

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: P904006

Luminaire Tested: DFN2DIP-SQ4F0-070D160US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904006
REPORT IS A COMBINATION OF REPORTS P900206 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-070D160US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

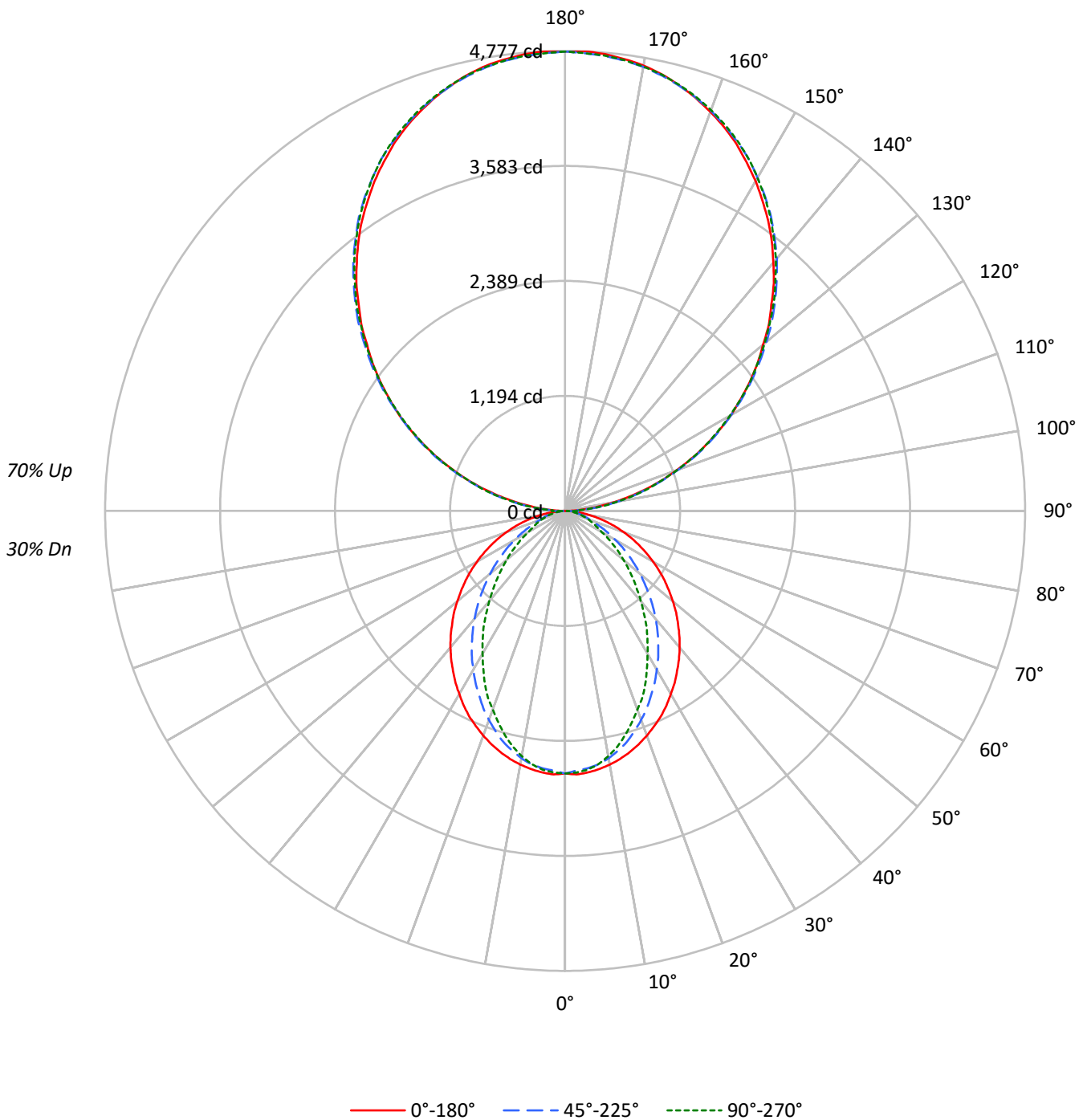
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18955.4 lumens
Efficiency: N/A
Efficacy: 103.4 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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	102	102	102	102	92	92	92	92	72	72	72	54	54	54	37	37	37	37	37	37	30
1	93	89	86	82	84	80	77	75	63	61	59	48	47	45	33	33	32	33	33	32	26
2	85	78	73	68	76	71	66	62	56	53	50	42	40	38	30	29	27	30	29	27	22
3	78	69	62	57	70	62	56	52	49	45	42	38	35	33	27	25	24	27	25	24	19
4	71	61	54	48	64	55	49	44	44	40	36	34	31	28	24	22	21	24	22	21	16
5	66	55	47	41	59	49	43	38	39	35	31	30	27	25	22	20	18	22	20	18	14
6	60	49	41	36	54	44	38	33	36	31	27	27	24	22	20	18	16	20	18	16	13
7	56	44	37	31	50	40	33	29	32	27	24	25	22	19	18	16	14	18	16	14	11
8	52	40	33	28	46	36	30	25	29	25	21	23	19	17	17	15	13	17	15	13	10
9	48	36	29	24	43	33	27	23	27	22	19	21	18	15	15	13	12	15	13	12	9
10	45	33	26	22	40	30	24	20	25	20	17	19	16	14	14	12	11	14	12	11	9

