

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: P926011

Luminaire Tested: DFN2DIP-SQ4F0-120D160US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P926011
REPORT IS A COMBINATION OF REPORTS P901736 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

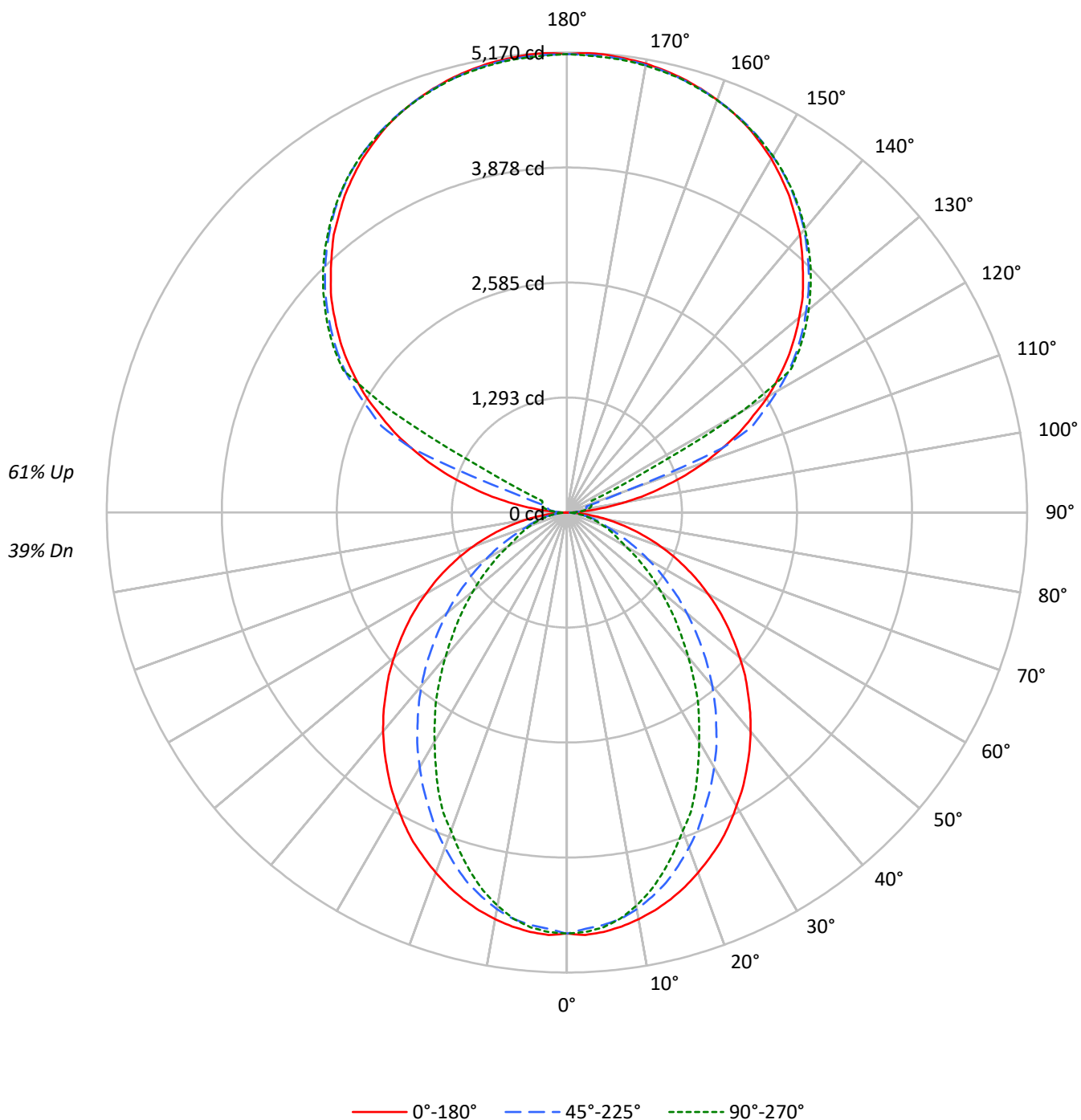
Lumens per Lamp: N/A
Luminaire Lumens: 24842.2 lumens
Efficiency: N/A
Efficacy: 103.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 239.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P926011

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-RLLONL

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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3320	3320	3320
5°	3325	3268	3289
10°	3292	3204	3183
15°	3247	3099	3018
20°	3187	2954	2816
25°	3125	2791	2621
30°	3043	2623	2373
35°	2962	2443	2155
40°	2880	2257	1905
45°	2784	2051	1678
50°	2686	1842	1456
55°	2582	1619	1243
60°	2463	1385	1024
65°	2326	1148	923
70°	2159	927	837
75°	1950	819	763
80°	1647	689	665
85°	1147	463	507

