

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: P912215

Luminaire Tested: DFN2DIP-SQ4F0-080D110US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912215
REPORT IS A COMBINATION OF REPORTS P901674 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D110US850-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

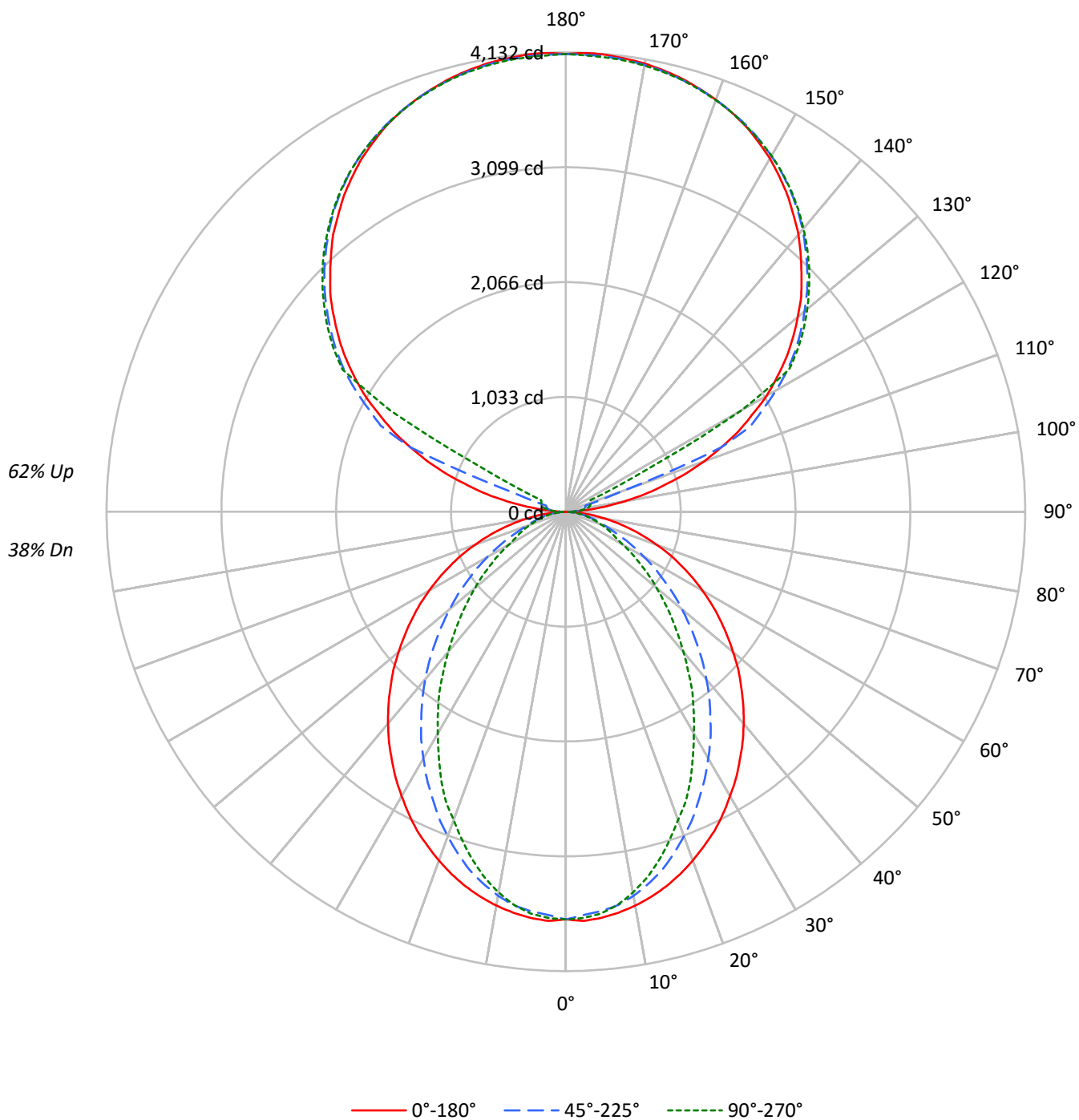
Lumens per Lamp: N/A
Luminaire Lumens: 19618.2 lumens
Efficiency: N/A
Efficacy: 127.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 154.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912215

