

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: P912089

Luminaire Tested: DFN2DIP-SQ3F0-120D050US850-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912089
REPORT IS A COMBINATION OF REPORTS P901415 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D050US850-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

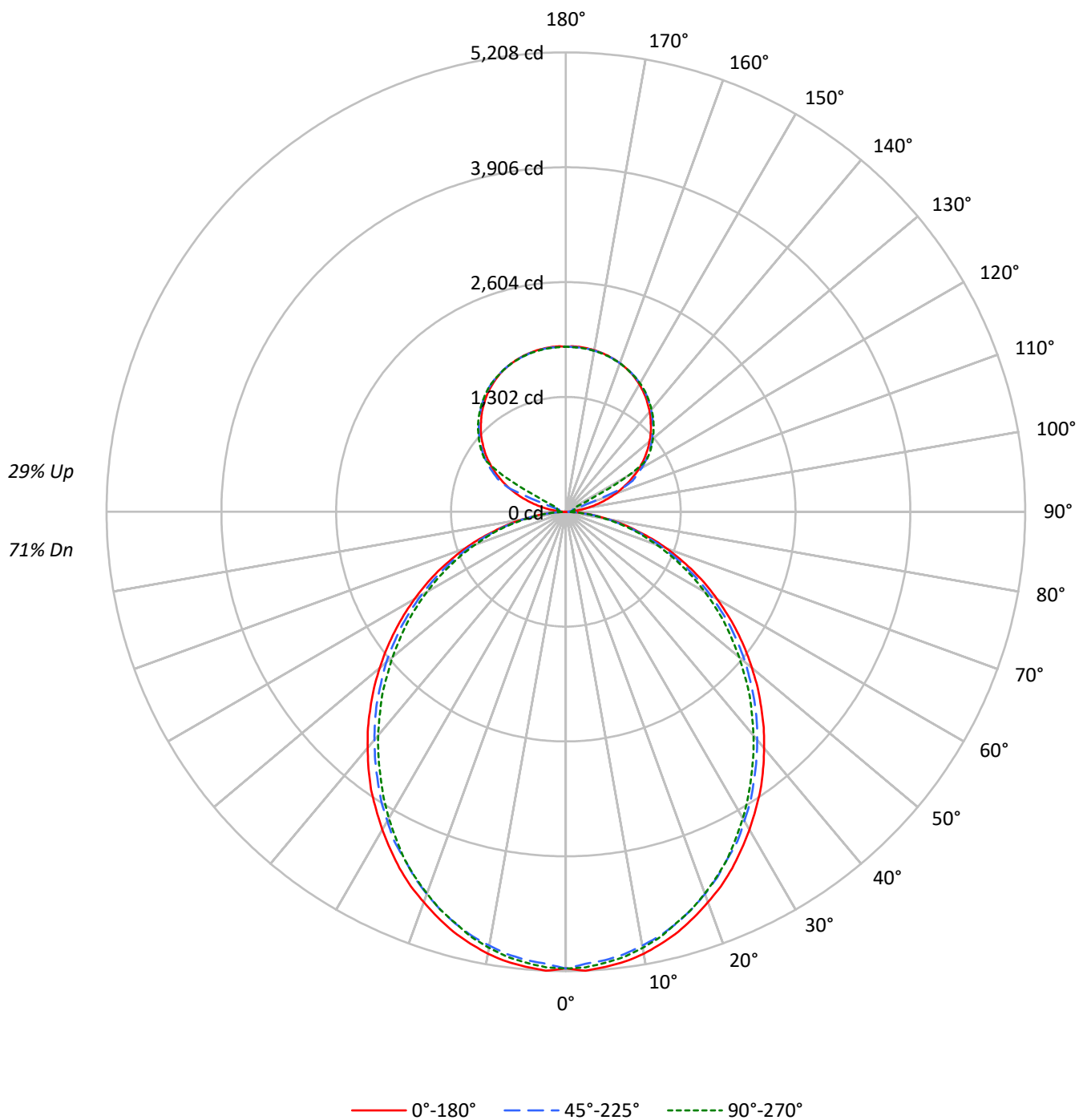
Lumens per Lamp: N/A
Luminaire Lumens: 18664.5 lumens
Efficiency: N/A
Efficacy: 114.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 162.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	112	112	112	112	106	106	106	106	95	95	95	84	84	84	75	75	75
1	102	98	94	90	97	93	89	86	83	81	78	74	72	71	66	65	63
2	93	86	79	74	88	81	76	71	73	69	65	65	62	59	58	56	53
3	85	75	68	62	80	72	65	59	64	59	54	58	54	50	52	48	46
4	78	67	59	52	73	64	56	50	57	51	47	52	47	43	46	42	39
5	72	60	51	45	68	57	49	43	51	45	40	46	41	37	42	38	34
6	66	54	45	39	62	51	43	38	46	40	35	42	37	33	38	34	30
7	61	49	40	35	58	46	39	33	42	36	31	38	33	29	35	30	27
8	57	44	36	31	54	42	35	30	39	32	28	35	30	26	32	27	24
9	53	40	33	28	50	39	32	27	35	29	25	32	27	23	29	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5933	5933	5933
5°	5939	5847	5888
10°	5887	5764	5806
15°	5797	5665	5680
20°	5676	5529	5550
25°	5556	5368	5401
30°	5406	5217	5212
35°	5264	5040	5012
40°	5089	4861	4821
45°	4915	4681	4626
50°	4724	4492	4400
55°	4524	4274	4192
60°	4298	4015	3953
65°	4051	3747	3672
70°	3736	3419	3369
75°	3300	3027	3085
80°	2774	2526	2550
85°	1952	1673	1669

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4915 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	487.4	2.6
10°-20°	1371.3	7.3
20°-30°	2015.2	10.8
30°-40°	2340.6	12.5
40°-50°	2337.7	12.5
50°-60°	2038.4	10.9
60°-70°	1506.8	8.1
