

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: P912246

Luminaire Tested: DFN2DIP-SQ4F0-090D100US850-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912246
REPORT IS A COMBINATION OF REPORTS P900138 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D100US850-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

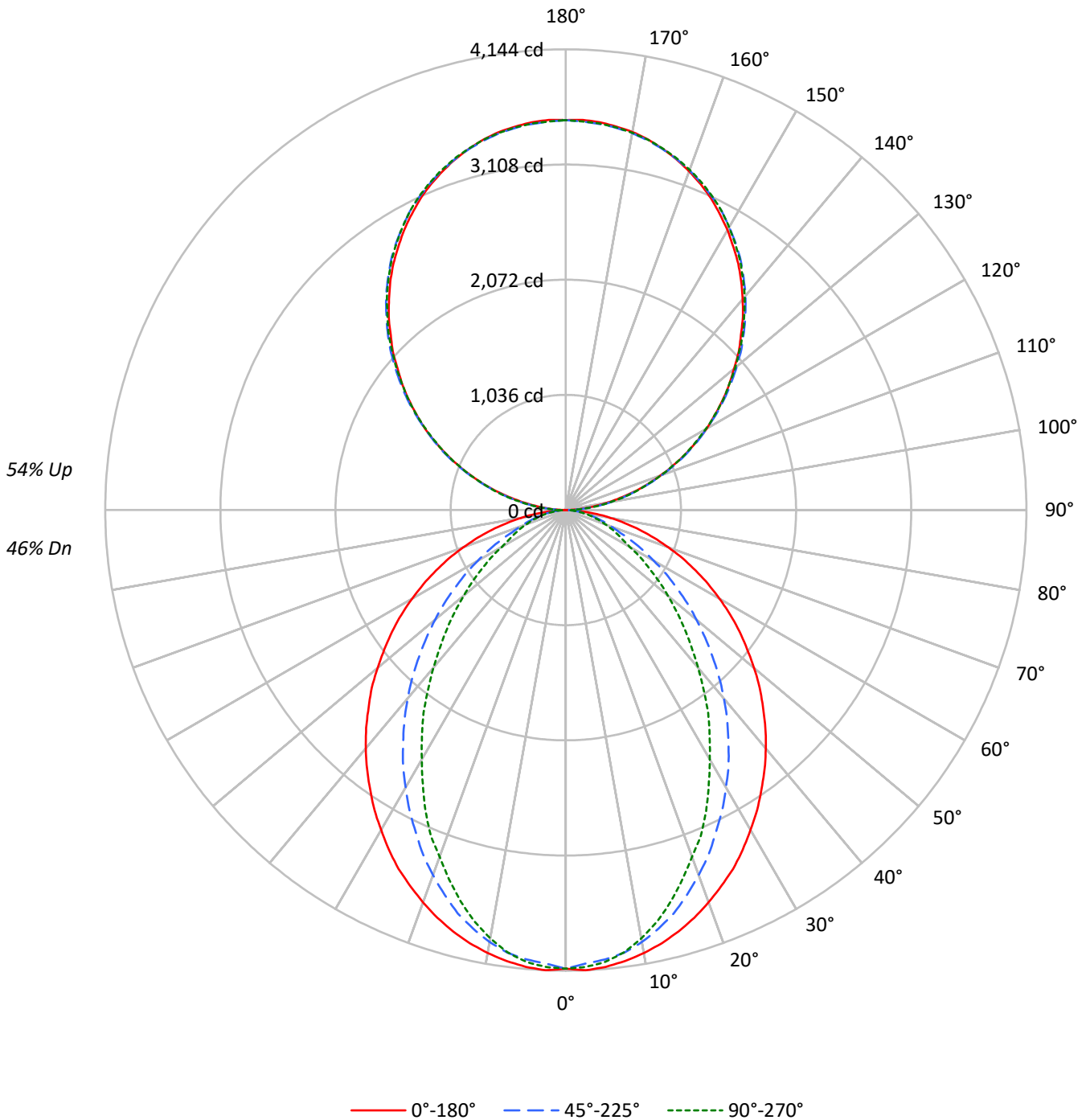
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 18298.5 lumens
Efficiency: N/A
Efficacy: 116.3 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): 157.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46	46	46	46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40	40	40	40
2	89	82	76	71	82	76	71	66	64	60	57	52	50	48	42	41	39	34	34	34	34
3	82	72	65	60	75	67	61	56	56	52	48	47	44	41	38	36	34	30	30	30	30
4	75	64	57	51	69	60	53	48	50	45	41	42	38	35	34	32	29	26	26	26	26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23	23	23	23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20	20	20	20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18	18	18	18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16	16	16	16
9	51	39	32	27	47	36	30	25	31	26	23	27	23	20	22	19	17	15	15	15	15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	21	18	15	13	13	13	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2894	2894	2894
5°	2899	2849	2868
10°	2870	2794	2775
15°	2831	2702	2632
20°	2779	2575	2455
25°	2725	2433	2285
30°	2653	2287	2069
35°	2583	2130	1879
40°	2511	1968	1661
45°	2428	1788	1463
50°	2341	1606	1270
55°	2251	1411	1084
60°	2147	1208	893
65°	2027	1001	805
70°	1882	808	730
75°	1700	714	666
80°	1436	600	580
85°	1000	404	442