CATALOG NUMBER: DFN2DIP-SQ4F0-080D110US850-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912215

CATALOG NUMBER: DFN2DIP-SQ4F0-080D110US850-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	50	30	10
RCR																				
0	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46	38		
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39	33		
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34	28		
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29	24		
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25	21		
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22	19		
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20	17		
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18	15		
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16	13		
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14	12		
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13	11		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2573	2573	2573
5°	2577	2533	2549
10°	2551	2483	2467
15°	2516	2402	2339
20°	2470	2289	2182
25°	2422	2163	2031
30°	2358	2033	1839
35°	2296	1894	1670
40°	2232	1749	1476
45°	2158	1589	1300
50°	2081	1428	1129
55°	2001	1255	964
60°	1909	1074	794
65°	1802	890	715
70°	1673	718	649
75°	1511	634	592
80°	1276	534	516
85°	889	359	393

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2207 cd/sqm

TEST NUMBER: P912215

CATALOG NUMBER: DFN2DIP-SQ4F0-080D110US850-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	343.7	1.8
10°-20°	943.4	4.8
20°-30°	1324.5	6.8
30°-40°	1443.8	7.4
40°-50°	1327.0	6.8
50°-60°	1042.1	5.3
60°-70°	678.3	3.5
70°-80°	349.2	1.8
80°-90°	96.4	0.5
90°-100°	135.7	0.7
100°-110°	506.1	2.6
110°-120°	1342.2	6.8
120°-130°	2226.1	11.3
130°-140°	2364.7	12.1
140°-150°	2197.7	11.2
150°-160°	1766.9	9.0
160°-170°	1138.5	5.8
170°-180°	391.9	2.0
0°-30°	2611.6	13.3
0°-40°	4055.4	20.7
0°-60°	6424.5	32.7
0°-90°	7548.4	38.5
90°-120°	1984.0	10.1
90°-150°	8772.5	44.7
90°-180°	12070.0	61.5
0°-180°	19618.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3650	3607	3637	3627	348
15°	3488	3451	3338	3275	3242	983
25°	3166	3060	2840	2705	2655	1456
35°	2728	2558	2267	2058	1984	1707
45°	2230	2008	1659	1423	1344	1722
55°	1696	1437	1078	879	816	1515
65°	1145	876	577	465	454	1135
75°	610	378	266	242	239	646
85°	143	73	63	63	63	164
90°	3	36	59	75	80	18
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

