

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: P909711

Luminaire Tested: DFN2DIP-SQ4F0-160D140US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909711
REPORT IS A COMBINATION OF REPORTS P901722 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D140US840-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

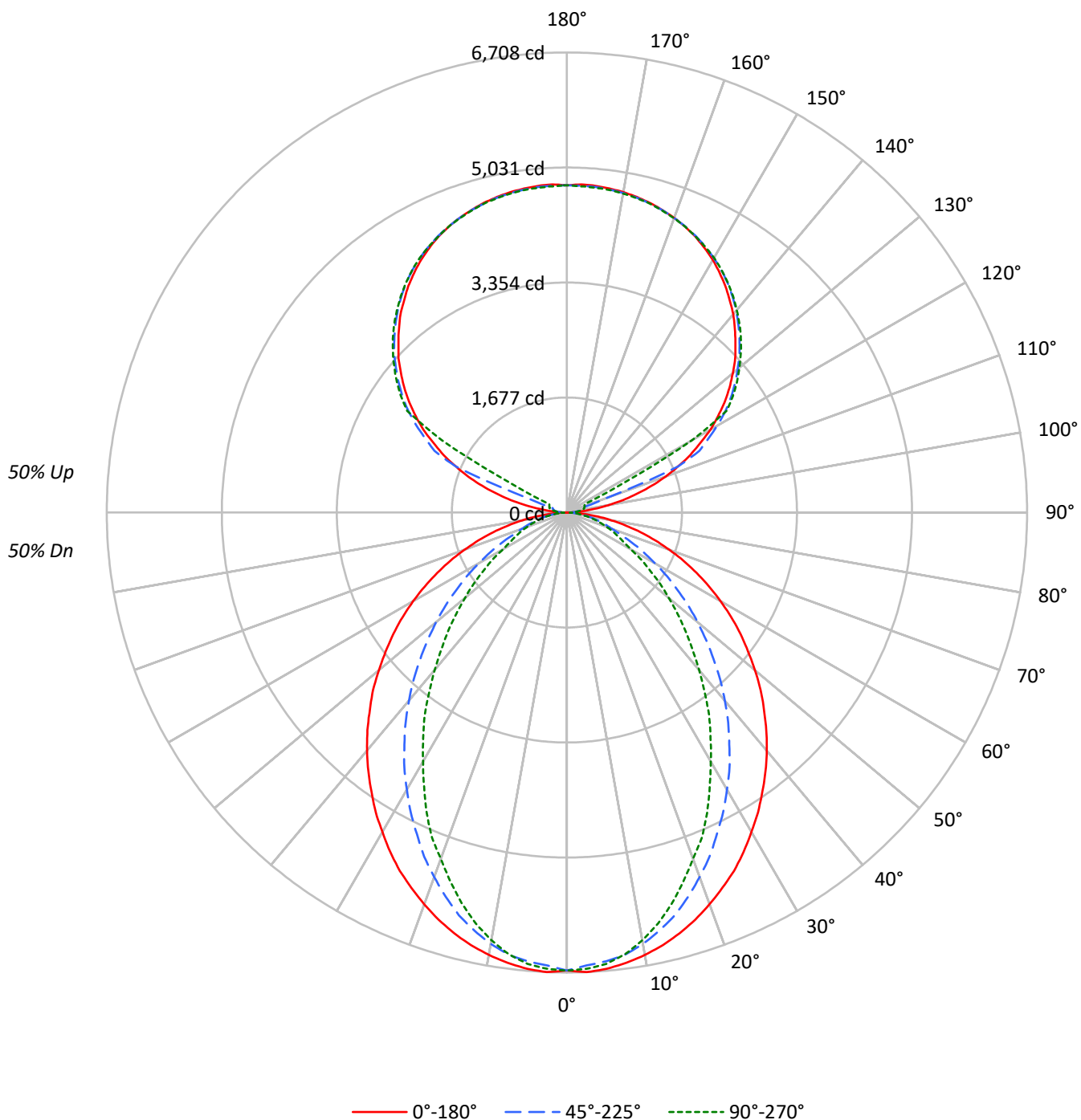
Lumens per Lamp: N/A
Luminaire Lumens: 27730.9 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 272.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	94	90	87	90	87	84	81	74	71	69	61	60	58	50	49	48
2	90	83	77	72	83	77	71	67	65	61	58	54	52	49	45	43	41
3	82	73	66	60	76	68	62	57	58	53	49	49	45	42	40	38	36
4	75	65	57	52	69	60	54	48	52	47	42	44	40	37	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	33	30	27
6	64	52	44	39	59	49	42	37	42	37	32	36	32	28	30	27	24
7	59	47	40	34	55	44	37	32	38	33	29	33	28	25	27	24	22
8	55	43	36	30	51	40	34	29	35	30	26	30	26	23	25	22	20
9	51	39	32	27	48	37	30	26	32	27	23	28	23	21	23	20	18
10	48	36	29	25	45	34	28	23	30	25	21	26	22	19	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4686	4686	4686
5°	4693	4612	4642
10°	4647	4523	4493
15°	4583	4374	4260
20°	4498	4169	3975
25°	4411	3939	3699
30°	4295	3703	3349
35°	4181	3449	3041
40°	4065	3186	2688
45°	3930	2894	2368
50°	3790	2600	2056
55°	3645	2285	1755
60°	3476	1955	1446
65°	3282	1621	1303
70°	3047	1308	1181
75°	2752	1155	1078
80°	2324	972	939
85°	1618	654	715

