

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: P906021

Luminaire Tested: DFN2DIP-PN4F0-080D050US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906021
REPORT IS A COMBINATION OF REPORTS P901155 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-080D050US835-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

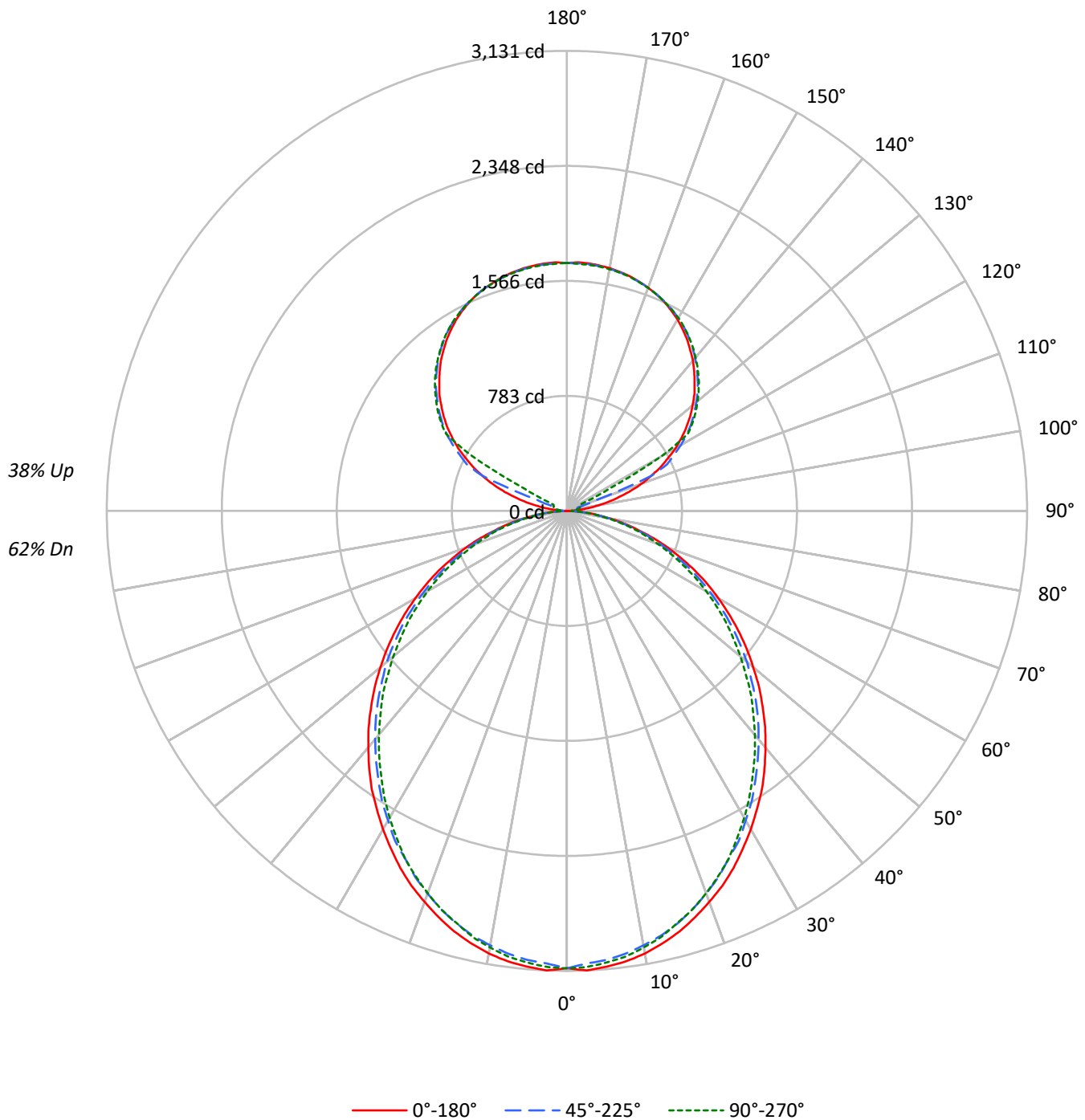
Lumens per Lamp: N/A
Luminaire Lumens: 12870.0 lumens
Efficiency: N/A
Efficacy: 112.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 114.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	110	110	110	110	103	103	103	103	90	90	90	78	78	78	67	67	67
1	100	96	92	88	94	90	87	83	79	76	74	69	67	65	59	58	56
2	91	84	78	72	85	79	73	69	69	65	61	60	57	54	52	50	48
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35
5	70	58	50	44	65	55	47	42	49	43	38	43	38	34	37	33	30
6	65	52	44	38	60	49	42	36	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	37	32	40	34	29	35	30	27	31	27	24
8	56	43	35	30	52	41	34	29	36	30	26	32	27	24	28	24	21
9	52	39	32	27	49	37	30	26	33	28	23	30	25	21	26	22	19
10	49	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2272	2272	2272
5°	2276	2241	2256
10°	2257	2211	2226
15°	2224	2175	2179
20°	2179	2125	2130
25°	2135	2065	2074
30°	2079	2009	2003
35°	2026	1942	1927
40°	1961	1876	1855
45°	1896	1809	1782
50°	1824	1739	1697
55°	1750	1658	1618
60°	1666	1561	1529
65°	1574	1461	1423
70°	1457	1340	1310
75°	1295	1195	1205
80°	1100	1009	1005
85°	796	689	672

