

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: P911460

Luminaire Tested: DFN2DIP-PN4F0-070D100US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911460
REPORT IS A COMBINATION OF REPORTS P899723 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-070D100US850-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

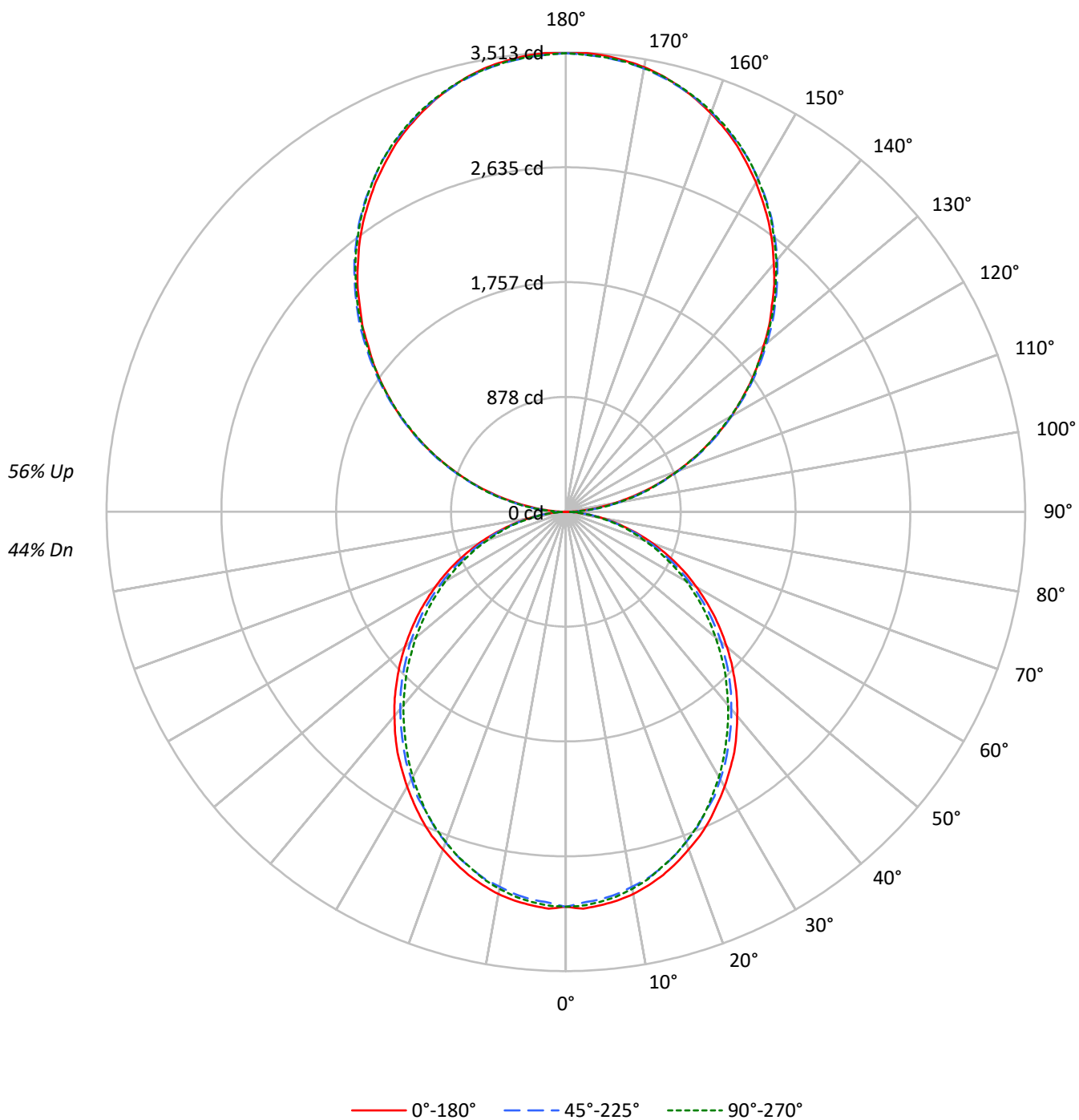
Lumens per Lamp: N/A
Luminaire Lumens: 17500.0 lumens
Efficiency: N/A
Efficacy: 123.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 141.6
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					0
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	80	80	80	65	65	65	51	51	51			44
1	96	92	88	85	88	84	81	78	70	68	66	57	55	54	45	44	43			37
2	88	80	74	69	80	74	69	64	61	58	54	50	47	45	39	38	36			31
3	80	71	63	58	73	65	59	54	54	49	46	44	41	38	35	33	31			26
4	73	63	55	49	67	58	51	45	48	43	39	39	36	33	31	29	26			23
5	67	56	48	42	61	51	44	39	43	38	33	35	31	28	28	25	23			20
6	62	50	42	36	56	46	39	34	39	33	29	32	28	25	25	23	20			17
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18			15
8	53	41	33	28	48	38	31	26	32	27	23	26	22	19	21	18	16			14
9	49	37	30	25	45	35	28	23	29	24	20	24	20	17	20	17	15			12
10	46	34	27	22	42	32	25	21	27	22	18	22	19	16	18	15	13			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2205	2205	2205
5°	2208	2175	2189
10°	2191	2145	2160
15°	2158	2110	2114
20°	2115	2062	2067
25°	2072	2003	2013
30°	2017	1949	1943
35°	1966	1885	1870
40°	1902	1820	1800
45°	1839	1755	1729
50°	1770	1687	1646
55°	1698	1608	1570
60°	1616	1515	1484
65°	1528	1418	1381
70°	1414	1300	1271
75°	1257	1159	1170
80°	1068	980	975
85°	772	669	653

