

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: P912814

Luminaire Tested: DFN2DIP-TR4F0-060D080US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912814
REPORT IS A COMBINATION OF REPORTS P900445 AND P897293
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-060D080US850-FLLFLL
Description: 4 foot, Triangle Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

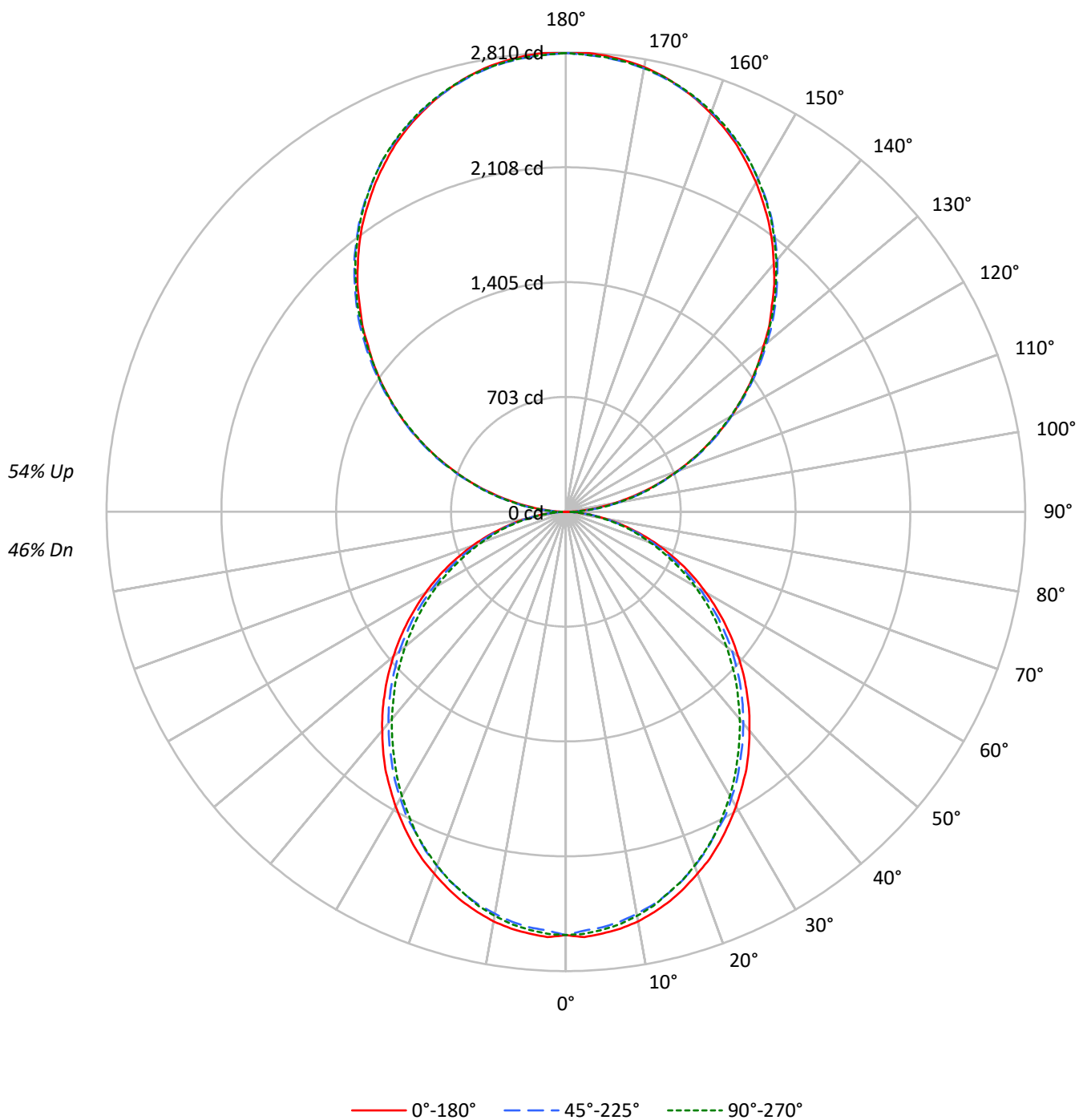
Lumens per Lamp: N/A
Luminaire Lumens: 14439.1 lumens
Efficiency: N/A
Efficacy: 128.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 112.5
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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52			46
1	97	93	89	85	89	85	82	79	71	69	66	58	56	55	46	45	44			38
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	41	39	37			32
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	34	32			27
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27			23
5	67	56	48	42	62	52	45	39	44	38	34	36	32	29	29	26	24			20
6	62	50	42	36	57	46	39	34	39	34	30	33	28	25	26	23	21			18
7	57	45	37	32	53	42	35	30	36	30	26	30	25	22	24	21	19			16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17			14
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15			13
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14			12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2057	2057	2057
5°	2060	2028	2042
10°	2044	2001	2014
15°	2013	1968	1971
20°	1973	1922	1927
25°	1932	1867	1875
30°	1882	1816	1810
35°	1834	1756	1741
40°	1775	1696	1676
45°	1716	1635	1609
50°	1652	1571	1531
55°	1584	1497	1460
60°	1508	1409	1378
65°	1425	1319	1282
70°	1319	1208	1178
75°	1173	1075	1082
80°	997	906	899
85°	721	615	596

