

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: P920319

Luminaire Tested: DFN2DIP-SQ4F0-060D090US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920319
REPORT IS A COMBINATION OF REPORTS P901634 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D090US935-RLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

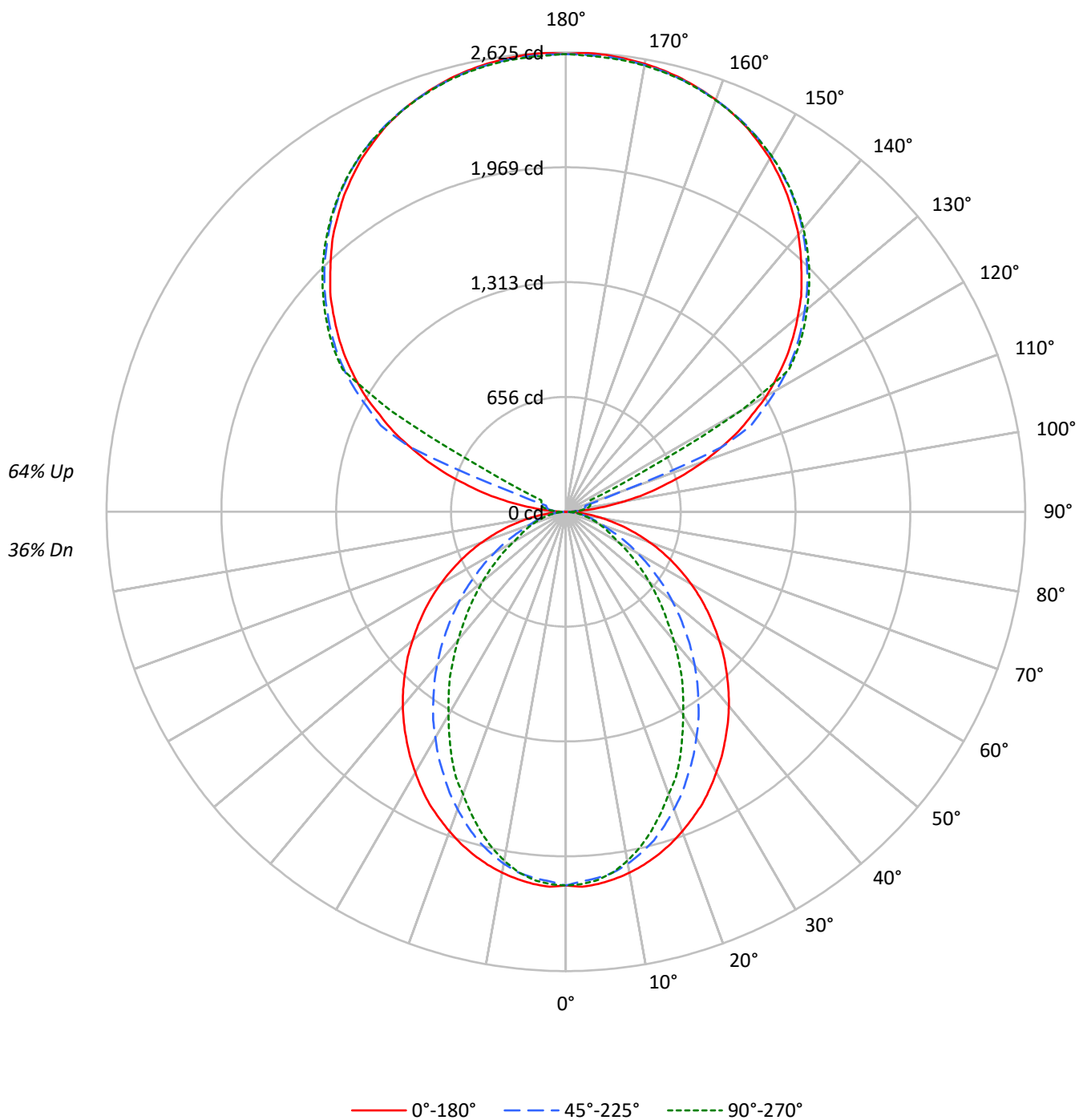
Lumens per Lamp: N/A
Luminaire Lumens: 12062.6 lumens
Efficiency: N/A
Efficacy: 103.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	76	76	76	59	59	59	44	44	44
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1498	1498	1498
5°	1501	1475	1484
10°	1486	1446	1436
15°	1465	1399	1362
20°	1438	1333	1271
25°	1410	1259	1183
30°	1373	1184	1071
35°	1337	1103	972
40°	1299	1019	859
45°	1256	925	757
50°	1212	831	657
55°	1165	730	561
60°	1111	625	462
65°	1049	518	417
70°	974	418	378
75°	880	369	345
80°	743	311	300
85°	517	209	229

