

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: P925895

Luminaire Tested: DFN2DIP-SQ4F0-090D120US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925895
REPORT IS A COMBINATION OF REPORTS P901694 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D120US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

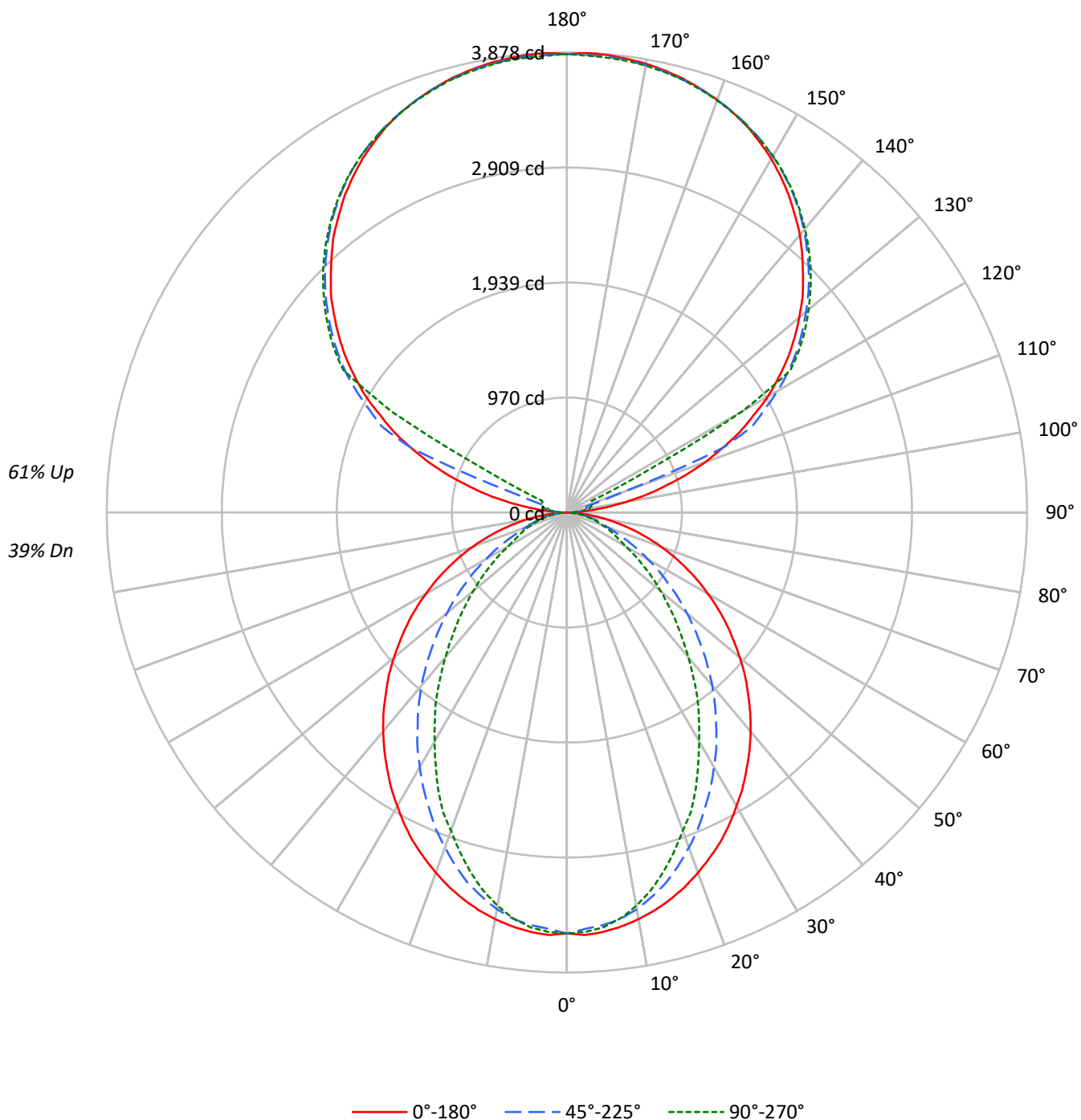
Lumens per Lamp: N/A
Luminaire Lumens: 18631.6 lumens
Efficiency: N/A
Efficacy: 107.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 172.8
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: P925895

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US950-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P925895

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US950-RLLONL

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	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	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: P925895

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.6	1.8
10°-20°	913.0	4.9
20°-30°	1281.8	6.9
30°-40°	1397.3	7.5
40°-50°	1284.2	6.9
50°-60°	1008.6	5.4
60°-70°	656.5	3.5
70°-80°	337.9	1.8
80°-90°	93.1	0.5
90°-100°	127.4	0.7
100°-110°	474.9	2.5
110°-120°	1259.5	6.8
120°-130°	2089.1	11.2
130°-140°	2219.1	11.9
140°-150°	2062.4	11.1
150°-160°	1658.1	8.9
160°-170°	1068.4	5.7
170°-180°	367.7	2.0
0°-30°	2527.4	13.6
0°-40°	3924.6	21.1
0°-60°	6217.4	33.4
0°-90°	7304.9	39.2
90°-120°	1861.9	10.0
90°-150°	8232.4	44.2
90°-180°	11327.0	60.8
0°-180°	18631.6	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°	3	34	56	70	75	17
95°	182	89	109	123	120	215
105°	850	934	171	201	212	908
115°	1607	1655	1725	430	229	1582
125°	2273	2309	2362	2382	2390	2027
135°	2812	2857	2882	2910	2905	2173
145°	3263	3260	3307	3327	3313	2041
155°	3592	3567	3601	3618	3595	1655
165°	3785	3769	3777	3796	3777	1069
175°	3872	3852	3858	3878	3850	368
180°	3864	3864	3864	3864	3864	