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2762 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	386.6	2.1
10°-20°	1061.3	5.8
20°-30°	1490.1	8.1
30°-40°	1624.3	8.9
40°-50°	1492.9	8.2
50°-60°	1172.4	6.4
60°-70°	763.1	4.2
70°-80°	392.8	2.1
80°-90°	110.3	0.6
90°-100°	217.0	1.2
100°-110°	689.6	3.8
110°-120°	1180.1	6.4
120°-130°	1552.0	8.5
130°-140°	1742.1	9.5
140°-150°	1708.3	9.3
150°-160°	1433.0	7.8
160°-170°	950.4	5.2
170°-180°	332.2	1.8
0°-30°	2938.0	16.1
0°-40°	4562.3	24.9
0°-60°	7227.6	39.5
0°-90°	8493.8	46.4
90°-120°	2086.7	11.4
90°-150°	7089.1	38.7
90°-180°	9805.0	53.6
0°-180°	18298.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4125	4125	4125	4125	4125	
5°	4125	4106	4058	4091	4080	391
15°	3924	3882	3756	3685	3648	1106
25°	3562	3442	3196	3043	2986	1638
35°	3069	2878	2550	2315	2232	1921
45°	2509	2258	1867	1601	1512	1937
55°	1908	1616	1213	989	918	1705
65°	1288	986	650	523	511	1277
75°	687	425	299	272	269	726
85°	160	82	71	71	71	184
90°	3	38	104	97	100	18
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1722	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2255	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3101	3111	3126	3116	1424
165°	3365	3361	3361	3383	3368	949
175°	3501	3493	3486	3507	3489	333
180°	3507	3507	3507	3507	3507	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4125.1	4125.1	4125.1	4125.1	4125.1
2.5°	4143.8	4125.1	4083.9	4121.6	4114.1
5°	4125.1	4106.5	4057.8	4091.4	4080.3
7.5°	4091.4	4069.3	4017.0	4031.7	4013.0
10°	4046.7	4020.6	3946.2	3934.6	3912.4
12.5°	3990.8	3957.2	3856.2	3834.0	3792.8
15°	3923.5	3882.4	3755.6	3684.7	3647.5
17.5°	3845.1	3785.3	3628.4	3546.5	3486.7
20°	3755.6	3680.8	3494.1	3401.1	3318.7
22.5°	3658.6	3572.6	3355.9	3229.2	3173.4
25°	3561.6	3441.9	3195.6	3042.7	2986.4
27.5°	3445.9	3318.7	3046.2	2870.8	2784.8
30°	3322.7	3180.5	2881.8	2691.8	2590.7
32.5°	3203.0	3031.1	2725.4	2501.2	2407.7
35°	3068.8	2878.3	2549.9	2314.7	2232.3
37.5°	2938.1	2732.6	2385.6	2127.7	2034.7
40°	2799.9	2576.1	2213.7	1948.7	1851.7
42.5°	2658.1	2419.3	2042.1	1765.7	1672.6
45°	2508.8	2258.5	1866.7	1601.3	1511.8
47.5°	2366.9	2102.0	1698.8	1433.4	1351.4
50°	2210.1	1945.1	1534.4	1276.6	1198.5
52.5°	2056.9	1776.8	1377.6	1131.2	1060.3
55°	1907.5	1616.4	1213.1	989.4	918.5
57.5°	1754.7	1456.0	1067.9	858.7	798.9
60°	1597.7	1299.1	914.6	724.4	664.6
62.5°	1444.9	1146.3	783.8	604.8	575.1
65°	1288.0	985.5	649.5	522.8	511.4
67.5°	1138.7	836.1	522.8	459.0	447.9
70°	981.9	690.8	433.0	395.7	380.6
72.5°	832.5	556.1	362.0	332.3	324.8
75°	686.8	425.4	298.7	272.5	268.9
77.5°	541.4	302.2	235.2	220.2	212.7
80°	406.8	216.7	179.0	164.4	164.4
82.5°	283.6	145.7	123.2	115.7	115.7
85°	160.4	82.0	70.9	70.9	70.9
87.5°	59.8	29.7	29.7	26.2	26.2
90°	3.2	38.0	103.6	97.3	100.5
92.5°	65.5	88.8	92.0	95.2	95.2
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.1	529.8	532.9	529.8
105°	636.6	645.0	651.3	656.6	656.6
107.5°	771.9	784.6	784.6	786.7	771.9
110°	903.1	919.9	919.9	919.9	911.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.6	1059.5	1051.0	1044.7
115°	1184.3	1201.2	1195.9	1192.7	1184.3
117.5°	1322.8	1346.1	1331.2	1322.8	1314.3
120°	1462.3	1485.6	1462.3	1462.3	1452.9
122.5°	1589.2	1618.8	1604.1	1595.6	1589.2
125°	1722.5	1748.9	1740.5	1730.9	1727.8
127.5°	1852.6	1885.3	1873.7	1861.0	1852.6
130°	1974.1	2012.2	2007.0	2000.5	1989.0
132.5°	2110.5	2140.1	2142.3	2127.5	2119.0
135°	2227.9	2260.7	2267.0	2263.9	2255.4
137.5°	2359.1	2385.5	2390.8	2388.7	2375.9
140°	2474.3	2500.7	2515.5	2515.5	2503.9
142.5°	2592.7	2619.1	2627.6	2630.8	2619.1
145°	2704.7	2725.9	2742.9	2746.0	2734.4
147.5°	2805.2	2831.7	2844.4	2849.7	2838.0
150°	2908.9	2926.9	2938.5	2947.9	2938.5
152.5°	3000.8	3018.8	3033.7	3045.3	3033.7
155°	3092.9	3101.3	3110.9	3125.6	3116.1
157.5°	3172.2	3178.5	3183.8	3204.9	3190.1
160°	3243.0	3249.4	3252.5	3270.4	3257.8
162.5°	3308.6	3308.6	3311.7	3331.8	3317.0
165°	3364.6	3361.4	3361.4	3382.6	3367.8
167.5°	3415.4	3405.8	3405.8	3427.0	3412.2
170°	3453.4	3445.0	3441.8	3463.0	3445.0
172.5°	3479.8	3471.4	3468.2	3489.4	3471.4
175°	3501.0	3492.6	3486.3	3507.3	3489.4
177.5°	3512.6	3504.2	3497.8	3515.8	3497.8
180°	3507.3	3507.3	3507.3	3507.3	3507.3



