

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: P904199

Luminaire Tested: DFN2DIP-SQ4F0-140D080US830-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904199
REPORT IS A COMBINATION OF REPORTS P901630 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D080US830-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

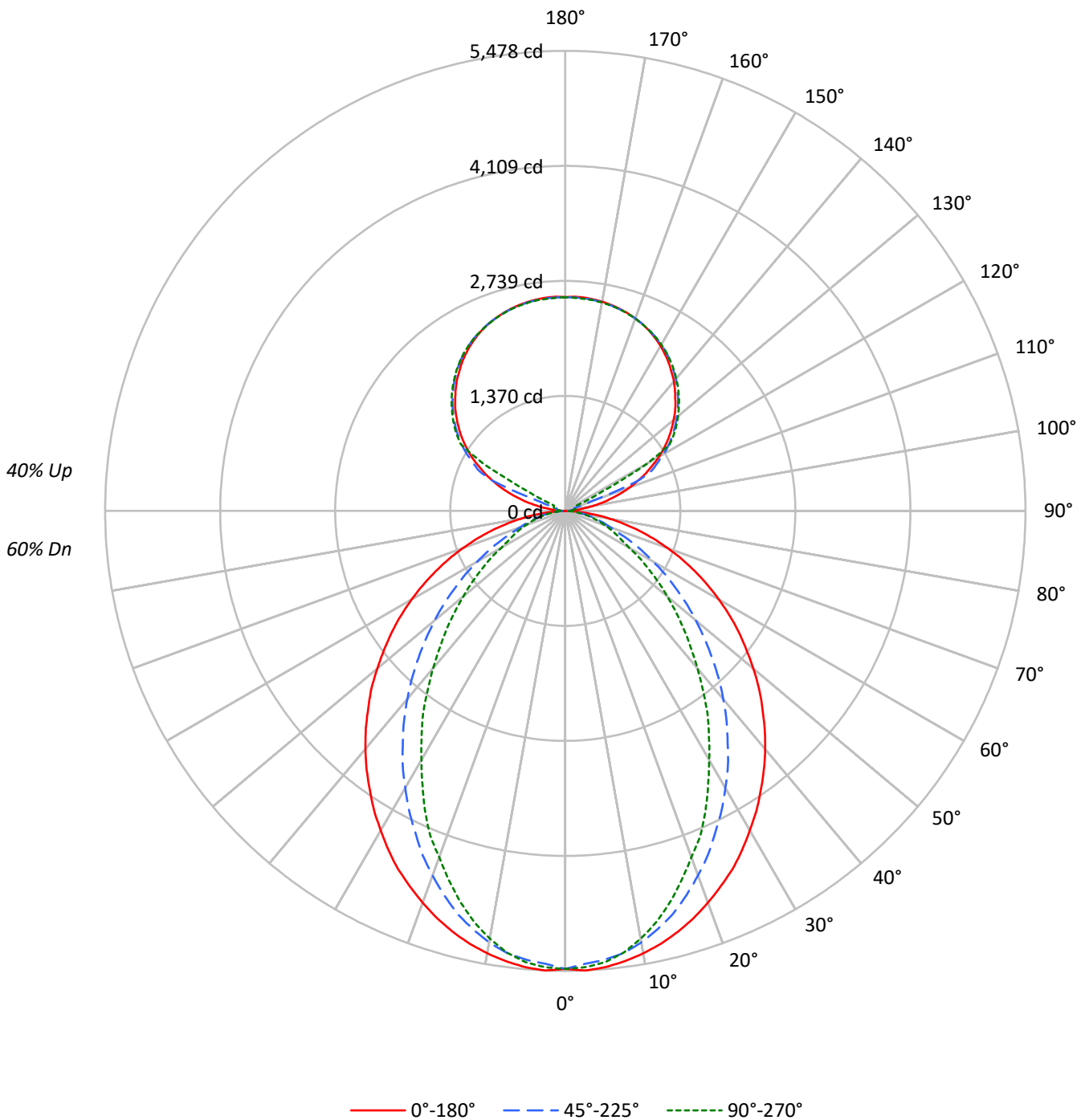
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18681.2 lumens
Efficiency: N/A
Efficacy: 91.9 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-Direct

Input Watts (W): 203.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P904199
CATALOG NUMBER: DFN2DIP-SQ4F0-140D080US830-RLLONL

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	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65	60			
1	101	96	93	89	94	90	87	84	79	77	74	68	67	65	59	57	56	52			
2	92	85	79	74	86	80	74	70	70	66	62	61	58	55	52	50	48	44			
3	84	75	68	62	79	71	64	59	62	57	53	54	51	47	47	44	42	38			
4	78	67	59	53	72	63	56	51	56	50	46	49	45	41	42	39	37	33			
5	71	60	52	46	67	57	49	44	50	44	40	44	40	36	38	35	32	29			
6	66	54	46	40	62	51	44	39	45	40	35	40	35	32	35	32	29	26			
7	61	49	41	36	57	46	39	34	41	36	31	37	32	29	32	29	26	23			
8	57	45	37	32	53	42	35	31	38	32	28	34	29	26	30	26	23	21			
9	53	41	34	29	50	39	32	28	35	29	25	31	27	23	28	24	21	19			
10	50	38	31	26	47	36	29	25	32	27	23	29	24	21	26	22	19	17			

