

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: P910958

Luminaire Tested: DFN2DIP-HX4F0-080D120US850-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P910958
REPORT IS A COMBINATION OF REPORTS P899451 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D120US850-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

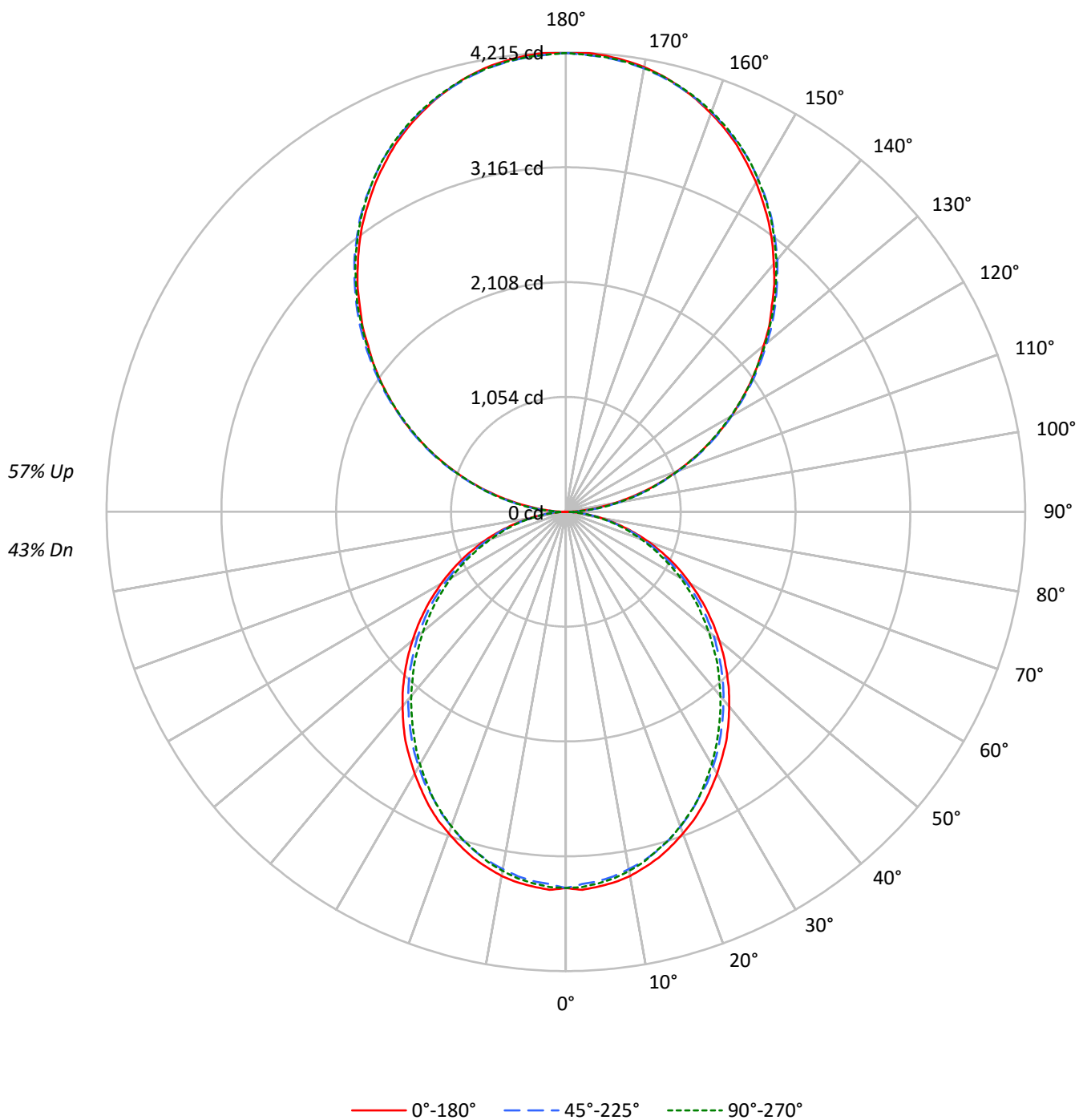
Lumens per Lamp: N/A
Luminaire Lumens: 20560.8 lumens
Efficiency: N/A
Efficacy: 137.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 149.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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
RCR																	
0	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2567	2567	2567
5°	2571	2531	2548
10°	2551	2498	2514
15°	2513	2457	2460
20°	2463	2400	2405
25°	2413	2332	2341
30°	2350	2268	2260
35°	2290	2194	2175
40°	2217	2118	2093
45°	2143	2043	2010
50°	2063	1963	1913
55°	1979	1871	1824
60°	1885	1762	1723
65°	1782	1650	1603
70°	1650	1512	1474
75°	1468	1348	1355
80°	1249	1138	1127
85°	907	775	749

