

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: P904771

Luminaire Tested: DFN2DIP-TR4F0-100D070US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904771
REPORT IS A COMBINATION OF REPORTS P901955 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D070US830-FLLONL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

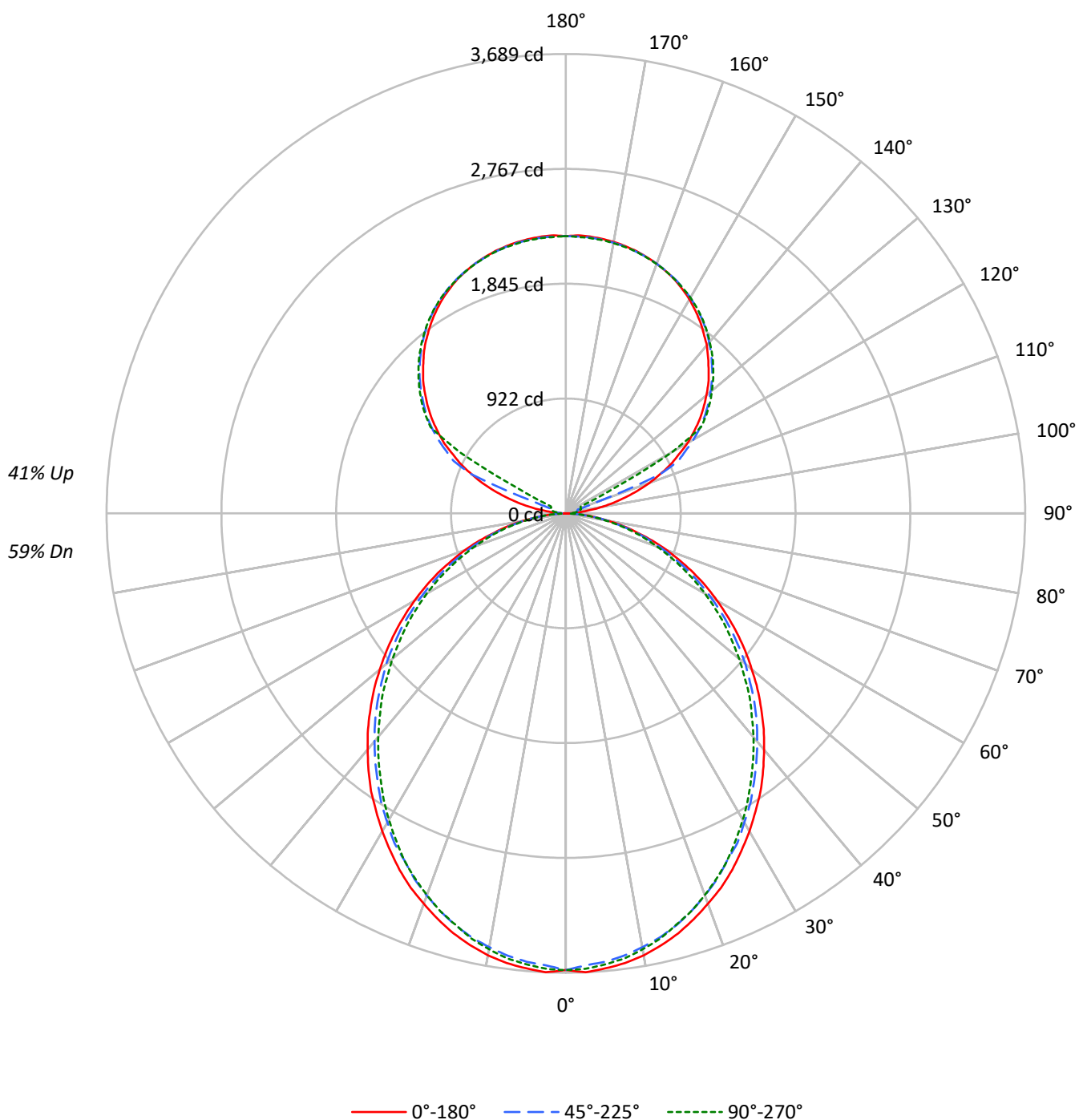
Lumens per Lamp: N/A
Luminaire Lumens: 15863.0 lumens
Efficiency: N/A
Efficacy: 103.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 153.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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°	2914	2914	2914
5°	2918	2873	2892
10°	2895	2834	2853
15°	2852	2788	2792
20°	2795	2723	2729
25°	2737	2645	2656
30°	2666	2573	2564
35°	2598	2488	2467
40°	2514	2402	2374
45°	2431	2316	2279
50°	2340	2225	2169
55°	2244	2120	2068
60°	2136	1996	1952
65°	2019	1868	1816
70°	1869	1711	1669
75°	1661	1523	1533
80°	1412	1284	1273
85°	1021	871	844

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2431 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	11.76	12.71	12.64	13.61	14.74	11.33	12.28	12.21	13.17	14.31
	3H	13.43	14.28	14.32	15.18	16.35	12.96	13.80	13.84	14.71	15.88
	4H	14.02	14.82	14.92	15.74	16.91	13.55	14.35	14.45	15.26	16.44
	6H	14.42	15.16	15.34	16.08	17.27	13.95	14.69	14.86	15.61	16.80
	8H	14.53	15.24	15.45	16.17	17.36	14.06	14.76	14.98	15.70	16.88
	12H	14.58	15.25	15.51	16.18	17.40	14.10	14.77	15.03	15.70	16.92
4H	2H	12.23	13.04	13.14	13.95	15.12	11.89	12.69	12.80	13.61	14.78
	3H	14.11	14.78	15.03	15.72	16.91	13.71	14.38	14.63	15.33	16.52
	4H	14.82	15.44	15.76	16.38	17.59	14.42	15.03	15.35	15.97	17.19
	6H	15.34	15.87	16.29	16.84	18.05	14.94	15.46	15.88	16.43	17.64
	8H	15.50	15.99	16.44	16.95	18.18	15.08	15.58	16.03	16.53	17.76
	12H	15.57	16.02	16.54	16.99	18.23	15.15	15.60	16.12	16.57	17.81
8H	4H	15.03	15.52	15.98	16.48	17.71	14.67	15.16	15.62	16.12	17.35
	6H	15.66	16.07	16.64	17.07	18.30	15.30	15.71	16.27	16.71	17.94
	8H	15.88	16.25	16.87	17.23	18.48	15.52	15.88	16.50	16.86	18.11
	12H	16.02	16.34	17.01	17.32	18.61	15.64	15.95	16.62	16.94	18.23
12H	4H	15.02	15.46	15.98	16.44	17.67	14.67	15.11	15.63	16.09	17.32
	6H	15.69	16.06	16.68	17.04	18.29	15.34	15.70	16.32	16.69	17.94
	8H	15.94	16.26	16.93	17.24	18.53	15.58	15.90	16.57	16.88	18.17