

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: P923125

Luminaire Tested: DFN2DIP-SQ4F0-080D110US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923125
REPORT IS A COMBINATION OF REPORTS P901673 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D110US940-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

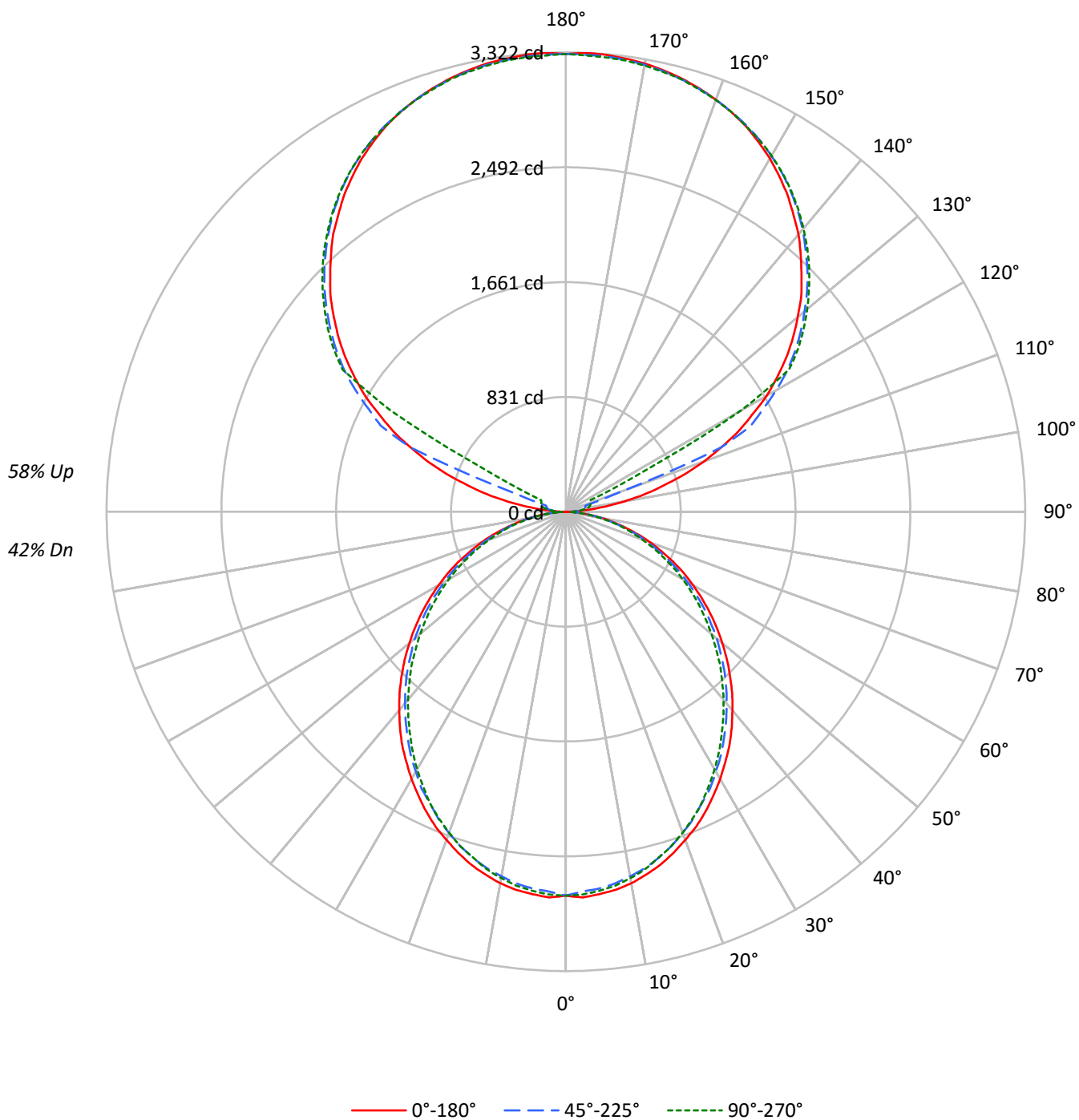
Lumens per Lamp: N/A
Luminaire Lumens: 16773.1 lumens
Efficiency: N/A
Efficacy: 108.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 154.2
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	88	84	88	84	81	78	69	67	65	56	54	53	43	42	41
2	87	80	74	69	80	73	68	64	61	57	54	49	46	44	38	36	35
3	80	70	63	57	72	65	58	53	53	49	45	43	40	37	34	31	30
4	73	62	54	49	66	57	50	45	47	42	38	38	35	32	30	28	25
5	67	55	47	41	61	51	44	39	42	37	33	35	31	28	27	24	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	28	24	21	22	20	17
8	53	41	33	28	48	37	31	26	32	26	22	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1948	1948	1948
5°	1951	1921	1934
10°	1935	1895	1908
15°	1906	1865	1868
20°	1868	1822	1827
25°	1830	1770	1779
30°	1782	1722	1718
35°	1736	1666	1653
40°	1680	1609	1592
45°	1625	1552	1529
50°	1564	1492	1456
55°	1500	1422	1389
60°	1428	1340	1313
65°	1349	1255	1223
70°	1249	1151	1126
75°	1110	1026	1037
80°	943	868	867
85°	681	594	583