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3173 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	324.9	1.6
10°-20°	914.2	4.4
20°-30°	1343.5	6.5
30°-40°	1560.4	7.6
40°-50°	1558.4	7.6
50°-60°	1358.9	6.6
60°-70°	1004.5	4.9
70°-80°	568.4	2.8
80°-90°	162.0	0.8
90°-100°	260.4	1.3
100°-110°	827.5	4.0
110°-120°	1416.1	6.9
120°-130°	1862.4	9.1
130°-140°	2090.5	10.2
140°-150°	2050.0	10.0
150°-160°	1719.6	8.4
160°-170°	1140.4	5.5
170°-180°	398.6	1.9
0°-30°	2582.6	12.6
0°-40°	4143.0	20.1
0°-60°	7060.4	34.3
0°-90°	8795.2	42.8
90°-120°	2504.0	12.2
90°-150°	8506.9	41.4
90°-180°	11766.0	57.2
0°-180°	20560.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3452	3452	3452	3452	3452	
5°	3452	3439	3402	3429	3423	328
15°	3286	3267	3223	3237	3220	926
25°	2974	2948	2892	2898	2892	1369
35°	2566	2533	2480	2460	2443	1602
45°	2088	2065	2015	1979	1965	1612
55°	1580	1560	1520	1481	1464	1413
65°	1066	1046	1012	983	966	1054
75°	558	551	534	515	521	595
85°	136	133	130	119	116	152
90°	4	46	124	117	120	20
95°	185	221	227	227	221	206
105°	764	774	782	788	788	806
115°	1421	1442	1435	1431	1421	1406
125°	2067	2099	2089	2077	2073	1847
135°	2674	2713	2720	2717	2706	2066
145°	3246	3271	3291	3295	3281	2028
155°	3711	3722	3733	3751	3739	1708
165°	4038	4034	4034	4059	4041	1139
175°	4201	4191	4184	4209	4187	399
180°	4209	4209	4209	4209	4209	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3452.1	3452.1	3452.1	3452.1	3452.1
2.5°	3472.2	3455.6	3419.0	3452.1	3445.8
5°	3452.1	3439.1	3402.5	3428.9	3422.6
7.5°	3428.9	3409.2	3372.6	3399.3	3392.7
10°	3392.7	3369.4	3329.6	3355.9	3346.2
12.5°	3342.6	3322.9	3283.1	3299.6	3293.0
15°	3286.3	3266.6	3223.2	3236.6	3220.1
17.5°	3216.5	3196.8	3153.4	3170.1	3153.4
20°	3140.1	3120.4	3073.9	3083.8	3070.7
22.5°	3064.1	3034.1	2990.8	2990.8	2984.1
25°	2974.2	2947.8	2891.5	2897.8	2891.5
27.5°	2874.5	2851.3	2808.3	2798.5	2781.9
30°	2775.3	2748.4	2698.9	2689.0	2675.6
32.5°	2668.9	2649.2	2595.9	2575.9	2562.6
35°	2566.0	2533.0	2479.7	2459.7	2443.1
37.5°	2449.8	2419.8	2366.7	2343.4	2326.9
40°	2330.5	2303.6	2250.5	2220.9	2207.5
42.5°	2214.2	2187.4	2134.6	2101.1	2081.5
45°	2088.1	2064.8	2014.8	1978.6	1965.3
47.5°	1965.3	1942.0	1888.7	1852.1	1832.4
50°	1835.6	1819.1	1772.5	1726.0	1709.5
52.5°	1709.5	1686.2	1643.3	1606.7	1583.4
55°	1580.2	1560.1	1520.4	1480.6	1464.0
57.5°	1450.7	1434.2	1390.8	1351.0	1337.6
60°	1321.0	1308.1	1261.5	1224.9	1215.0
62.5°	1194.9	1171.8	1138.6	1105.6	1092.1
65°	1065.7	1045.7	1012.5	982.6	966.0
67.5°	932.9	916.0	886.4	863.2	849.8
70°	810.0	796.6	766.8	743.5	730.4
72.5°	683.9	670.6	654.0	630.8	620.9
75°	557.5	551.2	534.3	514.6	521.2
77.5°	444.8	431.4	424.7	414.9	405.0
80°	332.1	328.6	321.9	312.1	305.3
82.5°	225.8	225.8	222.6	209.2	209.2
85°	136.0	132.7	129.6	119.4	116.2
87.5°	59.9	53.2	46.5	36.6	33.2
90°	3.8	45.7	124.3	116.8	120.5
92.5°	78.6	106.6	110.3	114.2	114.2
95°	185.2	220.8	227.1	227.1	220.8
97.5°	308.3	341.4	355.3	355.3	355.3
100°	450.5	479.6	489.7	489.7	486.0
102.5°	600.2	621.7	635.7	639.6	635.7
105°	763.9	774.0	781.6	787.9	787.9
107.5°	926.2	941.5	941.5	944.0	926.2
110°	1083.6	1103.9	1103.9	1103.9	1093.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1253.6	1275.2	1271.4	1261.3	1253.6
115°	1421.1	1441.5	1435.0	1431.3	1421.1
117.5°	1587.3	1615.3	1597.5	1587.3	1577.2
120°	1754.9	1782.7	1754.9	1754.9	1743.5
122.5°	1907.1	1942.6	1924.9	1914.7	1907.1
125°	2067.0	2098.7	2088.6	2077.2	2073.3
127.5°	2223.1	2262.4	2248.4	2233.2	2223.1
130°	2368.9	2414.6	2408.3	2400.7	2386.7
132.5°	2532.6	2568.2	2570.7	2552.9	2542.8
135°	2673.5	2712.8	2720.5	2716.6	2706.5
137.5°	2830.8	2862.6	2868.9	2866.3	2851.1
140°	2969.1	3000.8	3018.6	3018.6	3004.6
142.5°	3111.3	3143.0	3153.1	3156.9	3143.0
145°	3245.7	3271.1	3291.4	3295.3	3281.3
147.5°	3366.3	3398.0	3413.3	3419.6	3405.6
150°	3490.7	3512.2	3526.2	3537.6	3526.2
152.5°	3601.0	3622.5	3640.4	3654.4	3640.4
155°	3711.4	3721.6	3733.0	3750.7	3739.3
157.5°	3806.6	3814.2	3820.5	3845.9	3828.2
160°	3891.6	3899.2	3903.0	3924.6	3909.3
162.5°	3970.2	3970.2	3974.1	3998.2	3980.4
165°	4037.5	4033.8	4033.8	4059.1	4041.3
167.5°	4098.4	4087.0	4087.0	4112.4	4094.6
170°	4144.1	4133.9	4130.1	4155.5	4133.9
172.5°	4175.8	4165.6	4161.9	4187.3	4165.6
175°	4201.2	4191.0	4183.5	4208.8	4187.3
177.5°	4215.2	4205.0	4197.3	4219.0	4197.3
180°	4208.8	4208.8	4208.8	4208.8	4208.8