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2784 cd/sqm

TEST NUMBER: P926011

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	443.4	1.8
10°-20°	1217.3	4.9
20°-30°	1709.1	6.9
30°-40°	1863.0	7.5
40°-50°	1712.3	6.9
50°-60°	1344.7	5.4
60°-70°	875.3	3.5
70°-80°	450.6	1.8
80°-90°	124.1	0.5
90°-100°	169.9	0.7
100°-110°	633.2	2.5
110°-120°	1679.4	6.8
120°-130°	2785.4	11.2
130°-140°	2958.8	11.9
140°-150°	2749.9	11.1
150°-160°	2210.8	8.9
160°-170°	1424.6	5.7
170°-180°	490.3	2.0
0°-30°	3369.8	13.6
0°-40°	5232.8	21.1
0°-60°	8289.9	33.4
0°-90°	9739.9	39.2
90°-120°	2482.5	10.0
90°-150°	10976.6	44.2
90°-180°	15102.0	60.8
0°-180°	24842.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4732	4732	4732	4732	4732	
5°	4732	4710	4654	4693	4680	449
15°	4500	4453	4308	4226	4184	1268
25°	4085	3948	3665	3490	3425	1879
35°	3520	3301	2925	2655	2560	2203
45°	2878	2590	2141	1837	1734	2222
55°	2188	1854	1392	1135	1054	1955
65°	1477	1130	745	600	586	1465
75°	788	488	343	312	308	833
85°	184	94	81	81	81	211
90°	4	45	74	93	100	23
95°	242	119	145	164	160	287
105°	1133	1245	228	268	283	1211
115°	2143	2206	2300	574	306	2110
125°	3030	3079	3150	3176	3187	2703
135°	3750	3810	3843	3881	3873	2897
145°	4350	4346	4410	4436	4417	2721
155°	4790	4756	4801	4823	4794	2207
165°	5047	5025	5036	5062	5036	1426
175°	5162	5136	5144	5170	5133	491
180°	5151	5151	5151	5151	5151	

TEST NUMBER: P926011

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4731.5	4731.5	4731.5	4731.5	4731.5
2.5°	4752.8	4731.5	4684.2	4727.4	4718.7
5°	4731.5	4710.1	4654.2	4692.8	4680.1
7.5°	4692.8	4667.3	4607.4	4624.2	4602.9
10°	4641.5	4611.5	4526.1	4512.9	4487.5
12.5°	4577.4	4538.8	4422.9	4397.6	4350.3
15°	4500.2	4453.0	4307.6	4226.2	4183.6
17.5°	4410.2	4341.7	4161.7	4067.8	3999.2
20°	4307.6	4221.7	4007.8	3901.0	3806.5
22.5°	4196.3	4097.7	3849.2	3703.8	3639.8
25°	4085.0	3947.7	3665.2	3489.8	3425.3
27.5°	3952.3	3806.5	3493.9	3292.7	3194.1
30°	3811.0	3648.0	3305.4	3087.3	2971.5
32.5°	3673.9	3476.7	3126.0	2868.9	2761.6
35°	3519.9	3301.3	2924.7	2654.9	2560.3
37.5°	3369.9	3134.2	2736.2	2440.4	2333.7
40°	3211.4	2954.7	2539.1	2235.1	2123.8
42.5°	3048.7	2774.8	2342.4	2025.2	1918.5
45°	2877.5	2590.4	2141.1	1836.7	1734.0
47.5°	2714.8	2410.9	1948.4	1644.1	1550.1
50°	2535.0	2231.0	1759.9	1464.2	1374.7
52.5°	2359.1	2037.9	1580.0	1297.4	1216.2
55°	2187.9	1854.0	1391.5	1134.8	1053.5
57.5°	2012.5	1670.0	1224.7	984.9	916.3
60°	1832.6	1490.1	1048.9	830.9	762.3
62.5°	1657.3	1314.7	899.0	693.7	659.6
65°	1477.4	1130.3	745.1	599.7	586.5
67.5°	1306.1	959.0	599.7	526.5	513.8
70°	1126.2	792.3	496.6	453.8	436.6
72.5°	955.0	637.8	415.2	381.1	372.5
75°	787.7	487.9	342.6	312.5	308.4
77.5°	621.1	346.6	269.9	252.6	243.9
80°	466.6	248.5	205.3	188.5	188.5
82.5°	325.3	167.1	141.3	132.6	132.6
85°	184.0	94.1	81.3	81.3	81.3
87.5°	68.6	34.1	34.1	30.0	30.0
90°	3.5	44.7	74.3	93.4	100.5
92.5°	93.4	78.3	89.4	96.9	100.5
95°	242.1	119.1	145.2	164.2	160.3
97.5°	436.0	130.6	189.8	201.4	204.9
100°	660.0	149.2	212.5	242.1	249.7
102.5°	905.6	898.6	220.0	260.7	272.2
105°	1133.2	1245.2	227.5	268.3	283.2
107.5°	1397.8	1490.8	235.1	275.8	290.8
110°	1651.5	1729.4	652.4	279.7	294.3

