

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: P917381

Luminaire Tested: DFN2DIP-SQ3F0-070D090US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917381
REPORT IS A COMBINATION OF REPORTS P901477 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D090US930-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

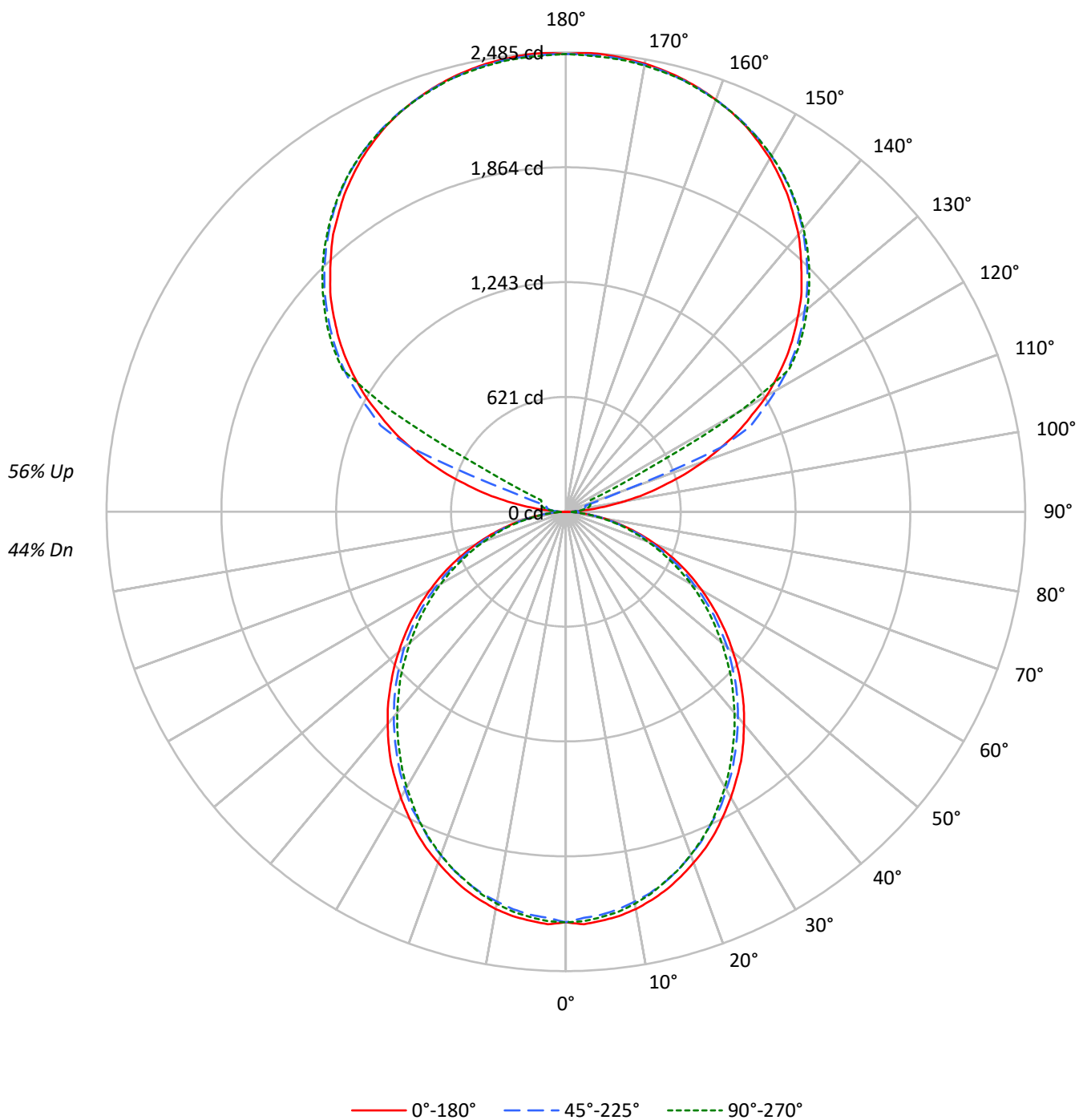
Lumens per Lamp: N/A
Luminaire Lumens: 12914.3 lumens
Efficiency: N/A
Efficacy: 96.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 134.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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	50	50	50
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	37	36
3	80	71	63	58	73	65	59	54	54	49	46	44	41	38	35	32	31
4	73	63	55	49	67	58	51	45	48	43	39	39	35	32	31	28	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	22	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	34	28	23	29	24	20	24	20	17	20	17	14
10	46	34	27	22	42	32	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2544	2544	2544
5°	2547	2507	2525
10°	2525	2472	2490
15°	2486	2429	2436
20°	2434	2371	2380
25°	2383	2302	2316
30°	2318	2237	2235
35°	2257	2161	2149
40°	2183	2085	2067
45°	2108	2008	1984
50°	2026	1927	1887
55°	1940	1833	1798
60°	1843	1722	1695
65°	1737	1607	1575
70°	1602	1466	1445
75°	1415	1298	1323
80°	1189	1083	1094
85°	838	718	716

