

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: P903373

Luminaire Tested: DFN2DIP-PN4F0-100D070US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903373
REPORT IS A COMBINATION OF REPORTS P901195 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D070US830-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

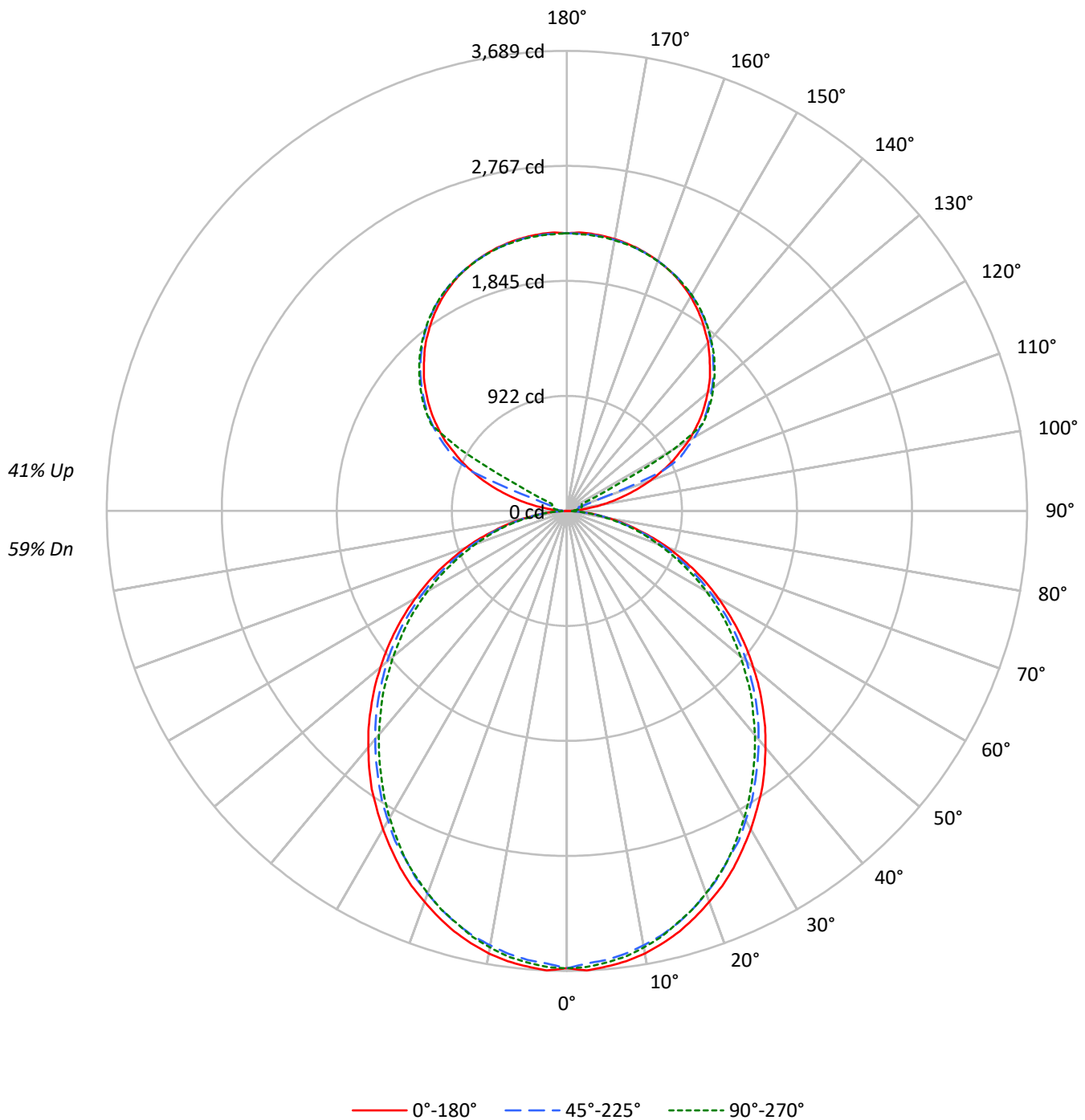
Lumens per Lamp: N/A
Luminaire Lumens: 15863.0 lumens
Efficiency: N/A
Efficacy: 103.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 153.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	95	91	88	93	89	86	83	77	75	73	67	65	63	57	56	54
2	91	83	77	72	85	78	72	68	68	64	60	59	55	53	50	48	46
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	44	41	39
4	76	65	57	51	71	61	54	48	53	48	43	46	42	38	40	36	34
5	70	58	50	44	65	54	47	41	48	42	37	42	37	33	36	32	29
6	64	52	44	38	60	49	41	36	43	37	33	38	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	30	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	27	23	27	23	21
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	23	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2677	2677	2677
5°	2681	2640	2658
10°	2660	2605	2623
15°	2621	2562	2567
20°	2568	2503	2510
25°	2515	2432	2444
30°	2449	2366	2359
35°	2387	2289	2270
40°	2310	2210	2186
45°	2233	2131	2099
50°	2150	2049	1999
55°	2062	1953	1907
60°	1963	1839	1801
65°	1855	1722	1677
70°	1717	1579	1543
75°	1526	1407	1420
80°	1296	1189	1184
85°	937	812	792

