

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: P925647

Luminaire Tested: DFN2DIP-SQ3F0-090D110US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925647
REPORT IS A COMBINATION OF REPORTS P901518 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D110US950-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

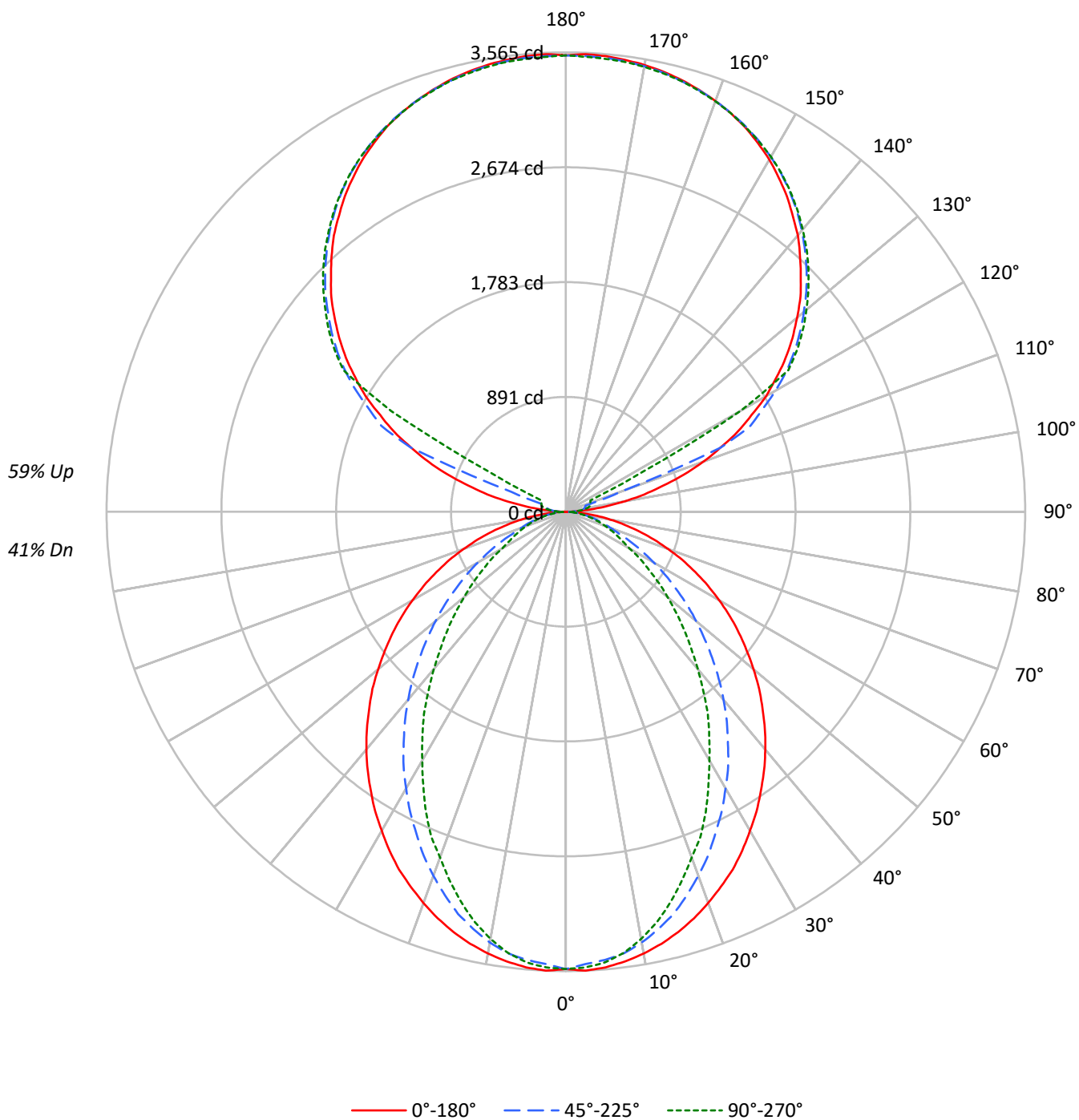
Lumens per Lamp: N/A
Luminaire Lumens: 17687.2 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 173.7
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	78	78	78	63	63	63	48	48	48
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	43	42	41
2	88	81	75	70	80	74	69	65	61	58	55	49	47	45	38	37	35
3	80	71	64	59	73	65	59	55	54	50	46	44	41	38	34	32	31
4	74	63	56	50	67	58	52	47	48	44	40	39	36	33	31	29	27
5	68	57	49	43	62	52	45	40	44	38	35	36	32	29	28	26	24
6	63	51	43	38	57	47	40	35	39	34	30	32	28	26	26	23	21
7	58	46	38	33	53	42	36	31	36	31	27	29	26	23	24	21	19
8	54	42	34	29	49	39	32	27	33	28	24	27	23	20	22	19	17
9	50	38	31	26	46	35	29	25	30	25	21	25	21	18	20	17	15
10	47	35	28	23	43	33	26	22	28	23	19	23	19	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4066	4066	4066
5°	4070	3999	4026
10°	4027	3918	3893
15°	3969	3786	3690
20°	3893	3605	3440
25°	3815	3402	3199
30°	3712	3195	2894
35°	3610	2972	2626
40°	3507	2742	2319
45°	3387	2487	2041
50°	3262	2230	1769
55°	3132	1956	1508
60°	2981	1670	1240
65°	2808	1379	1115
70°	2597	1107	1007
75°	2332	970	913
80°	1948	805	787
85°	1320	525	584

