

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: P909208

Luminaire Tested: DFN2DIP-SQ3F0-070D120US840-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909208
REPORT IS A COMBINATION OF REPORTS P900011 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-070D120US840-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

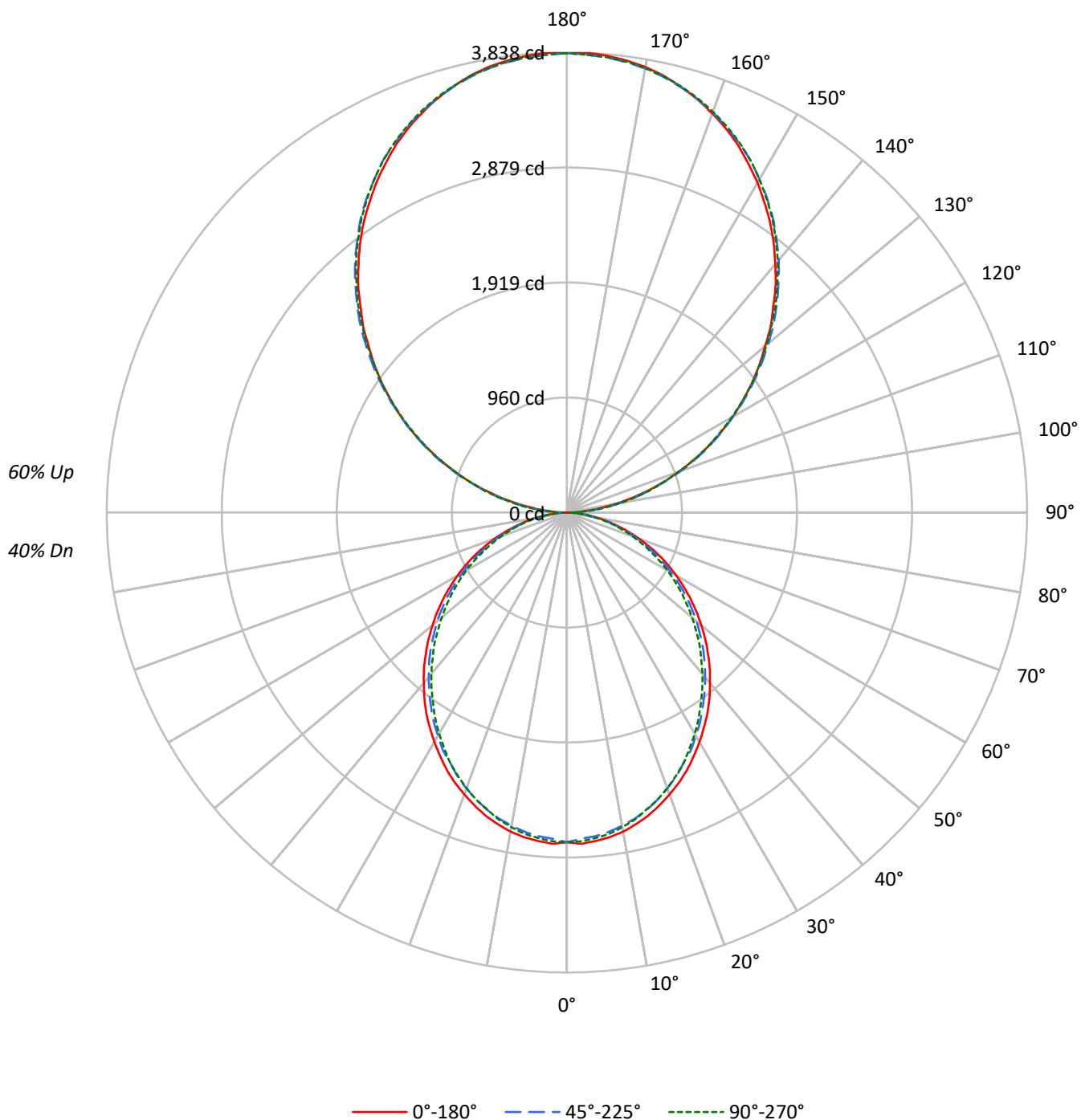
Lumens per Lamp: N/A
Luminaire Lumens: 17723.2 lumens
Efficiency: N/A
Efficacy: 111.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 159.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909208

