

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: P925883

Luminaire Tested: DFN2DIP-SQ4F0-090D090US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925883
REPORT IS A COMBINATION OF REPORTS P901640 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D090US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

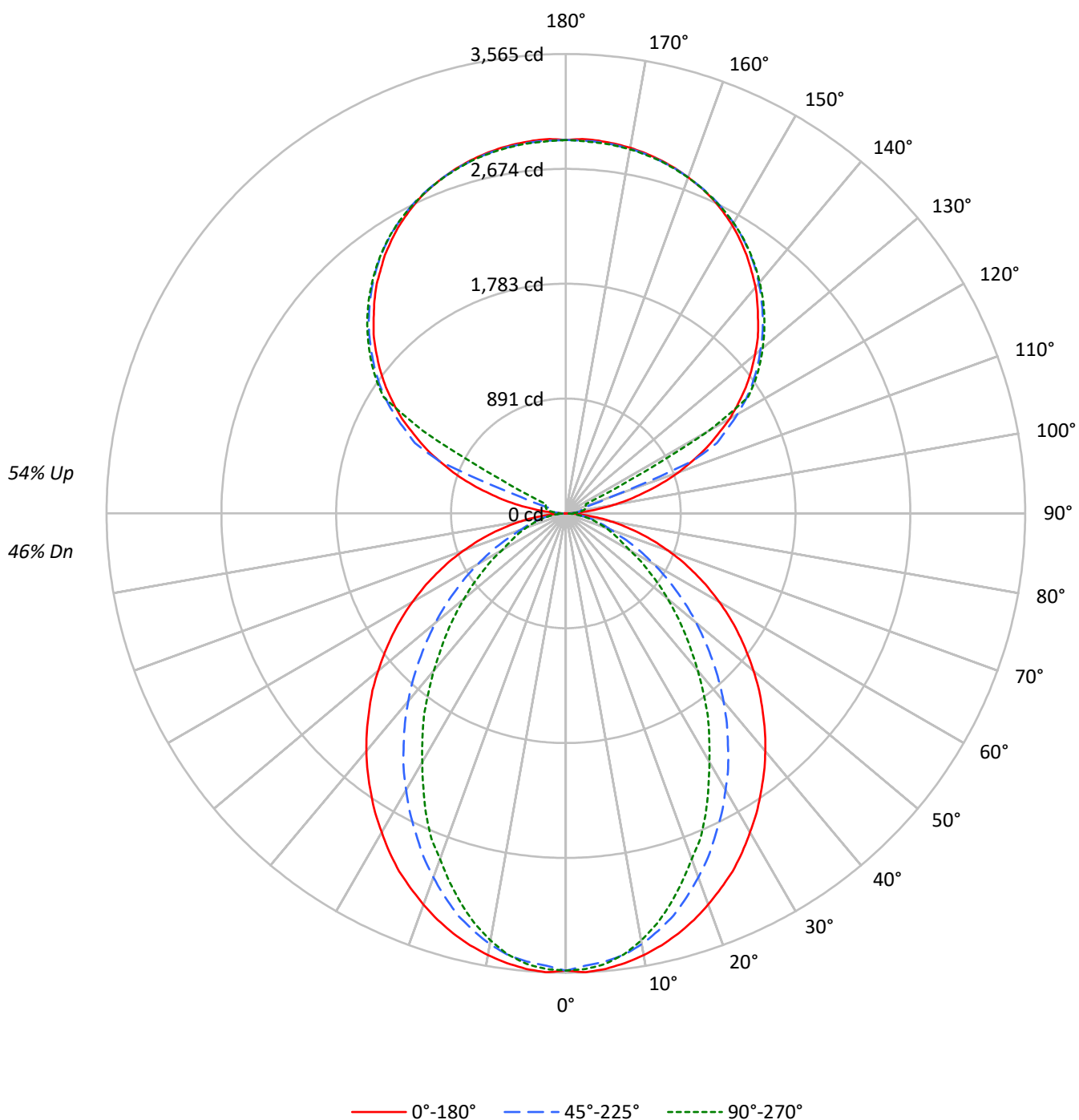
Lumens per Lamp: N/A
Luminaire Lumens: 15798.2 lumens
Efficiency: N/A
Efficacy: 105.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 149.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P925883

CATALOG NUMBER: DFN2DIP-SQ4F0-090D090US950-RLLONL

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					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34		
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29		
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2490	2490	2490
5°	2494	2451	2467
10°	2469	2403	2387
15°	2435	2324	2264
20°	2390	2215	2112
25°	2344	2093	1966
30°	2282	1968	1779
35°	2222	1833	1616
40°	2160	1693	1428
45°	2088	1538	1258
50°	2014	1381	1092
55°	1937	1214	933
60°	1847	1039	768
65°	1744	861	692
70°	1619	695	628
75°	1462	614	573
80°	1235	517	499
85°	859	348	380

