

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: P910417

Luminaire Tested: DFN2DIP-4P3F0-040D060US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910417
REPORT IS A COMBINATION OF REPORTS P900594 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-040D060US850-RLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

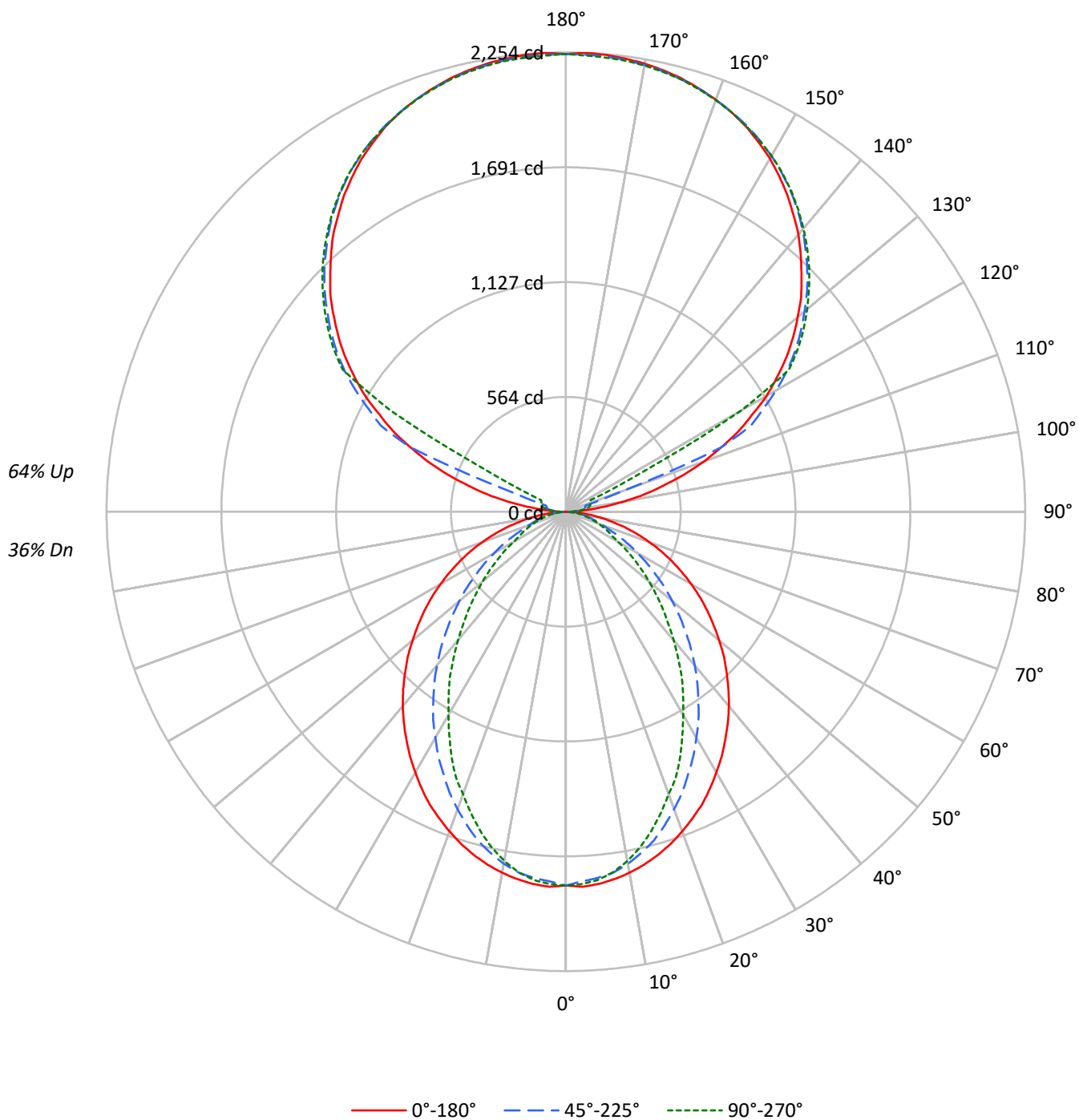
Lumens per Lamp: N/A
Luminaire Lumens: 10358.0 lumens
Efficiency: N/A
Efficacy: 122.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 84.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44
1	95	91	87	84	86	83	80	77	67	65	63	52	51	50	39	38	38
2	87	80	74	69	78	73	68	63	59	56	53	46	44	42	35	33	32
3	79	70	63	58	72	64	58	53	52	48	45	41	38	36	31	29	28
4	73	63	55	49	66	57	51	46	47	42	38	37	34	31	28	26	24
5	67	56	48	42	60	51	44	39	42	37	33	33	30	27	25	23	21
6	62	50	42	37	56	46	39	34	38	33	29	30	27	24	23	21	19
7	57	45	38	32	52	41	35	30	34	29	26	28	24	21	21	19	17
8	53	41	34	29	48	38	31	27	31	26	23	25	22	19	20	17	15
9	49	37	30	25	45	34	28	24	29	24	20	23	20	17	18	16	14
10	46	34	27	23	42	32	25	21	26	22	18	22	18	15	17	14	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2089	2089	2089
5°	2091	2055	2069
10°	2069	2013	2001
15°	2040	1945	1896
20°	2001	1852	1768
25°	1961	1748	1644
30°	1907	1642	1487
35°	1855	1527	1349
40°	1802	1409	1192
45°	1740	1278	1049
50°	1676	1146	909
55°	1610	1005	775
60°	1532	858	637
65°	1443	709	573
70°	1335	569	517
75°	1198	499	470
80°	1002	414	405
85°	680	270	300