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2233 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	2.2
10°-20°	971.2	6.1
20°-30°	1427.3	9.0
30°-40°	1657.7	10.5
40°-50°	1655.7	10.4
50°-60°	1443.7	9.1
60°-70°	1067.2	6.7
70°-80°	603.8	3.8
80°-90°	163.3	1.0
90°-100°	73.4	0.5
100°-110°	273.7	1.7
110°-120°	725.9	4.6
120°-130°	1204.0	7.6
130°-140°	1278.9	8.1
140°-150°	1188.6	7.5
150°-160°	955.6	6.0
160°-170°	615.8	3.9
170°-180°	211.9	1.3
0°-30°	2743.7	17.3
0°-40°	4401.4	27.7
0°-60°	7500.8	47.3
0°-90°	9335.1	58.8
90°-120°	1073.0	6.8
90°-150°	4744.6	29.9
90°-180°	6528.0	41.2
0°-180°	15863.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3668	3668	3668	3668	3668	
5°	3668	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2596	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	2	19	32	40	44	15
95°	105	52	63	71	69	124
105°	490	538	98	116	122	523
115°	926	954	994	248	132	912
125°	1310	1331	1362	1373	1378	1168
135°	1621	1647	1661	1677	1674	1252
145°	1880	1879	1906	1917	1909	1176
155°	2070	2056	2075	2085	2072	954
165°	2182	2172	2177	2188	2177	616
175°	2232	2220	2224	2235	2219	212
180°	2227	2227	2227	2227	2227	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.5	3667.5	3667.5	3667.5	3667.5
2.5°	3688.8	3671.2	3632.3	3667.5	3660.7
5°	3667.5	3653.7	3614.7	3642.8	3636.0
7.5°	3642.8	3621.8	3582.9	3611.4	3604.3
10°	3604.3	3579.6	3537.3	3565.4	3554.9
12.5°	3551.1	3530.2	3487.9	3505.5	3498.3
15°	3491.3	3470.3	3424.3	3438.5	3421.0
17.5°	3417.2	3396.3	3350.2	3367.8	3350.2
20°	3335.9	3315.0	3265.6	3276.1	3262.2
22.5°	3255.2	3223.4	3177.3	3177.3	3170.2
25°	3159.8	3131.7	3071.8	3078.5	3071.8
27.5°	3053.8	3029.1	2983.5	2973.1	2955.4
30°	2948.4	2919.9	2867.1	2856.7	2842.4
32.5°	2835.4	2814.4	2757.9	2736.6	2722.3
35°	2726.1	2691.0	2634.4	2613.1	2595.5
37.5°	2602.6	2570.8	2514.3	2489.6	2472.0
40°	2475.8	2447.3	2390.9	2359.5	2345.2
42.5°	2352.3	2323.8	2267.8	2232.2	2211.3
45°	2218.4	2193.7	2140.5	2102.0	2087.8
47.5°	2087.8	2063.1	2006.6	1967.7	1946.7
50°	1950.1	1932.5	1883.1	1833.7	1816.2
52.5°	1816.2	1791.5	1745.8	1706.9	1682.2
55°	1678.9	1657.6	1615.2	1572.9	1555.4
57.5°	1541.2	1523.5	1477.5	1435.3	1421.1
60°	1403.4	1389.6	1340.2	1301.3	1290.8
62.5°	1269.5	1244.8	1209.7	1174.5	1160.3
65°	1132.2	1110.9	1075.7	1043.9	1026.3
67.5°	991.2	973.2	941.8	917.1	902.9
70°	860.5	846.3	814.5	789.9	776.0
72.5°	726.6	712.4	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.7	553.7
77.5°	472.6	458.4	451.2	440.7	430.3
80°	352.8	349.1	342.0	331.5	324.4
82.5°	239.9	239.9	236.5	222.3	222.3
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	1.5	19.3	32.1	40.3	43.5
92.5°	40.3	33.8	38.6	41.9	43.5
95°	104.6	51.5	62.8	71.0	69.3
97.5°	188.4	56.5	82.1	87.1	88.6
100°	285.3	64.5	91.8	104.6	107.9
102.5°	391.4	388.4	95.1	112.7	117.6
105°	489.8	538.2	98.3	115.9	122.4
107.5°	604.2	644.4	101.6	119.2	125.7
110°	713.9	747.5	282.0	120.9	127.2



