

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: P904007

Luminaire Tested: DFN2DIP-SQ4F0-070D160US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904007
REPORT IS A COMBINATION OF REPORTS P901726 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US830-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

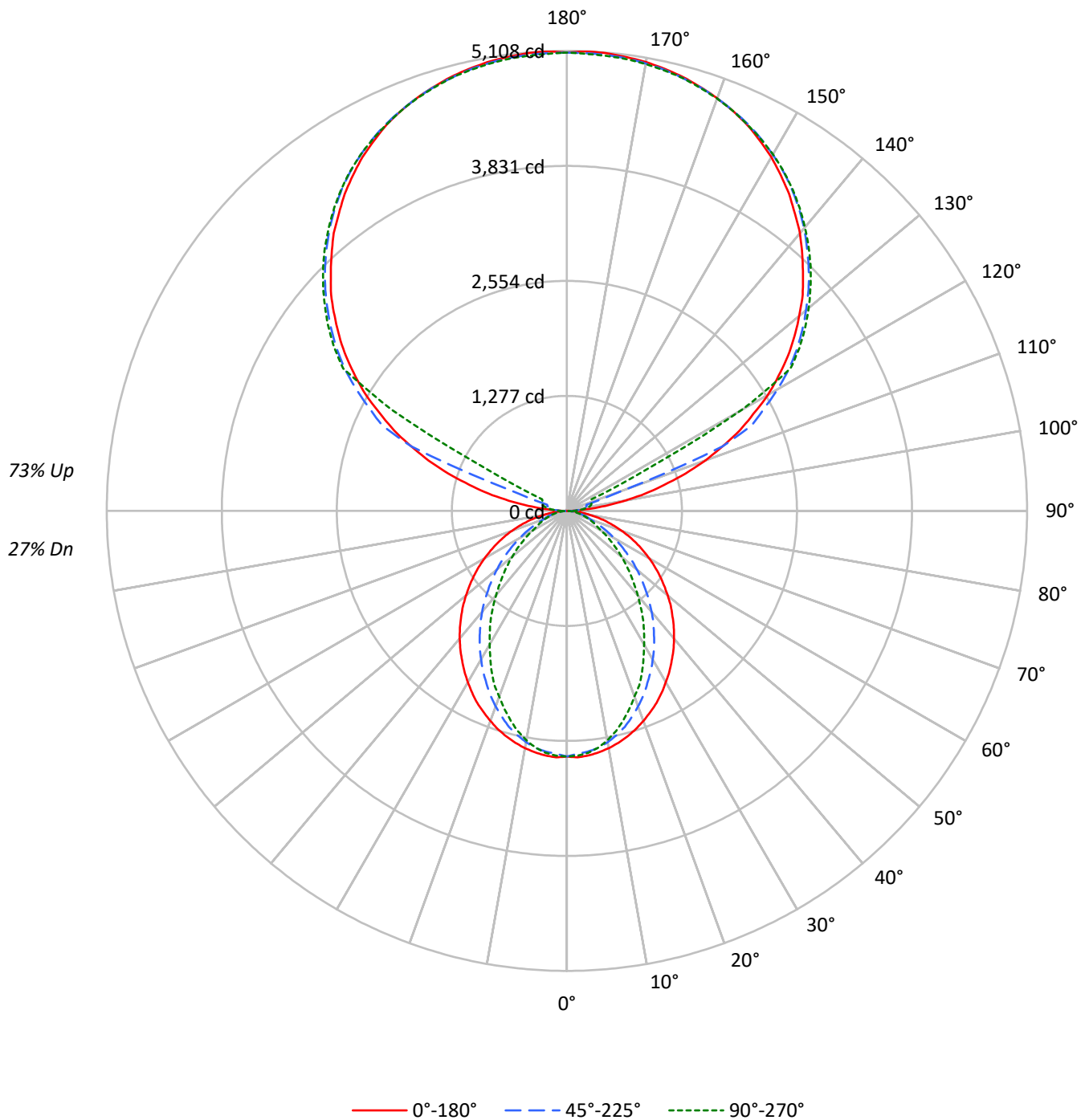
Lumens per Lamp: N/A
Luminaire Lumens: 20538.0 lumens
Efficiency: N/A
Efficacy: 112.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 183.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
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	102	102	102	102		91	91	91	91		71	71	71		52	52	52		35	35	35
1	93	89	85	82		83	80	77	74		62	60	58		46	45	44		32	31	30
2	85	78	72	67		76	70	65	61		55	52	49		41	39	37		28	27	26
3	77	69	62	56		69	62	56	51		49	44	41		36	34	32		25	24	22
4	71	61	53	48		63	55	48	43		43	39	35		33	30	27		23	21	19
5	65	54	46	41		58	49	42	37		39	34	30		29	26	24		20	19	17
6	60	49	41	35		53	44	37	32		35	30	27		26	23	21		19	17	15
7	55	44	36	31		49	40	33	28		32	27	23		24	21	18		17	15	13
8	51	40	32	27		46	36	29	25		29	24	21		22	19	16		16	14	12
9	48	36	29	24		43	33	27	22		26	22	18		20	17	15		14	12	11
10	44	33	26	22		40	30	24	20		24	20	17		19	15	13		13	11	10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1913	1913	1913
5°	1916	1883	1896
10°	1897	1847	1834
15°	1871	1786	1740
20°	1837	1702	1623
25°	1801	1608	1510
30°	1754	1512	1367
35°	1707	1408	1242
40°	1660	1301	1098
45°	1605	1182	967
50°	1548	1062	839
55°	1488	933	717
60°	1419	798	590
65°	1340	662	532
70°	1244	534	482
75°	1124	472	440
80°	949	397	384
85°	661	267	292