70°-80°	852.5	4.6
80°-90°	228.3	1.2
90°-100°	61.7	0.3
100°-110°	230.0	1.2
110°-120°	610.1	3.3
120°-130°	1011.9	5.4
130°-140°	1074.8	5.8
140°-150°	999.0	5.4
150°-160°	803.1	4.3
160°-170°	517.5	2.8
170°-180°	178.1	1.0
0°-30°	3873.9	20.8
0°-40°	6214.5	33.3
0°-60°	10590.5	56.7
0°-90°	13178.2	70.6
90°-120°	901.9	4.8
90°-150°	3987.5	21.4
90°-180°	5486.0	29.4
0°-180°	18664.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5178	5178	5178	5178	5178	
5°	5178	5159	5104	5143	5134	492
15°	4929	4900	4835	4855	4830	1388
25°	4461	4422	4337	4347	4337	2053
35°	3849	3799	3720	3690	3665	2404
45°	3132	3097	3022	2968	2948	2417
55°	2370	2340	2280	2221	2196	2119
65°	1599	1568	1519	1474	1449	1581
75°	836	827	801	772	782	893
85°	204	199	194	179	174	227
90°	1	16	27	34	36	17
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°	5178.3	5178.3	5178.3	5178.3	5178.3
2.5°	5208.3	5183.5	5128.6	5178.3	5168.7
5°	5178.3	5158.6	5103.7	5143.3	5133.8
7.5°	5143.3	5113.7	5058.8	5099.0	5089.0
10°	5089.0	5054.0	4994.4	5034.0	5019.2
12.5°	5013.9	4984.3	4924.6	4949.5	4939.4
15°	4929.4	4899.8	4834.8	4854.9	4830.0
17.5°	4824.8	4795.2	4730.2	4755.1	4730.2
20°	4710.1	4680.5	4610.9	4625.6	4606.1
22.5°	4596.0	4551.1	4486.1	4486.1	4476.1
25°	4461.3	4421.7	4337.2	4346.7	4337.2
27.5°	4311.8	4277.0	4212.5	4197.7	4172.9
30°	4162.9	4122.7	4048.2	4033.4	4013.4
32.5°	4003.3	3973.8	3893.9	3863.9	3843.8
35°	3849.0	3799.4	3719.6	3689.5	3664.7
37.5°	3674.7	3629.9	3550.0	3515.2	3490.4
40°	3495.7	3455.5	3375.7	3331.3	3311.3
42.5°	3321.3	3281.2	3201.9	3151.8	3122.2
45°	3132.1	3097.3	3022.2	2967.9	2947.8
47.5°	2947.8	2912.9	2833.2	2778.3	2748.7
50°	2753.4	2728.6	2658.8	2589.1	2564.2
52.5°	2564.2	2529.4	2465.0	2410.0	2375.1
55°	2370.4	2340.3	2280.5	2220.9	2196.0
