

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: P925951

Luminaire Tested: DFN2DIP-SQ4F0-110D080US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P925951
REPORT IS A COMBINATION OF REPORTS P901626 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D080US950-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

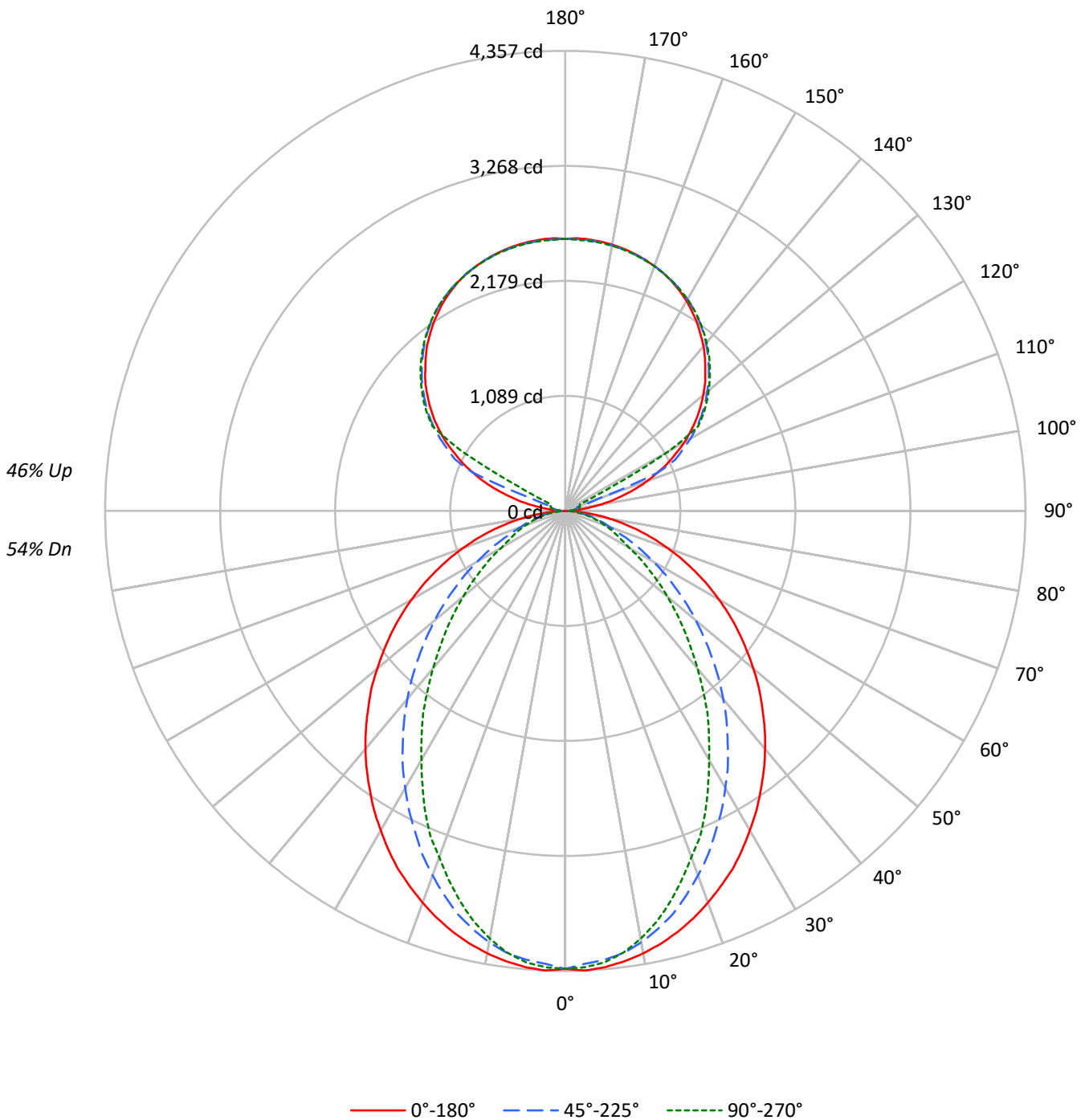
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 16475.6 lumens
Efficiency: N/A
Efficacy: 100.1 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): 164.6
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				
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	108	108	108	108	100	100	100	100	86	86	86	72	72	72	60	60	60	54	54	54	54
1	99	95	91	88	92	88	85	82	76	74	71	64	63	61	54	53	52	47	47	47	47
2	91	84	78	73	84	78	73	68	67	63	60	57	54	52	48	46	44	40	40	40	40
3	83	74	67	61	77	69	63	58	60	55	51	51	48	45	43	40	38	34	34	34	34
4	76	66	58	52	71	62	55	49	53	48	44	46	42	39	39	36	33	30	30	30	30
5	70	59	51	45	65	55	48	43	48	43	38	41	37	34	35	32	30	26	26	26	26
6	65	53	45	40	60	50	43	38	44	38	34	38	33	30	32	29	26	23	23	23	23
7	60	48	40	35	56	45	38	33	40	34	30	34	30	27	29	26	24	21	21	21	21
8	56	44	36	31	52	41	34	30	36	31	27	32	27	24	27	24	21	19	19	19	19
9	52	40	33	28	49	38	31	27	33	28	24	29	25	22	25	22	19	17	17	17	17
10	49	37	30	25	45	35	28	24	31	26	22	27	23	20	23	20	18	16	16	16	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3043	3043	3043
5°	3048	2996	3015
10°	3018	2937	2918
15°	2976	2841	2767
20°	2921	2708	2582
25°	2865	2558	2402
30°	2789	2405	2175
35°	2715	2240	1975
40°	2640	2069	1746
45°	2552	1880	1538
50°	2462	1688	1335
55°	2367	1484	1140
60°	2258	1270	939
65°	2132	1052	846
70°	1979	850	767
75°	1787	750	700
80°	1510	631	610
85°	1051	425	464