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3387 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.6	1.9
10°-20°	913.0	5.2
20°-30°	1281.8	7.2
30°-40°	1397.3	7.9
40°-50°	1284.2	7.3
50°-60°	1008.6	5.7
60°-70°	656.5	3.7
70°-80°	337.9	1.9
80°-90°	92.5	0.5
90°-100°	116.8	0.7
100°-110°	435.4	2.5
110°-120°	1154.6	6.5
120°-130°	1915.0	10.8
130°-140°	2034.2	11.5
140°-150°	1890.5	10.7
150°-160°	1519.9	8.6
160°-170°	979.4	5.5
170°-180°	337.1	1.9
0°-30°	2527.4	14.3
0°-40°	3924.6	22.2
0°-60°	6217.4	35.2
0°-90°	7304.4	41.3
90°-120°	1706.7	9.6
90°-150°	7546.4	42.7
90°-180°	10383.0	58.7
0°-180°	17687.2	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	31	51	64	69	17
95°	166	82	100	113	110	197
105°	779	856	156	184	195	832
115°	1474	1517	1581	395	210	1451
125°	2083	2117	2166	2183	2191	1858
135°	2578	2619	2642	2668	2663	1992
145°	2991	2988	3032	3050	3037	1871
155°	3293	3270	3301	3316	3296	1517
165°	3470	3454	3462	3480	3462	980
175°	3549	3531	3536	3554	3529	338
180°	3542	3542	3542	3542	3542	

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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°	2.5	30.7	51.1	64.2	69.1
92.5°	64.2	53.9	61.4	66.7	69.1
95°	166.5	81.9	99.8	112.9	110.2
97.5°	299.7	89.8	130.5	138.4	140.9
100°	453.7	102.6	146.1	166.5	171.6
102.5°	622.6	617.7	151.2	179.3	187.2
105°	779.0	856.0	156.5	184.4	194.8
107.5°	961.1	1024.9	161.6	189.6	200.0
110°	1135.4	1189.0	448.6	192.3	202.3