57.5°	2176.0	2151.1	2086.1	2026.5	2006.4
60°	1981.6	1962.0	1892.3	1837.4	1822.5
62.5°	1792.5	1757.5	1708.0	1658.3	1638.2
65°	1598.6	1568.5	1518.8	1473.9	1449.1
67.5°	1399.4	1374.1	1329.7	1294.9	1274.8
70°	1215.0	1194.9	1150.0	1115.2	1095.7
72.5°	1025.9	1005.9	981.0	946.2	931.3
75°	836.3	826.8	801.4	771.9	781.8
77.5°	667.2	647.1	637.1	622.3	607.5
80°	498.2	492.8	482.9	468.1	458.0
82.5°	338.6	338.6	333.9	313.8	313.8
85°	203.9	199.2	194.4	179.1	174.3
87.5°	89.8	79.7	69.8	54.9	49.7
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	15.14	16.22	15.90	17.00	17.95	14.70	15.78	15.45	16.56	17.50
	3H	16.81	17.78	17.58	18.57	19.55	16.32	17.29	17.09	18.08	19.06
	4H	17.41	18.32	18.19	19.12	20.11	16.91	17.83	17.70	18.63	19.61
	6H	17.81	18.66	18.62	19.47	20.47	17.31	18.16	18.12	18.97	19.97
	8H	17.92	18.73	18.73	19.56	20.56	17.42	18.23	18.23	19.06	20.06
	12H	17.98	18.75	18.79	19.57	20.59	17.47	18.24	18.29	19.06	20.08
4H	2H	15.62	16.54	16.42	17.34	18.32	15.27	16.19	16.06	16.99	17.97
	3H	17.50	18.27	18.31	19.10	20.10	17.10	17.86	17.90	18.70	19.70
	4H	18.22	18.92	19.04	19.75	20.78	17.80	18.50	18.62	19.33	20.36
	6H	18.75	19.35	19.58	20.21	21.24	18.31	18.92	19.15	19.77	20.81
	8H	18.90	19.46	19.74	20.31	21.36	18.46	19.03	19.30	19.88	20.92
	12H	18.98	19.49	19.84	20.36	21.41	18.53	19.04	19.39	19.91	20.96
8H	4H	18.43	19.00	19.27	19.85	20.90	18.06	18.62	18.90	19.47	20.52
	6H	19.07	19.54	19.93	20.43	21.48	18.68	19.15	19.55	20.04	21.09
	8H	19.29	19.70	20.17	20.59	21.65	18.89	19.31	19.77	20.20	21.26
	12H	19.43	19.79	20.31	20.67	21.79	19.01	19.38	19.90	20.26	21.38
12H	4H	18.43	18.94	19.29	19.81	20.86	18.06	18.57	18.92	19.44	20.49
	6H	19.10	19.51	19.98	20.40	21.47	18.72	19.14	19.60	20.03	21.09
	8H	19.35	19.71	20.23	20.59	21.71	18.97	19.33	19.85	20.21	21.33