

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: P911981

Luminaire Tested: DFN2DIP-SQ3F0-090D050US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911981
REPORT IS A COMBINATION OF REPORTS P901409 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-090D050US850-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

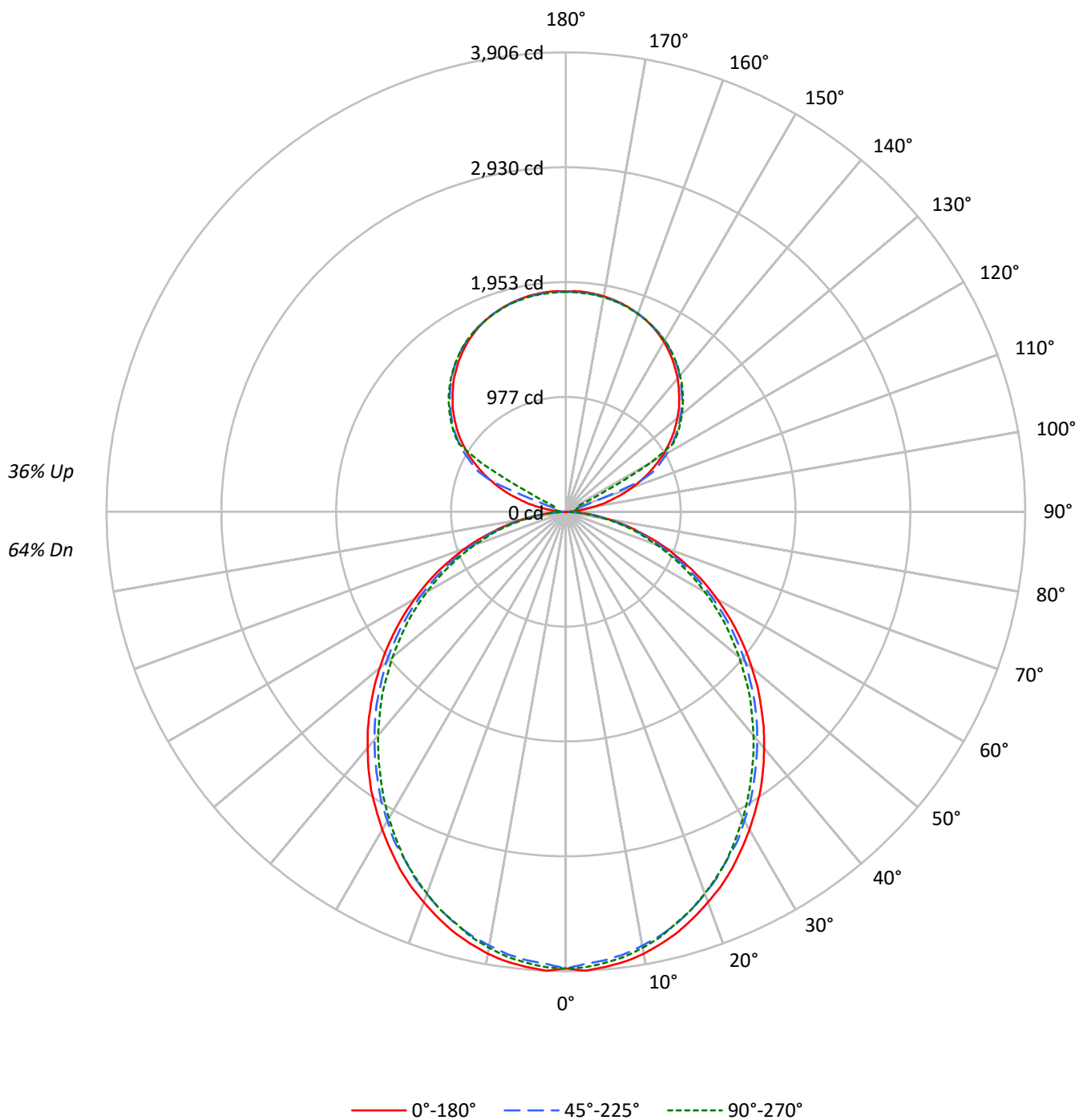
Lumens per Lamp: N/A
Luminaire Lumens: 15370.8 lumens
Efficiency: N/A
Efficacy: 123.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 124.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.996
Total Harmonic Distortion (THDi): 0.064
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	111	111	111	111	104	104	104	104	91	91	91	80	80	80	69	69	69
1	101	97	93	89	95	91	87	84	80	78	75	70	68	67	61	60	59
2	92	84	78	73	86	79	74	69	70	66	62	62	59	56	54	51	49
3	84	74	67	61	79	70	63	58	62	57	52	55	51	47	48	45	42
4	77	66	58	51	72	62	55	49	55	49	45	49	44	40	43	39	36
5	71	59	50	44	66	55	48	42	49	43	39	44	39	35	39	35	32
6	65	53	44	38	61	50	42	37	45	38	34	40	35	31	35	31	28
7	60	48	40	34	57	45	38	33	41	34	30	36	31	27	32	28	25
8	56	43	35	30	53	41	34	29	37	31	27	33	28	24	29	25	22
9	52	40	32	27	49	38	31	26	34	28	24	30	26	22	27	23	20
10	49	37	29	24	46	35	28	23	31	26	22	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4450	4450	4450
5°	4454	4385	4416
10°	4415	4323	4355
15°	4348	4249	4260
20°	4257	4147	4163
25°	4167	4026	4051
30°	4054	3913	3909
35°	3948	3780	3759
40°	3817	3646	3616
45°	3686	3511	3469
50°	3543	3369	3300
55°	3393	3206	3144
60°	3224	3012	2965
65°	3038	2810	2754
70°	2802	2565	2527
75°	2476	2270	2314
80°	2080	1894	1913
85°	1464	1255	1252