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 2552 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.5	2.5
10°-20°	1115.9	6.8
20°-30°	1566.7	9.5
30°-40°	1707.7	10.4
40°-50°	1569.6	9.5
50°-60°	1232.7	7.5
60°-70°	802.4	4.9
70°-80°	413.0	2.5
80°-90°	110.0	0.7
90°-100°	84.9	0.5
100°-110°	316.6	1.9
110°-120°	839.7	5.1
120°-130°	1392.7	8.5
130°-140°	1479.4	9.0
140°-150°	1374.9	8.3
150°-160°	1105.4	6.7
160°-170°	712.3	4.3
170°-180°	245.2	1.5
0°-30°	3089.0	18.7
0°-40°	4796.8	29.1
0°-60°	7599.1	46.1
0°-90°	8924.4	54.2
90°-120°	1241.3	7.5
90°-150°	5488.3	33.3
90°-180°	7551.0	45.8
0°-180°	16475.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4337	4337	4337	4337	4337	
5°	4337	4318	4266	4302	4290	411
15°	4125	4082	3949	3874	3835	1162
25°	3744	3619	3360	3199	3140	1722
35°	3226	3026	2681	2434	2347	2019
45°	2638	2374	1963	1684	1590	2037
55°	2006	1700	1276	1040	966	1792
65°	1354	1036	683	550	538	1343
75°	722	447	314	286	283	764
85°	169	86	74	74	74	194
90°	2	22	37	47	50	16
95°	121	60	73	82	80	143
105°	567	623	114	134	142	605
115°	1072	1103	1150	287	153	1055
125°	1515	1540	1575	1588	1594	1351
135°	1875	1905	1922	1940	1936	1448
145°	2175	2173	2205	2218	2208	1360
155°	2395	2378	2401	2412	2397	1104
165°	2524	2512	2518	2531	2518	713
175°	2581	2568	2572	2585	2566	246
180°	2576	2576	2576	2576	2576	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4337.2	4337.2	4337.2	4337.2	4337.2
2.5°	4356.7	4337.2	4293.9	4333.4	4325.5
5°	4337.2	4317.6	4266.4	4301.8	4290.1
7.5°	4301.8	4278.4	4223.5	4238.9	4219.3
10°	4254.7	4227.2	4148.9	4136.8	4113.6
12.5°	4196.0	4160.6	4054.4	4031.0	3987.7
15°	4125.2	4081.9	3948.6	3874.1	3834.9
17.5°	4042.8	3979.9	3815.0	3728.7	3665.8
20°	3948.6	3869.9	3673.8	3575.9	3489.3
22.5°	3846.6	3756.2	3528.5	3395.2	3336.4
25°	3744.5	3618.8	3359.8	3199.0	3139.9
27.5°	3623.0	3489.3	3202.8	3018.3	2927.9
30°	3493.5	3344.0	3030.0	2830.0	2723.9
32.5°	3367.7	3186.9	2865.4	2629.8	2531.5
35°	3226.5	3026.2	2681.0	2433.7	2347.0
37.5°	3089.1	2873.0	2508.2	2237.0	2139.2
40°	2943.8	2708.5	2327.5	2048.8	1946.8
42.5°	2794.6	2543.6	2147.2	1856.5	1758.6
45°	2637.7	2374.5	1962.7	1683.6	1589.6
47.5°	2488.6	2210.0	1786.1	1507.0	1420.9
50°	2323.7	2045.1	1613.3	1342.2	1260.1
52.5°	2162.5	1868.1	1448.4	1189.4	1114.7
55°	2005.5	1699.5	1275.5	1040.2	965.7
57.5°	1844.8	1530.8	1122.7	902.9	839.9
60°	1679.9	1365.9	961.5	761.7	698.8
62.5°	1519.1	1205.2	824.2	635.9	604.6
65°	1354.2	1036.0	683.0	549.7	537.6
67.5°	1197.3	879.1	549.7	482.6	471.0
70°	1032.3	726.3	455.2	416.0	400.2
72.5°	875.3	584.7	380.6	349.4	341.4
75°	722.1	447.2	314.0	286.5	282.8
77.5°	569.3	317.8	247.4	231.5	223.6
80°	427.7	227.8	188.2	172.9	172.9
82.5°	298.1	153.2	129.6	121.6	121.6
85°	168.7	86.2	74.5	74.5	74.5
87.5°	62.9	31.2	31.2	27.5	27.5
90°	1.8	22.3	37.2	46.7	50.3
92.5°	46.7	39.2	44.7	48.5	50.3
95°	121.1	59.5	72.6	82.1	80.1
97.5°	218.0	65.3	94.9	100.7	102.5
100°	330.0	74.6	106.3	121.1	124.8
102.5°	452.9	449.2	110.0	130.3	136.1
105°	566.6	622.6	113.7	134.1	141.7
107.5°	698.9	745.4	117.5	137.9	145.4
110°	825.8	864.7	326.3	139.9	147.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	945.0	978.4	946.8	143.4	149.2
115°	1071.6	1103.3	1150.0	287.1	152.9
117.5°	1181.6	1218.8	1250.7	984.0	495.8
120°	1304.7	1332.5	1366.2	1388.5	1136.9
122.5°	1408.9	1438.8	1476.2	1487.3	1489.3
125°	1515.1	1539.5	1574.9	1587.9	1593.5
127.5°	1612.1	1638.2	1666.4	1684.9	1686.7
130°	1703.5	1733.3	1753.7	1774.3	1772.5
132.5°	1796.7	1821.0	1841.4	1858.2	1856.4
135°	1875.0	1904.9	1921.5	1940.3	1936.5
137.5°	1956.9	1979.3	1998.1	2016.7	2011.1
140°	2037.0	2052.1	2072.5	2089.3	2079.9
142.5°	2104.3	2117.3	2141.4	2156.3	2147.0
145°	2175.1	2173.1	2204.8	2217.9	2208.5
147.5°	2236.5	2230.9	2262.5	2271.9	2264.5
150°	2296.2	2283.1	2313.0	2324.0	2314.8
152.5°	2346.5	2331.6	2359.4	2370.8	2357.7
155°	2394.9	2378.3	2400.6	2411.7	2396.9
157.5°	2434.0	2419.2	2436.0	2449.1	2434.0
160°	2467.7	2456.5	2467.7	2478.8	2465.7
162.5°	2497.4	2486.3	2495.6	2508.6	2491.8
165°	2523.5	2512.5	2518.0	2531.0	2518.0
167.5°	2544.0	2532.8	2538.5	2551.6	2534.8
170°	2560.9	2549.6	2553.4	2566.5	2549.6
172.5°	2572.0	2560.9	2564.6	2577.7	2560.9
175°	2581.2	2568.2	2572.0	2585.0	2566.5
177.5°	2585.0	2572.0	2573.9	2587.0	2570.2
180°	2575.7	2575.7	2575.7	2575.7	2575.7



