

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: P910932

Luminaire Tested: DFN2DIP-HX4F0-070D080US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910932
REPORT IS A COMBINATION OF REPORTS P899377 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D080US850-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

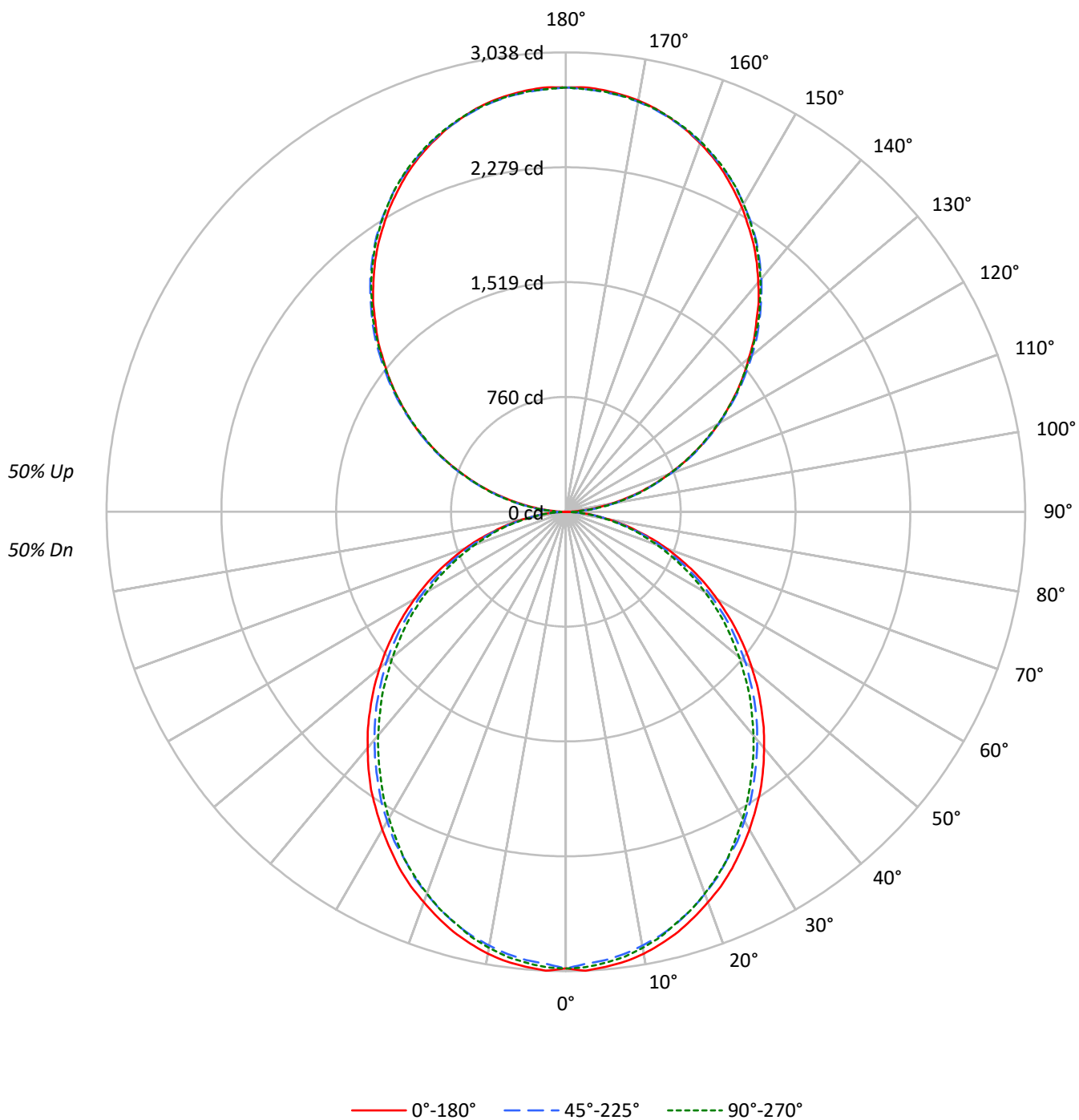
Lumens per Lamp: N/A
Luminaire Lumens: 15537.1 lumens
Efficiency: N/A
Efficacy: 139.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 111.6
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	50	30	10
RCR																				
0	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56	56	56	56
1	98	93	89	86	90	86	83	80	73	70	68	61	59	57	49	48	47	47	47	47
2	89	82	75	70	82	75	70	66	64	60	56	53	50	48	43	41	40	40	40	40
3	81	72	64	58	74	66	60	55	56	51	47	47	43	40	38	36	34	34	34	34
4	74	63	56	49	68	59	52	46	50	45	40	42	38	35	34	31	29	29	29	29
5	68	57	48	42	63	52	45	40	45	39	35	38	33	30	31	28	25	25	25	25
6	63	51	43	37	58	47	40	35	40	35	30	34	30	26	28	25	22	22	22	22
7	58	46	38	32	53	43	35	30	37	31	27	31	27	23	26	22	20	20	20	20
8	54	42	34	28	50	39	32	27	33	28	24	28	24	21	24	20	18	18	18	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	18	16	16	16	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15	15	15	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2246	2246	2246
5°	2250	2215	2230
10°	2232	2185	2200
15°	2199	2150	2153
20°	2155	2100	2104
25°	2111	2040	2049
30°	2056	1985	1978
35°	2004	1919	1903
40°	1939	1853	1831
45°	1875	1787	1758
50°	1805	1718	1674
55°	1732	1638	1596
60°	1649	1542	1507
65°	1559	1443	1402
70°	1444	1323	1289
75°	1284	1179	1185
80°	1093	996	986
85°	793	679	656