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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	9.84	10.64	10.86	11.67	13.04	9.41	10.21	10.42	11.23	12.60
	3H	11.50	12.21	12.52	13.25	14.64	11.02	11.74	12.05	12.77	14.17
	4H	12.08	12.76	13.12	13.80	15.20	11.61	12.29	12.65	13.32	14.72
	6H	12.48	13.10	13.53	14.15	15.56	12.00	12.63	13.05	13.67	15.08
	8H	12.58	13.18	13.64	14.24	15.64	12.11	12.70	13.16	13.76	15.17
	12H	12.63	13.20	13.69	14.25	15.68	12.15	12.71	13.21	13.77	15.19
4H	2H	10.29	10.97	11.34	12.01	13.41	9.95	10.63	11.00	11.67	13.06
	3H	12.16	12.72	13.21	13.79	15.20	11.76	12.33	12.82	13.39	14.81
	4H	12.87	13.39	13.93	14.44	15.88	12.46	12.98	13.52	14.04	15.47
	6H	13.38	13.83	14.45	14.91	16.34	12.97	13.42	14.04	14.50	15.93
	8H	13.53	13.95	14.60	15.02	16.46	13.12	13.53	14.19	14.61	16.05
	12H	13.60	13.98	14.69	15.06	16.51	13.18	13.56	14.27	14.64	16.09
8H	4H	13.06	13.48	14.13	14.55	15.99	12.70	13.12	13.77	14.19	15.63
	6H	13.69	14.04	14.78	15.15	16.59	13.33	13.67	14.42	14.79	16.23
	8H	13.91	14.21	15.01	15.31	16.77	13.54	13.84	14.64	14.94	16.40
	12H	14.04	14.31	15.14	15.40	16.90	13.66	13.92	14.76	15.01	16.51
12H	4H	13.04	13.42	14.13	14.51	15.96	12.69	13.07	13.78	14.15	15.60
	6H	13.72	14.02	14.82	15.12	16.58	13.37	13.67	14.47	14.77	16.23
	8H	13.96	14.23	15.06	15.32	16.82	13.60	13.87	14.71	14.96	16.46

END OF REPORT