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1299.4	1345.3	1301.8	197.2	205.1
115°	1473.5	1517.0	1581.3	394.7	210.3
117.5°	1624.8	1675.9	1719.7	1353.0	681.6
120°	1793.9	1832.3	1878.5	1909.2	1563.2
122.5°	1937.3	1978.3	2029.7	2045.0	2047.8
125°	2083.3	2116.8	2165.5	2183.4	2191.1
127.5°	2216.6	2252.5	2291.1	2316.7	2319.2
130°	2342.3	2383.4	2411.3	2439.7	2437.3
132.5°	2470.4	2503.9	2531.9	2555.0	2552.6
135°	2578.2	2619.2	2642.0	2668.0	2662.7
137.5°	2690.8	2721.5	2747.3	2772.9	2765.3
140°	2800.9	2821.6	2849.6	2872.7	2859.9
142.5°	2893.4	2911.3	2944.5	2964.9	2952.2
145°	2990.8	2988.0	3031.5	3049.6	3036.8
147.5°	3075.1	3067.5	3111.0	3123.8	3113.8
150°	3157.3	3139.3	3180.3	3195.6	3182.8
152.5°	3226.3	3205.9	3244.3	3259.8	3241.9
155°	3293.0	3270.1	3300.8	3316.1	3295.7
157.5°	3346.8	3326.4	3349.6	3367.5	3346.8
160°	3393.1	3377.5	3393.1	3408.3	3390.3
162.5°	3433.8	3418.7	3431.4	3449.4	3426.3
165°	3469.8	3454.5	3462.2	3480.1	3462.2
167.5°	3498.0	3482.6	3490.5	3508.4	3485.3
170°	3521.2	3505.7	3510.8	3528.8	3505.7
172.5°	3536.4	3521.2	3526.4	3544.3	3521.2
175°	3549.2	3531.2	3536.4	3554.4	3528.8
177.5°	3554.4	3536.4	3539.1	3557.1	3534.0
180°	3541.6	3541.6	3541.6	3541.6	3541.6

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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	11.12	11.88	12.15	12.92	14.31	7.08	7.84	8.11	8.88	10.27
	3H	12.78	13.47	13.83	14.51	15.93	8.25	8.94	9.30	9.98	11.40
	4H	13.39	14.03	14.44	15.08	16.50	8.70	9.34	9.75	10.39	11.81
	6H	13.80	14.40	14.87	15.45	16.88	9.01	9.60	10.07	10.66	12.09
	8H	13.92	14.49	14.99	15.56	16.98	9.09	9.66	10.16	10.73	12.15
	12H	13.98	14.52	15.06	15.58	17.03	9.13	9.67	10.21	10.73	12.18
4H	2H	11.12	11.77	12.19	12.82	14.24	7.66	8.31	8.73	9.36	10.78
	3H	12.94	13.48	14.01	14.56	15.99	9.00	9.54	10.07	10.61	12.04
	4H	13.63	14.12	14.70	15.19	16.64	9.54	10.03	10.61	11.10	12.55
	6H	14.14	14.56	15.22	15.65	17.10	9.95	10.37	11.03	11.46	12.91
	8H	14.31	14.70	15.39	15.78	17.25	10.07	10.47	11.16	11.55	13.01
	12H	14.40	14.75	15.50	15.85	17.32	10.13	10.49	11.23	11.58	13.05
8H	4H	13.59	13.98	14.67	15.07	16.53	9.81	10.20	10.90	11.29	12.75
	6H	14.15	14.47	15.25	15.60	17.06	10.32	10.64	11.43	11.77	13.23
	8H	14.36	14.65	15.47	15.75	17.23	10.50	10.79	11.62	11.90	13.38
	12H	14.49	14.74	15.61	15.85	17.36	10.62	10.87	11.73	11.97	13.49
12H	4H	13.54	13.89	14.64	14.99	16.46	9.81	10.17	10.91	11.26	12.73
	6H	14.12	14.41	15.24	15.51	16.99	10.37	10.65	11.48	11.76	13.24
	8H	14.34	14.59	15.45	15.69	17.21	10.57	10.82	11.68	11.92	13.44