

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: P909280

Luminaire Tested: DFN2DIP-SQ3F0-090D120US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909280
REPORT IS A COMBINATION OF REPORTS P900015 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D120US840-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

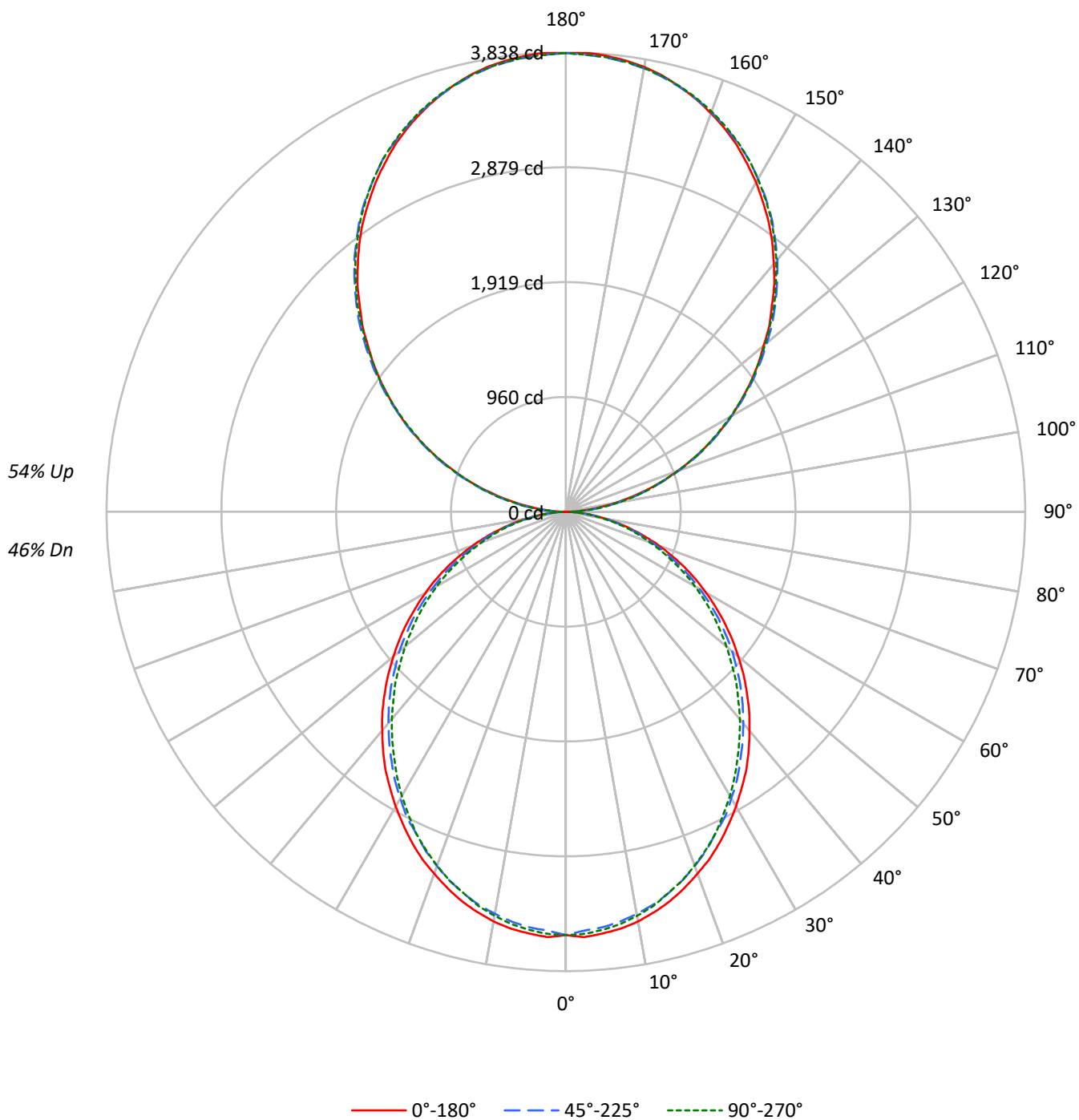
Lumens per Lamp: N/A
Luminaire Lumens: 19722.7 lumens
Efficiency: N/A
Efficacy: 108.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

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	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	41	39	37
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	34	32
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27
5	67	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24
6	62	50	42	36	57	46	39	34	39	34	30	33	28	25	26	23	21
7	57	45	37	32	53	42	35	30	36	30	26	30	25	22	24	21	19
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4052	4052	4052
5°	4056	3993	4021
10°	4021	3936	3965
15°	3959	3869	3879
20°	3876	3776	3791
25°	3794	3666	3689
30°	3692	3563	3559
35°	3595	3442	3423
40°	3476	3320	3292
45°	3357	3197	3159
50°	3227	3068	3005
55°	3090	2919	2863
60°	2935	2742	2700
65°	2767	2559	2508
70°	2551	2335	2301
75°	2254	2067	2107
80°	1894	1724	1742
85°	1334	1143	1140