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3930 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	625.9	2.3
10°-20°	1718.2	6.2
20°-30°	2412.2	8.7
30°-40°	2629.5	9.5
40°-50°	2416.8	8.7
50°-60°	1898.0	6.8
60°-70°	1235.4	4.5
70°-80°	635.9	2.3
80°-90°	170.7	0.6
90°-100°	157.3	0.6
100°-110°	586.5	2.1
110°-120°	1555.5	5.6
120°-130°	2580.0	9.3
130°-140°	2740.5	9.9
140°-150°	2547.0	9.2
150°-160°	2047.7	7.4
160°-170°	1319.5	4.8
170°-180°	454.2	1.6
0°-30°	4756.2	17.2
0°-40°	7385.7	26.6
0°-60°	11700.5	42.2
0°-90°	13742.6	49.6
90°-120°	2299.4	8.3
90°-150°	10166.9	36.7
90°-180°	13988.0	50.4
0°-180°	27730.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6678	6678	6678	6678	6678	
5°	6678	6648	6569	6624	6606	633
15°	6352	6285	6080	5965	5905	1790
25°	5766	5572	5173	4926	4835	2652
35°	4968	4660	4128	3747	3614	3109
45°	4061	3656	3022	2592	2447	3136
55°	3088	2617	1964	1602	1487	2759
65°	2085	1595	1052	846	828	2067
75°	1112	689	483	441	435	1176
85°	260	133	115	115	115	298
90°	3	41	69	86	93	26
95°	224	110	134	152	148	266
105°	1050	1153	211	248	262	1121
115°	1985	2044	2130	532	283	1954
125°	2807	2852	2918	2942	2952	2503
135°	3473	3529	3560	3594	3587	2683
145°	4029	4026	4084	4108	4091	2520
155°	4436	4406	4447	4468	4440	2044
165°	4675	4654	4664	4689	4664	1321
175°	4782	4758	4764	4789	4754	455
180°	4771	4771	4771	4771	4771	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6678.0	6678.0	6678.0	6678.0	6678.0
2.5°	6708.1	6678.0	6611.3	6672.3	6660.1
5°	6678.0	6647.8	6569.0	6623.5	6605.5
7.5°	6623.5	6587.6	6502.9	6526.7	6496.6
10°	6551.1	6508.8	6388.2	6369.6	6333.7
12.5°	6460.6	6406.2	6242.7	6206.7	6140.1
15°	6351.7	6285.0	6079.8	5965.0	5904.7
17.5°	6224.7	6127.9	5874.0	5741.2	5644.4
20°	6079.8	5958.6	5656.6	5505.9	5372.6
22.5°	5922.7	5783.5	5432.8	5227.7	5137.2
25°	5765.6	5571.9	5173.1	4925.6	4834.6
27.5°	5578.4	5372.6	4931.4	4647.4	4508.2
30°	5378.9	5148.8	4665.3	4357.6	4194.1
32.5°	5185.4	4907.0	4412.0	4049.2	3897.8
35°	4967.9	4659.5	4128.0	3747.1	3613.8
37.5°	4756.4	4423.6	3861.9	3444.4	3293.8
40°	4532.6	4170.3	3583.6	3154.6	2997.6
42.5°	4303.0	3916.4	3306.0	2858.4	2707.8
45°	4061.3	3656.1	3021.9	2592.3	2447.4
47.5°	3831.7	3402.8	2750.1	2320.5	2187.8
50°	3577.9	3148.9	2484.0	2066.6	1940.3
52.5°	3329.7	2876.4	2230.1	1831.3	1716.5
55°	3088.0	2616.7	1964.0	1601.6	1486.9
57.5°	2840.4	2357.0	1728.7	1390.1	1293.2
60°	2586.6	2103.1	1480.5	1172.8	1075.9
62.5°	2339.1	1855.6	1268.9	979.1	931.0
65°	2085.2	1595.3	1051.6	846.4	827.8
67.5°	1843.4	1353.5	846.4	743.2	725.2
70°	1589.5	1118.2	700.8	640.6	616.2
72.5°	1347.8	900.2	586.0	538.0	525.7
75°	1111.9	688.6	483.4	441.1	435.4
77.5°	876.5	489.2	380.8	356.5	344.4
80°	658.5	350.7	289.8	266.1	266.1
82.5°	459.1	236.0	199.4	187.2	187.2
85°	259.6	132.7	114.8	114.8	114.8
87.5°	96.8	48.1	48.1	42.3	42.3
90°	3.2	41.4	68.9	86.5	93.1
92.5°	86.5	72.6	82.8	89.8	93.1
95°	224.3	110.3	134.5	152.1	148.5
97.5°	403.8	121.0	175.9	186.5	189.9
100°	611.3	138.1	196.8	224.3	231.3
102.5°	838.8	832.2	203.8	241.5	252.2
105°	1049.6	1153.3	210.8	248.4	262.4
107.5°	1294.7	1380.8	217.7	255.4	269.3
110°	1529.6	1601.8	604.3	259.1	272.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1750.6	1812.5	1753.9	265.7	276.3
115°	1985.2	2043.8	2130.3	531.8	283.3
117.5°	2188.9	2257.8	2316.8	1822.8	918.4
120°	2416.9	2468.5	2530.8	2572.2	2106.1
122.5°	2610.0	2665.3	2734.6	2755.1	2758.9
125°	2806.8	2851.9	2917.5	2941.6	2951.9
127.5°	2986.4	3034.7	3086.8	3121.2	3124.5
130°	3155.6	3211.1	3248.7	3286.9	3283.6
132.5°	3328.3	3373.4	3411.1	3442.2	3439.0
135°	3473.4	3528.8	3559.5	3594.3	3587.3
137.5°	3625.1	3666.5	3701.4	3735.8	3725.6
140°	3773.6	3801.4	3839.1	3870.3	3853.0
142.5°	3898.2	3922.3	3967.1	3994.5	3977.3
145°	4029.4	4025.6	4084.3	4108.5	4091.3
147.5°	4143.0	4132.7	4191.3	4208.5	4195.0
150°	4253.7	4229.4	4284.8	4305.3	4288.1
152.5°	4346.7	4319.2	4370.9	4391.8	4367.6
155°	4436.4	4405.7	4447.1	4467.6	4440.2
157.5°	4509.0	4481.6	4512.8	4536.9	4509.0
160°	4571.4	4550.5	4571.4	4591.9	4567.7
162.5°	4626.3	4605.8	4623.1	4647.2	4616.1
165°	4674.7	4654.2	4664.5	4688.6	4664.5
167.5°	4712.8	4691.9	4702.5	4726.8	4695.6
170°	4743.9	4723.0	4730.0	4754.2	4723.0
172.5°	4764.4	4743.9	4750.9	4775.1	4743.9
175°	4781.7	4757.5	4764.4	4788.7	4754.2
177.5°	4788.7	4764.4	4768.2	4792.3	4761.2
180°	4771.4	4771.4	4771.4	4771.4	4771.4

