

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: P912257

Luminaire Tested: DFN2DIP-SQ4F0-090D140US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912257
REPORT IS A COMBINATION OF REPORTS P901711 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D140US850-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

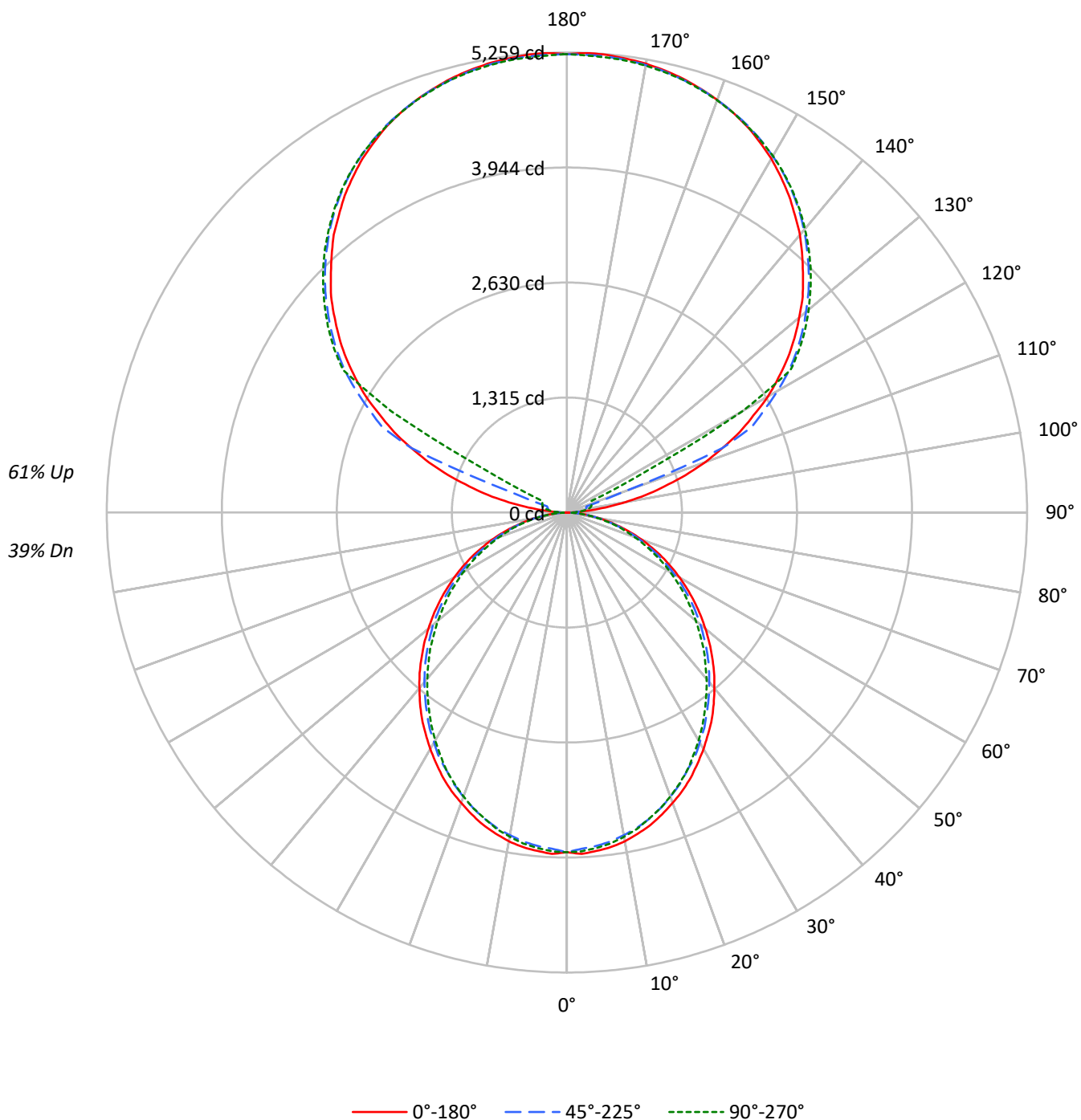
Lumens per Lamp: N/A
Luminaire Lumens: 25251.9 lumens
Efficiency: N/A
Efficacy: 134.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 188.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912257