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2747 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	1.6
10°-20°	799.9	4.6
20°-30°	1175.6	6.7
30°-40°	1365.3	7.8
40°-50°	1363.6	7.8
50°-60°	1189.1	6.8
60°-70°	879.0	5.0
70°-80°	497.3	2.8
80°-90°	141.2	0.8
90°-100°	217.0	1.2
100°-110°	689.6	3.9
110°-120°	1180.1	6.7
120°-130°	1552.0	8.9
130°-140°	1742.1	10.0
140°-150°	1708.3	9.8
150°-160°	1433.0	8.2
160°-170°	950.4	5.4
170°-180°	332.2	1.9
0°-30°	2259.8	12.9
0°-40°	3625.1	20.7
0°-60°	6177.8	35.3
0°-90°	7695.3	44.0
90°-120°	2086.7	11.9
90°-150°	7089.1	40.5
90°-180°	9805.0	56.0
0°-180°	17500.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3021	3021	3021	3021	3021	
5°	3021	3009	2977	3000	2995	287
15°	2876	2858	2820	2832	2818	810
25°	2602	2579	2530	2536	2530	1198
35°	2245	2216	2170	2152	2138	1402
45°	1827	1807	1763	1731	1720	1410
55°	1383	1365	1330	1296	1281	1236
65°	933	915	886	860	845	922
75°	488	482	467	450	456	521
85°	119	116	114	104	102	133
90°	3	38	104	97	100	17
95°	154	184	189	189	184	172
105°	637	645	651	657	657	672
115°	1184	1201	1196	1193	1184	1171
125°	1722	1749	1740	1731	1728	1539
135°	2228	2261	2267	2264	2255	1722
145°	2705	2726	2743	2746	2734	1690
155°	3093	3101	3111	3126	3116	1424
165°	3365	3361	3361	3383	3368	949
175°	3501	3493	3486	3507	3489	333
180°	3507	3507	3507	3507	3507	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3020.6	3020.6	3020.6	3020.6	3020.6
2.5°	3038.2	3023.7	2991.6	3020.6	3015.0
5°	3020.6	3009.3	2977.2	3000.3	2994.7
7.5°	3000.3	2983.0	2950.9	2974.4	2968.6
10°	2968.6	2948.2	2913.3	2936.5	2927.9
12.5°	2924.8	2907.6	2872.8	2887.2	2881.3
15°	2875.5	2858.2	2820.3	2832.1	2817.5
17.5°	2814.4	2797.2	2759.3	2773.8	2759.3
20°	2747.5	2730.4	2689.7	2698.3	2686.9
22.5°	2681.0	2654.8	2616.9	2616.9	2611.0
25°	2602.5	2579.3	2530.1	2535.6	2530.1
27.5°	2515.2	2494.9	2457.3	2448.7	2434.1
30°	2428.4	2404.9	2361.5	2352.9	2341.1
32.5°	2335.2	2318.0	2271.5	2253.9	2242.2
35°	2245.3	2216.3	2169.8	2152.2	2137.7
37.5°	2143.6	2117.4	2070.8	2050.5	2036.0
40°	2039.1	2015.7	1969.1	1943.3	1931.5
42.5°	1937.4	1914.0	1867.8	1838.5	1821.2
45°	1827.1	1806.8	1763.0	1731.3	1719.5
47.5°	1719.5	1699.2	1652.6	1620.6	1603.4
50°	1606.2	1591.6	1550.9	1510.3	1495.8
52.5°	1495.8	1475.5	1437.9	1405.9	1385.5
55°	1382.7	1365.2	1330.4	1295.5	1281.0
57.5°	1269.4	1254.8	1216.9	1182.1	1170.4
60°	1155.9	1144.5	1103.9	1071.8	1063.2
62.5°	1045.6	1025.3	996.3	967.4	955.6
65°	932.6	914.9	886.0	859.8	845.3
67.5°	816.3	801.6	775.6	755.3	743.6
70°	708.8	697.1	670.8	650.5	639.1
72.5°	598.4	586.8	572.2	551.9	543.3
75°	487.8	482.3	467.4	450.3	456.1
77.5°	389.3	377.5	371.6	363.0	354.4
80°	290.6	287.6	281.7	273.0	267.2
82.5°	197.5	197.5	194.7	183.1	183.1
85°	119.0	116.2	113.5	104.5	101.7
87.5°	52.3	46.6	40.7	32.1	28.9
90°	3.2	38.0	103.6	97.3	100.5
92.5°	65.5	88.8	92.0	95.2	95.2
95°	154.4	184.0	189.3	189.3	184.0
97.5°	257.0	284.5	296.1	296.1	296.1
100°	375.4	399.7	408.1	408.1	405.0
102.5°	500.2	518.1	529.8	532.9	529.8
105°	636.6	645.0	651.3	656.6	656.6
107.5°	771.9	784.6	784.6	786.7	771.9
110°	903.1	919.9	919.9	919.9	911.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1044.7	1062.6	1059.5	1051.0	1044.7
115°	1184.3	1201.2	1195.9	1192.7	1184.3
117.5°	1322.8	1346.1	1331.2	1322.8	1314.3
120°	1462.3	1485.6	1462.3	1462.3	1452.9
122.5°	1589.2	1618.8	1604.1	1595.6	1589.2
125°	1722.5	1748.9	1740.5	1730.9	1727.8
127.5°	1852.6	1885.3	1873.7	1861.0	1852.6
130°	1974.1	2012.2	2007.0	2000.5	1989.0
132.5°	2110.5	2140.1	2142.3	2127.5	2119.0
135°	2227.9	2260.7	2267.0	2263.9	2255.4
137.5°	2359.1	2385.5	2390.8	2388.7	2375.9
140°	2474.3	2500.7	2515.5	2515.5	2503.9
142.5°	2592.7	2619.1	2627.6	2630.8	2619.1
145°	2704.7	2725.9	2742.9	2746.0	2734.4
147.5°	2805.2	2831.7	2844.4	2849.7	2838.0
150°	2908.9	2926.9	2938.5	2947.9	2938.5
152.5°	3000.8	3018.8	3033.7	3045.3	3033.7
155°	3092.9	3101.3	3110.9	3125.6	3116.1
157.5°	3172.2	3178.5	3183.8	3204.9	3190.1
160°	3243.0	3249.4	3252.5	3270.4	3257.8
162.5°	3308.6	3308.6	3311.7	3331.8	3317.0
165°	3364.6	3361.4	3361.4	3382.6	3367.8
167.5°	3415.4	3405.8	3405.8	3427.0	3412.2
170°	3453.4	3445.0	3441.8	3463.0	3445.0
172.5°	3479.8	3471.4	3468.2	3489.4	3471.4
175°	3501.0	3492.6	3486.3	3507.3	3489.4
177.5°	3512.6	3504.2	3497.8	3515.8	3497.8
180°	3507.3	3507.3	3507.3	3507.3	3507.3