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2188 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	243.7	1.7
10°-20°	685.6	4.7
20°-30°	1007.6	7.0
30°-40°	1170.3	8.1
40°-50°	1168.8	8.1
50°-60°	1019.2	7.1
60°-70°	753.4	5.2
70°-80°	426.3	3.0
80°-90°	120.5	0.8
90°-100°	173.6	1.2
100°-110°	551.7	3.8
110°-120°	944.1	6.5
120°-130°	1241.6	8.6
130°-140°	1393.7	9.7
140°-150°	1366.6	9.5
150°-160°	1146.4	7.9
160°-170°	760.3	5.3
170°-180°	265.7	1.8
0°-30°	1937.0	13.4
0°-40°	3107.2	21.5
0°-60°	5295.3	36.7
0°-90°	6595.4	45.7
90°-120°	1669.4	11.6
90°-150°	5671.3	39.3
90°-180°	7844.0	54.3
0°-180°	14439.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2589	2589	2589	2589	2589	
5°	2589	2579	2552	2572	2567	246
15°	2465	2450	2417	2428	2415	694
25°	2231	2211	2168	2173	2168	1026
35°	1925	1900	1860	1845	1832	1202
45°	1566	1549	1511	1484	1474	1209
55°	1185	1170	1140	1110	1098	1060
65°	799	784	759	737	724	790
75°	418	413	401	386	391	446
85°	102	100	97	90	87	114
90°	3	30	83	78	80	14
95°	124	147	151	151	147	137
105°	509	516	521	525	525	537
115°	947	961	957	954	947	937
125°	1378	1399	1392	1385	1382	1231
135°	1782	1809	1814	1811	1804	1378
145°	2164	2181	2194	2197	2188	1352
155°	2474	2481	2489	2500	2493	1139
165°	2692	2689	2689	2706	2694	759
175°	2801	2794	2789	2806	2792	266
180°	2806	2806	2806	2806	2806	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2589.1	2589.1	2589.1	2589.1	2589.1
2.5°	2604.2	2591.7	2564.2	2589.1	2584.3
5°	2589.1	2579.3	2551.8	2571.7	2566.9
7.5°	2571.7	2556.9	2529.4	2549.5	2544.5
10°	2544.5	2527.1	2497.1	2517.0	2509.6
12.5°	2507.0	2492.1	2462.3	2474.7	2469.7
15°	2464.6	2449.9	2417.4	2427.5	2415.1
17.5°	2412.4	2397.7	2365.2	2377.5	2365.2
20°	2355.1	2340.3	2305.4	2312.8	2303.1
22.5°	2298.1	2275.6	2243.1	2243.1	2238.1
25°	2230.6	2210.9	2168.5	2173.3	2168.5
27.5°	2155.9	2138.5	2106.2	2098.9	2086.5
30°	2081.5	2061.3	2024.1	2016.7	2006.6
32.5°	2001.6	1986.9	1947.0	1931.9	1921.9
35°	1924.6	1899.7	1859.8	1844.7	1832.3
37.5°	1837.4	1814.9	1775.1	1757.5	1745.1
40°	1747.8	1727.7	1687.9	1665.7	1655.6
42.5°	1660.6	1640.5	1601.0	1575.9	1561.0
45°	1566.1	1548.6	1511.1	1484.0	1473.9
47.5°	1473.9	1456.4	1416.6	1389.1	1374.3
50°	1376.7	1364.3	1329.5	1294.5	1282.1
52.5°	1282.1	1264.7	1232.4	1205.0	1187.6
55°	1185.2	1170.1	1140.3	1110.4	1098.0
57.5°	1088.0	1075.6	1043.1	1013.3	1003.2
60°	990.8	981.0	946.2	918.7	911.3
62.5°	896.2	878.8	853.9	829.1	819.1
65°	799.3	784.3	759.4	736.9	724.5
67.5°	699.7	687.0	664.8	647.4	637.3
70°	607.5	597.5	575.0	557.6	547.8
72.5°	512.9	502.9	490.5	473.1	465.7
75°	418.1	413.4	400.7	385.9	390.9
77.5°	333.6	323.6	318.5	311.2	303.8
80°	249.1	246.4	241.4	234.0	229.0
82.5°	169.3	169.3	166.9	156.9	156.9
85°	101.9	99.6	97.1	89.5	87.2
87.5°	44.9	39.9	34.8	27.5	24.8
90°	2.6	30.5	83.0	77.9	80.4
92.5°	52.5	71.1	73.6	76.1	76.1
95°	123.5	147.2	151.4	151.4	147.2
97.5°	205.6	227.6	236.9	236.9	236.9
100°	300.3	319.7	326.5	326.5	323.9
102.5°	400.1	414.5	423.7	426.3	423.7
105°	509.3	516.0	521.1	525.3	525.3
107.5°	617.5	627.7	627.7	629.4	617.5
110°	722.4	735.9	735.9	735.9	729.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	835.7	850.2	847.6	840.8	835.7
115°	947.4	960.9	956.7	954.2	947.4
117.5°	1058.2	1076.8	1065.0	1058.2	1051.4
120°	1169.9	1188.5	1169.9	1169.9	1162.2
122.5°	1271.4	1295.1	1283.2	1276.5	1271.4
125°	1377.9	1399.1	1392.3	1384.7	1382.3
127.5°	1482.1	1508.2	1498.9	1488.8	1482.1
130°	1579.3	1609.7	1605.5	1600.5	1591.2
132.5°	1688.5	1712.1	1713.8	1702.0	1695.2
135°	1782.3	1808.6	1813.7	1811.1	1804.3
137.5°	1887.2	1908.4	1912.6	1910.9	1900.7
140°	1979.5	2000.5	2012.4	2012.4	2003.1
142.5°	2074.2	2095.3	2102.1	2104.7	2095.3
145°	2163.9	2180.7	2194.3	2196.8	2187.5
147.5°	2244.2	2265.4	2275.4	2279.8	2270.5
150°	2327.1	2341.4	2350.7	2358.4	2350.7
152.5°	2400.7	2415.1	2426.9	2436.3	2426.9
155°	2474.3	2481.1	2488.7	2500.5	2492.9
157.5°	2537.7	2542.8	2547.0	2563.9	2552.1
160°	2594.4	2599.5	2602.0	2616.4	2606.3
162.5°	2646.9	2646.9	2649.4	2665.5	2653.6
165°	2691.7	2689.1	2689.1	2706.1	2694.2
167.5°	2732.2	2724.7	2724.7	2741.6	2729.7
170°	2762.7	2756.0	2753.4	2770.4	2756.0
172.5°	2783.9	2777.2	2774.6	2791.5	2777.2
175°	2800.8	2794.0	2788.9	2805.9	2791.5
177.5°	2810.1	2803.3	2798.2	2812.6	2798.2
180°	2805.9	2805.9	2805.9	2805.9	2805.9

