

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: P922881

Luminaire Tested: DFN2DIP-SQ3F0-080D110US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922881
REPORT IS A COMBINATION OF REPORTS P901515 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-080D110US940-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

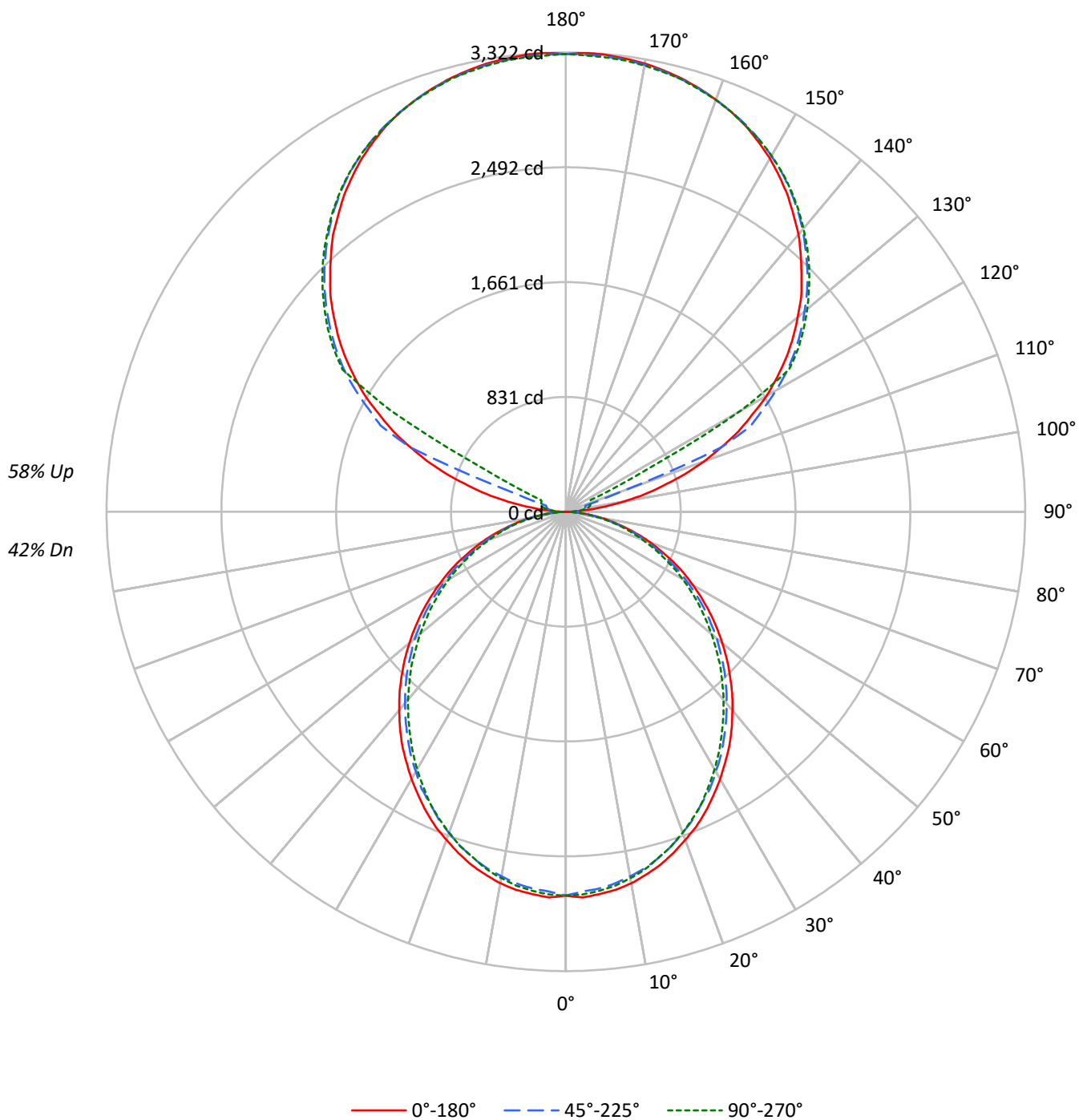
Lumens per Lamp: N/A
Luminaire Lumens: 16773.1 lumens
Efficiency: N/A
Efficacy: 103.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 162.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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°	3180	3180	3180
5°	3183	3134	3156
10°	3156	3090	3113
15°	3107	3037	3045
20°	3043	2964	2975
25°	2978	2877	2895
30°	2898	2797	2794
35°	2821	2702	2686
40°	2728	2606	2584
45°	2635	2509	2480
50°	2533	2408	2359
55°	2425	2291	2247
60°	2304	2152	2119
65°	2171	2008	1968
70°	2002	1833	1806
75°	1769	1622	1654
80°	1487	1354	1367
85°	1047	897	895

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2635 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	10.49	11.28	11.51	12.31	13.69	10.04	10.84	11.06	11.87	13.24
	3H	12.14	12.85	13.17	13.89	15.29	11.65	12.36	12.68	13.40	14.80
	4H	12.72	13.39	13.76	14.43	15.84	12.22	12.90	13.27	13.94	15.35
	6H	13.11	13.73	14.16	14.78	16.20	12.61	13.23	13.66	14.28	15.70
	8H	13.21	13.80	14.27	14.87	16.28	12.71	13.30	13.77	14.36	15.78
	12H	13.26	13.82	14.32	14.87	16.31	12.75	13.31	13.81	14.36	15.80
4H	2H	10.93	11.61	11.99	12.65	14.06	10.58	11.25	11.63	12.30	13.70
	3H	12.79	13.35	13.85	14.42	15.84	12.38	12.94	13.44	14.01	15.43
	4H	13.50	14.01	14.56	15.07	16.51	13.07	13.59	14.14	14.65	16.09
	6H	14.00	14.45	15.08	15.53	16.97	13.57	14.01	14.65	15.10	16.53
	8H	14.15	14.56	15.22	15.64	17.09	13.71	14.13	14.79	15.20	16.65
	12H	14.22	14.59	15.31	15.68	17.14	13.77	14.14	14.86	15.23	16.69
8H	4H	13.68	14.10	14.76	15.17	16.63	13.31	13.72	14.38	14.80	16.25
	6H	14.31	14.65	15.40	15.77	17.21	13.92	14.26	15.02	15.38	16.83
	8H	14.52	14.82	15.63	15.92	17.39	14.13	14.43	15.23	15.53	17.00
	12H	14.65	14.91	15.76	16.01	17.52	14.24	14.50	15.34	15.60	17.10
12H	4H	13.66	14.04	14.76	15.13	16.59	13.30	13.67	14.39	14.76	16.22
	6H	14.33	14.63	15.44	15.73	17.20	13.96	14.26	15.06	15.36	16.83
	8H	14.57	14.83	15.68	15.93	17.44	14.19	14.45	15.30	15.55	17.06