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3856 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	332.9	1.7
10°-20°	936.5	4.7
20°-30°	1376.3	7.0
30°-40°	1598.5	8.1
40°-50°	1596.5	8.1
50°-60°	1392.1	7.1
60°-70°	1029.1	5.2
70°-80°	582.2	3.0
80°-90°	164.6	0.8
90°-100°	237.2	1.2
100°-110°	753.5	3.8
110°-120°	1289.5	6.5
120°-130°	1696.0	8.6
130°-140°	1903.6	9.7
140°-150°	1866.7	9.5
150°-160°	1565.9	7.9
160°-170°	1038.5	5.3
170°-180°	363.0	1.8
0°-30°	2645.7	13.4
0°-40°	4244.2	21.5
0°-60°	7232.9	36.7
0°-90°	9008.8	45.7
90°-120°	2280.2	11.6
90°-150°	7746.5	39.3
90°-180°	10714.0	54.3
0°-180°	19722.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3536	3536	3536	3536	3536	
5°	3536	3523	3486	3513	3506	336
15°	3367	3346	3302	3316	3299	948
25°	3047	3020	2962	2969	2962	1402
35°	2629	2595	2540	2520	2503	1642
45°	2139	2115	2064	2027	2013	1651
55°	1619	1598	1558	1517	1500	1447
65°	1092	1071	1037	1007	990	1079
75°	571	565	547	527	534	610
85°	139	136	133	122	119	155
90°	3	42	113	106	110	19
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3536.4	3536.4	3536.4	3536.4	3536.4
2.5°	3557.0	3540.1	3502.6	3536.4	3530.0
5°	3536.4	3523.1	3485.7	3512.7	3506.2
7.5°	3512.7	3492.5	3455.0	3482.4	3475.6
10°	3475.6	3451.7	3410.9	3438.0	3427.9
12.5°	3424.3	3404.1	3363.4	3380.2	3373.5
15°	3366.6	3346.4	3302.0	3315.7	3298.7
17.5°	3295.1	3274.9	3230.6	3247.5	3230.6
20°	3216.8	3196.6	3149.0	3159.1	3145.7
22.5°	3138.9	3108.3	3063.8	3063.8	3057.0
25°	3046.9	3019.8	2962.1	2968.6	2962.1
27.5°	2944.8	2920.9	2877.0	2866.9	2849.9
30°	2843.1	2815.6	2764.7	2754.6	2741.0
32.5°	2734.1	2713.9	2659.4	2638.9	2625.1
35°	2628.8	2594.8	2540.3	2519.8	2502.9
37.5°	2509.7	2479.0	2424.5	2400.8	2383.8
40°	2387.3	2360.0	2305.4	2275.1	2261.5
42.5°	2268.3	2240.9	2186.8	2152.5	2132.3
45°	2139.1	2115.4	2064.1	2026.9	2013.3
47.5°	2013.3	1989.4	1934.9	1897.4	1877.2
50°	1880.5	1863.5	1815.8	1768.3	1751.3
52.5°	1751.3	1727.5	1683.4	1646.0	1622.1
55°	1618.9	1598.3	1557.5	1516.8	1499.9
57.5°	1486.1	1469.2	1424.8	1384.0	1370.3
60°	1353.3	1340.0	1292.3	1254.9	1244.8
62.5°	1224.2	1200.3	1166.4	1132.6	1118.8
65°	1091.8	1071.2	1037.2	1006.6	989.7
67.5°	955.7	938.5	908.1	884.3	870.6
70°	829.8	816.1	785.5	761.6	748.3
72.5°	700.6	686.9	669.9	646.2	636.1
75°	571.2	564.6	547.3	527.1	534.0
77.5°	455.7	442.0	435.2	425.1	415.0
80°	340.2	336.6	329.7	319.6	312.9
82.5°	231.3	231.3	228.0	214.3	214.3
85°	139.3	136.0	132.8	122.3	119.1
87.5°	61.3	54.4	47.7	37.6	33.9
90°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5

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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	11.68	12.51	12.68	13.51	14.84	11.24	12.06	12.23	13.07	14.40
	3H	13.34	14.08	14.34	15.09	16.44	12.85	13.59	13.85	14.60	15.95
	4H	13.92	14.62	14.94	15.64	17.00	13.43	14.13	14.44	15.14	16.50
	6H	14.31	14.96	15.34	15.98	17.35	13.81	14.46	14.84	15.48	16.85
	8H	14.42	15.03	15.45	16.07	17.44	13.91	14.53	14.95	15.57	16.94
	12H	14.46	15.05	15.50	16.08	17.47	13.95	14.54	14.99	15.57	16.96
4H	2H	12.14	12.84	13.16	13.85	15.21	11.78	12.48	12.80	13.50	14.86
	3H	13.99	14.58	15.03	15.62	17.00	13.59	14.17	14.62	15.22	16.59
	4H	14.70	15.24	15.74	16.27	17.67	14.28	14.81	15.32	15.85	17.25
	6H	15.21	15.67	16.26	16.73	18.12	14.78	15.24	15.83	16.30	17.69
	8H	15.36	15.79	16.41	16.84	18.25	14.92	15.35	15.97	16.40	17.81
	12H	15.43	15.82	16.49	16.88	18.30	14.98	15.37	16.05	16.43	17.85
8H	4H	14.89	15.32	15.94	16.38	17.78	14.51	14.94	15.56	16.00	17.41
	6H	15.52	15.87	16.59	16.97	18.37	15.13	15.49	16.20	16.58	17.99
	8H	15.73	16.04	16.81	17.12	18.55	15.34	15.65	16.42	16.73	18.16
	12H	15.86	16.13	16.94	17.21	18.67	15.45	15.72	16.53	16.80	18.26
12H	4H	14.87	15.26	15.94	16.33	17.74	14.51	14.89	15.57	15.96	17.38
	6H	15.54	15.86	16.62	16.93	18.36	15.17	15.48	16.25	16.56	17.99
	8H	15.78	16.05	16.86	17.13	18.59	15.40	15.67	16.48	16.75	18.21