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1896 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.0	2.3
10°-20°	824.3	6.4
20°-30°	1211.5	9.4
30°-40°	1407.0	10.9
40°-50°	1405.3	10.9
50°-60°	1225.4	9.5
60°-70°	905.8	7.0
70°-80°	512.5	4.0
80°-90°	138.2	1.1
90°-100°	55.7	0.4
100°-110°	207.4	1.6
110°-120°	550.1	4.3
120°-130°	912.4	7.1
130°-140°	969.2	7.5
140°-150°	900.8	7.0
150°-160°	724.2	5.6
160°-170°	466.6	3.6
170°-180°	160.6	1.2
0°-30°	2328.8	18.1
0°-40°	3735.8	29.0
0°-60°	6366.4	49.5
0°-90°	7923.0	61.6
90°-120°	813.2	6.3
90°-150°	3595.6	27.9
90°-180°	4947.0	38.4
0°-180°	12870.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3113	3113	3113	3113	3113	
5°	3113	3101	3068	3092	3086	295
15°	2963	2946	2906	2918	2904	835
25°	2682	2658	2607	2613	2607	1234
35°	2314	2284	2236	2218	2203	1445
45°	1883	1862	1817	1784	1772	1453
55°	1425	1407	1371	1335	1320	1274
65°	961	943	913	886	871	950
75°	503	497	482	464	470	537
85°	123	120	117	108	105	137
90°	1	15	24	31	33	12
95°	79	39	48	54	52	94
105°	371	408	74	88	93	397
115°	702	723	753	188	100	691
125°	993	1009	1032	1040	1044	885
135°	1228	1248	1259	1271	1269	949
145°	1425	1424	1444	1453	1447	891
155°	1569	1558	1573	1580	1570	723
165°	1653	1646	1650	1658	1650	467
175°	1691	1682	1685	1694	1681	161
180°	1687	1687	1687	1687	1687	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3112.8	3112.8	3112.8	3112.8	3112.8
2.5°	3130.9	3116.0	3083.0	3112.8	3107.1
5°	3112.8	3101.1	3068.1	3091.9	3086.2
7.5°	3091.9	3074.1	3041.1	3065.2	3059.2
10°	3059.2	3038.2	3002.3	3026.1	3017.3
12.5°	3014.1	2996.3	2960.4	2975.3	2969.3
15°	2963.3	2945.5	2906.4	2918.5	2903.6
17.5°	2900.4	2882.6	2843.5	2858.5	2843.5
20°	2831.5	2813.7	2771.8	2780.7	2768.9
22.5°	2762.9	2735.9	2696.8	2696.8	2690.8
25°	2681.9	2658.1	2607.3	2613.0	2607.3
27.5°	2592.0	2571.1	2532.3	2523.4	2508.5
30°	2502.5	2478.3	2433.6	2424.7	2412.6
32.5°	2406.6	2388.8	2340.8	2322.7	2310.7
35°	2313.8	2284.0	2236.0	2217.9	2203.0
37.5°	2209.0	2182.0	2134.1	2113.1	2098.2
40°	2101.4	2077.2	2029.3	2002.6	1990.5
42.5°	1996.6	1972.4	1924.8	1894.6	1876.9
45°	1882.9	1861.9	1816.8	1784.1	1772.1
47.5°	1772.1	1751.1	1703.1	1670.1	1652.3
50°	1655.2	1640.3	1598.3	1556.4	1541.5
52.5°	1541.5	1520.5	1481.8	1448.8	1427.8
55°	1424.9	1406.8	1371.0	1335.1	1320.1
57.5°	1308.1	1293.2	1254.1	1218.2	1206.1
60°	1191.2	1179.5	1137.5	1104.5	1095.6
62.5°	1077.5	1056.6	1026.7	996.9	984.8
65°	961.0	942.9	913.0	886.0	871.1
67.5°	841.2	826.0	799.3	778.4	766.3
70°	730.4	718.3	691.4	670.4	658.6
72.5°	616.7	604.7	589.7	568.8	559.9
75°	502.7	497.0	481.8	464.0	470.0
77.5°	401.1	389.0	383.0	374.1	365.2
80°	299.5	296.3	290.3	281.4	275.3
82.5°	203.6	203.6	200.7	188.6	188.6
85°	122.6	119.7	116.9	107.7	104.8
87.5°	54.0	48.0	41.9	33.0	29.9
90°	1.2	14.6	24.4	30.6	32.9
92.5°	30.6	25.7	29.3	31.8	32.9
95°	79.3	39.0	47.6	53.8	52.5
97.5°	142.8	42.8	62.2	66.0	67.1
100°	216.2	48.9	69.6	79.3	81.8
102.5°	296.7	294.3	72.1	85.4	89.2
105°	371.2	407.9	74.5	87.9	92.8
107.5°	457.9	488.3	77.0	90.3	95.3
110°	541.0	566.5	213.7	91.6	96.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	619.1	641.0	620.3	94.0	97.7
115°	702.1	722.8	753.4	188.1	100.2
117.5°	774.1	798.5	819.4	644.6	324.8
120°	854.7	873.0	895.0	909.7	744.8
122.5°	923.0	942.6	967.1	974.4	975.7
125°	992.6	1008.6	1031.8	1040.3	1044.0
127.5°	1056.1	1073.2	1091.7	1103.8	1105.0
130°	1116.0	1135.6	1148.9	1162.4	1161.3
132.5°	1177.1	1193.0	1206.3	1217.4	1216.2
135°	1228.4	1248.0	1258.8	1271.2	1268.7
137.5°	1282.0	1296.7	1309.0	1321.2	1317.6
140°	1334.5	1344.4	1357.7	1368.7	1362.7
142.5°	1378.6	1387.2	1403.0	1412.7	1406.6
145°	1425.0	1423.7	1444.4	1453.0	1446.9
147.5°	1465.2	1461.5	1482.3	1488.4	1483.6
150°	1504.3	1495.8	1515.3	1522.6	1516.5
152.5°	1537.2	1527.5	1545.8	1553.2	1544.6
155°	1569.0	1558.1	1572.7	1580.0	1570.3
157.5°	1594.6	1584.9	1595.9	1604.5	1594.6
160°	1616.7	1609.3	1616.7	1623.9	1615.4
162.5°	1636.1	1628.9	1634.9	1643.5	1632.5
165°	1653.2	1646.0	1649.6	1658.1	1649.6
167.5°	1666.7	1659.3	1663.1	1671.6	1660.6
170°	1677.7	1670.3	1672.8	1681.3	1670.3
172.5°	1685.0	1677.7	1680.2	1688.7	1677.7
175°	1691.1	1682.5	1685.0	1693.5	1681.3
177.5°	1693.5	1685.0	1686.3	1694.8	1683.8
180°	1687.4	1687.4	1687.4	1687.4	1687.4