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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	11.41	12.27	12.34	13.21	14.43	7.37	8.23	8.30	9.17	10.39
	3H	13.09	13.87	14.03	14.82	16.05	8.56	9.33	9.50	10.28	11.52
	4H	13.71	14.44	14.66	15.39	16.64	9.01	9.74	9.97	10.70	11.94
	6H	14.13	14.81	15.10	15.77	17.02	9.34	10.01	10.30	10.97	12.23
	8H	14.26	14.90	15.23	15.88	17.14	9.43	10.07	10.40	11.04	12.30
	12H	14.33	14.94	15.30	15.91	17.19	9.47	10.08	10.45	11.05	12.33
4H	2H	11.43	12.16	12.39	13.12	14.36	7.97	8.70	8.93	9.66	10.90
	3H	13.27	13.87	14.24	14.86	16.12	9.32	9.93	10.29	10.92	12.18
	4H	13.96	14.52	14.94	15.50	16.78	9.88	10.43	10.85	11.41	12.69
	6H	14.49	14.96	15.48	15.96	17.25	10.30	10.77	11.29	11.78	13.06
	8H	14.66	15.11	15.66	16.10	17.40	10.43	10.87	11.42	11.87	13.16
	12H	14.76	15.16	15.77	16.18	17.48	10.49	10.90	11.50	11.91	13.21
8H	4H	13.93	14.38	14.93	15.37	16.67	10.16	10.61	11.15	11.60	12.90
	6H	14.51	14.87	15.52	15.91	17.21	10.68	11.05	11.70	12.09	13.38
	8H	14.73	15.05	15.75	16.07	17.39	10.87	11.20	11.90	12.22	13.54
	12H	14.87	15.15	15.90	16.17	17.53	10.99	11.28	12.02	12.30	13.66
12H	4H	13.89	14.29	14.90	15.30	16.60	10.17	10.57	11.18	11.58	12.88
	6H	14.48	14.81	15.51	15.83	17.14	10.73	11.06	11.76	12.08	13.39
	8H	14.71	14.99	15.74	16.01	17.37	10.95	11.23	11.97	12.25	13.61