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: P912309

Luminaire Tested: DFN2DIP-SQ4F0-110D080US850-FLLONL

Issue Date: 11/21/2024

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

Test Information

Test Method:	LM-79-2019
Report Number:	P912309
	REPORT IS A COMBINATION OF REPORTS P901625 AND P898471
Test Lab:	INNOVATION CENTER
Issue Date:	11/21/2024
Manufacturer:	COOPER LIGHTING SOLUTIONS
Product Line:	NEO-RAY
Catalog Number:	DFN2DIP-SQ4F0-110D080US850-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:	20860.3 lumens
Efficiency:	N/A
Efficacy:	126.7 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

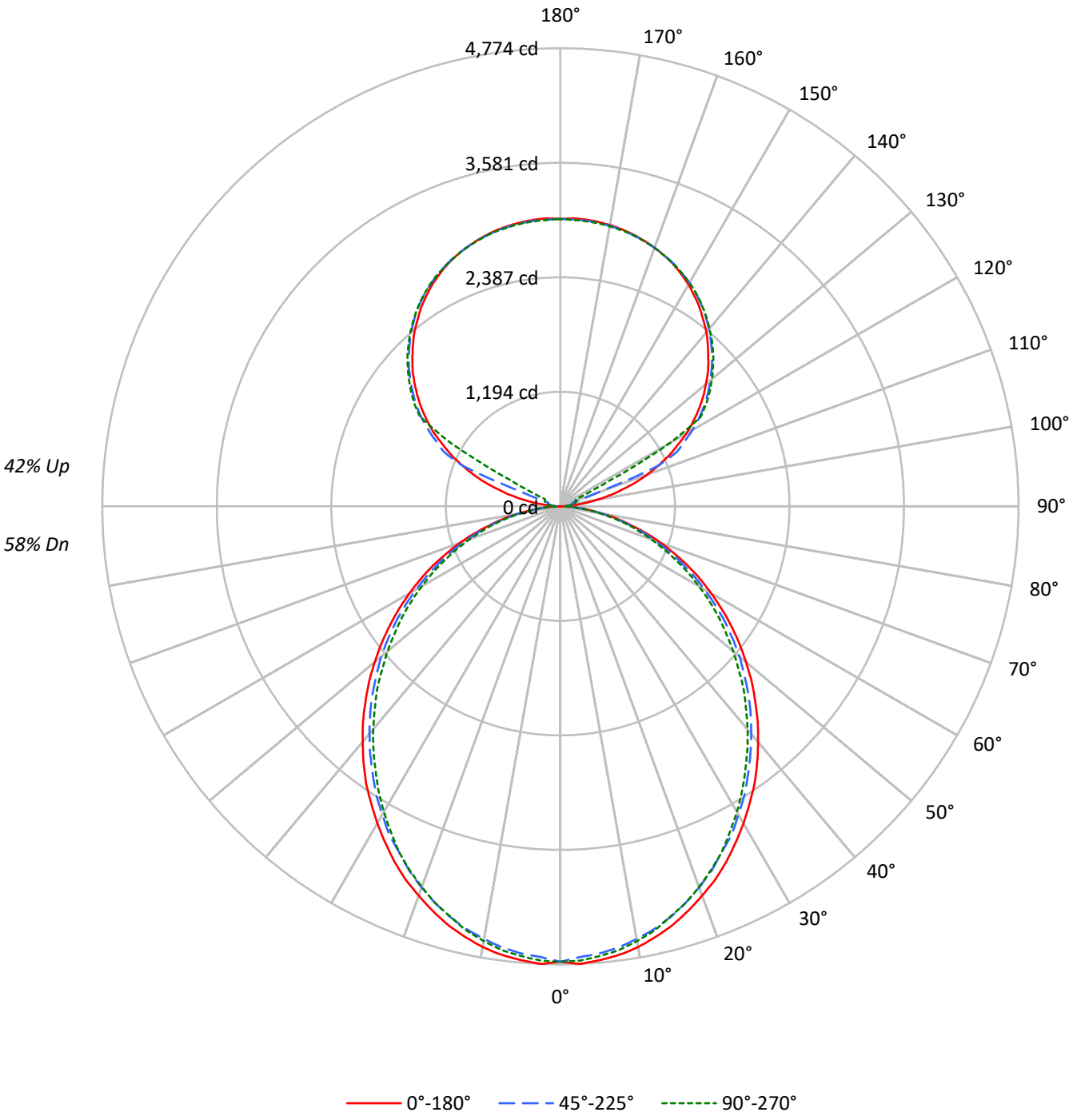
Input Watts (W):	164.6
Input Voltage (V):	
Input Current (Ain):	NR
Voltage Rise (V):	NR
Power Factor:	0.9951
Total Harmonic Distortion (THDi):	0.07
Frequency (hertz):	60
Stabilization Time:	NR
Operation Time:	NR
Ambient Temperature (°C):	NR
Test Distance:	24 FT