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2088 cd/sqm

TEST NUMBER: P925883

CATALOG NUMBER: DFN2DIP-SQ4F0-090D090US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.6	2.1
10°-20°	913.0	5.8
20°-30°	1281.8	8.1
30°-40°	1397.3	8.8
40°-50°	1284.2	8.1
50°-60°	1008.6	6.4
60°-70°	656.5	4.2
70°-80°	337.9	2.1
80°-90°	91.4	0.6
90°-100°	95.6	0.6
100°-110°	356.2	2.3
110°-120°	944.7	6.0
120°-130°	1566.8	9.9
130°-140°	1664.3	10.5
140°-150°	1546.8	9.8
150°-160°	1243.6	7.9
160°-170°	801.3	5.1
170°-180°	275.8	1.7
0°-30°	2527.4	16.0
0°-40°	3924.6	24.8
0°-60°	6217.4	39.4
0°-90°	7303.2	46.2
90°-120°	1396.4	8.8
90°-150°	6174.3	39.1
90°-180°	8495.0	53.8
0°-180°	15798.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3549	3549	3549	3549	3549	
5°	3549	3533	3491	3520	3510	336
15°	3375	3340	3231	3170	3138	951
25°	3064	2961	2749	2617	2569	1409
35°	2640	2476	2194	1991	1920	1652
45°	2158	1943	1606	1378	1300	1667
55°	1641	1390	1044	851	790	1466
65°	1108	848	559	450	440	1099
75°	591	366	257	234	231	625
85°	138	70	61	61	61	158
90°	2	25	42	53	56	15
95°	136	67	82	92	90	161
105°	637	700	128	151	159	681
115°	1206	1241	1294	323	172	1187
125°	1704	1732	1772	1786	1793	1520
135°	2109	2143	2162	2183	2179	1629
145°	2447	2445	2480	2495	2485	1530
155°	2694	2676	2701	2713	2696	1242
165°	2839	2826	2833	2847	2833	802
175°	2904	2889	2894	2908	2887	276
180°	2898	2898	2898	2898	2898	

TEST NUMBER: P925883

CATALOG NUMBER: DFN2DIP-SQ4F0-090D090US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3548.6	3548.6	3548.6	3548.6	3548.6
2.5°	3564.6	3548.6	3513.1	3545.5	3539.1
5°	3548.6	3532.6	3490.7	3519.6	3510.1
7.5°	3519.6	3500.5	3455.6	3468.2	3452.1
10°	3481.1	3458.6	3394.6	3384.7	3365.6
12.5°	3433.1	3404.2	3317.2	3298.2	3262.7
15°	3375.2	3339.8	3230.7	3169.7	3137.7
17.5°	3307.7	3256.3	3121.3	3050.8	2999.4
20°	3230.7	3166.3	3005.8	2925.7	2854.8
22.5°	3147.2	3073.3	2886.9	2777.9	2729.9
25°	3063.8	2960.8	2749.0	2617.4	2569.0
27.5°	2964.3	2854.8	2620.4	2469.5	2395.6
30°	2858.3	2736.0	2479.1	2315.5	2228.6
32.5°	2755.3	2607.5	2344.5	2151.7	2071.2
35°	2639.9	2476.0	2193.5	1991.2	1920.3
37.5°	2527.4	2350.7	2052.1	1830.3	1750.3
40°	2408.6	2216.0	1904.3	1676.4	1592.9
42.5°	2286.5	2081.2	1756.7	1519.0	1438.8
45°	2158.1	1942.8	1605.8	1377.5	1300.5
47.5°	2036.1	1808.2	1461.3	1233.0	1162.5
50°	1901.2	1673.2	1320.0	1098.1	1031.0
52.5°	1769.4	1528.5	1185.1	973.1	912.1
55°	1640.9	1390.5	1043.6	851.2	790.1
57.5°	1509.4	1252.5	918.6	738.7	687.3
60°	1374.4	1117.5	786.8	623.2	571.7
62.5°	1243.0	986.1	674.3	520.3	494.7
65°	1108.0	847.7	558.8	449.7	439.9
67.5°	979.6	719.2	449.7	394.9	385.3
70°	844.7	594.2	372.4	340.4	327.4
72.5°	716.2	478.3	311.4	285.8	279.4
75°	590.8	366.0	256.9	234.4	231.3
77.5°	465.7	260.0	202.3	189.5	183.0
80°	349.9	186.4	154.0	141.4	141.4
82.5°	243.9	125.4	106.0	99.5	99.5
85°	137.9	70.5	61.0	61.0	61.0
87.5°	51.4	25.6	25.6	22.5	22.5
90°	2.0	25.2	41.8	52.6	56.5
92.5°	52.6	44.1	50.3	54.6	56.5
95°	136.2	67.0	81.7	92.3	90.2
97.5°	245.3	73.5	106.8	113.2	115.2
100°	371.2	84.0	119.5	136.2	140.4
102.5°	509.4	505.4	123.7	146.6	153.1
105°	637.4	700.4	127.9	150.9	159.3
107.5°	786.3	838.6	132.2	155.1	163.6
110°	928.9	972.8	367.0	157.3	165.6