CATALOG NUMBER: DFN2DIP-SQ3F0-070D120US840-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P909208

CATALOG NUMBER: DFN2DIP-SQ3F0-070D120US840-FLLFLL

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	78	78	78	61	61	61	47	47	47
1	95	91	87	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	68	79	73	67	63	59	56	53	47	45	43	36	35	33
3	79	70	63	57	72	64	58	53	52	48	44	42	39	36	32	30	28
4	72	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	66	55	47	41	60	50	43	38	42	36	32	33	30	27	26	23	21
6	61	49	41	36	55	45	38	33	37	32	28	30	26	23	23	21	19
7	56	44	37	31	51	41	34	29	34	29	25	27	24	21	21	19	16
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13
10	45	34	27	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3152	3152	3152
5°	3155	3106	3128
10°	3127	3062	3084
15°	3079	3009	3017
20°	3015	2937	2948
25°	2951	2851	2869
30°	2872	2771	2768
35°	2796	2677	2662
40°	2703	2582	2561
45°	2611	2487	2457
50°	2510	2386	2337
55°	2403	2270	2227
60°	2283	2133	2100
65°	2152	1990	1950
70°	1984	1816	1789
75°	1753	1608	1639
80°	1473	1341	1355
85°	1038	889	887

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3856 cd/sqm

TEST NUMBER: P909208

CATALOG NUMBER: DFN2DIP-SQ3F0-070D120US840-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	258.9	1.5
10°-20°	728.4	4.1
20°-30°	1070.5	6.0
30°-40°	1243.3	7.0
40°-50°	1241.7	7.0
50°-60°	1082.8	6.1
60°-70°	800.4	4.5
70°-80°	452.9	2.6
80°-90°	130.4	0.7
90°-100°	237.2	1.3
100°-110°	753.5	4.3
110°-120°	1289.5	7.3
120°-130°	1696.0	9.6
130°-140°	1903.6	10.7
140°-150°	1866.7	10.5
150°-160°	1565.9	8.8
160°-170°	1038.5	5.9
170°-180°	363.0	2.0
0°-30°	2057.8	11.6
0°-40°	3301.1	18.6
0°-60°	5625.6	31.7
0°-90°	7009.3	39.5
90°-120°	2280.2	12.9
90°-150°	7746.5	43.7
90°-180°	10714.0	60.5
0°-180°	17723.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2751	2751	2751	2751	2751	
5°	2751	2740	2711	2732	2727	261
15°	2618	2603	2568	2579	2566	737
25°	2370	2349	2304	2309	2304	1090
35°	2045	2018	1976	1960	1947	1277
45°	1664	1645	1605	1576	1566	1284
55°	1259	1243	1211	1180	1166	1126
65°	849	833	807	783	770	840
75°	444	439	426	410	415	474
85°	108	106	103	95	93	121
90°	3	42	113	106	110	17
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	

