

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: P910936

Luminaire Tested: DFN2DIP-HX4F0-070D100US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910936
REPORT IS A COMBINATION OF REPORTS P899413 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D100US850-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

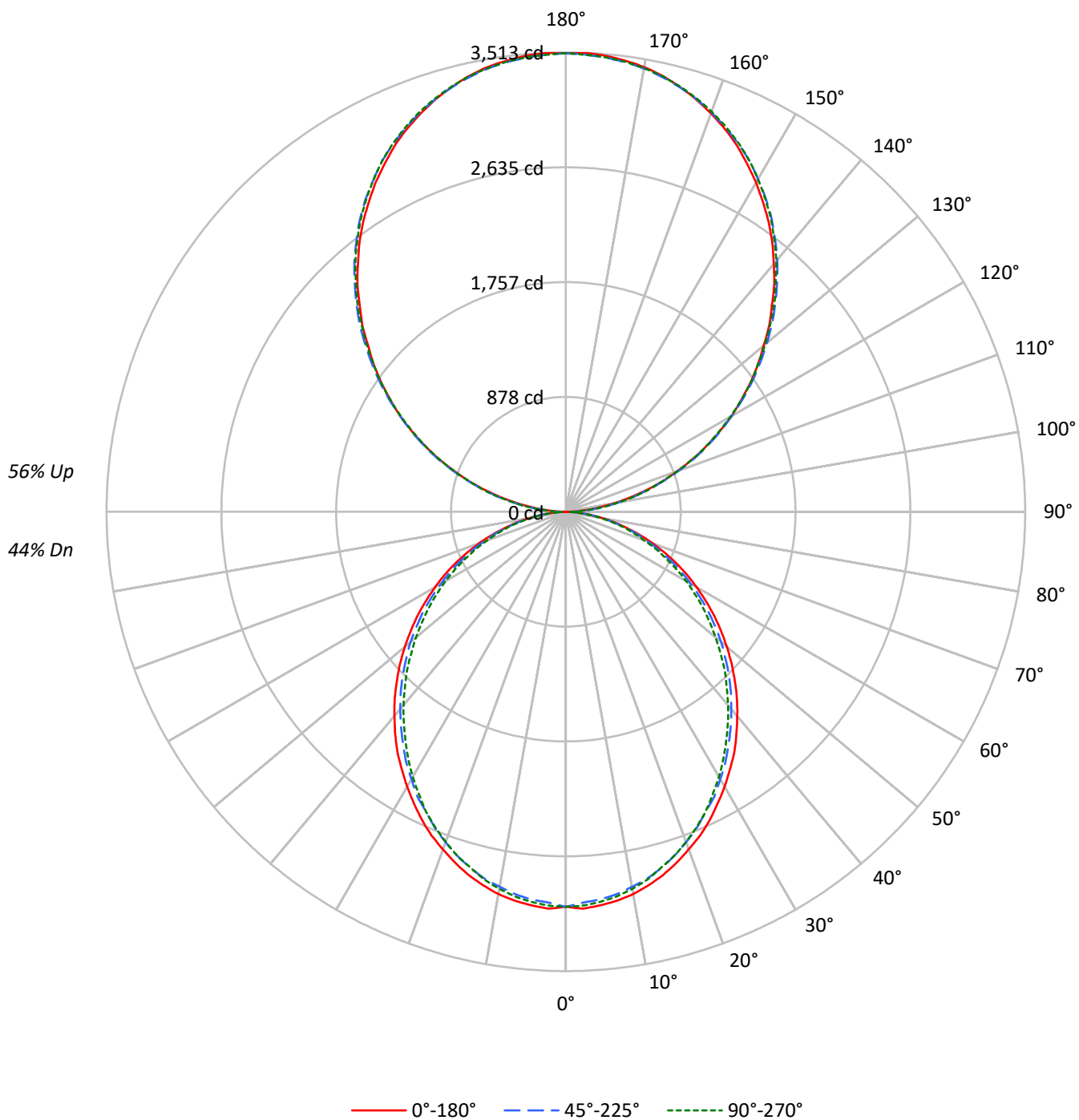
Lumens per Lamp: N/A
Luminaire Lumens: 17500.0 lumens
Efficiency: N/A
Efficacy: 141.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 124
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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CATALOG NUMBER: DFN2DIP-HX4F0-070D100US850-FLLFL

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	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°	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: 2646 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	9.50	10.31	10.51	11.33	12.68	9.07	9.88	10.07	10.89	12.25
	3H	11.16	11.88	12.17	12.91	14.28	10.68	11.41	11.70	12.43	13.81
	4H	11.74	12.43	12.77	13.46	14.84	11.27	11.96	12.30	12.98	14.37
	6H	12.14	12.77	13.18	13.81	15.20	11.66	12.30	12.70	13.33	14.73
	8H	12.24	12.85	13.29	13.90	15.29	11.77	12.37	12.81	13.42	14.81
	12H	12.29	12.86	13.34	13.91	15.32	11.81	12.38	12.86	13.43	14.84
4H	2H	9.95	10.64	10.99	11.67	13.05	9.61	10.30	10.65	11.33	12.71
	3H	11.82	12.39	12.86	13.45	14.84	11.42	12.00	12.47	13.05	14.45
	4H	12.53	13.06	13.58	14.10	15.52	12.12	12.65	13.18	13.70	15.12
	6H	13.04	13.50	14.10	14.57	15.98	12.63	13.08	13.69	14.16	15.57
	8H	13.19	13.61	14.25	14.68	16.11	12.78	13.20	13.84	14.27	15.69
	12H	13.26	13.64	14.34	14.72	16.16	12.84	13.22	13.92	14.30	15.74
8H	4H	12.72	13.14	13.78	14.21	15.64	12.36	12.78	13.42	13.85	15.28
	6H	13.35	13.70	14.44	14.81	16.23	12.99	13.34	14.07	14.45	15.87
	8H	13.57	13.88	14.67	14.97	16.42	13.20	13.51	14.30	14.60	16.05
	12H	13.70	13.97	14.80	15.06	16.54	13.32	13.59	14.42	14.67	16.16
12H	4H	12.71	13.09	13.79	14.17	15.60	12.35	12.74	13.43	13.81	15.25
	6H	13.38	13.69	14.47	14.78	16.22	13.03	13.34	14.12	14.43	15.87
	8H	13.62	13.89	14.72	14.98	16.46	13.27	13.54	14.36	14.62	16.11