TEST NUMBER: P925883

CATALOG NUMBER: DFN2DIP-SQ4F0-090D090US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1063.1	1100.7	1065.1	161.3	167.8
115°	1205.6	1241.2	1293.7	322.9	172.0
117.5°	1329.3	1371.2	1407.0	1107.0	557.7
120°	1467.7	1499.1	1537.0	1562.1	1279.0
122.5°	1585.1	1618.7	1660.7	1673.1	1675.4
125°	1704.5	1731.9	1771.8	1786.5	1792.7
127.5°	1813.6	1842.9	1874.6	1895.5	1897.5
130°	1916.4	1950.1	1973.0	1996.1	1994.1
132.5°	2021.2	2048.6	2071.5	2090.5	2088.5
135°	2109.4	2143.0	2161.7	2182.8	2178.6
137.5°	2201.5	2226.6	2247.8	2268.7	2262.5
140°	2291.6	2308.6	2331.5	2350.4	2340.0
142.5°	2367.4	2382.0	2409.1	2425.8	2415.4
145°	2447.0	2444.7	2480.4	2495.1	2484.6
147.5°	2516.0	2509.8	2545.4	2555.9	2547.6
150°	2583.2	2568.5	2602.1	2614.5	2604.1
152.5°	2639.7	2623.0	2654.4	2667.1	2652.4
155°	2694.3	2675.6	2700.7	2713.2	2696.5
157.5°	2738.4	2721.7	2740.6	2755.2	2738.4
160°	2776.1	2763.5	2776.1	2788.6	2773.9
162.5°	2809.5	2797.0	2807.5	2822.2	2803.3
165°	2838.9	2826.4	2832.7	2847.4	2832.7
167.5°	2862.1	2849.4	2855.8	2870.5	2851.6
170°	2881.0	2868.3	2872.5	2887.2	2868.3
172.5°	2893.5	2881.0	2885.2	2899.9	2881.0
175°	2903.9	2889.2	2893.5	2908.1	2887.2
177.5°	2908.1	2893.5	2895.7	2910.4	2891.5
180°	2897.7	2897.7	2897.7	2897.7	2897.7

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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	9.97	10.77	10.96	11.77	13.10	5.93	6.73	6.92	7.73	9.06
	3H	11.65	12.36	12.65	13.37	14.72	7.11	7.83	8.12	8.84	10.19
	4H	12.26	12.93	13.27	13.95	15.30	7.56	8.24	8.58	9.25	10.61
	6H	12.68	13.30	13.71	14.32	15.69	7.88	8.51	8.91	9.53	10.89
	8H	12.81	13.40	13.84	14.43	15.80	7.97	8.57	9.01	9.60	10.96
	12H	12.87	13.43	13.91	14.46	15.85	8.02	8.58	9.06	9.61	11.00
4H	2H	9.98	10.66	11.01	11.67	13.03	6.52	7.20	7.55	8.21	9.57
	3H	11.81	12.37	12.85	13.42	14.79	7.87	8.43	8.90	9.48	10.84
	4H	12.51	13.02	13.55	14.06	15.45	8.42	8.93	9.46	9.97	11.36
	6H	13.02	13.47	14.07	14.52	15.91	8.84	9.28	9.89	10.34	11.72
	8H	13.20	13.61	14.25	14.66	16.07	8.96	9.38	10.02	10.43	11.83
	12H	13.30	13.67	14.37	14.74	16.14	9.03	9.40	10.10	10.47	11.87
8H	4H	12.47	12.88	13.52	13.94	15.34	8.70	9.11	9.75	10.16	11.56
	6H	13.04	13.38	14.12	14.47	15.87	9.22	9.56	10.29	10.65	12.05
	8H	13.26	13.56	14.34	14.64	16.06	9.41	9.71	10.49	10.78	12.20
	12H	13.40	13.66	14.49	14.74	16.20	9.53	9.79	10.61	10.86	12.32
12H	4H	12.42	12.80	13.49	13.86	15.27	8.70	9.07	9.77	10.14	11.55
	6H	13.02	13.32	14.10	14.39	15.81	9.27	9.57	10.35	10.64	12.06
	8H	13.24	13.50	14.32	14.57	16.03	9.48	9.74	10.56	10.81	12.27

END OF REPORT