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1402 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	200.1	1.7
10°-20°	549.3	4.6
20°-30°	771.2	6.4
30°-40°	840.7	7.0
40°-50°	772.7	6.4
50°-60°	606.8	5.0
60°-70°	395.0	3.3
70°-80°	203.3	1.7
80°-90°	56.5	0.5
90°-100°	86.2	0.7
100°-110°	321.5	2.7
110°-120°	852.6	7.1
120°-130°	1414.1	11.7
130°-140°	1502.1	12.5
140°-150°	1396.0	11.6
150°-160°	1122.4	9.3
160°-170°	723.2	6.0
170°-180°	248.9	2.1
0°-30°	1520.7	12.6
0°-40°	2361.4	19.6
0°-60°	3740.9	31.0
0°-90°	4395.7	36.4
90°-120°	1260.3	10.4
90°-150°	5572.4	46.2
90°-180°	7667.0	63.6
0°-180°	12062.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	2	23	38	47	51	11
95°	123	60	74	83	81	146
105°	575	632	116	136	144	615
115°	1088	1120	1168	291	155	1071
125°	1538	1563	1599	1612	1618	1372
135°	1904	1934	1951	1970	1966	1471
145°	2208	2206	2239	2252	2242	1381
155°	2432	2415	2437	2449	2434	1121
165°	2562	2551	2557	2570	2557	724
175°	2621	2608	2611	2625	2606	249
180°	2615	2615	2615	2615	2615	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	1.8	22.7	37.7	47.4	51.0
92.5°	47.4	39.8	45.4	49.2	51.0
95°	123.0	60.4	73.7	83.3	81.4
97.5°	221.4	66.3	96.4	102.2	104.0
100°	335.0	75.8	107.9	123.0	126.7
102.5°	459.8	456.2	111.7	132.3	138.2
105°	575.2	632.1	115.5	136.2	143.8
107.5°	709.6	756.8	119.3	140.0	147.7
110°	838.4	878.0	331.2	142.0	149.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	959.5	993.4	961.3	145.6	151.4
115°	1088.0	1120.2	1167.6	291.4	155.2
117.5°	1199.7	1237.5	1269.8	999.1	503.3
120°	1324.6	1353.0	1387.2	1409.8	1154.3
122.5°	1430.5	1460.9	1498.8	1510.0	1512.1
125°	1538.3	1563.1	1599.0	1612.3	1617.9
127.5°	1636.8	1663.3	1691.9	1710.7	1712.5
130°	1729.6	1760.0	1780.6	1801.5	1799.7
132.5°	1824.2	1848.9	1869.6	1886.7	1884.9
135°	1903.8	1934.1	1950.9	1970.0	1966.3
137.5°	1986.9	2009.6	2028.7	2047.5	2041.9
140°	2068.2	2083.5	2104.2	2121.2	2111.9
142.5°	2136.6	2149.8	2174.3	2189.3	2180.0
145°	2208.5	2206.4	2238.6	2251.9	2242.4
147.5°	2270.7	2265.1	2297.2	2306.7	2299.2
150°	2331.4	2318.2	2348.5	2359.7	2350.3
152.5°	2382.4	2367.3	2395.6	2407.1	2393.8
155°	2431.6	2414.8	2437.4	2448.7	2433.6
157.5°	2471.4	2456.3	2473.4	2486.6	2471.4
160°	2505.5	2494.1	2505.5	2516.8	2503.5
162.5°	2535.6	2524.4	2533.8	2547.1	2530.0
165°	2562.2	2550.9	2556.6	2569.8	2556.6
167.5°	2583.1	2571.6	2577.4	2590.7	2573.6
170°	2600.1	2588.7	2592.5	2605.7	2588.7
172.5°	2611.4	2600.1	2603.9	2617.2	2600.1
175°	2620.8	2607.5	2611.4	2624.6	2605.7
177.5°	2624.6	2611.4	2613.4	2626.6	2609.6
180°	2615.2	2615.2	2615.2	2615.2	2615.2

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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	7.15	7.88	8.22	8.95	10.40	3.11	3.84	4.18	4.91	6.36
	3H	8.82	9.48	9.90	10.55	12.03	4.29	4.94	5.37	6.02	7.49
	4H	9.43	10.05	10.52	11.13	12.61	4.74	5.36	5.83	6.44	7.91
	6H	9.85	10.42	10.95	11.50	12.99	5.05	5.62	6.15	6.71	8.20
	8H	9.98	10.52	11.08	11.62	13.10	5.14	5.68	6.25	6.78	8.27
	12H	10.04	10.55	11.14	11.64	13.15	5.18	5.70	6.29	6.79	8.30
4H	2H	7.15	7.77	8.25	8.85	10.33	3.69	4.31	4.79	5.39	6.87
	3H	8.98	9.49	10.08	10.60	12.09	5.04	5.55	6.14	6.66	8.15
	4H	9.67	10.14	10.78	11.24	12.75	5.58	6.05	6.69	7.15	8.66
	6H	10.19	10.59	11.30	11.71	13.21	6.00	6.40	7.11	7.52	9.03
	8H	10.36	10.74	11.48	11.85	13.37	6.12	6.50	7.24	7.61	9.13
	12H	10.45	10.80	11.59	11.92	13.45	6.18	6.53	7.32	7.65	9.18
8H	4H	9.63	10.01	10.75	11.12	12.64	5.86	6.23	6.97	7.35	8.87
	6H	10.20	10.51	11.34	11.66	13.18	6.37	6.68	7.51	7.84	9.36
	8H	10.42	10.69	11.56	11.82	13.36	6.56	6.84	7.71	7.97	9.51
	12H	10.56	10.79	11.70	11.92	13.50	6.68	6.92	7.83	8.05	9.62
12H	4H	9.58	9.92	10.71	11.04	12.57	5.86	6.20	6.99	7.32	8.85
	6H	10.17	10.45	11.32	11.58	13.12	6.42	6.70	7.57	7.83	9.37
	8H	10.39	10.63	11.54	11.76	13.34	6.63	6.87	7.78	8.00	9.57

END OF REPORT