

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: P917465

Luminaire Tested: DFN2DIP-SQ3F0-090D120US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917465
REPORT IS A COMBINATION OF REPORTS P901535 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D120US930-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

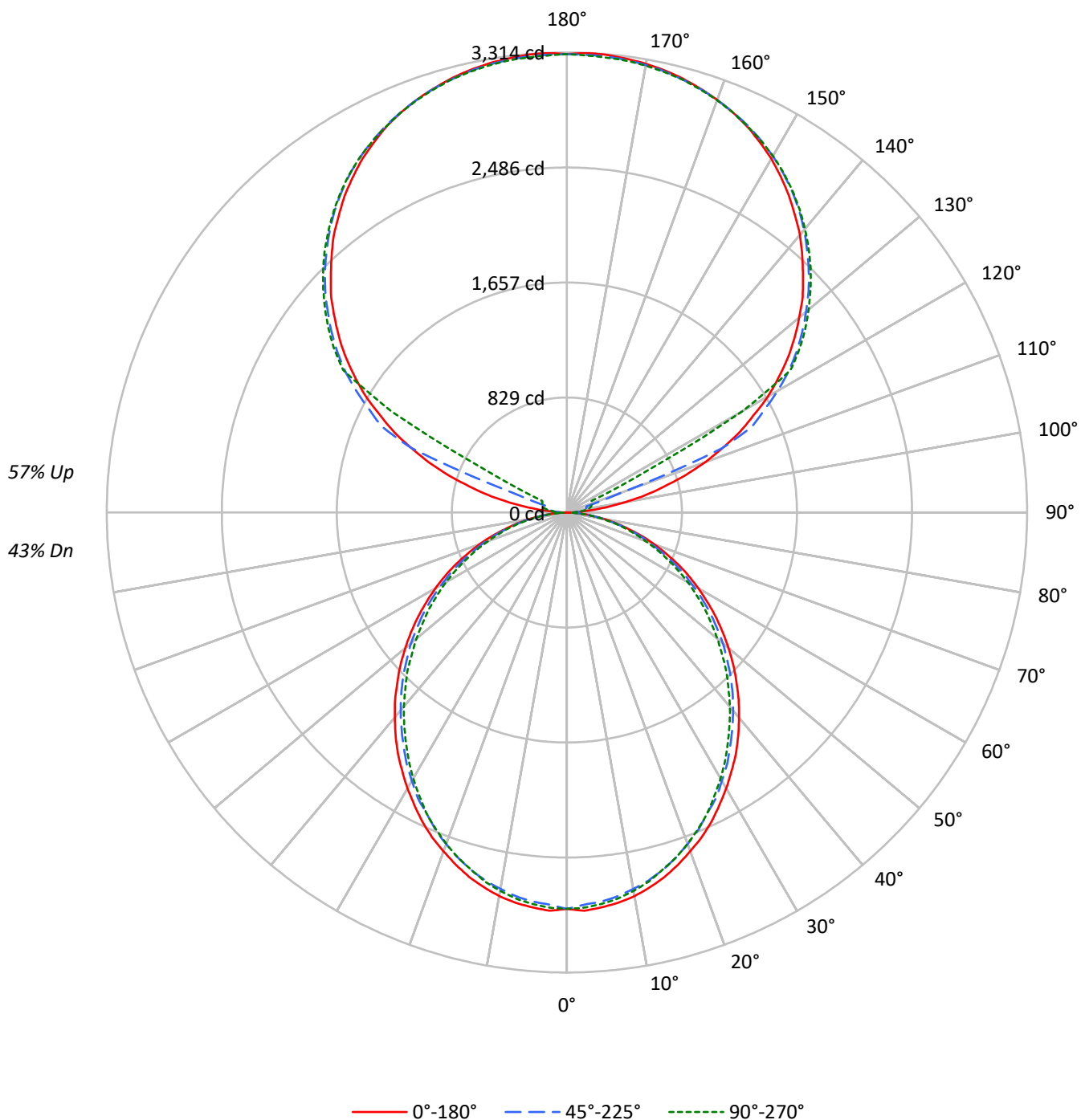
Lumens per Lamp: N/A
Luminaire Lumens: 16950.0 lumens
Efficiency: N/A
Efficacy: 93.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 181.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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	64	64	64	50	50	50
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35
3	80	71	63	58	73	65	58	53	54	49	45	44	40	38	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	32	52	41	34	29	35	29	25	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	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	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3271	3271	3271
5°	3275	3224	3246
10°	3246	3178	3201
15°	3196	3124	3132
20°	3130	3049	3060
25°	3063	2960	2978
30°	2981	2876	2874
35°	2902	2779	2763
40°	2806	2680	2658
45°	2710	2581	2551
50°	2605	2477	2426
55°	2495	2357	2311
60°	2370	2214	2180
65°	2233	2066	2025
70°	2060	1885	1857
75°	1820	1669	1701
80°	1530	1392	1407
85°	1076	923	920