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P912309
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US850-FLLONL

Luminous Intensity Polar Plot



Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P912309
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US850-FLLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20			20			20			20
RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																		
0	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63	58
1	100	95	91	88	93	89	85	82	77	74	72	66	64	63	56	55	54	49
2	91	83	77	72	84	78	72	68	67	63	60	58	55	52	49	47	45	41
3	83	73	66	60	77	68	62	57	60	54	50	51	47	44	44	41	38	35
4	76	65	57	51	70	61	54	48	53	47	43	46	41	38	39	36	33	30
5	70	58	50	43	65	54	47	41	47	42	37	41	37	33	35	32	29	26
6	64	52	44	38	60	49	41	36	43	37	32	37	32	29	32	28	25	23
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23	20
8	55	43	35	29	51	40	33	28	35	30	25	31	26	23	27	23	20	18
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18	16
10	48	36	28	24	45	34	27	23	30	24	21	26	22	19	23	19	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3331	3331	3331
5°	3336	3285	3307
10°	3309	3241	3263
15°	3260	3189	3194
20°	3194	3115	3124
25°	3129	3027	3042
30°	3047	2945	2937
35°	2969	2849	2827
40°	2873	2751	2722
45°	2778	2653	2615
50°	2674	2551	2490
55°	2565	2432	2376
60°	2441	2291	2245
65°	2307	2145	2091
70°	2135	1968	1925
75°	1897	1755	1774
80°	1612	1484	1482
85°	1165	1016	996

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2778 cd/sqm

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P912309
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US850-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	446.8	2.1
10°-20°	1257.0	6.0
20°-30°	1847.3	8.9
30°-40°	2145.5	10.3
40°-50°	2142.9	10.3
50°-60°	1868.5	9.0
60°-70°	1381.3	6.6
70°-80°	781.5	3.7
80°-90°	211.5	1.0
90°-100°	98.7	0.5
100°-110°	368.1	1.8
110°-120°	976.2	4.7
120°-130°	1619.0	7.8
130°-140°	1719.8	8.2
140°-150°	1598.3	7.7
150°-160°	1285.0	6.2
160°-170°	828.0	4.0
170°-180°	285.0	1.4
0°-30°	3551.1	17.0
0°-40°	5696.6	27.3
0°-60°	9708.0	46.5
0°-90°	12082.3	57.9
90°-120°	1442.9	6.9
90°-150°	6380.0	30.6
90°-180°	8778.0	42.1
0°-180°	20860.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4747	4747	4747	4747	4747	
5°	4747	4729	4678	4715	4706	451
15°	4519	4491	4432	4450	4428	1273
25°	4090	4053	3976	3984	3976	1882
35°	3528	3483	3410	3382	3359	2203
45°	2871	2839	2770	2721	2702	2216
55°	2173	2145	2091	2036	2013	1943
65°	1465	1438	1392	1351	1328	1449
75°	766	758	735	708	717	818
85°	187	182	178	164	160	209
90°	2	26	43	54	58	19
95°	141	69	84	96	93	167
105°	659	724	132	156	165	704
115°	1246	1283	1337	334	178	1226
125°	1761	1790	1831	1846	1852	1571
135°	2180	2214	2234	2256	2251	1684
145°	2528	2526	2563	2578	2567	1581
155°	2784	2765	2791	2804	2786	1283
165°	2934	2921	2927	2942	2927	829
175°	3001	2985	2990	3005	2983	286
180°	2994	2994	2994	2994	2994	

