

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: P928068

Luminaire Tested: DFN2DIP-HX4F0-100D060US850-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928068
REPORT IS A COMBINATION OF REPORTS P900867 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D060US850-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

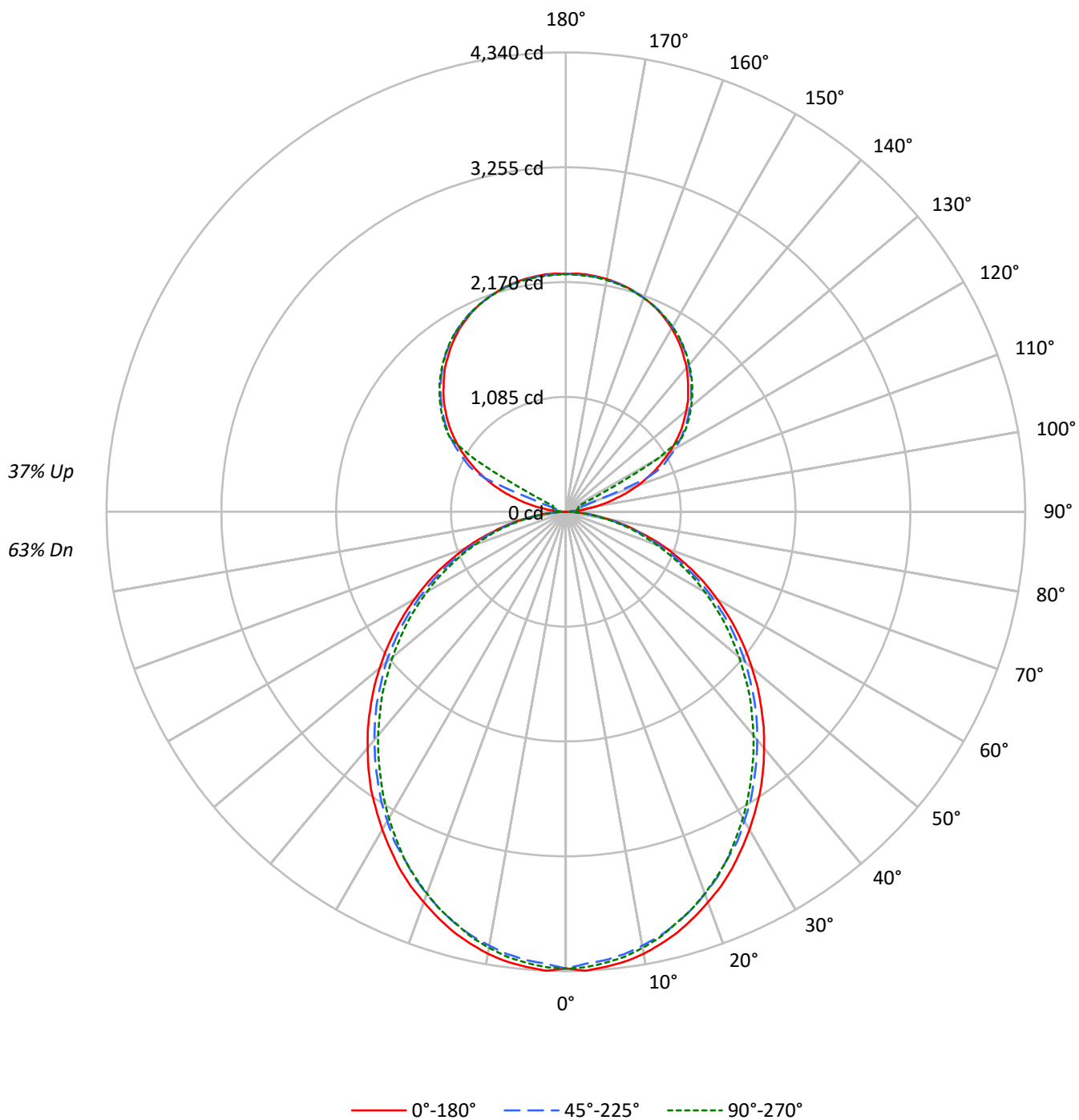
Lumens per Lamp: N/A
Luminaire Lumens: 17566.5 lumens
Efficiency: N/A
Efficacy: 122.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 143.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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
RCR																		
0	110	110	110	110	103	103	103	103	90	90	90			78	78	78		68
1	101	96	92	89	94	90	87	84	79	77	74			69	67	65		60
2	92	84	78	72	86	79	73	69	69	65	62			61	58	55		53
3	84	74	66	60	78	70	63	57	61	56	52			54	50	46		47
4	77	65	57	51	71	62	54	49	55	49	44			48	43	40		42
5	70	58	50	44	66	55	48	42	49	43	38			43	38	34		38
6	65	53	44	38	61	50	42	37	44	38	33			39	34	30		34
7	60	47	39	34	56	45	38	32	40	34	30			35	31	27		31
8	56	43	35	30	52	41	34	29	37	31	26			33	28	24		29
9	52	40	32	27	49	37	30	26	34	28	24			30	25	22		27
10	49	36	29	24	46	34	28	23	31	25	21			28	23	20		25

