

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: P911788

Luminaire Tested: DFN2DIP-SQ2F0-080D070US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911788
REPORT IS A COMBINATION OF REPORTS P899829 AND P896659
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ2F0-080D070US850-FLLFLL
Description: 2 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

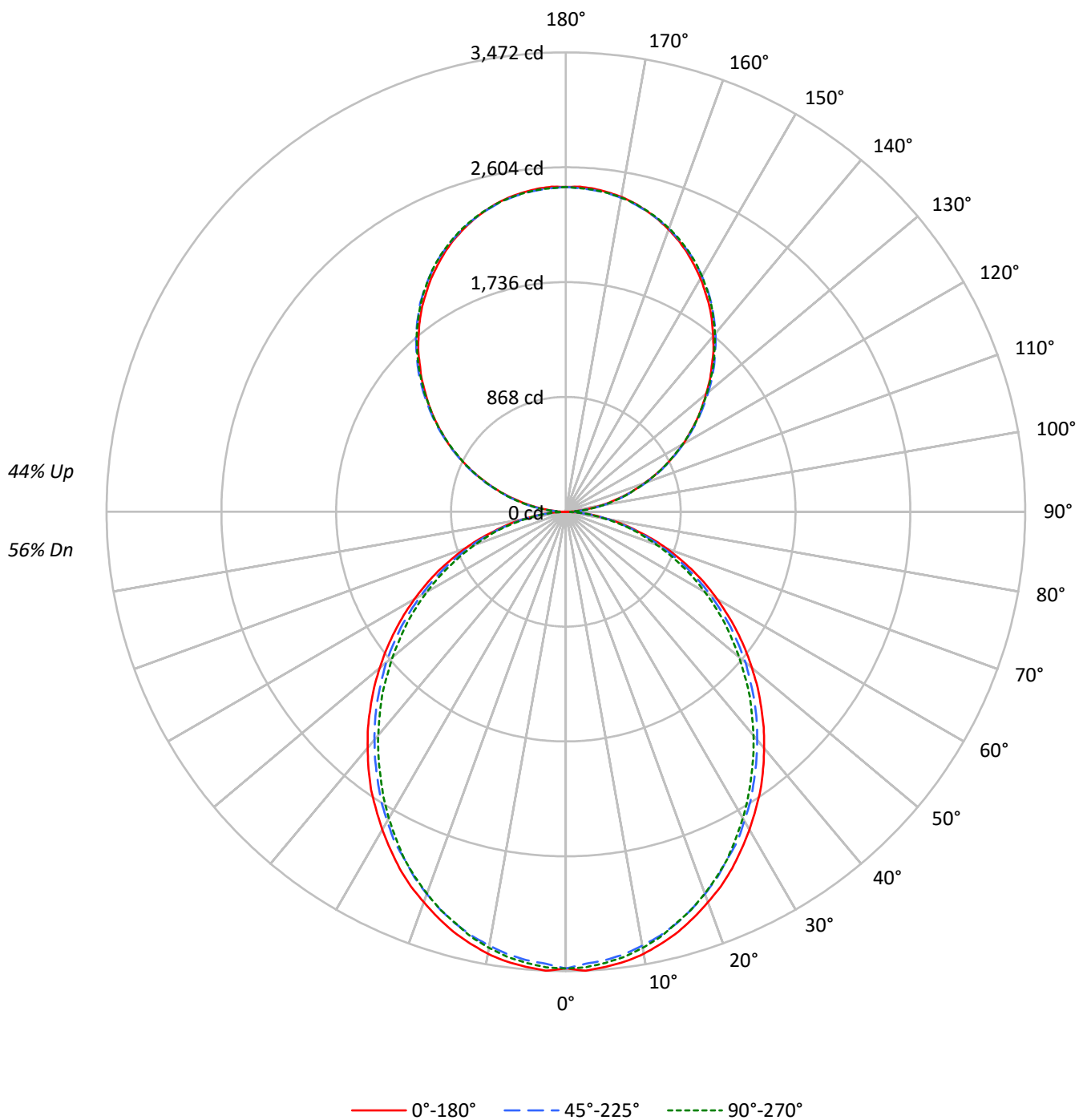
Lumens per Lamp: N/A
Luminaire Lumens: 15653.6 lumens
Efficiency: N/A
Efficacy: 117.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.21' x L: 2.21' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 133.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P911788

