

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: P917778

Luminaire Tested: DFN2DIP-SQ4F0-110D110US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917778
REPORT IS A COMBINATION OF REPORTS P900160 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D110US930-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

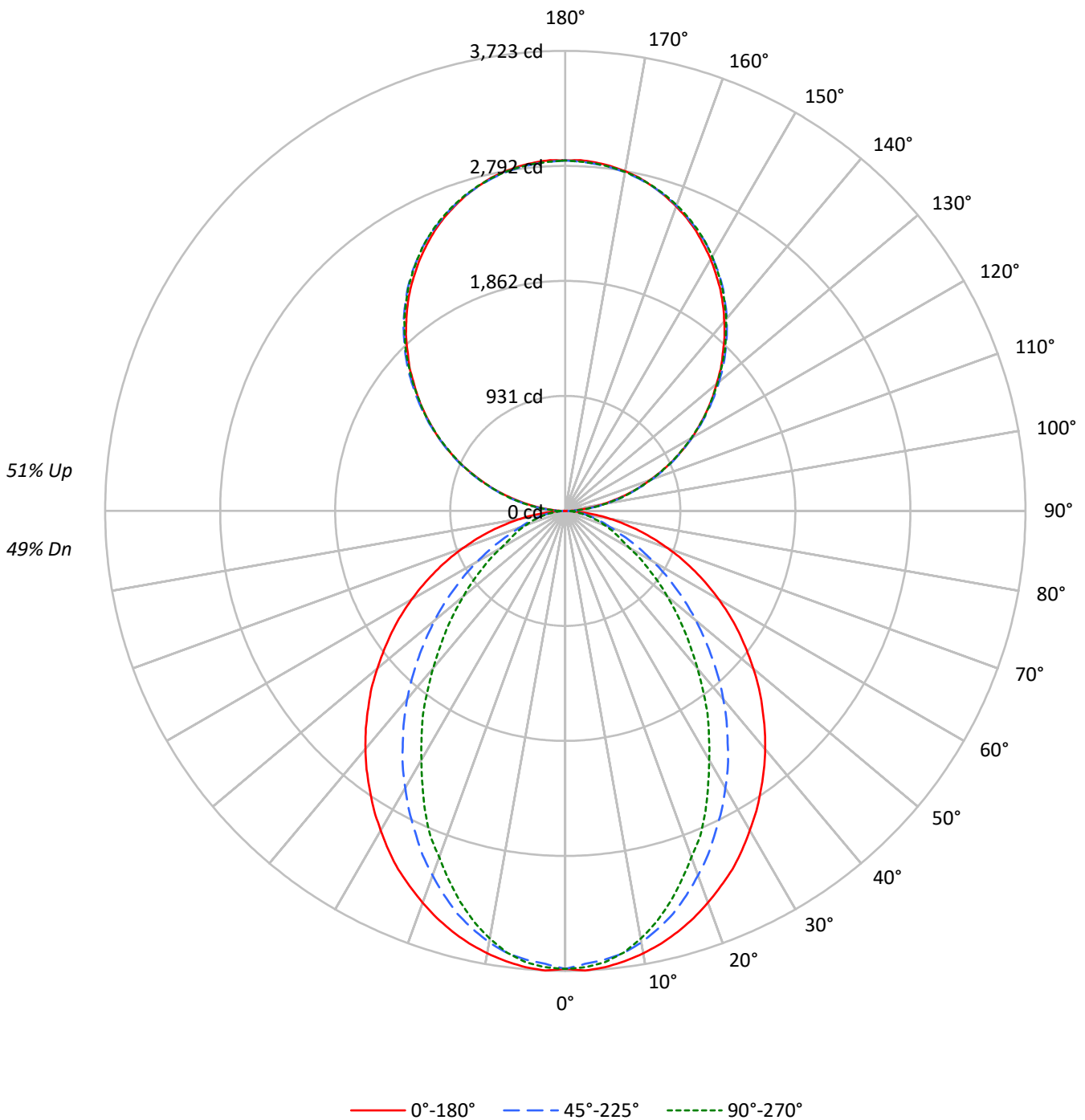
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15560.0 lumens
Efficiency: N/A
Efficacy: 82.8 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): 187.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	50	30	10	50	30	10	50	30	10	0				
RCR																																		
0	107	107	107	107	99	99	99	99	83	83	83	68	68	68	55	55	55	49																
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48	42																
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41	36																
3	82	73	66	60	75	68	61	57	58	53	49	48	45	42	40	37	35	31																
4	75	65	57	51	69	60	54	48	51	46	42	43	40	36	36	33	31	27																
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27	24																
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	30	26	24	21																
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22	19																
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20	17																
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18	16																
10	48	36	29	24	44	34	28	23	30	24	21	25	21	19	22	18	16	14																

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2601	2601	2601
5°	2605	2560	2577
10°	2579	2510	2494
15°	2544	2428	2365
20°	2497	2314	2206
25°	2448	2186	2053
30°	2384	2055	1859
35°	2320	1914	1688
40°	2256	1768	1492
45°	2181	1606	1314
50°	2104	1443	1141
55°	2023	1268	974
60°	1929	1085	803
65°	1822	899	723
70°	1691	726	656
75°	1527	641	598
80°	1290	540	521
85°	898	363	397