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2726 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.2
10°-20°	701.6	3.4
20°-30°	985.0	4.8
30°-40°	1073.7	5.2
40°-50°	986.9	4.8
50°-60°	775.0	3.8
60°-70°	504.5	2.5
70°-80°	259.7	1.3
80°-90°	75.2	0.4
90°-100°	167.8	0.8
100°-110°	625.6	3.0
110°-120°	1659.3	8.1
120°-130°	2752.0	13.4
130°-140°	2923.2	14.2
140°-150°	2716.8	13.2
150°-160°	2184.3	10.6
160°-170°	1407.5	6.9
170°-180°	484.4	2.4
0°-30°	1942.1	9.5
0°-40°	3015.8	14.7
0°-60°	4777.7	23.3
0°-90°	5617.0	27.3
90°-120°	2452.7	11.9
90°-150°	10844.8	52.8
90°-180°	14921.0	72.7
0°-180°	20538.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2727	2727	2727	2727	2727	
5°	2727	2714	2682	2705	2697	259
15°	2594	2566	2483	2436	2411	731
25°	2354	2275	2112	2011	1974	1083
35°	2028	1903	1686	1530	1476	1270
45°	1658	1493	1234	1059	999	1281
55°	1261	1068	802	654	607	1127
65°	851	651	429	346	338	844
75°	454	281	197	180	178	480
85°	106	54	47	47	47	122
90°	4	44	73	92	99	19
95°	239	118	144	162	158	283
105°	1120	1230	225	265	280	1196
115°	2118	2180	2272	567	302	2085
125°	2994	3042	3112	3138	3149	2670
135°	3705	3764	3797	3834	3826	2862
145°	4298	4294	4357	4382	4364	2688
155°	4732	4699	4744	4766	4736	2181
165°	4986	4964	4975	5001	4975	1409
175°	5100	5075	5082	5108	5071	485
180°	5090	5090	5090	5090	5090	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2726.9	2726.9	2726.9	2726.9	2726.9
2.5°	2739.1	2726.9	2699.6	2724.5	2719.5
5°	2726.9	2714.5	2682.4	2704.6	2697.3
7.5°	2704.6	2689.9	2655.4	2665.0	2652.8
10°	2675.0	2657.8	2608.5	2600.9	2586.2
12.5°	2638.1	2615.8	2549.1	2534.4	2507.2
15°	2593.6	2566.4	2482.6	2435.7	2411.1
17.5°	2541.8	2502.3	2398.6	2344.3	2304.8
20°	2482.6	2433.1	2309.8	2248.2	2193.8
22.5°	2418.5	2361.6	2218.4	2134.6	2097.7
25°	2354.3	2275.2	2112.3	2011.3	1974.2
27.5°	2277.8	2193.8	2013.6	1897.7	1840.9
30°	2196.4	2102.4	1905.0	1779.3	1712.6
32.5°	2117.3	2003.8	1801.6	1653.4	1591.6
35°	2028.5	1902.6	1685.6	1530.1	1475.6
37.5°	1942.2	1806.3	1577.0	1406.5	1345.0
40°	1850.8	1702.9	1463.3	1288.2	1224.0
42.5°	1757.1	1599.2	1349.9	1167.2	1105.7
45°	1658.4	1492.9	1234.0	1058.6	999.4
47.5°	1564.6	1389.5	1122.9	947.5	893.3
50°	1460.9	1285.8	1014.3	843.9	792.3
52.5°	1359.6	1174.5	910.6	747.7	700.9
55°	1260.9	1068.5	801.9	654.0	607.2
57.5°	1159.9	962.4	705.9	567.6	528.1
60°	1056.2	858.8	604.5	478.9	439.3
62.5°	955.1	757.7	518.1	399.8	380.1
65°	851.4	651.4	429.4	345.6	338.0
67.5°	752.7	552.7	345.6	303.4	296.1
70°	649.0	456.6	286.2	261.6	251.6
72.5°	550.4	367.6	239.3	219.7	214.7
75°	454.0	281.2	197.4	180.1	177.8
77.5°	357.9	199.7	155.5	145.5	140.6
80°	268.9	143.2	118.4	108.7	108.7
82.5°	187.5	96.3	81.4	76.4	76.4
85°	106.0	54.2	46.8	46.8	46.8
87.5°	39.5	19.6	19.6	17.2	17.2
90°	3.5	44.2	73.4	92.3	99.2
92.5°	92.3	77.4	88.3	95.8	99.2
95°	239.2	117.6	143.5	162.2	158.3
97.5°	430.7	129.0	187.6	199.0	202.5
100°	652.1	147.4	209.9	239.2	246.7
102.5°	894.8	887.8	217.4	257.6	268.9
105°	1119.6	1230.2	224.8	265.0	279.8
107.5°	1381.0	1472.9	232.2	272.5	287.3
110°	1631.6	1708.6	644.6	276.4	290.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1867.4	1933.4	1870.9	283.4	294.7
115°	2117.5	2180.0	2272.3	567.2	302.2
117.5°	2334.9	2408.3	2471.3	1944.4	979.6
120°	2578.0	2633.1	2699.5	2743.7	2246.5
122.5°	2784.0	2843.0	2916.9	2938.8	2942.7
125°	2993.9	3042.0	3112.0	3137.8	3148.8
127.5°	3185.4	3237.1	3292.6	3329.3	3332.8
130°	3366.1	3425.1	3465.4	3506.0	3502.5
132.5°	3550.2	3598.2	3638.5	3671.8	3668.3
135°	3704.9	3764.0	3796.8	3834.0	3826.5
137.5°	3866.8	3911.0	3948.1	3984.9	3973.9
140°	4025.1	4054.8	4095.1	4128.3	4110.0
142.5°	4158.0	4183.9	4231.5	4260.9	4242.5
145°	4298.0	4294.0	4356.6	4382.4	4364.1
147.5°	4419.1	4408.2	4470.8	4489.1	4474.6
150°	4537.2	4511.4	4570.5	4592.3	4574.0
152.5°	4636.5	4607.1	4662.3	4684.6	4658.8
155°	4732.2	4699.4	4743.6	4765.5	4736.2
157.5°	4809.7	4780.4	4813.6	4839.4	4809.7
160°	4876.1	4853.8	4876.1	4898.0	4872.2
162.5°	4934.8	4912.9	4931.2	4957.0	4923.8
165°	4986.3	4964.5	4975.4	5001.2	4975.4
167.5°	5027.0	5004.7	5016.1	5041.8	5008.7
170°	5060.2	5038.0	5045.3	5071.2	5038.0
172.5°	5082.1	5060.2	5067.7	5093.5	5060.2
175°	5100.5	5074.6	5082.1	5107.9	5071.2
177.5°	5107.9	5082.1	5086.1	5111.9	5078.6
180°	5089.5	5089.5	5089.5	5089.5	5089.5