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2108 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.0	1.6
10°-20°	588.1	4.6
20°-30°	864.2	6.7
30°-40°	1003.7	7.8
40°-50°	1002.5	7.8
50°-60°	874.2	6.8
60°-70°	646.2	5.0
70°-80°	365.6	2.8
80°-90°	100.9	0.8
90°-100°	81.7	0.6
100°-110°	304.4	2.4
110°-120°	807.3	6.3
120°-130°	1339.0	10.4
130°-140°	1422.3	11.0
140°-150°	1321.9	10.2
150°-160°	1062.8	8.2
160°-170°	684.8	5.3
170°-180°	235.7	1.8
0°-30°	1661.3	12.9
0°-40°	2665.1	20.6
0°-60°	4541.7	35.2
0°-90°	5654.4	43.8
90°-120°	1193.4	9.2
90°-150°	5276.6	40.9
90°-180°	7260.0	56.2
0°-180°	12914.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2221	2221	2221	2221	2221	
5°	2221	2212	2189	2206	2202	211
15°	2114	2101	2073	2082	2071	595
25°	1913	1896	1860	1864	1860	880
35°	1651	1629	1595	1582	1572	1031
45°	1343	1328	1296	1273	1264	1037
55°	1016	1004	978	952	942	909
65°	686	673	651	632	621	678
75°	359	355	344	331	335	383
85°	88	85	83	77	75	98
90°	2	22	36	45	48	12
95°	116	57	70	79	77	138
105°	545	599	109	129	136	582
115°	1030	1061	1106	276	147	1014
125°	1457	1480	1514	1527	1532	1299
135°	1803	1831	1847	1866	1862	1393
145°	2091	2089	2120	2132	2123	1308
155°	2303	2287	2308	2319	2304	1061
165°	2426	2416	2421	2433	2421	685
175°	2482	2469	2473	2485	2467	236
180°	2476	2476	2476	2476	2476	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2220.6	2220.6	2220.6	2220.6	2220.6
2.5°	2233.6	2222.9	2199.3	2220.6	2216.6
5°	2220.6	2212.3	2188.7	2205.7	2201.6
7.5°	2205.7	2193.0	2169.4	2186.7	2182.4
10°	2182.4	2167.4	2141.8	2158.8	2152.5
12.5°	2150.2	2137.5	2111.9	2122.5	2118.2
15°	2114.0	2101.3	2073.4	2082.0	2071.3
17.5°	2069.1	2056.4	2028.5	2039.2	2028.5
20°	2019.9	2007.3	1977.3	1983.7	1975.3
22.5°	1971.0	1951.7	1923.9	1923.9	1919.5
25°	1913.3	1896.2	1860.0	1864.1	1860.0
27.5°	1849.1	1834.2	1806.5	1800.2	1789.5
30°	1785.3	1768.0	1736.1	1729.7	1721.1
32.5°	1716.8	1704.1	1669.9	1657.0	1648.4
35°	1650.7	1629.4	1595.1	1582.2	1571.6
37.5°	1575.9	1556.6	1522.4	1507.5	1496.8
40°	1499.1	1481.9	1447.6	1428.6	1420.0
42.5°	1424.3	1407.1	1373.1	1351.6	1338.9
45°	1343.2	1328.3	1296.1	1272.8	1264.1
47.5°	1264.1	1249.2	1215.0	1191.4	1178.8
50°	1180.8	1170.1	1140.2	1110.4	1099.7
52.5°	1099.7	1084.8	1057.1	1033.6	1018.6
55°	1016.5	1003.6	978.0	952.4	941.8
57.5°	933.2	922.5	894.6	869.0	860.5
60°	849.8	841.4	811.5	788.0	781.6
62.5°	768.7	753.7	732.5	711.2	702.5
65°	685.6	672.6	651.3	632.1	621.4
67.5°	600.1	589.3	570.2	555.3	546.7
70°	521.1	512.5	493.2	478.3	469.9
72.5°	439.9	431.4	420.7	405.8	399.4
75°	358.6	354.6	343.6	331.0	335.3
77.5°	286.2	277.5	273.2	266.8	260.6
80°	213.6	211.4	207.1	200.7	196.4
82.5°	145.2	145.2	143.2	134.6	134.6
85°	87.5	85.4	83.4	76.8	74.8
87.5°	38.5	34.2	29.9	23.6	21.3
90°	1.7	21.5	35.7	44.9	48.3
92.5°	44.9	37.7	43.0	46.6	48.3
95°	116.4	57.2	69.8	78.9	77.0
97.5°	209.6	62.8	91.3	96.8	98.5
100°	317.2	71.7	102.2	116.4	120.0
102.5°	435.4	431.9	105.7	125.3	130.9
105°	544.7	598.6	109.3	129.0	136.2
107.5°	672.0	716.6	113.0	132.6	139.8
110°	793.9	831.4	313.6	134.4	141.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	908.6	940.7	910.3	137.9	143.4
115°	1030.3	1060.7	1105.6	276.0	147.0
117.5°	1136.0	1171.8	1202.4	946.1	476.6
120°	1254.3	1281.2	1313.5	1335.0	1093.1
122.5°	1354.6	1383.3	1419.3	1429.9	1431.8
125°	1456.7	1480.1	1514.2	1526.7	1532.0
127.5°	1549.9	1575.0	1602.1	1619.9	1621.6
130°	1637.8	1666.6	1686.1	1705.8	1704.2
132.5°	1727.4	1750.8	1770.3	1786.6	1784.9
135°	1802.7	1831.4	1847.4	1865.5	1861.9
137.5°	1881.5	1902.9	1921.0	1938.9	1933.6
140°	1958.4	1972.9	1992.5	2008.7	1999.8
142.5°	2023.2	2035.7	2058.9	2073.1	2064.3
145°	2091.2	2089.3	2119.8	2132.3	2123.4
147.5°	2150.2	2144.9	2175.3	2184.3	2177.2
150°	2207.7	2195.1	2223.8	2234.4	2225.5
152.5°	2255.9	2241.7	2268.5	2279.3	2266.8
155°	2302.6	2286.6	2308.0	2318.7	2304.4
157.5°	2340.2	2326.0	2342.1	2354.7	2340.2
160°	2372.5	2361.7	2372.5	2383.2	2370.6
162.5°	2401.1	2390.4	2399.3	2411.9	2395.8
165°	2426.2	2415.5	2420.9	2433.4	2420.9
167.5°	2446.0	2435.1	2440.6	2453.2	2437.0
170°	2462.1	2451.3	2454.9	2467.4	2451.3
172.5°	2472.8	2462.1	2465.7	2478.3	2462.1
175°	2481.7	2469.1	2472.8	2485.3	2467.4
177.5°	2485.3	2472.8	2474.7	2487.2	2471.1
180°	2476.4	2476.4	2476.4	2476.4	2476.4