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2710 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.7	1.6
10°-20°	756.1	4.5
20°-30°	1111.2	6.6
30°-40°	1290.5	7.6
40°-50°	1288.9	7.6
50°-60°	1123.9	6.6
60°-70°	830.8	4.9
70°-80°	470.1	2.8
80°-90°	129.9	0.8
90°-100°	108.9	0.6
100°-110°	405.9	2.4
110°-120°	1076.4	6.4
120°-130°	1785.3	10.5
130°-140°	1896.5	11.2
140°-150°	1762.5	10.4
150°-160°	1417.0	8.4
160°-170°	913.1	5.4
170°-180°	314.3	1.9
0°-30°	2136.0	12.6
0°-40°	3426.5	20.2
0°-60°	5839.4	34.5
0°-90°	7270.1	42.9
90°-120°	1591.2	9.4
90°-150°	7035.5	41.5
90°-180°	9680.0	57.1
0°-180°	16950.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	2	29	48	60	64	16
95°	155	76	93	105	103	184
105°	726	798	146	172	182	776
115°	1374	1414	1474	368	196	1352
125°	1942	1974	2019	2036	2043	1732
135°	2404	2442	2463	2487	2482	1857
145°	2788	2786	2826	2843	2831	1744
155°	3070	3049	3077	3092	3073	1415
165°	3235	3221	3228	3245	3228	914
175°	3309	3292	3297	3314	3290	315
180°	3302	3302	3302	3302	3302	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	2.3	28.6	47.7	59.8	64.4
92.5°	59.8	50.2	57.3	62.1	64.4
95°	155.2	76.3	93.0	105.3	102.7
97.5°	279.5	83.7	121.7	129.1	131.3
100°	423.0	95.6	136.2	155.2	160.0
102.5°	580.5	575.9	141.0	167.1	174.5
105°	726.3	798.1	145.9	171.9	181.6
107.5°	895.9	955.5	150.7	176.8	186.4
110°	1058.5	1108.5	418.2	179.3	188.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1211.5	1254.3	1213.7	183.8	191.2
115°	1373.7	1414.3	1474.1	367.9	196.1
117.5°	1514.7	1562.4	1603.3	1261.3	635.5
120°	1672.5	1708.2	1751.3	1780.0	1457.4
122.5°	1806.1	1844.4	1892.4	1906.6	1909.1
125°	1942.3	1973.5	2018.9	2035.6	2042.7
127.5°	2066.5	2100.0	2136.1	2159.9	2162.2
130°	2183.7	2222.0	2248.1	2274.5	2272.2
132.5°	2303.1	2334.4	2360.5	2382.1	2379.8
135°	2403.6	2441.9	2463.2	2487.3	2482.5
137.5°	2508.6	2537.2	2561.3	2585.1	2578.1
140°	2611.3	2630.6	2656.6	2678.3	2666.4
142.5°	2697.5	2714.3	2745.2	2764.2	2752.3
145°	2788.3	2785.8	2826.3	2843.1	2831.1
147.5°	2866.9	2859.8	2900.4	2912.3	2903.0
150°	2943.5	2926.8	2965.1	2979.3	2967.4
152.5°	3007.9	2988.9	3024.7	3039.1	3022.4
155°	3070.0	3048.7	3077.4	3091.6	3072.6
157.5°	3120.2	3101.2	3122.8	3139.6	3120.2
160°	3163.4	3148.9	3163.4	3177.5	3160.8
162.5°	3201.4	3187.2	3199.1	3215.9	3194.3
165°	3234.9	3220.7	3227.8	3244.6	3227.8
167.5°	3261.3	3246.8	3254.2	3270.9	3249.4
170°	3282.8	3268.4	3273.2	3289.9	3268.4
172.5°	3297.0	3282.8	3287.7	3304.4	3282.8
175°	3308.9	3292.2	3297.0	3313.8	3289.9
177.5°	3313.8	3297.0	3299.6	3316.3	3294.8
180°	3301.9	3301.9	3301.9	3301.9	3301.9

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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	10.66	11.46	11.68	12.49	13.86	10.22	11.02	11.23	12.04	13.41
	3H	12.31	13.03	13.34	14.06	15.45	11.82	12.54	12.85	13.57	14.96
	4H	12.89	13.57	13.93	14.61	16.01	12.40	13.08	13.44	14.12	15.51
	6H	13.29	13.91	14.34	14.95	16.36	12.79	13.41	13.84	14.45	15.86
	8H	13.39	13.99	14.44	15.04	16.45	12.89	13.48	13.94	14.54	15.94
	12H	13.43	14.00	14.49	15.05	16.48	12.92	13.49	13.98	14.54	15.97
4H	2H	11.11	11.79	12.16	12.83	14.22	10.76	11.44	11.80	12.47	13.87
	3H	12.97	13.53	14.02	14.60	16.01	12.56	13.13	13.61	14.19	15.60
	4H	13.67	14.19	14.73	15.25	16.68	13.25	13.77	14.31	14.83	16.26
	6H	14.18	14.63	15.25	15.71	17.13	13.75	14.20	14.82	15.28	16.70
	8H	14.33	14.74	15.40	15.82	17.26	13.89	14.31	14.96	15.38	16.82
	12H	14.39	14.77	15.48	15.86	17.31	13.95	14.32	15.03	15.41	16.86
8H	4H	13.86	14.28	14.93	15.35	16.79	13.48	13.90	14.55	14.97	16.42
	6H	14.48	14.83	15.58	15.94	17.38	14.10	14.45	15.19	15.56	17.00
	8H	14.70	15.00	15.80	16.10	17.56	14.31	14.61	15.41	15.71	17.17
	12H	14.83	15.09	15.93	16.18	17.68	14.42	14.68	15.52	15.77	17.27
12H	4H	13.84	14.22	14.93	15.31	16.75	13.47	13.85	14.56	14.94	16.39
	6H	14.51	14.81	15.61	15.91	17.37	14.14	14.44	15.24	15.54	17.00
	8H	14.75	15.01	15.85	16.10	17.60	14.37	14.63	15.47	15.72	17.22