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3209	3209	3209
5°	3214	3164	3185
10°	3188	3122	3142
15°	3142	3071	3075
20°	3078	3000	3006
25°	3016	2915	2927
30°	2937	2835	2825
35°	2863	2742	2718
40°	2771	2648	2616
45°	2679	2553	2512
50°	2579	2454	2391
55°	2474	2339	2280
60°	2356	2203	2153
65°	2227	2062	2003
70°	2063	1890	1842
75°	1835	1684	1693
80°	1561	1422	1409
85°	1133	969	937

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2679 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	406.1	2.3
10°-20°	1142.7	6.5
20°-30°	1679.4	9.6
30°-40°	1950.5	11.1
40°-50°	1948.1	11.1
50°-60°	1698.7	9.7
60°-70°	1255.7	7.1
70°-80°	710.4	4.0
80°-90°	191.5	1.1
90°-100°	74.1	0.4
100°-110°	276.0	1.6
110°-120°	732.1	4.2
120°-130°	1214.2	6.9
130°-140°	1289.8	7.3
140°-150°	1198.7	6.8
150°-160°	963.8	5.5
160°-170°	621.0	3.5
170°-180°	213.7	1.2
0°-30°	3228.3	18.4
0°-40°	5178.7	29.5
0°-60°	8825.5	50.2
0°-90°	10983.1	62.5
90°-120°	1082.2	6.2
90°-150°	4785.0	27.2
90°-180°	6583.0	37.5
0°-180°	17566.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4315	4315	4315	4315	4315	
5°	4315	4299	4253	4286	4278	410
15°	4108	4083	4029	4046	4025	1157
25°	3718	3685	3614	3622	3614	1711
35°	3208	3166	3100	3075	3054	2003
45°	2610	2581	2518	2473	2456	2014
55°	1975	1950	1900	1851	1830	1766
65°	1332	1307	1266	1228	1208	1317
75°	697	689	668	643	652	744
85°	170	166	162	149	145	190
90°	2	20	32	41	44	16
95°	106	52	63	72	70	125
105°	494	543	99	117	124	528
115°	934	962	1003	250	133	920
125°	1321	1342	1373	1384	1389	1178
135°	1635	1661	1675	1692	1688	1263
145°	1896	1895	1922	1934	1926	1186
155°	2088	2074	2093	2103	2090	962
165°	2200	2190	2195	2207	2195	622
175°	2250	2239	2242	2254	2238	214
180°	2246	2246	2246	2246	2246	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4315.2	4315.2	4315.2	4315.2	4315.2
2.5°	4340.3	4319.6	4273.8	4315.2	4307.2
5°	4315.2	4298.9	4253.1	4286.2	4278.2
7.5°	4286.2	4261.4	4215.6	4249.1	4240.8
10°	4240.8	4211.8	4162.0	4195.0	4182.7
12.5°	4178.3	4153.6	4103.9	4124.6	4116.2
15°	4107.8	4083.2	4029.0	4045.7	4025.1
17.5°	4020.7	3996.1	3941.8	3962.6	3941.8
20°	3925.1	3900.5	3842.4	3854.7	3838.4
22.5°	3830.0	3792.7	3738.4	3738.4	3730.1
25°	3717.8	3684.8	3614.3	3622.2	3614.3
27.5°	3593.2	3564.1	3510.4	3498.1	3477.4
30°	3469.1	3435.6	3373.5	3361.2	3344.4
32.5°	3336.1	3311.5	3244.9	3219.9	3203.1
35°	3207.6	3166.2	3099.7	3074.6	3053.9
37.5°	3062.3	3024.8	2958.4	2929.3	2908.6
40°	2913.0	2879.5	2813.1	2776.2	2759.4
42.5°	2767.7	2734.2	2668.3	2626.4	2601.8
45°	2610.1	2581.1	2518.5	2473.2	2456.5
47.5°	2456.5	2427.5	2361.0	2315.1	2290.5
50°	2294.5	2273.8	2215.7	2157.6	2136.9
52.5°	2136.9	2107.9	2054.1	2008.4	1979.3
55°	1975.4	1950.3	1900.5	1850.7	1830.1
57.5°	1813.3	1792.6	1738.5	1688.8	1672.0
60°	1651.3	1635.0	1576.9	1531.1	1518.8
62.5°	1493.7	1464.7	1423.3	1381.9	1365.2
65°	1332.1	1307.1	1265.7	1228.2	1207.6
67.5°	1166.2	1145.0	1108.1	1079.1	1062.3
70°	1012.5	995.8	958.4	929.3	913.0
72.5°	854.9	838.2	817.6	788.5	776.1
75°	696.9	689.0	667.8	643.2	651.5
77.5°	556.1	539.3	530.9	518.6	506.3
80°	415.1	410.8	402.3	390.0	381.7
82.5°	282.2	282.2	278.2	261.5	261.5
85°	169.9	166.0	162.0	149.3	145.3
87.5°	74.9	66.4	58.1	45.8	41.4
90°	1.6	19.5	32.4	40.7	43.8
92.5°	40.7	34.2	38.9	42.3	43.8
95°	105.6	51.9	63.3	71.6	69.9
97.5°	190.1	56.9	82.7	87.8	89.4
100°	287.7	65.0	92.6	105.6	108.8
102.5°	394.8	391.7	95.9	113.7	118.7
105°	493.9	542.7	99.1	116.9	123.5
107.5°	609.4	649.9	102.5	120.2	126.8
110°	720.0	753.9	284.5	122.0	128.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	823.9	853.0	825.4	125.0	130.1
115°	934.3	961.9	1002.6	250.3	133.3
117.5°	1030.2	1062.6	1090.4	857.9	432.2
120°	1137.5	1161.8	1191.2	1210.6	991.2
122.5°	1228.3	1254.4	1287.0	1296.6	1298.4
125°	1321.0	1342.2	1373.1	1384.5	1389.2
127.5°	1405.5	1428.3	1452.8	1469.0	1470.5
130°	1485.2	1511.2	1529.0	1546.9	1545.4
132.5°	1566.5	1587.6	1605.4	1620.0	1618.5
135°	1634.8	1660.8	1675.3	1691.7	1688.3
137.5°	1706.1	1725.6	1742.0	1758.2	1753.4
140°	1776.0	1789.1	1806.9	1821.5	1813.4
142.5°	1834.6	1846.0	1867.1	1880.0	1871.9
145°	1896.4	1894.6	1922.2	1933.7	1925.6
147.5°	1949.8	1945.0	1972.6	1980.7	1974.4
150°	2002.0	1990.5	2016.6	2026.3	2018.2
152.5°	2045.8	2032.8	2057.1	2067.0	2055.5
155°	2088.0	2073.5	2093.0	2102.7	2089.7
157.5°	2122.2	2109.2	2123.8	2135.3	2122.2
160°	2151.5	2141.6	2151.5	2161.1	2149.8
162.5°	2177.3	2167.7	2175.7	2187.2	2172.5
165°	2200.1	2190.5	2195.3	2206.7	2195.3
167.5°	2218.0	2208.2	2213.2	2224.7	2209.9
170°	2232.7	2222.9	2226.2	2237.5	2222.9
172.5°	2242.4	2232.7	2236.0	2247.4	2232.7
175°	2250.5	2239.1	2242.4	2253.7	2237.5
177.5°	2253.7	2242.4	2244.1	2255.5	2240.8
180°	2245.6	2245.6	2245.6	2245.6	2245.6