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	817.0	845.8	818.5	123.9	128.9
115°	926.4	953.8	994.1	248.2	132.2
117.5°	1021.5	1053.7	1081.2	850.6	428.6
120°	1127.8	1152.0	1181.1	1200.4	982.9
122.5°	1218.0	1243.8	1276.2	1285.7	1287.4
125°	1309.9	1330.9	1361.5	1372.8	1377.5
127.5°	1393.6	1416.2	1440.5	1456.6	1458.1
130°	1472.6	1498.5	1516.1	1533.9	1532.4
132.5°	1553.2	1574.2	1591.9	1606.4	1604.9
135°	1620.9	1646.7	1661.1	1677.3	1674.1
137.5°	1691.7	1711.1	1727.3	1743.4	1738.6
140°	1761.0	1774.0	1791.6	1806.1	1798.1
142.5°	1819.1	1830.4	1851.2	1864.1	1856.1
145°	1880.4	1878.7	1906.0	1917.3	1909.3
147.5°	1933.3	1928.6	1956.0	1964.0	1957.7
150°	1985.0	1973.8	1999.6	2009.1	2001.1
152.5°	2028.4	2015.6	2039.8	2049.5	2038.2
155°	2070.4	2056.0	2075.3	2084.9	2072.1
157.5°	2104.2	2091.4	2105.9	2117.2	2104.2
160°	2133.4	2123.5	2133.4	2142.9	2131.6
162.5°	2159.0	2149.4	2157.4	2168.7	2154.2
165°	2181.5	2172.0	2176.7	2188.0	2176.7
167.5°	2199.3	2189.5	2194.5	2205.8	2191.3
170°	2213.8	2204.1	2207.3	2218.7	2204.1
172.5°	2223.5	2213.8	2217.1	2228.4	2213.8
175°	2231.5	2220.2	2223.5	2234.7	2218.7
177.5°	2234.7	2223.5	2225.2	2236.5	2221.9
180°	2226.7	2226.7	2226.7	2226.7	2226.7

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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	11.48	12.43	12.36	13.32	14.46	11.04	11.99	11.92	12.88	14.02
	3H	13.15	14.00	14.04	14.91	16.07	12.66	13.51	13.55	14.42	15.59
	4H	13.74	14.55	14.65	15.46	16.63	13.26	14.06	14.16	14.97	16.15
	6H	14.15	14.89	15.07	15.81	17.00	13.66	14.40	14.57	15.32	16.50
	8H	14.26	14.96	15.18	15.90	17.09	13.76	14.47	14.69	15.41	16.59
	12H	14.31	14.98	15.24	15.91	17.12	13.81	14.48	14.74	15.41	16.62
4H	2H	11.95	12.75	12.86	13.67	14.84	11.60	12.40	12.51	13.32	14.49
	3H	13.83	14.50	14.75	15.44	16.63	13.43	14.10	14.35	15.04	16.23
	4H	14.55	15.16	15.48	16.10	17.31	14.13	14.74	15.06	15.68	16.90
	6H	15.07	15.60	16.02	16.56	17.78	14.65	15.17	15.59	16.14	17.35
	8H	15.22	15.72	16.17	16.67	17.90	14.80	15.29	15.74	16.25	17.47
	12H	15.30	15.75	16.27	16.72	17.96	14.86	15.31	15.83	16.28	17.52
8H	4H	14.75	15.25	15.70	16.20	17.43	14.38	14.87	15.33	15.83	17.06
	6H	15.39	15.80	16.36	16.80	18.02	15.01	15.42	15.99	16.42	17.65
	8H	15.61	15.97	16.60	16.96	18.21	15.23	15.59	16.21	16.58	17.82
	12H	15.75	16.07	16.74	17.05	18.34	15.35	15.67	16.34	16.65	17.94
12H	4H	14.74	15.19	15.71	16.16	17.40	14.38	14.82	15.35	15.80	17.03
	6H	15.42	15.78	16.40	16.77	18.02	15.06	15.42	16.04	16.41	17.65
	8H	15.67	15.99	16.66	16.97	18.26	15.30	15.61	16.28	16.60	17.89