

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: P912019

Luminaire Tested: DFN2DIP-SQ3F0-100D050US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912019
REPORT IS A COMBINATION OF REPORTS P901412 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-100D050US850-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

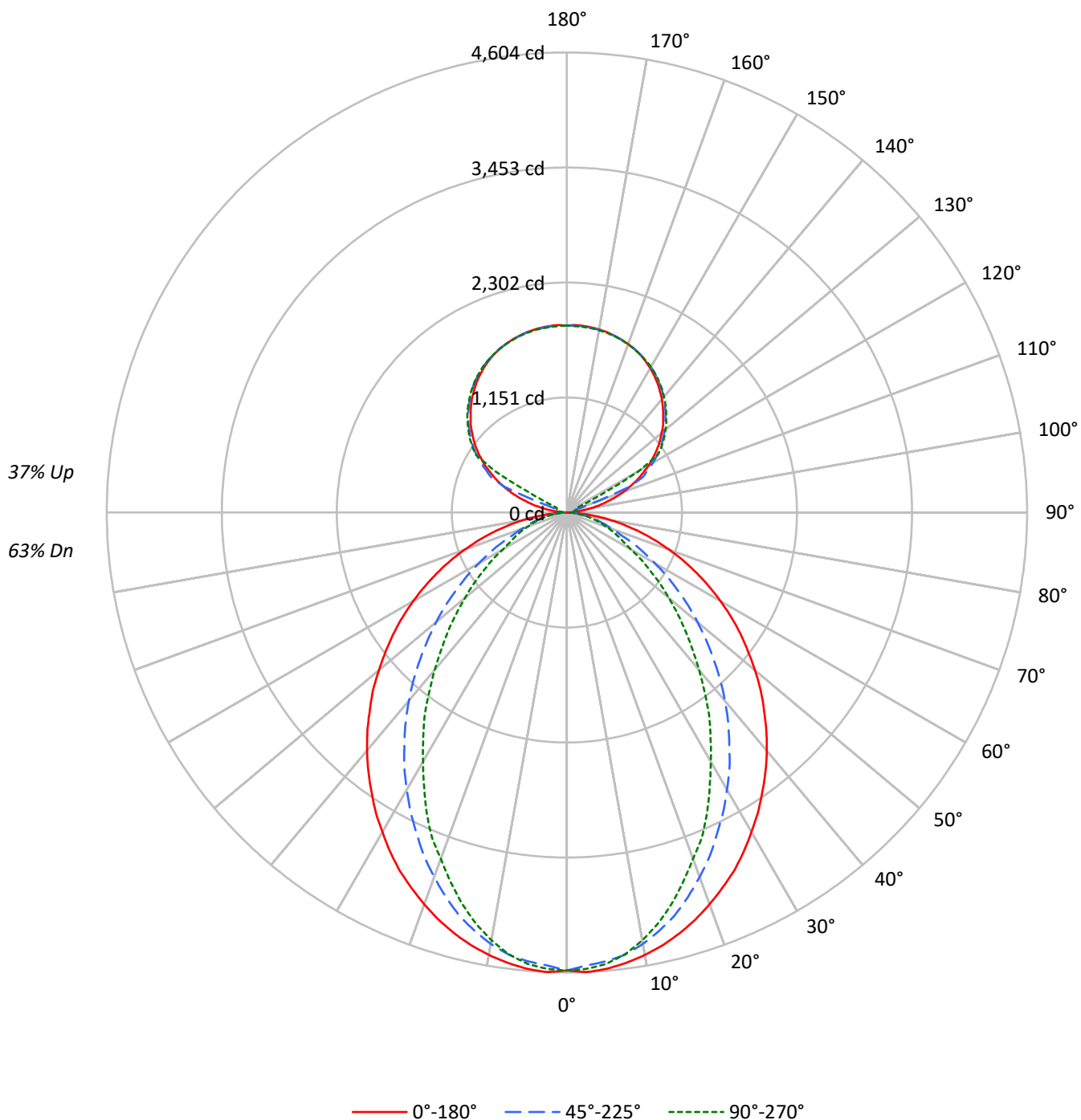
Lumens per Lamp: N/A
Luminaire Lumens: 14916.1 lumens
Efficiency: N/A
Efficacy: 110.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 135.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
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	110	110	110	110	103	103	103	103	91	91	91	79	79	79	68	68	68
1	101	97	93	90	95	91	88	85	80	78	76	71	69	67	61	60	59
2	93	86	80	75	87	81	75	71	71	67	64	63	60	57	55	52	51
3	85	76	69	63	80	72	65	60	63	58	54	56	52	49	49	46	44
4	78	68	60	54	73	64	57	52	57	51	47	50	46	43	44	41	38
5	72	61	53	47	67	57	50	45	51	45	41	46	41	37	40	37	34
6	67	55	47	41	62	52	45	39	46	41	36	41	37	33	37	33	30
7	62	50	42	36	58	47	40	35	42	36	32	38	33	30	34	30	27
8	58	45	38	32	54	43	36	31	39	33	29	35	30	27	31	27	24
9	54	42	34	29	51	40	33	28	36	30	26	32	27	24	29	25	22
10	50	38	31	26	47	37	30	25	33	28	24	30	25	22	27	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5252	5252	5252
5°	5257	5165	5200
10°	5201	5060	5029
15°	5127	4889	4766
20°	5028	4656	4443
25°	4928	4394	4132
30°	4794	4127	3738
35°	4663	3839	3392
40°	4529	3542	2995
45°	4374	3213	2636
50°	4214	2881	2285
55°	4045	2526	1948
60°	3851	2156	1602
65°	3627	1780	1440
70°	3354	1430	1301
75°	3012	1253	1179
80°	2516	1041	1017
85°	1706	677	754