TEST NUMBER: P909208

CATALOG NUMBER: DFN2DIP-SQ3F0-070D120US840-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2750.6	2750.6	2750.6	2750.6	2750.6
2.5°	2766.6	2753.4	2724.2	2750.6	2745.5
5°	2750.6	2740.3	2711.1	2732.1	2727.0
7.5°	2732.1	2716.3	2687.2	2708.6	2703.2
10°	2703.2	2684.6	2652.9	2674.0	2666.1
12.5°	2663.3	2647.7	2616.0	2629.1	2623.7
15°	2618.5	2602.7	2568.2	2578.9	2565.7
17.5°	2562.8	2547.2	2512.6	2525.9	2512.6
20°	2501.9	2486.3	2449.2	2457.1	2446.7
22.5°	2441.3	2417.5	2383.0	2383.0	2377.6
25°	2369.9	2348.7	2303.9	2309.0	2303.9
27.5°	2290.4	2271.9	2237.7	2229.8	2216.6
30°	2211.3	2189.9	2150.4	2142.5	2131.8
32.5°	2126.5	2110.8	2068.4	2052.5	2041.7
35°	2044.6	2018.2	1975.8	1959.8	1946.6
37.5°	1952.0	1928.1	1885.7	1867.2	1854.0
40°	1856.8	1835.5	1793.1	1769.6	1758.9
42.5°	1764.2	1742.9	1700.8	1674.2	1658.4
45°	1663.8	1645.3	1605.4	1576.5	1565.8
47.5°	1565.8	1547.3	1504.9	1475.7	1460.1
50°	1462.6	1449.4	1412.3	1375.3	1362.1
52.5°	1362.1	1343.6	1309.4	1280.2	1261.6
55°	1259.1	1243.1	1211.4	1179.7	1166.5
57.5°	1155.9	1142.7	1108.1	1076.4	1065.8
60°	1052.6	1042.2	1005.2	976.0	968.2
62.5°	952.1	933.6	907.3	880.9	870.2
65°	849.2	833.1	806.8	782.9	769.7
67.5°	743.4	729.9	706.3	687.8	677.1
70°	645.4	634.8	610.9	592.4	582.0
72.5°	544.9	534.3	521.1	502.6	494.7
75°	444.2	439.2	425.7	410.0	415.4
77.5°	354.5	343.8	338.4	330.5	322.8
80°	264.6	261.9	256.5	248.6	243.3
82.5°	179.9	179.9	177.3	166.7	166.7
85°	108.4	105.8	103.3	95.1	92.6
87.5°	47.7	42.4	37.1	29.2	26.4
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

TEST NUMBER: P909208

CATALOG NUMBER: DFN2DIP-SQ3F0-070D120US840-FLLFLL

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	10.17	10.95	11.22	12.00	13.41	9.73	10.50	10.77	11.55	12.96
	3H	11.82	12.52	12.87	13.57	15.01	11.33	12.03	12.38	13.08	14.52
	4H	12.40	13.06	13.47	14.12	15.56	11.91	12.57	12.97	13.63	15.06
	6H	12.80	13.40	13.87	14.46	15.91	12.29	12.90	13.37	13.96	15.41
	8H	12.90	13.47	13.97	14.55	16.00	12.39	12.97	13.47	14.05	15.49
	12H	12.94	13.49	14.02	14.56	16.03	12.43	12.98	13.51	14.05	15.52
4H	2H	10.62	11.28	11.69	12.34	13.78	10.26	10.92	11.34	11.98	13.42
	3H	12.47	13.02	13.55	14.11	15.56	12.06	12.61	13.14	13.70	15.15
	4H	13.18	13.68	14.26	14.76	16.23	12.76	13.26	13.84	14.34	15.81
	6H	13.69	14.12	14.78	15.22	16.68	13.25	13.69	14.34	14.79	16.25
	8H	13.83	14.23	14.92	15.33	16.81	13.39	13.80	14.49	14.89	16.37
	12H	13.90	14.26	15.01	15.37	16.86	13.45	13.81	14.56	14.92	16.41
8H	4H	13.36	13.77	14.46	14.86	16.34	12.99	13.39	14.08	14.48	15.97
	6H	13.99	14.32	15.10	15.45	16.93	13.60	13.94	14.72	15.07	16.55
	8H	14.20	14.50	15.32	15.61	17.11	13.81	14.10	14.93	15.22	16.72
	12H	14.33	14.58	15.45	15.70	17.23	13.92	14.17	15.04	15.29	16.82
12H	4H	13.35	13.71	14.45	14.82	16.30	12.98	13.34	14.09	14.45	15.94
	6H	14.01	14.31	15.13	15.42	16.92	13.64	13.93	14.76	15.05	16.55
	8H	14.25	14.51	15.37	15.62	17.15	13.87	14.12	14.99	15.24	16.77