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3827	3827	3827
5°	3833	3767	3791
10°	3795	3694	3669
15°	3743	3572	3479
20°	3673	3405	3246
25°	3603	3217	3021
30°	3507	3024	2735
35°	3414	2817	2484
40°	3319	2602	2195
45°	3209	2364	1934
50°	3095	2123	1679
55°	2977	1866	1433
60°	2839	1597	1181
65°	2681	1323	1064
70°	2489	1068	965
75°	2247	943	880
80°	1898	794	767
85°	1322	534	584

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3209 cd/sqm



TEST NUMBER: P904199

CATALOG NUMBER: DFN2DIP-SQ4F0-140D080US830-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	511.1	2.7
10°-20°	1403.2	7.5
20°-30°	1970.0	10.5
30°-40°	2147.4	11.5
40°-50°	1973.7	10.6
50°-60°	1550.0	8.3
60°-70°	1008.9	5.4
70°-80°	519.3	2.8
80°-90°	137.1	0.7
90°-100°	83.9	0.4
100°-110°	312.8	1.7
110°-120°	829.6	4.4
120°-130°	1376.0	7.4
130°-140°	1461.6	7.8
140°-150°	1358.4	7.3
150°-160°	1092.1	5.8
160°-170°	703.7	3.8
170°-180°	242.2	1.3
0°-30°	3884.3	20.8
0°-40°	6031.7	32.3
0°-60°	9555.4	51.1
0°-90°	11220.7	60.1
90°-120°	1226.4	6.6
90°-150°	5422.4	29.0
90°-180°	7460.0	39.9
0°-180°	18681.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5454	5454	5454	5454	5454	
5°	5454	5429	5365	5409	5394	517
15°	5187	5133	4965	4871	4822	1462
25°	4709	4550	4225	4023	3948	2165
35°	4057	3805	3371	3060	2951	2539
45°	3317	2986	2468	2117	1999	2561
55°	2522	2137	1604	1308	1214	2253
65°	1703	1303	859	691	676	1688
75°	908	562	395	360	356	960
85°	212	108	94	94	94	243
90°	2	22	37	46	50	18
95°	120	59	72	81	79	142
105°	560	615	112	132	140	598
115°	1059	1090	1136	284	151	1042
125°	1497	1521	1556	1569	1574	1335
135°	1852	1882	1898	1917	1913	1431
145°	2149	2147	2178	2191	2182	1344
155°	2366	2350	2372	2383	2368	1090
165°	2493	2482	2488	2501	2488	704
175°	2550	2537	2541	2554	2536	243
180°	2545	2545	2545	2545	2545	



TEST NUMBER: P904199

CATALOG NUMBER: DFN2DIP-SQ4F0-140D080US830-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5453.7	5453.7	5453.7	5453.7	5453.7
2.5°	5478.3	5453.7	5399.3	5449.0	5439.0
5°	5453.7	5429.1	5364.7	5409.3	5394.5
7.5°	5409.3	5379.8	5310.8	5330.2	5305.6
10°	5350.1	5315.5	5217.1	5201.8	5172.5
12.5°	5276.2	5231.7	5098.1	5068.8	5014.4
15°	5187.2	5132.7	4965.1	4871.4	4822.2
17.5°	5083.5	5004.4	4797.1	4688.7	4609.6
20°	4965.1	4866.2	4619.6	4496.5	4387.6
22.5°	4836.8	4723.3	4436.8	4269.2	4195.4
25°	4708.6	4550.4	4224.8	4022.6	3948.2
27.5°	4555.7	4387.6	4027.3	3795.3	3681.8
30°	4392.8	4204.9	3810.0	3558.7	3425.1
32.5°	4234.7	4007.4	3603.2	3306.8	3183.2
35°	4057.2	3805.3	3371.2	3060.2	2951.2
37.5°	3884.4	3612.6	3153.8	2813.0	2689.9
40°	3701.6	3405.8	2926.6	2576.3	2448.1
42.5°	3514.2	3198.4	2699.9	2334.4	2211.3
45°	3316.7	2985.8	2468.0	2117.0	1998.8
47.5°	3129.2	2779.0	2245.9	1895.1	1786.7
50°	2921.9	2571.6	2028.5	1687.7	1584.5
52.5°	2719.2	2349.0	1821.2	1495.5	1401.7
55°	2521.9	2136.9	1603.9	1308.1	1214.3
57.5°	2319.7	1924.9	1411.7	1135.3	1056.2
60°	2112.3	1717.5	1209.1	957.7	878.6
62.5°	1910.3	1515.4	1036.3	799.6	760.3
65°	1702.9	1302.8	858.8	691.2	676.0
67.5°	1505.4	1105.4	691.2	606.9	592.2
70°	1298.1	913.2	572.3	523.1	503.2
72.5°	1100.7	735.2	478.6	439.3	429.4
75°	908.0	562.4	394.8	360.2	355.5
77.5°	715.9	399.5	311.0	291.2	281.2
80°	537.8	286.4	236.7	217.4	217.4
82.5°	374.9	192.7	162.9	152.9	152.9
85°	212.1	108.4	93.7	93.7	93.7
87.5°	79.1	39.3	39.3	34.6	34.6
90°	1.8	22.1	36.8	46.1	49.7
92.5°	46.1	38.7	44.2	47.9	49.7
95°	119.6	58.8	71.7	81.2	79.2
97.5°	215.4	64.5	93.8	99.5	101.2
100°	326.0	73.7	105.0	119.6	123.3
102.5°	447.4	443.8	108.7	128.8	134.5
105°	559.8	615.1	112.4	132.5	140.0
107.5°	690.5	736.4	116.1	136.2	143.6
110°	815.9	854.3	322.3	138.2	145.4