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P912309
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	*4746.7*	4746.7	4746.7	4746.7	4746.7
2.5°	*4774.2*	*4751.5*	*4701.2*	*4746.7*	*4738.0*
5°	*4746.7*	4728.8	4678.4	4714.7	4706.0
7.5°	*4714.7*	4687.6	4637.3	4674.1	4664.9
10°	*4664.9*	4632.8	4578.2	4614.4	4600.9
12.5°	*4596.1*	4569.0	4514.3	4537.0	4527.8
15°	*4518.6*	4491.4	4431.9	4450.3	4427.6
17.5°	*4422.7*	4395.6	4336.1	4358.8	4336.1
20°	*4317.7*	4290.5	4226.6	4240.2	4222.3
22.5°	*4213.1*	4171.8	4112.3	4112.3	4103.1
25°	*4089.5*	4053.3	3975.8	3984.5	3975.8
27.5°	*3952.5*	3920.5	3861.4	3847.9	3825.2
30°	*3816.0*	3779.1	3710.8	3697.3	3678.9
32.5°	*3669.7*	3642.6	3569.4	3541.8	3523.4
35°	*3528.3*	3482.8	3409.6	3382.0	3359.3
37.5°	*3368.5*	3327.3	3254.2	3222.2	3199.5
40°	*3204.3*	3167.5	3094.4	3053.7	3035.3
42.5°	*3044.5*	3007.7	2935.1	2889.1	2862.0
45°	*2871.2*	2839.2	2770.4	2720.6	2702.2
47.5°	*2702.2*	2670.3	2597.1	2546.7	2519.5
50°	*2524.0*	2501.2	2437.2	2373.4	2350.6
52.5°	*2350.6*	2318.6	2259.6	2209.1	2177.2
55°	*2172.9*	2145.2	2090.6	2035.8	2013.1
57.5°	*1994.6*	1971.9	1912.4	1857.6	1839.2
60°	*1816.4*	1798.6	1734.6	1684.2	1670.7
62.5°	*1643.1*	1611.2	1565.6	1520.1	1501.7
65°	*1465.3*	1437.7	1392.2	1351.1	1328.4
67.5°	*1282.8*	1259.6	1218.9	1187.0	1168.6
70°	*1113.8*	1095.4	1054.2	1022.3	1004.3
72.5°	*940.4*	922.0	899.3	867.3	853.7
75°	*766.5*	757.9	734.6	707.5	716.7
77.5°	*611.6*	593.2	584.0	570.5	556.9
80°	*456.7*	451.8	442.6	429.1	419.9
82.5°	*310.4*	310.4	306.1	287.7	287.7
85°	*187.0*	182.5	178.2	164.1	159.8
87.5°	*82.3*	73.1	63.9	50.3	45.5
90°	*2.1*	26.0	43.3	54.2	58.4
92.5°	*54.2*	45.6	52.0	56.3	58.4
95°	*140.7*	69.2	84.4	95.5	93.2
97.5°	*253.4*	75.9	110.3	117.1	119.1
100°	*383.6*	86.7	123.5	140.7	145.1
102.5°	*526.4*	522.2	127.9	151.5	158.3
105°	*658.6*	723.7	132.2	155.9	164.7
107.5°	*812.5*	866.5	136.6	160.3	169.0
110°	*960.0*	1005.2	379.3	162.6	171.1