CATALOG NUMBER: DFN2DIP-SQ2F0-080D070US850-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P911788

CATALOG NUMBER: DFN2DIP-SQ2F0-080D070US850-FLLFL

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	109	109	109	109		101	101	101	101		87	87	87		74	74	74		62	62	62
1	99	95	91	87		92	88	85	82		76	74	71		65	63	61		55	53	52
2	90	83	77	71		84	77	72	67		67	63	59		57	54	51		48	46	44
3	82	73	65	59		76	68	61	56		59	54	50		50	47	43		43	40	37
4	75	64	56	50		70	60	53	48		52	47	42		45	41	37		38	35	32
5	69	57	49	43		64	54	46	41		47	41	37		40	36	32		34	31	28
6	64	52	43	38		59	48	41	36		42	36	32		37	32	28		31	28	25
7	59	47	39	33		55	44	37	31		38	32	28		33	29	25		28	25	22
8	55	42	35	29		51	40	33	28		35	29	25		30	26	22		26	23	20
9	51	39	31	26		47	36	30	25		32	26	23		28	23	20		24	21	18
10	48	36	28	23		44	34	27	22		30	24	20		26	21	18		22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	7591	7591	7591
5°	7590	7469	7525
10°	7515	7352	7412
15°	7392	7214	7243
20°	7229	7029	7069
25°	7067	6812	6871
30°	6867	6609	6621
35°	6677	6371	6357
40°	6445	6131	6105
45°	6213	5889	5847
50°	5958	5634	5549
55°	5691	5341	5272
60°	5388	4995	4955
65°	5055	4633	4582
70°	4632	4193	4177
75°	4053	3665	3789
80°	3347	2992	3077
85°	2262	1889	1933

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 6213 cd/sqm

TEST NUMBER: P911788

CATALOG NUMBER: DFN2DIP-SQ2F0-080D070US850-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	2.1
10°-20°	914.2	5.8
20°-30°	1343.5	8.6
30°-40°	1560.4	10.0
40°-50°	1558.4	10.0
50°-60°	1358.9	8.7
60°-70°	1004.5	6.4
70°-80°	568.4	3.6
80°-90°	157.0	1.0
90°-100°	151.9	1.0
100°-110°	482.7	3.1
110°-120°	826.1	5.3
120°-130°	1086.4	6.9
130°-140°	1219.5	7.8
140°-150°	1195.8	7.6
150°-160°	1003.1	6.4
160°-170°	665.3	4.2
170°-180°	232.5	1.5
0°-30°	2582.6	16.5
0°-40°	4143.0	26.5
0°-60°	7060.4	45.1
0°-90°	8790.2	56.2
90°-120°	1460.7	9.3
90°-150°	4962.4	31.7
90°-180°	6863.0	43.8
0°-180°	15653.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	2	27	72	68	70	15
95°	108	129	132	132	129	120
105°	446	452	456	460	460	470
115°	829	841	837	835	829	820
125°	1206	1224	1218	1212	1210	1077
135°	1560	1582	1587	1585	1579	1205
145°	1893	1908	1920	1922	1914	1183
155°	2165	2171	2178	2188	2181	997
165°	2355	2353	2353	2368	2357	664
175°	2451	2445	2440	2455	2443	233
180°	2455	2455	2455	2455	2455	

TEST NUMBER: P911788

CATALOG NUMBER: DFN2DIP-SQ2F0-080D070US850-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	2.2	26.6	72.5	68.1	70.3
92.5°	45.9	62.2	64.4	66.7	66.7
95°	108.0	128.8	132.5	132.5	128.8
97.5°	179.9	199.1	207.3	207.3	207.3
100°	262.7	279.8	285.7	285.7	283.5
102.5°	350.1	362.6	370.8	373.1	370.8
105°	445.6	451.5	455.9	459.7	459.7
107.5°	540.3	549.2	549.2	550.7	540.3
110°	632.1	644.0	644.0	644.0	638.0