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US850-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912257

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US850-FLLONL

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	77	77	77	61	61	61	46	46	46
1	95	91	87	84	87	83	80	77	68	65	63	54	52	51	41	40	39
2	87	80	74	68	79	73	67	63	59	56	52	47	45	42	36	34	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	56	50	45	46	41	38	37	34	31	28	26	24
5	66	55	47	41	60	50	43	38	41	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	18
7	56	44	37	31	51	41	34	29	34	29	25	27	23	20	21	18	16
8	52	40	33	27	47	37	30	26	31	26	22	25	21	18	19	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	16	18	15	13
10	45	34	26	22	41	31	25	20	26	21	18	21	17	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2725	2725	2725
5°	2729	2688	2706
10°	2707	2652	2670
15°	2667	2609	2614
20°	2614	2549	2556
25°	2560	2477	2489
30°	2493	2410	2403
35°	2429	2331	2313
40°	2351	2251	2227
45°	2273	2171	2139
50°	2188	2087	2037
55°	2098	1990	1944
60°	1997	1874	1837
65°	1887	1755	1711
70°	1747	1610	1575
75°	1553	1436	1451
80°	1319	1214	1213
85°	953	831	815

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2809 cd/sqm

TEST NUMBER: P912257

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US850-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	1.4
10°-20°	1028.5	4.1
20°-30°	1511.4	6.0
30°-40°	1755.4	7.0
40°-50°	1753.3	6.9
50°-60°	1528.8	6.1
60°-70°	1130.1	4.5
70°-80°	639.4	2.5
80°-90°	178.0	0.7
90°-100°	172.8	0.7
100°-110°	644.1	2.6
110°-120°	1708.2	6.8
120°-130°	2833.3	11.2
130°-140°	3009.6	11.9
140°-150°	2797.1	11.1
150°-160°	2248.8	8.9
160°-170°	1449.0	5.7
170°-180°	498.7	2.0
0°-30°	2905.4	11.5
0°-40°	4660.9	18.5
0°-60°	7942.9	31.5
0°-90°	9890.4	39.2
90°-120°	2525.1	10.0
90°-150°	11165.0	44.2
90°-180°	15362.0	60.8
0°-180°	25251.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	4	46	76	95	102	23
95°	246	121	148	167	163	292
105°	1153	1266	231	273	288	1231
115°	2180	2244	2339	584	311	2146
125°	3082	3132	3204	3230	3242	2749
135°	3814	3875	3909	3947	3940	2947
145°	4425	4421	4485	4512	4493	2767
155°	4872	4838	4884	4906	4876	2245
165°	5134	5111	5122	5149	5122	1450
175°	5251	5224	5232	5259	5221	500
180°	5240	5240	5240	5240	5240	

TEST NUMBER: P912257

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US850-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	3.5	45.5	75.6	95.0	102.2
92.5°	95.0	79.7	90.9	98.6	102.2
95°	246.3	121.1	147.7	167.0	163.0
97.5°	443.5	132.9	193.2	204.8	208.5
100°	671.3	151.7	216.1	246.3	254.0
102.5°	921.1	913.9	223.8	265.2	276.9
105°	1152.6	1266.5	231.4	272.8	288.1
107.5°	1421.8	1516.3	239.1	280.5	295.8
110°	1679.8	1759.1	663.6	284.6	299.4