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P912309
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	*1098.6*	1137.4	1100.7	166.7	173.4
115°	*1245.7*	1282.6	1336.8	333.7	177.8
117.5°	*1373.6*	1416.9	1453.9	1143.8	576.3
120°	*1516.7*	1549.1	1588.2	1614.1	1321.6
122.5°	*1637.8*	1672.6	1716.1	1728.9	1731.3
125°	*1761.3*	1789.6	1830.7	1845.9	1852.4
127.5°	*1874.0*	1904.4	1937.1	1958.6	1960.7
130°	*1980.2*	2014.9	2038.7	2062.6	2060.5
132.5°	*2088.6*	2116.9	2140.6	2160.1	2158.0
135°	*2179.6*	2214.3	2233.6	2255.6	2251.2
137.5°	*2274.9*	2300.8	2322.7	2344.3	2337.9
140°	*2367.9*	2385.5	2409.2	2428.7	2417.8
142.5°	*2446.2*	2461.3	2489.4	2506.7	2495.8
145°	*2528.5*	2526.2	2563.0	2578.2	2567.3
147.5°	*2599.8*	2593.4	2630.1	2641.0	2632.4
150°	*2669.3*	2654.1	2688.8	2701.6	2690.9
152.5°	*2727.7*	2710.4	2742.8	2756.0	2740.8
155°	*2784.0*	2764.7	2790.7	2803.6	2786.4
157.5°	*2829.5*	2812.3	2831.8	2847.0	2829.5
160°	*2868.7*	2855.6	2868.7	2881.5	2866.3
162.5°	*2903.1*	2890.3	2901.0	2916.2	2896.7
165°	*2933.5*	2920.7	2927.1	2942.2	2927.1
167.5°	*2957.4*	2944.3	2950.9	2966.1	2946.6
170°	*2977.0*	2963.8	2968.2	2983.4	2963.8
172.5°	*2989.9*	2977.0	2981.3	2996.5	2977.0
175°	*3000.6*	2985.4	2989.9	3004.9	2983.4
177.5°	*3004.9*	2989.9	2992.1	3007.3	2987.8
180°	*2994.2*	2994.2	2994.2	2994.2	2994.2

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report

TEST NUMBER: P912309
CATALOG NUMBER: DFN2DIP-SQ4F0-110D080US850-FLLONL

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	12.17	13.10	13.05	14.01	15.16	11.72	12.66	12.61	13.56	14.72
	3H	13.84	14.68	14.73	15.59	16.77	13.35	14.19	14.24	15.10	16.28
	4H	14.43	15.22	15.34	16.15	17.33	13.94	14.73	14.85	15.65	16.84
	6H	14.84	15.57	15.76	16.50	17.70	14.34	15.07	15.26	16.00	17.20
	8H	14.95	15.64	15.88	16.59	17.79	14.44	15.14	15.38	16.09	17.29
	12H	15.00	15.66	15.94	16.60	17.83	14.49	15.15	15.43	16.09	17.32
4H	2H	12.64	13.43	13.55	14.35	15.54	12.28	13.08	13.20	14.00	15.19
	3H	14.51	15.18	15.44	16.13	17.33	14.11	14.77	15.04	15.72	16.93
	4H	15.23	15.84	16.17	16.79	18.02	14.81	15.42	15.75	16.36	17.59
	6H	15.76	16.28	16.71	17.25	18.48	15.33	15.85	16.28	16.82	18.05
	8H	15.91	16.40	16.87	17.37	18.61	15.47	15.96	16.43	16.93	18.17
	12H	15.99	16.43	16.97	17.41	18.66	15.54	15.98	16.52	16.96	18.21
8H	4H	15.44	15.93	16.39	16.89	18.13	15.06	15.55	16.02	16.51	17.76
	6H	16.08	16.48	17.06	17.49	18.73	15.69	16.10	16.67	17.10	18.34
	8H	16.30	16.66	17.29	17.65	18.91	15.91	16.27	16.90	17.26	18.52
	12H	16.44	16.75	17.43	17.74	19.05	16.03	16.34	17.02	17.33	18.64
12H	4H	15.43	15.87	16.40	16.85	18.10	15.06	15.50	16.03	16.48	17.73
	6H	16.11	16.47	17.10	17.46	18.72	15.74	16.09	16.73	17.09	18.35
	8H	16.36	16.67	17.35	17.66	18.97	15.98	16.29	16.97	17.28	18.59

END OF REPORT