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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	11.13	12.11	11.98	12.98	14.08	10.69	11.67	11.54	12.54	13.64
	3H	12.81	13.68	13.67	14.56	15.69	12.32	13.20	13.18	14.08	15.20
	4H	13.40	14.23	14.28	15.12	16.25	12.91	13.74	13.79	14.63	15.76
	6H	13.81	14.57	14.70	15.47	16.61	13.32	14.08	14.21	14.98	16.12
	8H	13.92	14.64	14.82	15.56	16.70	13.42	14.15	14.32	15.07	16.21
	12H	13.97	14.66	14.88	15.57	16.74	13.47	14.16	14.38	15.07	16.24
4H	2H	11.61	12.44	12.49	13.33	14.46	11.26	12.09	12.14	12.97	14.11
	3H	13.49	14.18	14.38	15.10	16.25	13.09	13.78	13.98	14.70	15.85
	4H	14.21	14.84	15.12	15.76	16.93	13.79	14.42	14.70	15.34	16.51
	6H	14.73	15.28	15.66	16.22	17.39	14.31	14.85	15.23	15.79	16.97
	8H	14.89	15.40	15.81	16.33	17.52	14.46	14.97	15.38	15.90	17.09
	12H	14.97	15.43	15.91	16.38	17.57	14.53	14.99	15.47	15.94	17.13
8H	4H	14.42	14.92	15.34	15.86	17.05	14.04	14.55	14.97	15.49	16.68
	6H	15.06	15.48	16.01	16.45	17.64	14.68	15.10	15.63	16.08	17.26
	8H	15.28	15.65	16.24	16.62	17.82	14.89	15.27	15.85	16.23	17.44
	12H	15.42	15.75	16.38	16.71	17.96	15.02	15.34	15.98	16.30	17.56
12H	4H	14.41	14.87	15.35	15.82	17.01	14.04	14.50	14.99	15.46	16.65
	6H	15.09	15.46	16.05	16.43	17.63	14.72	15.09	15.68	16.06	17.27
	8H	15.34	15.66	16.30	16.62	17.88	14.96	15.29	15.93	16.25	17.51