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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	6.80	7.48	7.94	8.60	10.16	2.76	3.44	3.90	4.56	6.13
	3H	8.47	9.08	9.62	10.21	11.79	3.94	4.54	5.08	5.68	7.25
	4H	9.08	9.65	10.23	10.78	12.37	4.39	4.96	5.54	6.09	7.67
	6H	9.50	10.02	10.65	11.16	12.75	4.70	5.23	5.86	6.36	7.95
	8H	9.62	10.12	10.78	11.27	12.86	4.79	5.29	5.95	6.43	8.02
	12H	9.68	10.15	10.84	11.29	12.91	4.82	5.30	5.99	6.44	8.05
4H	2H	6.80	7.37	7.96	8.51	10.09	3.34	3.92	4.50	5.05	6.63
	3H	8.62	9.10	9.79	10.26	11.85	4.68	5.16	5.84	6.31	7.91
	4H	9.31	9.75	10.48	10.90	12.51	5.22	5.66	6.39	6.81	8.42
	6H	9.82	10.20	10.99	11.37	12.97	5.63	6.01	6.81	7.18	8.78
	8H	10.00	10.35	11.17	11.51	13.13	5.76	6.11	6.93	7.27	8.89
	12H	10.09	10.40	11.27	11.58	13.20	5.82	6.14	7.00	7.31	8.93
8H	4H	9.27	9.62	10.44	10.78	12.40	5.49	5.84	6.66	7.00	8.63
	6H	9.83	10.12	11.02	11.32	12.94	6.01	6.30	7.20	7.50	9.12
	8H	10.05	10.30	11.25	11.48	13.12	6.20	6.45	7.39	7.63	9.27
	12H	10.19	10.41	11.39	11.58	13.26	6.31	6.53	7.51	7.71	9.38
12H	4H	9.21	9.53	10.40	10.70	12.33	5.49	5.81	6.68	6.98	8.61
	6H	9.81	10.06	11.00	11.24	12.88	6.06	6.31	7.25	7.49	9.13
	8H	10.02	10.25	11.22	11.42	13.09	6.26	6.48	7.46	7.66	9.33

END OF REPORT