TEST NUMBER: P911788

CATALOG NUMBER: DFN2DIP-SQ2F0-080D070US850-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	731.3	743.9	741.7	735.7	731.3
115°	829.0	840.8	837.2	835.0	829.0
117.5°	925.9	942.2	931.9	925.9	920.0
120°	1023.6	1039.9	1023.6	1023.6	1017.0
122.5°	1112.4	1133.2	1122.9	1116.9	1112.4
125°	1205.7	1224.2	1218.3	1211.7	1209.5
127.5°	1296.8	1319.7	1311.6	1302.7	1296.8
130°	1381.9	1408.5	1404.9	1400.4	1392.2
132.5°	1477.4	1498.1	1499.6	1489.3	1483.3
135°	1559.6	1582.4	1587.0	1584.7	1578.8
137.5°	1651.3	1669.8	1673.5	1672.0	1663.2
140°	1732.0	1750.6	1760.9	1760.9	1752.8
142.5°	1814.9	1833.4	1839.3	1841.5	1833.4
145°	1893.4	1908.1	1920.0	1922.2	1914.1
147.5°	1963.7	1982.2	1991.1	1994.8	1986.7
150°	2036.2	2048.8	2057.0	2063.6	2057.0
152.5°	2100.6	2113.2	2123.5	2131.7	2123.5
155°	2165.0	2170.9	2177.6	2187.9	2181.3
157.5°	2220.6	2225.0	2228.6	2243.5	2233.1
160°	2270.1	2274.6	2276.8	2289.3	2280.4
162.5°	2316.0	2316.0	2318.3	2332.2	2321.9
165°	2355.2	2353.0	2353.0	2367.8	2357.4
167.5°	2390.8	2384.1	2384.1	2398.9	2388.6
170°	2417.4	2411.5	2409.3	2424.1	2411.5
172.5°	2435.9	2429.9	2427.7	2442.6	2429.9
175°	2450.7	2444.8	2440.4	2455.1	2442.6
177.5°	2458.9	2452.9	2448.5	2461.1	2448.5
180°	2455.1	2455.1	2455.1	2455.1	2455.1

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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	14.75	15.67	15.65	16.59	17.77	14.30	15.22	15.21	16.15	17.33
	3H	16.39	17.22	17.31	18.15	19.35	15.90	16.73	16.82	17.66	18.86
	4H	16.97	17.75	17.90	18.69	19.90	16.48	17.26	17.41	18.19	19.41
	6H	17.36	18.08	18.30	19.02	20.25	16.86	17.58	17.80	18.52	19.75
	8H	17.46	18.14	18.41	19.10	20.33	16.96	17.64	17.90	18.60	19.83
	12H	17.50	18.15	18.45	19.11	20.36	16.99	17.64	17.95	18.60	19.85
4H	2H	15.21	15.99	16.14	16.92	18.14	14.85	15.63	15.78	16.57	17.78
	3H	17.05	17.71	18.00	18.67	19.90	16.65	17.30	17.59	18.26	19.49
	4H	17.75	18.35	18.71	19.31	20.56	17.33	17.93	18.29	18.89	20.14
	6H	18.25	18.77	19.22	19.75	21.01	17.82	18.34	18.79	19.32	20.57
	8H	18.40	18.88	19.37	19.85	21.12	17.96	18.44	18.93	19.42	20.68
	12H	18.46	18.90	19.45	19.89	21.16	18.01	18.45	19.00	19.44	20.72
8H	4H	17.94	18.42	18.91	19.40	20.67	17.57	18.05	18.54	19.02	20.29
	6H	18.55	18.95	19.55	19.97	21.24	18.17	18.57	19.16	19.59	20.85
	8H	18.76	19.11	19.77	20.12	21.40	18.37	18.72	19.37	19.73	21.01
	12H	18.88	19.19	19.89	20.19	21.52	18.47	18.78	19.48	19.78	21.11
12H	4H	17.93	18.36	18.92	19.36	20.63	17.56	17.99	18.55	18.99	20.26
	6H	18.58	18.93	19.58	19.94	21.22	18.21	18.56	19.21	19.57	20.85
	8H	18.81	19.12	19.82	20.12	21.45	18.43	18.74	19.44	19.74	21.07