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3686 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.5	2.4
10°-20°	1028.5	6.7
20°-30°	1511.4	9.8
30°-40°	1755.4	11.4
40°-50°	1753.3	11.4
50°-60°	1528.8	9.9
60°-70°	1130.1	7.4
70°-80°	639.4	4.2
80°-90°	172.1	1.1
90°-100°	61.7	0.4
100°-110°	230.0	1.5
110°-120°	610.1	4.0
120°-130°	1011.9	6.6
130°-140°	1074.8	7.0
140°-150°	999.0	6.5
150°-160°	803.1	5.2
160°-170°	517.5	3.4
170°-180°	178.1	1.2
0°-30°	2905.4	18.9
0°-40°	4660.9	30.3
0°-60°	7942.9	51.7
0°-90°	9884.5	64.3
90°-120°	901.9	5.9
90°-150°	3987.5	25.9
90°-180°	5486.0	35.7
0°-180°	15370.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3884	3884	3884	3884	3884	
5°	3884	3869	3828	3858	3850	369
15°	3697	3675	3626	3641	3622	1041
25°	3346	3316	3253	3260	3253	1540
35°	2887	2850	2790	2767	2748	1803
45°	2349	2323	2267	2226	2211	1813
55°	1778	1755	1710	1666	1647	1589
65°	1199	1176	1139	1106	1087	1185
75°	627	620	601	579	586	670
85°	153	149	146	134	131	171
90°	1	16	27	34	36	14
95°	88	43	53	60	58	104
105°	412	452	83	98	103	440
115°	779	802	836	209	111	767
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1611	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1833	1825	1829	1839	1829	518
175°	1875	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3883.6	3883.6	3883.6	3883.6	3883.6
2.5°	3906.2	3887.6	3846.5	3883.6	3876.5
5°	3883.6	3869.0	3827.8	3857.5	3850.3
7.5°	3857.5	3835.4	3794.1	3824.3	3816.7
10°	3816.7	3790.6	3745.8	3775.5	3764.4
12.5°	3760.4	3738.2	3693.5	3712.0	3704.6
15°	3697.1	3674.9	3626.1	3641.2	3622.5
17.5°	3618.6	3596.4	3547.7	3566.3	3547.7
20°	3532.6	3510.4	3458.1	3469.2	3454.5
22.5°	3447.0	3413.4	3364.6	3364.6	3357.1
25°	3346.0	3316.2	3252.9	3260.0	3252.9
27.5°	3233.8	3207.7	3159.4	3148.3	3129.7
30°	3122.2	3092.0	3036.1	3025.0	3010.0
32.5°	3002.5	2980.3	2920.4	2897.9	2882.8
35°	2886.8	2849.6	2789.7	2767.2	2748.5
37.5°	2756.1	2722.4	2662.5	2636.4	2617.8
40°	2621.7	2591.6	2531.7	2498.5	2483.5
42.5°	2490.9	2460.9	2401.4	2363.8	2341.7
45°	2349.1	2323.0	2266.7	2225.9	2210.9
47.5°	2210.9	2184.7	2124.8	2083.7	2061.5
50°	2065.1	2046.4	1994.1	1941.9	1923.2
52.5°	1923.2	1897.1	1848.7	1807.6	1781.4
55°	1777.8	1755.2	1710.4	1665.7	1647.1
57.5°	1632.0	1613.4	1564.7	1519.9	1504.8
60°	1486.2	1471.5	1419.2	1378.0	1367.0
62.5°	1344.3	1318.2	1280.9	1243.7	1228.7
65°	1198.9	1176.3	1139.1	1105.5	1086.8
67.5°	1049.6	1030.6	997.2	971.2	956.1
70°	911.3	896.2	862.6	836.4	821.8
72.5°	769.4	754.3	735.7	709.6	698.6
75°	627.3	620.0	601.1	578.9	586.4
77.5°	500.4	485.4	477.9	466.8	455.7
80°	373.6	369.6	362.1	351.0	343.6
82.5°	254.0	254.0	250.4	235.3	235.3
85°	152.9	149.4	145.8	134.3	130.8
87.5°	67.3	59.8	52.3	41.3	37.3
90°	1.3	16.2	27.1	33.9	36.5
92.5°	33.9	28.5	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.4
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.4	80.0	94.7	98.9
105°	411.7	452.4	82.6	97.5	102.9
107.5°	507.8	541.5	85.4	100.1	105.7
110°	600.0	628.2	237.0	101.6	106.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.6	710.9	687.9	104.2	108.3
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.5	885.5	908.7	714.9	360.2
120°	947.9	968.2	992.6	1008.9	826.0
122.5°	1023.6	1045.3	1072.5	1080.6	1082.1
125°	1100.8	1118.5	1144.3	1153.7	1157.8
127.5°	1171.2	1190.2	1210.7	1224.1	1225.4
130°	1237.6	1259.4	1274.1	1289.1	1287.9
132.5°	1305.4	1323.0	1337.8	1350.1	1348.8
135°	1362.3	1384.0	1396.0	1409.8	1407.0
137.5°	1421.7	1438.0	1451.7	1465.2	1461.2
140°	1480.0	1490.9	1505.7	1517.9	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1559.9
145°	1580.3	1578.9	1601.8	1611.4	1604.6
147.5°	1624.9	1620.8	1643.9	1650.6	1645.3
150°	1668.3	1658.8	1680.5	1688.6	1681.8
152.5°	1704.8	1694.0	1714.3	1722.5	1713.0
155°	1740.0	1727.9	1744.1	1752.2	1741.5
157.5°	1768.4	1757.7	1769.9	1779.4	1768.4
160°	1792.9	1784.7	1792.9	1800.9	1791.5
162.5°	1814.4	1806.5	1813.1	1822.6	1810.4
165°	1833.4	1825.4	1829.4	1838.8	1829.4
167.5°	1848.4	1840.2	1844.4	1853.8	1841.6
170°	1860.6	1852.4	1855.1	1864.6	1852.4
172.5°	1868.7	1860.6	1863.3	1872.8	1860.6
175°	1875.4	1865.9	1868.7	1878.1	1864.6
177.5°	1878.1	1868.7	1870.1	1879.5	1867.3
180°	1871.3	1871.3	1871.3	1871.3	1871.3