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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	12.40	13.39	13.25	14.25	15.34	11.97	12.96	12.81	13.82	14.90
	3H	14.08	14.96	14.93	15.83	16.94	13.60	14.49	14.46	15.36	16.47
	4H	14.67	15.51	15.54	16.39	17.50	14.20	15.03	15.07	15.91	17.03
	6H	15.08	15.85	15.96	16.73	17.87	14.60	15.37	15.48	16.26	17.39
	8H	15.18	15.92	16.08	16.83	17.96	14.71	15.44	15.60	16.35	17.48
	12H	15.24	15.94	16.13	16.84	17.99	14.76	15.46	15.65	16.36	17.51
4H	2H	12.88	13.72	13.76	14.60	15.72	12.54	13.37	13.41	14.25	15.37
	3H	14.76	15.46	15.65	16.37	17.50	14.37	15.07	15.25	15.98	17.11
	4H	15.48	16.12	16.38	17.03	18.18	15.07	15.71	15.97	16.62	17.78
	6H	16.00	16.55	16.92	17.49	18.65	15.59	16.14	16.51	17.08	18.24
	8H	16.16	16.67	17.07	17.60	18.77	15.74	16.26	16.66	17.19	18.36
	12H	16.24	16.70	17.17	17.65	18.82	15.81	16.28	16.75	17.22	18.40
8H	4H	15.69	16.20	16.60	17.13	18.30	15.33	15.84	16.24	16.77	17.94
	6H	16.33	16.75	17.27	17.72	18.89	15.96	16.39	16.91	17.36	18.53
	8H	16.55	16.93	17.50	17.88	19.08	16.18	16.56	17.13	17.52	18.71
	12H	16.69	17.02	17.64	17.97	19.21	16.30	16.63	17.26	17.59	18.83
12H	4H	15.68	16.14	16.62	17.09	18.27	15.33	15.79	16.26	16.74	17.92
	6H	16.36	16.73	17.31	17.69	18.88	16.01	16.38	16.96	17.34	18.53
	8H	16.61	16.94	17.56	17.89	19.13	16.25	16.58	17.20	17.53	18.77