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: 3754 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	255.6	1.3
10°-20°	701.6	3.7
20°-30°	985.0	5.2
30°-40°	1073.7	5.7
40°-50°	986.9	5.2
50°-60°	775.0	4.1
60°-70°	504.5	2.7
70°-80°	259.7	1.4
80°-90°	79.8	0.4
90°-100°	295.1	1.6
100°-110°	937.8	4.9
110°-120°	1604.9	8.5
120°-130°	2110.7	11.1
130°-140°	2369.1	12.5
140°-150°	2323.2	12.3
150°-160°	1948.8	10.3
160°-170°	1292.4	6.8
170°-180°	451.7	2.4
0°-30°	1942.1	10.2
0°-40°	3015.8	15.9
0°-60°	4777.7	25.2
0°-90°	5621.6	29.7
90°-120°	2837.8	15.0
90°-150°	9640.8	50.9
90°-180°	13334.0	70.3
0°-180°	18955.4	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	52	141	132	137	19
95°	210	250	257	257	250	234
105°	866	877	886	893	893	914
115°	1610	1634	1626	1622	1610	1593
125°	2342	2378	2367	2354	2350	2093
135°	3030	3074	3083	3079	3067	2342
145°	3678	3707	3730	3734	3719	2298
155°	4206	4218	4230	4251	4238	1936
165°	4576	4571	4571	4600	4580	1291
175°	4761	4750	4741	4770	4745	452
180°	4770	4770	4770	4770	4770	



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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°	4.3	51.7	140.9	132.3	136.6
92.5°	89.2	120.8	125.1	129.4	129.4
95°	209.9	250.2	257.4	257.4	250.2
97.5°	349.4	386.8	402.7	402.7	402.7
100°	510.5	543.6	555.1	555.1	550.7
102.5°	680.1	704.6	720.4	724.7	720.4
105°	865.6	877.1	885.8	893.0	893.0
107.5°	1049.7	1067.0	1067.0	1069.9	1049.7
110°	1228.0	1251.0	1251.0	1251.0	1239.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1420.7	1445.2	1440.9	1429.4	1420.7
115°	1610.5	1633.5	1626.4	1622.0	1610.5
117.5°	1798.9	1830.5	1810.4	1798.9	1787.4
120°	1988.8	2020.3	1988.8	1988.8	1975.8
122.5°	2161.2	2201.6	2181.4	2169.9	2161.2
125°	2342.5	2378.4	2366.9	2354.0	2349.7
127.5°	2519.3	2563.9	2548.1	2530.8	2519.3
130°	2684.7	2736.5	2729.3	2720.6	2704.8
132.5°	2870.2	2910.5	2913.3	2893.2	2881.7
135°	3029.8	3074.4	3083.1	3078.7	3067.2
137.5°	3208.1	3244.0	3251.3	3248.4	3231.1
140°	3364.9	3400.8	3421.0	3421.0	3405.1
142.5°	3526.0	3561.9	3573.4	3577.7	3561.9
145°	3678.4	3707.1	3730.1	3734.4	3718.6
147.5°	3814.9	3850.9	3868.2	3875.4	3859.5
150°	3955.8	3980.4	3996.2	4009.1	3996.2
152.5°	4081.0	4105.4	4125.6	4141.3	4125.6
155°	4206.1	4217.6	4230.5	4250.7	4237.8
157.5°	4313.9	4322.6	4329.8	4358.5	4338.4
160°	4410.2	4418.9	4423.3	4447.7	4430.4
162.5°	4499.4	4499.4	4503.7	4531.1	4510.9
165°	4575.7	4571.3	4571.3	4600.1	4580.0
167.5°	4644.7	4631.7	4631.7	4660.5	4640.3
170°	4696.4	4684.9	4680.7	4709.4	4684.9
172.5°	4732.4	4720.9	4716.6	4745.3	4720.9
175°	4761.2	4749.7	4741.0	4769.8	4745.3
177.5°	4777.0	4765.5	4756.8	4781.3	4756.8
180°	4769.8	4769.8	4769.8	4769.8	4769.8



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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	7.13	7.82	8.25	8.93	10.47	3.09	3.78	4.21	4.89	6.43
	3H	8.80	9.42	9.93	10.54	12.09	4.27	4.88	5.40	6.00	7.56
	4H	9.41	9.99	10.54	11.11	12.67	4.71	5.30	5.85	6.42	7.97
	6H	9.82	10.36	10.97	11.48	13.05	5.03	5.57	6.17	6.69	8.26
	8H	9.95	10.46	11.10	11.60	13.16	5.12	5.63	6.26	6.76	8.32
	12H	10.01	10.49	11.16	11.62	13.21	5.15	5.64	6.31	6.77	8.35
4H	2H	7.13	7.72	8.28	8.83	10.39	3.67	4.26	4.82	5.37	6.93
	3H	8.95	9.44	10.10	10.58	12.15	5.01	5.50	6.16	6.64	8.21
	4H	9.64	10.09	10.79	11.22	12.81	5.55	6.00	6.70	7.13	8.72
	6H	10.15	10.54	11.31	11.69	13.27	5.97	6.35	7.12	7.50	9.08
	8H	10.33	10.69	11.49	11.83	13.43	6.09	6.45	7.25	7.60	9.19
	12H	10.42	10.74	11.59	11.90	13.50	6.15	6.47	7.32	7.63	9.24
8H	4H	9.60	9.96	10.76	11.10	12.70	5.83	6.18	6.98	7.33	8.93
	6H	10.17	10.46	11.34	11.65	13.24	6.34	6.63	7.52	7.82	9.42
	8H	10.38	10.64	11.57	11.81	13.42	6.53	6.79	7.71	7.96	9.57
	12H	10.52	10.75	11.71	11.91	13.56	6.64	6.87	7.83	8.04	9.68
12H	4H	9.55	9.87	10.72	11.03	12.63	5.82	6.15	7.00	7.31	8.91
	6H	10.14	10.40	11.32	11.57	13.18	6.39	6.65	7.57	7.81	9.43
	8H	10.36	10.58	11.54	11.75	13.40	6.59	6.82	7.78	7.99	9.63