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4374 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	2.9
10°-20°	1179.3	7.9
20°-30°	1655.6	11.1
30°-40°	1804.7	12.1
40°-50°	1658.8	11.1
50°-60°	1302.7	8.7
60°-70°	847.9	5.7
70°-80°	436.5	2.9
80°-90°	114.7	0.8
90°-100°	61.7	0.4
100°-110°	230.0	1.5
110°-120°	610.1	4.1
120°-130°	1011.9	6.8
130°-140°	1074.8	7.2
140°-150°	999.0	6.7
150°-160°	803.1	5.4
160°-170°	517.5	3.5
170°-180°	178.1	1.2
0°-30°	3264.5	21.9
0°-40°	5069.2	34.0
0°-60°	8030.6	53.8
0°-90°	9429.8	63.2
90°-120°	901.9	6.0
90°-150°	3987.5	26.7
90°-180°	5486.0	36.8
0°-180°	14916.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
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°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
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	14.03	14.98	14.87	15.84	16.91	9.99	10.94	10.83	11.80	12.87
	3H	15.71	16.56	16.57	17.43	18.53	11.18	12.03	12.03	12.90	14.00
	4H	16.32	17.12	17.19	18.00	19.11	11.63	12.43	12.50	13.31	14.42
	6H	16.75	17.48	17.63	18.37	19.49	11.95	12.69	12.84	13.57	14.70
	8H	16.87	17.58	17.76	18.48	19.60	12.04	12.75	12.93	13.65	14.77
	12H	16.94	17.61	17.83	18.50	19.65	12.09	12.76	12.98	13.65	14.80
4H	2H	14.06	14.86	14.93	15.74	16.85	10.60	11.40	11.47	12.27	13.38
	3H	15.89	16.56	16.78	17.47	18.59	11.95	12.62	12.84	13.52	14.65
	4H	16.59	17.19	17.49	18.10	19.25	12.50	13.10	13.40	14.01	15.16
	6H	17.10	17.63	18.02	18.55	19.71	12.92	13.44	13.83	14.37	15.52
	8H	17.28	17.77	18.19	18.69	19.85	13.04	13.53	13.96	14.45	15.62
	12H	17.38	17.82	18.31	18.76	19.93	13.11	13.55	14.04	14.49	15.66
8H	4H	16.56	17.05	17.48	17.97	19.14	12.78	13.27	13.70	14.19	15.36
	6H	17.13	17.53	18.07	18.49	19.66	13.30	13.70	14.24	14.66	15.83
	8H	17.34	17.70	18.29	18.65	19.84	13.48	13.84	14.44	14.80	15.98
	12H	17.48	17.80	18.43	18.74	19.98	13.60	13.92	14.56	14.86	16.10
12H	4H	16.52	16.96	17.45	17.90	19.07	12.79	13.23	13.73	14.17	15.34
	6H	17.10	17.46	18.05	18.41	19.60	13.35	13.70	14.30	14.66	15.84
	8H	17.32	17.64	18.28	18.59	19.82	13.56	13.87	14.51	14.82	16.05