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2117 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	284.3	1.8
10°-20°	799.9	5.1
20°-30°	1175.6	7.6
30°-40°	1365.3	8.8
40°-50°	1363.6	8.8
50°-60°	1189.1	7.7
60°-70°	879.0	5.7
70°-80°	497.3	3.2
80°-90°	139.3	0.9
90°-100°	173.6	1.1
100°-110°	551.7	3.6
110°-120°	944.1	6.1
120°-130°	1241.6	8.0
130°-140°	1393.7	9.0
140°-150°	1366.6	8.8
150°-160°	1146.4	7.4
160°-170°	760.3	4.9
170°-180°	265.7	1.7
0°-30°	2259.8	14.5
0°-40°	3625.1	23.3
0°-60°	6177.8	39.8
0°-90°	7693.4	49.5
90°-120°	1669.4	10.7
90°-150°	5671.3	36.5
90°-180°	7844.0	50.5
0°-180°	15537.1	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	30	83	78	80	15
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°	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°	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	10.04	10.89	11.00	11.87	13.15	9.61	10.46	10.57	11.44	12.72
	3H	11.70	12.47	12.67	13.45	14.75	11.23	11.99	12.20	12.98	14.28
	4H	12.29	13.01	13.27	14.00	15.31	11.81	12.54	12.80	13.53	14.84
	6H	12.69	13.36	13.68	14.35	15.67	12.21	12.88	13.21	13.88	15.20
	8H	12.79	13.43	13.79	14.44	15.76	12.32	12.96	13.32	13.97	15.28
	12H	12.84	13.45	13.85	14.45	15.80	12.36	12.97	13.37	13.97	15.31
4H	2H	10.50	11.23	11.49	12.22	13.52	10.15	10.88	11.15	11.87	13.18
	3H	12.37	12.97	13.37	13.99	15.31	11.97	12.58	12.97	13.60	14.92
	4H	13.08	13.64	14.09	14.65	15.99	12.68	13.23	13.68	14.24	15.59
	6H	13.60	14.08	14.62	15.11	16.45	13.19	13.67	14.21	14.70	16.04
	8H	13.75	14.19	14.77	15.22	16.58	13.33	13.78	14.36	14.81	16.17
	12H	13.82	14.22	14.86	15.27	16.63	13.40	13.80	14.44	14.84	16.21
8H	4H	13.28	13.72	14.30	14.75	16.11	12.92	13.36	13.94	14.39	15.75
	6H	13.91	14.28	14.96	15.35	16.70	13.55	13.92	14.59	14.99	16.34
	8H	14.13	14.46	15.19	15.51	16.89	13.76	14.09	14.82	15.14	16.52
	12H	14.26	14.55	15.32	15.60	17.02	13.88	14.17	14.94	15.21	16.63
12H	4H	13.26	13.67	14.30	14.71	16.07	12.91	13.32	13.95	14.36	15.72
	6H	13.94	14.27	14.99	15.32	16.70	13.59	13.91	14.64	14.97	16.34
	8H	14.18	14.47	15.24	15.52	16.94	13.83	14.11	14.88	15.16	16.58