TEST NUMBER: P925895

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US950-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°	2.7	33.5	55.8	70.0	75.4
92.5°	70.0	58.8	67.1	72.7	75.4
95°	181.5	89.3	108.9	123.2	120.2
97.5°	327.0	98.0	142.4	151.0	153.7
100°	494.9	111.9	159.3	181.5	187.3
102.5°	679.2	673.9	164.9	195.6	204.2
105°	849.8	933.9	170.7	201.2	212.5
107.5°	1048.4	1118.1	176.3	206.8	218.1
110°	1238.6	1297.1	489.3	209.8	220.8

TEST NUMBER: P925895

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1417.5	1467.6	1420.2	215.1	223.7
115°	1607.4	1654.9	1724.9	430.5	229.4
117.5°	1772.4	1828.2	1876.0	1475.9	743.6
120°	1957.0	1998.8	2049.3	2082.9	1705.4
122.5°	2113.4	2158.2	2214.3	2230.9	2233.9
125°	2272.7	2309.3	2362.4	2381.9	2390.2
127.5°	2418.1	2457.3	2499.5	2527.3	2530.0
130°	2555.2	2600.0	2630.6	2661.5	2658.8
132.5°	2695.0	2731.5	2762.0	2787.3	2784.6
135°	2812.5	2857.3	2882.2	2910.5	2904.8
137.5°	2935.4	2968.8	2997.1	3024.9	3016.6
140°	3055.6	3078.1	3108.6	3133.9	3120.0
142.5°	3156.4	3176.1	3212.2	3234.4	3220.5
145°	3262.7	3259.7	3307.1	3326.8	3312.8
147.5°	3354.6	3346.3	3393.9	3407.8	3396.8
150°	3444.2	3424.7	3469.5	3486.1	3472.2
152.5°	3519.6	3497.4	3539.2	3556.1	3536.6
155°	3592.3	3567.4	3601.0	3617.6	3595.3
157.5°	3651.1	3628.8	3654.1	3673.7	3651.1
160°	3701.5	3684.6	3701.5	3718.1	3698.6
162.5°	3746.1	3729.5	3743.4	3763.0	3737.8
165°	3785.2	3768.6	3776.9	3796.5	3776.9
167.5°	3816.1	3799.1	3807.8	3827.4	3802.2
170°	3841.3	3824.4	3830.0	3849.6	3824.4
172.5°	3857.9	3841.3	3847.0	3866.6	3841.3
175°	3871.8	3852.3	3857.9	3877.5	3849.6
177.5°	3877.5	3857.9	3860.9	3880.5	3855.3
180°	3863.6	3863.6	3863.6	3863.6	3863.6



TEST NUMBER: P925895

CATALOG NUMBER: DFN2DIP-SQ4F0-090D120US950-RLONL

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	9.23	9.98	10.28	11.03	12.45	5.19	5.94	6.24	6.99	8.41
	3H	10.91	11.58	11.97	12.64	14.07	6.37	7.04	7.43	8.10	9.54
	4H	11.51	12.15	12.59	13.21	14.66	6.82	7.46	7.89	8.52	9.96
	6H	11.94	12.52	13.02	13.58	15.04	7.14	7.72	8.22	8.79	10.25
	8H	12.06	12.62	13.15	13.70	15.15	7.23	7.78	8.31	8.86	10.32
	12H	12.12	12.65	13.21	13.72	15.20	7.27	7.80	8.36	8.87	10.35
4H	2H	9.24	9.87	10.32	10.94	12.38	5.78	6.41	6.86	7.48	8.92
	3H	11.07	11.59	12.15	12.68	14.14	7.12	7.65	8.21	8.74	10.20
	4H	11.76	12.24	12.85	13.32	14.80	7.67	8.15	8.76	9.23	10.71
	6H	12.27	12.69	13.37	13.79	15.26	8.08	8.50	9.18	9.60	11.07
	8H	12.45	12.84	13.55	13.93	15.42	8.21	8.60	9.31	9.69	11.18
	12H	12.54	12.89	13.66	14.00	15.49	8.27	8.62	9.39	9.73	11.23
8H	4H	11.72	12.11	12.82	13.20	14.69	7.95	8.33	9.04	9.43	10.92
	6H	12.29	12.61	13.41	13.74	15.23	8.46	8.78	9.58	9.92	11.40
	8H	12.51	12.79	13.63	13.90	15.41	8.65	8.93	9.78	10.05	11.56
	12H	12.65	12.89	13.78	14.01	15.55	8.77	9.02	9.90	10.13	11.67
12H	4H	11.67	12.02	12.78	13.13	14.62	7.95	8.30	9.06	9.40	10.90
	6H	12.26	12.54	13.39	13.66	15.17	8.51	8.79	9.64	9.91	11.42
	8H	12.48	12.73	13.61	13.84	15.39	8.72	8.97	9.85	10.08	11.62