

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: P905500

Luminaire Tested: DFN2DIP-HX4F0-080D110US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905500
REPORT IS A COMBINATION OF REPORTS P899433 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US835-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

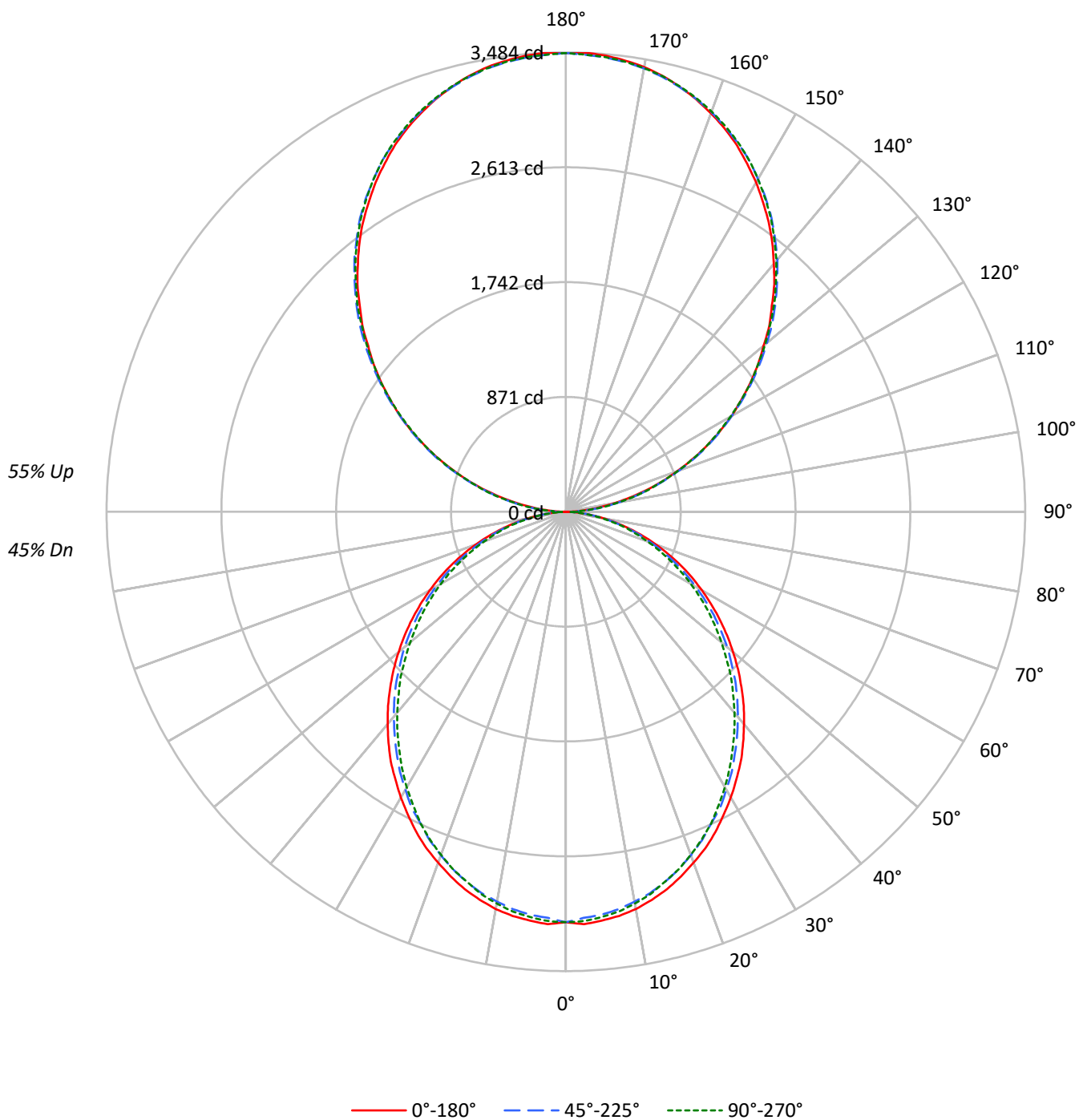
Lumens per Lamp: N/A
Luminaire Lumens: 17655.0 lumens
Efficiency: N/A
Efficacy: 124.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 141.9
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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51			45
1	97	92	88	85	88	85	81	78	71	68	66	57	56	54	45	44	43			38
2	88	81	75	69	80	74	69	64	62	58	55	50	48	45	40	38	37			32
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	35	33	31			27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27			23
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23			20
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21			18
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18			16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16			14
9	49	37	30	25	45	35	28	23	29	24	21	25	21	18	20	17	15			13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13			11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2315	2315	2315
5°	2318	2283	2298
10°	2300	2252	2267
15°	2266	2215	2218
20°	2221	2164	2169
25°	2176	2103	2111
30°	2119	2045	2038
35°	2065	1978	1961
40°	1999	1910	1887
45°	1933	1842	1812
50°	1860	1770	1725
55°	1785	1688	1645
60°	1699	1589	1553
65°	1607	1487	1445
70°	1488	1364	1329
75°	1323	1215	1222
80°	1126	1026	1016
85°	817	699	676