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2232 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.2
10°-20°	953.6	6.1
20°-30°	1338.9	8.6
30°-40°	1459.5	9.4
40°-50°	1341.4	8.6
50°-60°	1053.5	6.8
60°-70°	685.7	4.4
70°-80°	353.0	2.3
80°-90°	98.2	0.6
90°-100°	175.5	1.1
100°-110°	557.7	3.6
110°-120°	954.3	6.1
120°-130°	1255.1	8.1
130°-140°	1408.8	9.1
140°-150°	1381.5	8.9
150°-160°	1158.9	7.4
160°-170°	768.5	4.9
170°-180°	268.6	1.7
0°-30°	2639.9	17.0
0°-40°	4099.4	26.3
0°-60°	6494.2	41.7
0°-90°	7631.1	49.0
90°-120°	1687.5	10.8
90°-150°	5732.8	36.8
90°-180°	7929.0	51.0
0°-180°	15560.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	2	31	84	79	81	15
95°	125	149	153	153	149	139
105°	515	522	527	531	531	543
115°	958	971	967	965	958	947
125°	1393	1414	1407	1400	1397	1245
135°	1802	1828	1833	1831	1824	1393
145°	2187	2204	2218	2221	2211	1367
155°	2501	2508	2516	2528	2520	1151
165°	2721	2718	2718	2735	2723	768
175°	2831	2824	2819	2836	2822	269
180°	2836	2836	2836	2836	2836	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	2.5	30.8	83.8	78.7	81.2
92.5°	53.0	71.8	74.4	77.0	77.0
95°	124.8	148.8	153.0	153.0	148.8
97.5°	207.8	230.0	239.5	239.5	239.5
100°	303.5	323.2	330.0	330.0	327.5
102.5°	404.5	419.0	428.4	431.0	428.4
105°	514.8	521.6	526.8	531.0	531.0
107.5°	624.2	634.5	634.5	636.2	624.2
110°	730.3	744.0	744.0	744.0	737.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	844.8	859.3	856.8	849.9	844.8
115°	957.7	971.3	967.1	964.6	957.7
117.5°	1069.8	1088.5	1076.5	1069.8	1062.9
120°	1182.6	1201.4	1182.6	1182.6	1174.9
122.5°	1285.2	1309.1	1297.1	1290.3	1285.2
125°	1392.9	1414.3	1407.4	1399.8	1397.2
127.5°	1498.1	1524.6	1515.2	1505.0	1498.1
130°	1596.4	1627.3	1622.9	1617.8	1608.4
132.5°	1706.7	1730.7	1732.4	1720.4	1713.6
135°	1801.6	1828.1	1833.3	1830.8	1823.9
137.5°	1907.7	1929.1	1933.3	1931.6	1921.4
140°	2000.9	2022.3	2034.3	2034.3	2024.9
142.5°	2096.7	2118.1	2124.9	2127.4	2118.1
145°	2187.3	2204.4	2218.1	2220.6	2211.3
147.5°	2268.6	2289.9	2300.2	2304.4	2295.1
150°	2352.4	2366.9	2376.3	2384.0	2376.3
152.5°	2426.7	2441.2	2453.2	2462.7	2453.2
155°	2501.2	2507.9	2515.7	2527.7	2519.9
157.5°	2565.3	2570.4	2574.6	2591.8	2579.8
160°	2622.6	2627.7	2630.2	2644.8	2634.6
162.5°	2675.6	2675.6	2678.2	2694.4	2682.4
165°	2720.9	2718.3	2718.3	2735.4	2723.4
167.5°	2761.9	2754.2	2754.2	2771.4	2759.4
170°	2792.7	2785.9	2783.3	2800.4	2785.9
172.5°	2814.1	2807.2	2804.7	2821.8	2807.2
175°	2831.2	2824.4	2819.2	2836.3	2821.8
177.5°	2840.6	2833.7	2828.6	2843.2	2828.6
180°	2836.3	2836.3	2836.3	2836.3	2836.3



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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	10.39	11.21	11.36	12.19	13.48	6.35	7.17	7.32	8.15	9.44
	3H	12.07	12.81	13.05	13.80	15.11	7.54	8.27	8.52	9.26	10.57
	4H	12.68	13.38	13.68	14.37	15.69	7.99	8.68	8.99	9.68	11.00
	6H	13.11	13.75	14.11	14.75	16.08	8.31	8.95	9.32	9.95	11.28
	8H	13.23	13.84	14.25	14.86	16.18	8.40	9.01	9.41	10.02	11.35
	12H	13.30	13.88	14.32	14.89	16.24	8.44	9.02	9.46	10.03	11.38
4H	2H	10.41	11.10	11.41	12.10	13.41	6.95	7.64	7.95	8.64	9.95
	3H	12.24	12.82	13.25	13.84	15.17	8.30	8.87	9.31	9.90	11.23
	4H	12.93	13.46	13.95	14.48	15.83	8.85	9.37	9.86	10.39	11.74
	6H	13.45	13.91	14.48	14.95	16.30	9.26	9.72	10.29	10.76	12.11
	8H	13.63	14.05	14.66	15.09	16.45	9.39	9.82	10.42	10.85	12.22
	12H	13.73	14.11	14.78	15.16	16.53	9.46	9.84	10.51	10.89	12.26
8H	4H	12.90	13.33	13.93	14.36	15.72	9.13	9.55	10.16	10.58	11.95
	6H	13.47	13.82	14.53	14.90	16.26	9.65	10.00	10.70	11.07	12.43
	8H	13.69	14.00	14.75	15.06	16.44	9.84	10.15	10.90	11.21	12.59
	12H	13.83	14.10	14.90	15.16	16.58	9.96	10.23	11.02	11.28	12.71
12H	4H	12.85	13.24	13.90	14.28	15.65	9.13	9.51	10.18	10.56	11.93
	6H	13.45	13.76	14.51	14.81	16.20	9.70	10.00	10.76	11.06	12.45
	8H	13.67	13.94	14.74	14.99	16.42	9.91	10.18	10.97	11.23	12.66