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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	9.44	10.25	10.45	11.27	12.62	9.00	9.81	10.01	10.83	12.18
	3H	11.10	11.83	12.12	12.85	14.23	10.61	11.34	11.63	12.37	13.74
	4H	11.69	12.37	12.72	13.40	14.79	11.20	11.89	12.23	12.92	14.30
	6H	12.09	12.72	13.13	13.75	15.15	11.59	12.23	12.63	13.26	14.66
	8H	12.19	12.79	13.24	13.84	15.23	11.70	12.30	12.74	13.35	14.74
	12H	12.24	12.81	13.29	13.86	15.27	11.74	12.31	12.79	13.36	14.77
4H	2H	9.90	10.58	10.93	11.61	12.99	9.54	10.23	10.58	11.26	12.64
	3H	11.76	12.33	12.80	13.39	14.79	11.36	11.93	12.40	12.99	14.38
	4H	12.47	13.00	13.53	14.05	15.47	12.06	12.58	13.11	13.63	15.05
	6H	12.99	13.44	14.05	14.51	15.93	12.56	13.02	13.63	14.09	15.50
	8H	13.14	13.56	14.20	14.63	16.05	12.71	13.13	13.77	14.20	15.63
	12H	13.21	13.59	14.29	14.67	16.11	12.77	13.15	13.85	14.23	15.67
8H	4H	12.67	13.09	13.73	14.15	15.58	12.30	12.72	13.36	13.78	15.21
	6H	13.30	13.65	14.38	14.75	16.18	12.92	13.27	14.01	14.38	15.80
	8H	13.52	13.83	14.61	14.92	16.36	13.14	13.44	14.23	14.53	15.98
	12H	13.65	13.92	14.75	15.01	16.49	13.25	13.52	14.35	14.61	16.09
12H	4H	12.65	13.03	13.73	14.11	15.54	12.29	12.67	13.37	13.75	15.18
	6H	13.33	13.64	14.42	14.73	16.17	12.96	13.27	14.06	14.36	15.81
	8H	13.57	13.84	14.67	14.93	16.41	13.20	13.47	14.29	14.55	16.04