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1740 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.7
10°-20°	471.7	4.6
20°-30°	662.3	6.4
30°-40°	721.9	7.0
40°-50°	663.5	6.4
50°-60°	521.1	5.0
60°-70°	339.2	3.3
70°-80°	174.6	1.7
80°-90°	48.5	0.5
90°-100°	74.1	0.7
100°-110°	276.0	2.7
110°-120°	732.1	7.1
120°-130°	1214.2	11.7
130°-140°	1289.8	12.5
140°-150°	1198.7	11.6
150°-160°	963.8	9.3
160°-170°	621.0	6.0
170°-180°	213.7	2.1
0°-30°	1305.8	12.6
0°-40°	2027.7	19.6
0°-60°	3212.2	31.0
0°-90°	3774.5	36.4
90°-120°	1082.2	10.4
90°-150°	4785.0	46.2
90°-180°	6583.0	63.6
0°-180°	10358.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1833	1833	1833	1833	1833	
5°	1833	1825	1804	1818	1814	174
15°	1744	1726	1669	1638	1621	491
25°	1583	1530	1420	1352	1327	728
35°	1364	1279	1133	1029	992	854
45°	1115	1004	830	712	672	861
55°	848	718	539	440	408	758
65°	572	438	289	232	227	568
75°	305	189	133	121	120	323
85°	71	36	32	32	32	82
90°	2	20	32	41	44	10
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.4	1833.4	1833.4	1833.4	1833.4
2.5°	1841.7	1833.4	1815.1	1831.8	1828.4
5°	1833.4	1825.1	1803.5	1818.4	1813.5
7.5°	1818.4	1808.6	1785.4	1791.8	1783.6
10°	1798.6	1786.9	1753.8	1748.7	1738.9
12.5°	1773.7	1758.8	1713.8	1704.0	1685.7
15°	1743.8	1725.5	1669.2	1637.7	1621.1
17.5°	1709.0	1682.4	1612.6	1576.2	1549.6
20°	1669.2	1635.9	1552.9	1511.6	1475.0
22.5°	1626.0	1587.9	1491.5	1435.2	1410.4
25°	1582.9	1529.8	1420.2	1352.3	1327.3
27.5°	1531.5	1475.0	1353.9	1275.9	1237.6
30°	1476.7	1413.5	1280.8	1196.3	1151.5
32.5°	1423.6	1347.2	1211.2	1111.7	1070.1
35°	1364.0	1279.2	1133.3	1028.7	992.1
37.5°	1305.8	1214.5	1060.2	945.6	904.3
40°	1244.4	1144.9	983.9	866.1	823.0
42.5°	1181.3	1075.2	907.6	784.7	743.4
45°	1115.0	1003.8	829.6	711.8	671.9
47.5°	1052.0	934.2	755.0	637.1	600.6
50°	982.2	864.5	681.9	567.4	532.7
52.5°	914.1	789.7	612.3	502.7	471.2
55°	847.8	718.4	539.2	439.7	408.2
57.5°	779.8	647.1	474.5	381.6	355.1
60°	710.1	577.3	406.4	321.9	295.4
62.5°	642.2	509.5	348.3	268.8	255.6
65°	572.5	437.9	288.7	232.3	227.2
67.5°	506.1	371.6	232.3	204.1	199.1
70°	436.4	307.0	192.4	175.9	169.1
72.5°	370.1	247.2	160.9	147.7	144.4
75°	305.2	189.1	132.7	121.1	119.6
77.5°	240.7	134.3	104.6	97.9	94.5
80°	180.8	96.3	79.5	73.1	73.1
82.5°	126.1	64.8	54.8	51.3	51.3
85°	71.3	36.5	31.5	31.5	31.5
87.5°	26.6	13.2	13.2	11.6	11.6
90°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

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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	8.26	8.99	9.33	10.06	11.51	4.22	4.95	5.29	6.02	7.47
	3H	9.92	10.58	11.00	11.65	13.13	5.39	6.05	6.47	7.12	8.60
	4H	10.53	11.14	11.62	12.22	13.70	5.84	6.45	6.93	7.53	9.01
	6H	10.94	11.51	12.04	12.59	14.08	6.15	6.72	7.25	7.80	9.29
	8H	11.06	11.60	12.16	12.70	14.18	6.23	6.77	7.33	7.87	9.35
	12H	11.12	11.63	12.22	12.72	14.23	6.27	6.78	7.38	7.87	9.38
4H	2H	8.26	8.88	9.36	9.96	11.44	4.80	5.42	5.90	6.50	7.98
	3H	10.08	10.59	11.18	11.70	13.19	6.13	6.65	7.24	7.75	9.25
	4H	10.76	11.23	11.87	12.33	13.84	6.67	7.15	7.78	8.24	9.75
	6H	11.27	11.67	12.38	12.79	14.30	7.08	7.48	8.20	8.60	10.11
	8H	11.44	11.82	12.55	12.93	14.45	7.20	7.58	8.32	8.69	10.21
	12H	11.53	11.87	12.66	12.99	14.52	7.26	7.60	8.39	8.72	10.25
8H	4H	10.72	11.10	11.84	12.21	13.73	6.94	7.32	8.06	8.43	9.95
	6H	11.28	11.59	12.42	12.74	14.26	7.45	7.76	8.59	8.91	10.43
	8H	11.49	11.76	12.64	12.90	14.44	7.63	7.91	8.78	9.04	10.58
	12H	11.62	11.86	12.77	12.99	14.57	7.74	7.98	8.89	9.11	10.69
12H	4H	10.67	11.01	11.80	12.13	13.66	6.94	7.28	8.08	8.41	9.93
	6H	11.25	11.53	12.40	12.66	14.20	7.50	7.77	8.64	8.90	10.44
	8H	11.47	11.71	12.61	12.84	14.41	7.70	7.94	8.84	9.07	10.64