TEST NUMBER: P912215

CATALOG NUMBER: DFN2DIP-SQ4F0-080D110US850-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3666.8	3666.8	3666.8	3666.8	3666.8
2.5°	3683.3	3666.8	3630.2	3663.6	3656.9
5°	3666.8	3650.3	3606.9	3636.9	3627.0
7.5°	3636.9	3617.1	3570.6	3583.7	3567.1
10°	3597.0	3573.9	3507.7	3497.5	3477.7
12.5°	3547.5	3517.5	3427.7	3408.0	3371.4
15°	3487.6	3451.0	3338.3	3275.3	3242.2
17.5°	3417.8	3364.7	3225.3	3152.4	3099.2
20°	3338.3	3271.8	3106.0	3023.2	2949.9
22.5°	3252.0	3175.6	2983.1	2870.4	2820.7
25°	3165.8	3059.5	2840.5	2704.6	2654.6
27.5°	3062.9	2949.9	2707.7	2551.8	2475.4
30°	2953.5	2827.1	2561.7	2392.7	2302.8
32.5°	2847.1	2694.4	2422.6	2223.3	2140.3
35°	2727.8	2558.5	2266.6	2057.5	1984.2
37.5°	2611.6	2428.9	2120.5	1891.3	1808.6
40°	2488.8	2289.9	1967.7	1732.1	1645.9
42.5°	2362.7	2150.5	1815.2	1569.6	1486.7
45°	2230.0	2007.5	1659.3	1423.4	1343.9
47.5°	2104.0	1868.4	1510.0	1274.1	1201.3
50°	1964.5	1729.0	1364.0	1134.7	1065.3
52.5°	1828.3	1579.3	1224.4	1005.5	942.5
55°	1695.6	1436.8	1078.4	879.4	816.4
57.5°	1559.7	1294.2	949.2	763.3	710.1
60°	1420.2	1154.8	812.9	643.9	590.8
62.5°	1284.3	1018.8	696.8	537.6	511.2
65°	1144.9	875.9	577.3	464.8	454.5
67.5°	1012.2	743.3	464.8	408.0	398.2
70°	872.8	614.1	384.8	351.7	338.4
72.5°	740.0	494.3	321.8	295.4	288.7
75°	610.5	378.2	265.5	242.2	239.1
77.5°	481.3	268.6	209.2	195.7	189.1
80°	361.5	192.6	159.1	146.1	146.1
82.5°	252.1	129.5	109.5	102.8	102.8
85°	142.6	72.9	63.0	63.0	63.0
87.5°	53.1	26.4	26.4	23.3	23.3
90°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

TEST NUMBER: P912215

CATALOG NUMBER: DFN2DIP-SQ4F0-080D110US850-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

TEST NUMBER: P912215

CATALOG NUMBER: DFN2DIP-SQ4F0-080D110US850-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	9.26	10.01	10.32	11.06	12.49	5.22	5.97	6.28	7.02	8.45
	3H	10.94	11.60	12.00	12.67	14.12	6.41	7.07	7.47	8.14	9.58
	4H	11.55	12.18	12.62	13.24	14.70	6.85	7.48	7.93	8.55	10.00
	6H	11.97	12.55	13.05	13.62	15.08	7.17	7.75	8.26	8.82	10.29
	8H	12.09	12.64	13.18	13.73	15.19	7.26	7.81	8.35	8.90	10.36
	12H	12.15	12.68	13.25	13.76	15.24	7.30	7.82	8.39	8.90	10.39
4H	2H	9.27	9.90	10.35	10.97	12.42	5.81	6.44	6.89	7.51	8.96
	3H	11.10	11.62	12.19	12.71	14.18	7.15	7.68	8.24	8.77	10.24
	4H	11.79	12.27	12.88	13.35	14.84	7.70	8.18	8.79	9.26	10.75
	6H	12.30	12.72	13.41	13.82	15.30	8.11	8.53	9.22	9.63	11.12
	8H	12.48	12.86	13.58	13.96	15.46	8.24	8.63	9.35	9.73	11.22
	12H	12.57	12.92	13.69	14.03	15.54	8.30	8.65	9.42	9.76	11.27
8H	4H	11.75	12.13	12.85	13.23	14.73	7.98	8.36	9.08	9.46	10.96
	6H	12.32	12.64	13.44	13.78	15.27	8.49	8.81	9.62	9.95	11.44
	8H	12.54	12.81	13.67	13.94	15.45	8.68	8.96	9.82	10.08	11.60
	12H	12.68	12.92	13.81	14.04	15.59	8.80	9.04	9.93	10.16	11.71
12H	4H	11.70	12.05	12.82	13.16	14.66	7.98	8.32	9.10	9.44	10.94
	6H	12.29	12.57	13.42	13.69	15.21	8.54	8.82	9.67	9.94	11.46
	8H	12.51	12.76	13.65	13.88	15.43	8.75	8.99	9.88	10.11	11.66