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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	10.51	11.31	11.50	12.31	13.63	6.47	7.27	7.46	8.27	9.59
	3H	12.19	12.90	13.19	13.91	15.26	7.65	8.37	8.66	9.38	10.73
	4H	12.80	13.47	13.81	14.49	15.84	8.10	8.78	9.12	9.79	11.15
	6H	13.22	13.84	14.25	14.86	16.23	8.42	9.05	9.45	10.07	11.43
	8H	13.35	13.94	14.38	14.98	16.34	8.51	9.11	9.55	10.14	11.50
	12H	13.41	13.97	14.45	15.00	16.39	8.56	9.12	9.59	10.15	11.53
4H	2H	10.52	11.20	11.54	12.21	13.57	7.06	7.74	8.08	8.75	10.11
	3H	12.35	12.92	13.38	13.96	15.32	8.41	8.97	9.44	10.02	11.38
	4H	13.05	13.56	14.09	14.60	15.99	8.96	9.47	10.00	10.51	11.90
	6H	13.56	14.01	14.61	15.06	16.45	9.38	9.82	10.42	10.88	12.26
	8H	13.74	14.16	14.79	15.20	16.60	9.50	9.92	10.55	10.97	12.37
	12H	13.84	14.21	14.91	15.28	16.68	9.57	9.94	10.64	11.01	12.41
8H	4H	13.01	13.43	14.06	14.48	15.88	9.24	9.65	10.29	10.70	12.10
	6H	13.58	13.92	14.65	15.01	16.41	9.76	10.10	10.83	11.19	12.59
	8H	13.80	14.10	14.88	15.18	16.59	9.95	10.25	11.03	11.32	12.74
	12H	13.94	14.21	15.03	15.28	16.73	10.07	10.33	11.15	11.40	12.86
12H	4H	12.96	13.34	14.03	14.40	15.81	9.24	9.62	10.31	10.68	12.08
	6H	13.56	13.86	14.64	14.93	16.35	9.81	10.11	10.89	11.18	12.60
	8H	13.78	14.04	14.86	15.11	16.57	10.02	10.28	11.10	11.35	12.81