.65	10.55	10.58	11.49	12.71
	3H	11.77	12.57	12.70	13.52	14.77	11.28	12.08	12.21	13.03	14.28
	4H	12.36	13.11	13.31	14.07	15.33	11.86	12.62	12.82	13.58	14.84
	6H	12.76	13.46	13.73	14.43	15.69	12.26	12.96	13.23	13.93	15.19
	8H	12.87	13.54	13.84	14.52	15.78	12.37	13.03	13.34	14.02	15.28
	12H	12.92	13.55	13.90	14.53	15.82	12.41	13.04	13.39	14.02	15.31
4H	2H	10.56	11.32	11.52	12.28	13.54	10.21	10.97	11.17	11.93	13.18
	3H	12.44	13.07	13.41	14.06	15.33	12.03	12.66	13.00	13.65	14.92
	4H	13.16	13.73	14.13	14.72	16.01	12.73	13.31	13.71	14.29	15.59
	6H	13.68	14.18	14.67	15.18	16.47	13.25	13.74	14.24	14.75	16.04
	8H	13.83	14.30	14.82	15.30	16.60	13.39	13.86	14.39	14.86	16.16
	12H	13.91	14.33	14.92	15.34	16.65	13.46	13.88	14.47	14.89	16.20
8H	4H	13.36	13.82	14.35	14.82	16.13	12.98	13.44	13.97	14.44	15.75
	6H	13.99	14.38	15.01	15.42	16.72	13.61	13.99	14.63	15.04	16.34
	8H	14.22	14.56	15.24	15.59	16.91	13.82	14.16	14.85	15.19	16.52
	12H	14.35	14.65	15.38	15.67	17.04	13.94	14.24	14.97	15.26	16.63
12H	4H	13.34	13.76	14.35	14.78	16.09	12.98	13.40	13.99	14.41	15.72
	6H	14.02	14.36	15.05	15.39	16.71	13.65	13.99	14.68	15.02	16.34
	8H	14.27	14.57	15.30	15.59	16.96	13.89	14.19	14.92	15.21	16.58