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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	13.65	14.66	14.47	15.50	16.55	13.21	14.21	14.03	15.06	16.11
	3H	15.32	16.22	16.15	17.08	18.15	14.83	15.73	15.66	16.59	17.66
	4H	15.91	16.76	16.76	17.62	18.71	15.41	16.27	16.27	17.13	18.22
	6H	16.31	17.10	17.18	17.97	19.07	15.81	16.60	16.68	17.47	18.57
	8H	16.42	17.17	17.29	18.06	19.16	15.92	16.67	16.79	17.56	18.66
	12H	16.47	17.18	17.35	18.07	19.20	15.96	16.68	16.84	17.56	18.69
4H	2H	14.12	14.98	14.98	15.84	16.93	13.77	14.62	14.63	15.49	16.58
	3H	16.00	16.71	16.87	17.61	18.71	15.59	16.30	16.46	17.20	18.30
	4H	16.71	17.36	17.60	18.26	19.39	16.29	16.94	17.17	17.83	18.96
	6H	17.23	17.79	18.13	18.71	19.84	16.80	17.36	17.70	18.28	19.41
	8H	17.38	17.91	18.28	18.82	19.97	16.95	17.47	17.85	18.38	19.53
	12H	17.46	17.93	18.38	18.86	20.02	17.01	17.49	17.93	18.42	19.57
8H	4H	16.92	17.44	17.82	18.35	19.50	16.54	17.07	17.44	17.98	19.12
	6H	17.55	17.98	18.48	18.94	20.08	17.17	17.60	18.09	18.55	19.70
	8H	17.77	18.15	18.70	19.10	20.26	17.38	17.76	18.31	18.70	19.87
	12H	17.90	18.24	18.84	19.18	20.39	17.49	17.83	18.43	18.77	19.98
12H	4H	16.91	17.38	17.83	18.31	19.47	16.54	17.01	17.46	17.94	19.10
	6H	17.58	17.96	18.51	18.91	20.07	17.21	17.59	18.14	18.54	19.70
	8H	17.82	18.16	18.76	19.10	20.31	17.44	17.78	18.38	18.72	19.93