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1775 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.3	1.6
10°-20°	735.1	4.4
20°-30°	1080.3	6.4
30°-40°	1254.7	7.5
40°-50°	1253.1	7.5
50°-60°	1092.7	6.5
60°-70°	807.7	4.8
70°-80°	457.0	2.7
80°-90°	126.5	0.8
90°-100°	109.2	0.7
100°-110°	406.9	2.4
110°-120°	1079.2	6.4
120°-130°	1789.9	10.7
130°-140°	1901.3	11.3
140°-150°	1767.1	10.5
150°-160°	1420.7	8.5
160°-170°	915.4	5.5
170°-180°	315.1	1.9
0°-30°	2076.6	12.4
0°-40°	3331.3	19.9
0°-60°	5677.0	33.8
0°-90°	7068.2	42.1
90°-120°	1595.3	9.5
90°-150°	7053.7	42.1
90°-180°	9705.0	57.9
0°-180°	16773.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2776	2776	2776	2776	2776	
5°	2776	2765	2736	2757	2752	263
15°	2642	2626	2592	2602	2589	744
25°	2392	2370	2325	2330	2325	1100
35°	2063	2037	1994	1978	1964	1288
45°	1679	1660	1620	1591	1580	1296
55°	1271	1254	1222	1190	1177	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	2	29	48	60	65	15
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1377	1418	1478	369	196	1356
125°	1947	1979	2024	2041	2048	1737
135°	2410	2448	2470	2494	2489	1862
145°	2796	2793	2834	2850	2838	1748
155°	3078	3057	3085	3100	3080	1418
165°	3243	3229	3236	3253	3236	916
175°	3317	3301	3306	3322	3298	316
180°	3310	3310	3310	3310	3310	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2775.7	2775.7	2775.7	2775.7	2775.7
2.5°	2791.9	2778.6	2749.1	2775.7	2770.6
5°	2775.7	2765.3	2735.9	2757.1	2752.0
7.5°	2757.1	2741.2	2711.8	2733.3	2727.9
10°	2727.9	2709.2	2677.2	2698.4	2690.6
12.5°	2687.7	2671.8	2639.8	2653.1	2647.8
15°	2642.4	2626.5	2591.7	2602.5	2589.2
17.5°	2586.3	2570.4	2535.6	2549.0	2535.6
20°	2524.9	2509.0	2471.6	2479.6	2469.1
22.5°	2463.7	2439.6	2404.8	2404.8	2399.4
25°	2391.5	2370.3	2325.0	2330.0	2325.0
27.5°	2311.3	2292.7	2258.1	2250.1	2236.9
30°	2231.5	2209.9	2170.1	2162.1	2151.3
32.5°	2146.0	2130.1	2087.3	2071.2	2060.5
35°	2063.2	2036.7	1993.9	1977.7	1964.4
37.5°	1969.8	1945.7	1903.0	1884.3	1871.0
40°	1873.8	1852.3	1809.5	1785.7	1774.9
42.5°	1780.4	1758.8	1716.4	1689.4	1673.7
45°	1679.0	1660.3	1620.1	1590.9	1580.2
47.5°	1580.2	1561.5	1518.7	1489.2	1473.4
50°	1476.0	1462.7	1425.2	1387.9	1374.6
52.5°	1374.6	1355.8	1321.3	1291.9	1273.2
55°	1270.6	1254.5	1222.5	1190.5	1177.1
57.5°	1166.4	1153.2	1118.3	1086.3	1075.5
60°	1062.2	1051.8	1014.3	984.9	977.0
62.5°	960.8	942.2	915.5	888.9	878.2
65°	856.9	840.8	814.1	790.1	776.8
67.5°	750.1	736.6	712.7	694.1	683.3
70°	651.3	640.5	616.5	597.8	587.3
72.5°	549.9	539.2	525.8	507.2	499.3
75°	448.3	443.2	429.6	413.8	419.1
77.5°	357.7	346.9	341.5	333.6	325.7
80°	267.1	264.2	258.9	250.9	245.5
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.3	106.7	104.2	96.0	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.3	64.6
95°	155.6	76.5	93.3	105.5	103.0
97.5°	280.2	83.9	122.0	129.4	131.7
100°	424.1	95.9	136.5	155.6	160.4
102.5°	581.9	577.4	141.3	167.6	175.0
105°	728.2	800.1	146.2	172.4	182.1
107.5°	898.3	958.0	151.1	177.2	186.9
110°	1061.2	1111.3	419.3	179.8	189.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1214.6	1257.5	1216.8	184.3	191.7
115°	1377.2	1417.9	1478.0	368.9	196.5
117.5°	1518.7	1566.5	1607.4	1264.6	637.1
120°	1676.8	1712.6	1755.9	1784.6	1461.2
122.5°	1810.8	1849.1	1897.2	1911.5	1914.1
125°	1947.3	1978.6	2024.1	2040.9	2048.0
127.5°	2071.9	2105.4	2141.5	2165.4	2167.7
130°	2189.3	2227.8	2253.9	2280.4	2278.1
132.5°	2309.1	2340.4	2366.6	2388.2	2385.9
135°	2409.8	2448.2	2469.5	2493.8	2488.9
137.5°	2515.1	2543.8	2567.9	2591.8	2584.7
140°	2618.1	2637.3	2663.5	2685.1	2673.2
142.5°	2704.5	2721.2	2752.3	2771.3	2759.4
145°	2795.5	2792.9	2833.6	2850.4	2838.5
147.5°	2874.3	2867.2	2907.9	2919.8	2910.5
150°	2951.1	2934.4	2972.7	2987.0	2975.0
152.5°	3015.7	2996.6	3032.4	3047.0	3030.2
155°	3078.0	3056.6	3085.3	3099.6	3080.5
157.5°	3128.3	3109.2	3130.9	3147.6	3128.3
160°	3171.5	3157.0	3171.5	3185.7	3169.0
162.5°	3209.6	3195.4	3207.4	3224.2	3202.6
165°	3243.2	3229.0	3236.1	3252.9	3236.1
167.5°	3269.6	3255.2	3262.6	3279.4	3257.8
170°	3291.3	3276.8	3281.6	3298.4	3276.8
172.5°	3305.5	3291.3	3296.1	3312.9	3291.3
175°	3317.4	3300.7	3305.5	3322.3	3298.4
177.5°	3322.3	3305.5	3308.1	3324.8	3303.3
180°	3310.4	3310.4	3310.4	3310.4	3310.4