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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	12.48	13.31	13.45	14.29	15.57	8.44	9.27	9.41	10.25	11.53
	3H	14.17	14.90	15.14	15.89	17.19	9.63	10.37	10.61	11.36	12.66
	4H	14.78	15.48	15.77	16.47	17.78	10.08	10.78	11.08	11.77	13.08
	6H	15.20	15.85	16.21	16.84	18.16	10.41	11.05	11.41	12.04	13.37
	8H	15.33	15.94	16.34	16.95	18.27	10.50	11.11	11.51	12.12	13.44
	12H	15.39	15.98	16.41	16.98	18.32	10.54	11.12	11.55	12.13	13.47
4H	2H	12.50	13.20	13.50	14.19	15.50	9.04	9.74	10.04	10.73	12.04
	3H	14.34	14.92	15.34	15.94	17.26	10.39	10.97	11.40	11.99	13.32
	4H	15.03	15.56	16.05	16.57	17.92	10.94	11.47	11.96	12.48	13.83
	6H	15.55	16.01	16.58	17.04	18.39	11.36	11.82	12.39	12.85	14.20
	8H	15.73	16.15	16.75	17.18	18.54	11.49	11.92	12.52	12.94	14.30
	12H	15.83	16.21	16.87	17.25	18.62	11.56	11.94	12.60	12.98	14.35
8H	4H	15.00	15.42	16.03	16.45	17.81	11.22	11.65	12.25	12.68	14.04
	6H	15.57	15.92	16.62	16.99	18.35	11.74	12.09	12.79	13.17	14.52
	8H	15.79	16.10	16.85	17.15	18.53	11.94	12.24	12.99	13.30	14.68
	12H	15.93	16.20	16.99	17.25	18.67	12.06	12.33	13.12	13.38	14.80
12H	4H	14.95	15.33	16.00	16.38	17.74	11.23	11.61	12.27	12.66	14.02
	6H	15.54	15.85	16.60	16.91	18.29	11.79	12.10	12.85	13.16	14.53
	8H	15.77	16.04	16.83	17.09	18.51	12.01	12.28	13.07	13.33	14.75