TEST NUMBER: P912257

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US850-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1922.5	1990.4	1926.1	291.8	303.4
115°	2180.1	2244.4	2339.4	584.0	311.1
117.5°	2403.8	2479.4	2544.3	2001.7	1008.5
120°	2654.2	2710.8	2779.3	2824.7	2312.8
122.5°	2866.2	2927.0	3003.1	3025.6	3029.7
125°	3082.4	3131.8	3203.9	3230.4	3241.7
127.5°	3279.5	3332.7	3389.8	3427.6	3431.2
130°	3465.4	3526.3	3567.7	3609.6	3605.9
132.5°	3655.0	3704.5	3746.0	3780.1	3776.6
135°	3814.4	3875.2	3908.9	3947.2	3939.5
137.5°	3981.0	4026.4	4064.7	4102.5	4091.3
140°	4144.0	4174.6	4216.0	4250.2	4231.3
142.5°	4280.9	4307.4	4356.5	4386.6	4367.7
145°	4424.9	4420.8	4485.2	4511.9	4492.9
147.5°	4549.7	4538.4	4602.8	4621.6	4606.8
150°	4671.2	4644.6	4705.4	4727.9	4709.0
152.5°	4773.4	4743.2	4800.0	4822.9	4796.3
155°	4871.9	4838.2	4883.7	4906.2	4876.1
157.5°	4951.7	4921.5	4955.8	4982.3	4951.7
160°	5020.1	4997.2	5020.1	5042.6	5016.1
162.5°	5080.4	5057.9	5076.9	5103.4	5069.2
165°	5133.6	5111.0	5122.4	5148.9	5122.4
167.5°	5175.5	5152.5	5164.2	5190.8	5156.5
170°	5209.6	5186.7	5194.3	5221.0	5186.7
172.5°	5232.2	5209.6	5217.3	5243.9	5209.6
175°	5251.1	5224.5	5232.2	5258.8	5221.0
177.5°	5258.8	5232.2	5236.3	5262.8	5228.6
180°	5239.8	5239.8	5239.8	5239.8	5239.8

TEST NUMBER: P912257

CATALOG NUMBER: DFN2DIP-SQ4F0-090D140US850-FLLONL

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	9.68	10.45	10.72	11.50	12.91	9.23	10.00	10.28	11.05	12.47
	3H	11.33	12.02	12.39	13.08	14.52	10.84	11.53	11.90	12.59	14.03
	4H	11.92	12.58	12.99	13.64	15.08	11.43	12.08	12.49	13.14	14.59
	6H	12.32	12.92	13.39	13.99	15.44	11.82	12.42	12.89	13.49	14.94
	8H	12.42	13.00	13.50	14.08	15.53	11.92	12.50	13.00	13.58	15.03
	12H	12.47	13.02	13.55	14.09	15.56	11.96	12.51	13.04	13.58	15.05
4H	2H	10.13	10.78	11.20	11.84	13.29	9.77	10.43	10.84	11.49	12.93
	3H	11.99	12.54	13.07	13.62	15.08	11.58	12.13	12.66	13.22	14.67
	4H	12.70	13.20	13.79	14.28	15.76	12.28	12.78	13.36	13.86	15.34
	6H	13.22	13.65	14.31	14.75	16.22	12.78	13.22	13.88	14.32	15.79
	8H	13.37	13.77	14.46	14.86	16.35	12.93	13.33	14.02	14.43	15.91
	12H	13.44	13.80	14.55	14.91	16.40	12.99	13.35	14.10	14.46	15.95
8H	4H	12.89	13.29	13.99	14.39	15.88	12.52	12.92	13.61	14.01	15.50
	6H	13.52	13.86	14.64	14.99	16.48	13.14	13.47	14.26	14.61	16.09
	8H	13.75	14.04	14.87	15.16	16.66	13.35	13.65	14.48	14.76	16.27
	12H	13.88	14.13	15.00	15.25	16.79	13.47	13.72	14.59	14.84	16.38
12H	4H	12.87	13.24	13.99	14.34	15.84	12.51	12.87	13.62	13.98	15.47
	6H	13.55	13.85	14.68	14.96	16.47	13.18	13.47	14.31	14.59	16.10
	8H	13.79	14.05	14.92	15.16	16.71	13.41	13.67	14.54	14.78	16.33