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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	9.36	10.18	10.35	11.19	12.52	8.93	9.75	9.92	10.75	12.09
	3H	11.01	11.75	12.02	12.77	14.12	10.54	11.28	11.55	12.29	13.65
	4H	11.60	12.30	12.62	13.32	14.68	11.13	11.83	12.14	12.84	14.20
	6H	12.00	12.64	13.02	13.66	15.04	11.52	12.17	12.55	13.19	14.56
	8H	12.10	12.71	13.13	13.75	15.12	11.63	12.24	12.66	13.28	14.65
	12H	12.15	12.73	13.19	13.76	15.16	11.67	12.25	12.71	13.28	14.68
4H	2H	9.81	10.51	10.84	11.53	12.89	9.47	10.17	10.49	11.19	12.55
	3H	11.68	12.26	12.71	13.31	14.68	11.28	11.87	12.32	12.91	14.29
	4H	12.39	12.92	13.43	13.96	15.36	11.98	12.52	13.02	13.56	14.95
	6H	12.90	13.36	13.95	14.42	15.81	12.49	12.95	13.54	14.01	15.41
	8H	13.05	13.48	14.10	14.53	15.94	12.64	13.07	13.69	14.12	15.53
	12H	13.12	13.51	14.19	14.58	15.99	12.70	13.09	13.77	14.16	15.57
8H	4H	12.58	13.01	13.63	14.07	15.47	12.22	12.65	13.27	13.71	15.11
	6H	13.21	13.57	14.29	14.66	16.07	12.85	13.21	13.92	14.30	15.71
	8H	13.43	13.75	14.51	14.82	16.25	13.06	13.38	14.14	14.46	15.88
	12H	13.56	13.84	14.65	14.91	16.38	13.18	13.45	14.26	14.53	15.99
12H	4H	12.57	12.96	13.63	14.02	15.44	12.21	12.60	13.28	13.67	15.08
	6H	13.24	13.55	14.32	14.63	16.06	12.89	13.20	13.97	14.28	15.71
	8H	13.48	13.76	14.57	14.83	16.30	13.13	13.40	14.21	14.47	15.94