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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	8.83	9.62	9.85	10.65	12.03	8.38	9.18	9.41	10.21	11.59
	3H	10.49	11.20	11.52	12.24	13.64	10.00	10.71	11.03	11.75	13.15
	4H	11.07	11.75	12.12	12.79	14.20	10.58	11.26	11.62	12.30	13.70
	6H	11.48	12.10	12.53	13.14	14.56	10.97	11.60	12.03	12.64	14.06
	8H	11.58	12.17	12.64	13.23	14.65	11.08	11.67	12.14	12.73	14.15
	12H	11.63	12.19	12.69	13.25	14.68	11.12	11.68	12.18	12.74	14.17
4H	2H	9.28	9.96	10.33	11.00	12.40	8.93	9.60	9.98	10.64	12.05
	3H	11.15	11.71	12.20	12.78	14.20	10.74	11.30	11.80	12.37	13.79
	4H	11.86	12.38	12.93	13.44	14.88	11.44	11.95	12.50	13.01	14.46
	6H	12.38	12.82	13.45	13.90	15.34	11.94	12.39	13.02	13.47	14.91
	8H	12.53	12.94	13.60	14.02	15.47	12.09	12.50	13.16	13.58	15.03
	12H	12.60	12.97	13.69	14.06	15.52	12.15	12.52	13.24	13.61	15.07
8H	4H	12.05	12.47	13.13	13.54	14.99	11.68	12.09	12.75	13.17	14.62
	6H	12.69	13.03	13.78	14.15	15.59	12.30	12.64	13.40	13.76	15.21
	8H	12.91	13.21	14.01	14.31	15.78	12.52	12.82	13.62	13.92	15.39
	12H	13.04	13.30	14.15	14.40	15.91	12.63	12.89	13.74	13.99	15.50
12H	4H	12.03	12.41	13.13	13.50	14.96	11.67	12.04	12.76	13.13	14.59
	6H	12.72	13.02	13.82	14.12	15.58	12.34	12.64	13.45	13.75	15.21
	8H	12.96	13.22	14.07	14.32	15.83	12.58	12.84	13.69	13.94	15.45