TEST NUMBER: P926011

CATALOG NUMBER: DFN2DIP-SQ4F0-120D160US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1890.1	1956.9	1893.6	286.9	298.3
115°	2143.3	2206.5	2299.9	574.1	305.9
117.5°	2363.2	2437.6	2501.4	1968.0	991.5
120°	2609.4	2665.1	2732.4	2777.1	2273.9
122.5°	2817.8	2877.6	2952.3	2974.5	2978.5
125°	3030.3	3078.9	3149.8	3176.0	3187.0
127.5°	3224.1	3276.4	3332.6	3369.8	3373.3
130°	3407.0	3466.7	3507.5	3548.6	3545.1
132.5°	3593.3	3642.0	3682.7	3716.4	3712.9
135°	3750.0	3809.8	3843.0	3880.6	3873.0
137.5°	3913.8	3958.5	3996.1	4033.3	4022.3
140°	4074.1	4104.1	4144.8	4178.5	4159.9
142.5°	4208.6	4234.7	4283.0	4312.7	4294.0
145°	4350.2	4346.2	4409.6	4435.6	4417.1
147.5°	4472.8	4461.8	4525.1	4543.7	4529.0
150°	4592.4	4566.2	4626.0	4648.2	4629.6
152.5°	4692.8	4663.2	4719.0	4741.6	4715.4
155°	4789.7	4756.5	4801.3	4823.4	4793.8
157.5°	4868.2	4838.5	4872.1	4898.2	4868.2
160°	4935.4	4912.8	4935.4	4957.6	4931.4
162.5°	4994.8	4972.6	4991.1	5017.3	4983.7
165°	5046.9	5024.8	5035.9	5062.0	5035.9
167.5°	5088.2	5065.5	5077.1	5103.1	5069.6
170°	5121.7	5099.2	5106.7	5132.8	5099.2
172.5°	5143.9	5121.7	5129.3	5155.4	5121.7
175°	5162.5	5136.3	5143.9	5170.0	5132.8
177.5°	5170.0	5143.9	5147.9	5174.0	5140.3
180°	5151.4	5151.4	5151.4	5151.4	5151.4



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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	10.23	10.98	11.28	12.03	13.45	6.19	6.94	7.24	7.99	9.41
	3H	11.91	12.58	12.97	13.64	15.07	7.37	8.04	8.43	9.10	10.54
	4H	12.51	13.15	13.59	14.21	15.66	7.82	8.46	8.89	9.52	10.96
	6H	12.94	13.52	14.02	14.58	16.04	8.14	8.72	9.22	9.79	11.24
	8H	13.06	13.62	14.15	14.70	16.15	8.23	8.78	9.31	9.86	11.31
	12H	13.12	13.65	14.21	14.72	16.20	8.27	8.79	9.36	9.87	11.34
4H	2H	10.24	10.87	11.32	11.93	13.38	6.78	7.41	7.86	8.48	9.92
	3H	12.07	12.59	13.15	13.68	15.14	8.12	8.65	9.21	9.74	11.20
	4H	12.76	13.24	13.85	14.32	15.80	8.67	9.15	9.76	10.23	11.71
	6H	13.27	13.69	14.37	14.79	16.26	9.08	9.50	10.18	10.60	12.07
	8H	13.45	13.84	14.55	14.93	16.42	9.21	9.60	10.31	10.69	12.18
	12H	13.54	13.89	14.66	15.00	16.49	9.27	9.62	10.39	10.73	12.22
8H	4H	12.72	13.11	13.82	14.20	15.69	8.94	9.33	10.04	10.43	11.92
	6H	13.29	13.61	14.41	14.74	16.23	9.46	9.78	10.58	10.92	12.40
	8H	13.51	13.79	14.63	14.90	16.41	9.65	9.93	10.78	11.05	12.56
	12H	13.64	13.89	14.77	15.00	16.55	9.77	10.01	10.90	11.13	12.67
12H	4H	12.67	13.02	13.78	14.13	15.62	8.95	9.30	10.06	10.40	11.90
	6H	13.26	13.54	14.39	14.66	16.17	9.51	9.79	10.64	10.91	12.41
	8H	13.48	13.73	14.61	14.84	16.39	9.72	9.97	10.85	11.08	12.62

END OF REPORT