TEST NUMBER: P904199

CATALOG NUMBER: DFN2DIP-SQ4F0-140D080US830-RLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	933.7	966.7	935.5	141.7	147.4
115°	1058.8	1090.1	1136.1	283.6	151.1
117.5°	1167.4	1204.2	1235.7	972.1	489.8
120°	1289.0	1316.5	1349.8	1371.9	1123.2
122.5°	1391.9	1421.5	1458.5	1469.4	1471.4
125°	1496.9	1521.0	1555.9	1568.9	1574.3
127.5°	1592.7	1618.5	1646.3	1664.6	1666.4
130°	1683.0	1712.5	1732.7	1753.0	1751.2
132.5°	1775.1	1799.1	1819.3	1835.9	1834.1
135°	1852.5	1882.0	1898.4	1917.0	1913.3
137.5°	1933.4	1955.5	1974.1	1992.4	1987.0
140°	2012.5	2027.4	2047.6	2064.2	2054.9
142.5°	2079.1	2091.9	2115.7	2130.4	2121.2
145°	2149.0	2147.0	2178.3	2191.2	2182.0
147.5°	2209.6	2204.1	2235.3	2244.6	2237.3
150°	2268.6	2255.7	2285.2	2296.1	2287.0
152.5°	2318.3	2303.6	2331.1	2342.3	2329.4
155°	2366.2	2349.8	2371.8	2382.7	2368.1
157.5°	2404.8	2390.2	2406.8	2419.7	2404.8
160°	2438.1	2427.0	2438.1	2449.0	2436.1
162.5°	2467.4	2456.5	2465.6	2478.5	2461.9
165°	2493.2	2482.3	2487.7	2500.6	2487.7
167.5°	2513.5	2502.4	2508.0	2520.9	2504.3
170°	2530.2	2518.9	2522.7	2535.6	2518.9
172.5°	2541.1	2530.2	2533.8	2546.7	2530.2
175°	2550.2	2537.3	2541.1	2553.9	2535.6
177.5°	2553.9	2541.1	2543.0	2555.9	2539.3
180°	2544.8	2544.8	2544.8	2544.8	2544.8



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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	12.71	13.63	13.59	14.52	15.64	8.67	9.59	9.55	10.48	11.61
	3H	14.40	15.22	15.29	16.12	17.27	9.87	10.69	10.76	11.59	12.74
	4H	15.02	15.79	15.92	16.70	17.86	10.32	11.10	11.23	12.01	13.16
	6H	15.45	16.16	16.36	17.07	18.24	10.65	11.37	11.56	12.28	13.45
	8H	15.58	16.26	16.50	17.19	18.36	10.74	11.42	11.67	12.35	13.52
	12H	15.65	16.29	16.57	17.21	18.41	10.79	11.44	11.72	12.36	13.56
4H	2H	12.74	13.52	13.65	14.42	15.58	9.28	10.06	10.19	10.96	12.12
	3H	14.58	15.23	15.50	16.17	17.34	10.64	11.29	11.56	12.22	13.40
	4H	15.28	15.87	16.21	16.80	18.00	11.19	11.78	12.12	12.71	13.91
	6H	15.81	16.31	16.75	17.27	18.47	11.62	12.12	12.56	13.08	14.28
	8H	15.99	16.46	16.93	17.41	18.62	11.75	12.22	12.69	13.17	14.38
	12H	16.09	16.51	17.05	17.48	18.70	11.82	12.25	12.78	13.21	14.43
8H	4H	15.26	15.73	16.20	16.68	17.89	11.48	11.96	12.43	12.90	14.12
	6H	15.83	16.22	16.80	17.21	18.42	12.01	12.40	12.98	13.39	14.60
	8H	16.05	16.40	17.03	17.38	18.61	12.20	12.54	13.18	13.52	14.75
	12H	16.20	16.50	17.18	17.47	18.75	12.32	12.63	13.30	13.60	14.88
12H	4H	15.21	15.64	16.18	16.61	17.82	11.49	11.92	12.45	12.88	14.10
	6H	15.81	16.15	16.79	17.13	18.36	12.06	12.40	13.04	13.38	14.61
	8H	16.04	16.34	17.02	17.31	18.59	12.27	12.58	13.25	13.55	14.83