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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	9.88	10.69	10.89	11.71	13.06	9.43	10.24	10.44	11.26	12.62
	3H	11.53	12.26	12.55	13.28	14.66	11.04	11.77	12.06	12.79	14.17
	4H	12.11	12.80	13.14	13.83	15.22	11.62	12.31	12.65	13.34	14.72
	6H	12.51	13.14	13.55	14.17	15.57	12.01	12.64	13.05	13.67	15.07
	8H	12.61	13.21	13.66	14.26	15.65	12.11	12.71	13.15	13.76	15.15
	12H	12.65	13.23	13.71	14.27	15.69	12.14	12.72	13.20	13.76	15.18
4H	2H	10.33	11.02	11.37	12.05	13.43	9.97	10.66	11.01	11.69	13.08
	3H	12.19	12.76	13.23	13.82	15.22	11.78	12.35	12.82	13.41	14.81
	4H	12.89	13.42	13.95	14.47	15.89	12.47	12.99	13.52	14.04	15.47
	6H	13.40	13.85	14.46	14.93	16.34	12.97	13.42	14.03	14.49	15.91
	8H	13.55	13.97	14.61	15.03	16.47	13.11	13.53	14.17	14.60	16.03
	12H	13.62	14.00	14.70	15.08	16.51	13.17	13.55	14.25	14.63	16.06
8H	4H	13.08	13.50	14.15	14.57	16.00	12.71	13.13	13.77	14.19	15.62
	6H	13.71	14.05	14.79	15.16	16.59	13.32	13.67	14.41	14.78	16.21
	8H	13.92	14.23	15.02	15.32	16.77	13.53	13.83	14.62	14.93	16.37
	12H	14.05	14.32	15.14	15.40	16.89	13.64	13.91	14.73	14.99	16.48
12H	4H	13.06	13.45	14.15	14.53	15.96	12.70	13.08	13.78	14.16	15.59
	6H	13.73	14.04	14.83	15.13	16.58	13.36	13.67	14.45	14.76	16.20
	8H	13.97	14.24	15.07	15.32	16.81	13.59	13.86	14.68	14.94	16.43