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2622 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	293.0	1.7
10°-20°	824.3	4.7
20°-30°	1211.5	6.9
30°-40°	1407.0	8.0
40°-50°	1405.3	8.0
50°-60°	1225.4	6.9
60°-70°	905.8	5.1
70°-80°	512.5	2.9
80°-90°	145.2	0.8
90°-100°	215.3	1.2
100°-110°	684.0	3.9
110°-120°	1170.5	6.6
120°-130°	1539.4	8.7
130°-140°	1727.9	9.8
140°-150°	1694.4	9.6
150°-160°	1421.4	8.1
160°-170°	942.6	5.3
170°-180°	329.5	1.9
0°-30°	2328.8	13.2
0°-40°	3735.8	21.2
0°-60°	6366.4	36.1
0°-90°	7929.9	44.9
90°-120°	2069.8	11.7
90°-150°	7031.6	39.8
90°-180°	9725.0	55.1
0°-180°	17655.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3113	3113	3113	3113	3113	
5°	3113	3101	3068	3092	3086	295
15°	2963	2946	2906	2918	2904	835
25°	2682	2658	2607	2613	2607	1234
35°	2314	2284	2236	2218	2203	1445
45°	1883	1862	1817	1784	1772	1453
55°	1425	1407	1371	1335	1320	1274
65°	961	943	913	886	871	950
75°	503	497	482	464	470	537
85°	123	120	117	108	105	137
90°	3	38	103	96	100	17
95°	153	182	188	188	182	170
105°	631	640	646	651	651	666
115°	1175	1191	1186	1183	1175	1162
125°	1708	1735	1726	1717	1714	1527
135°	2210	2242	2249	2246	2237	1708
145°	2683	2704	2721	2724	2712	1676
155°	3068	3076	3086	3100	3091	1412
165°	3337	3334	3334	3355	3340	941
175°	3473	3464	3458	3479	3461	330
180°	3479	3479	3479	3479	3479	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3112.8	3112.8	3112.8	3112.8	3112.8
2.5°	3130.9	3116.0	3083.0	3112.8	3107.1
5°	3112.8	3101.1	3068.1	3091.9	3086.2
7.5°	3091.9	3074.1	3041.1	3065.2	3059.2
10°	3059.2	3038.2	3002.3	3026.1	3017.3
12.5°	3014.1	2996.3	2960.4	2975.3	2969.3
15°	2963.3	2945.5	2906.4	2918.5	2903.6
17.5°	2900.4	2882.6	2843.5	2858.5	2843.5
20°	2831.5	2813.7	2771.8	2780.7	2768.9
22.5°	2762.9	2735.9	2696.8	2696.8	2690.8
25°	2681.9	2658.1	2607.3	2613.0	2607.3
27.5°	2592.0	2571.1	2532.3	2523.4	2508.5
30°	2502.5	2478.3	2433.6	2424.7	2412.6
32.5°	2406.6	2388.8	2340.8	2322.7	2310.7
35°	2313.8	2284.0	2236.0	2217.9	2203.0
37.5°	2209.0	2182.0	2134.1	2113.1	2098.2
40°	2101.4	2077.2	2029.3	2002.6	1990.5
42.5°	1996.6	1972.4	1924.8	1894.6	1876.9
45°	1882.9	1861.9	1816.8	1784.1	1772.1
47.5°	1772.1	1751.1	1703.1	1670.1	1652.3
50°	1655.2	1640.3	1598.3	1556.4	1541.5
52.5°	1541.5	1520.5	1481.8	1448.8	1427.8
55°	1424.9	1406.8	1371.0	1335.1	1320.1
57.5°	1308.1	1293.2	1254.1	1218.2	1206.1
60°	1191.2	1179.5	1137.5	1104.5	1095.6
62.5°	1077.5	1056.6	1026.7	996.9	984.8
65°	961.0	942.9	913.0	886.0	871.1
67.5°	841.2	826.0	799.3	778.4	766.3
70°	730.4	718.3	691.4	670.4	658.6
72.5°	616.7	604.7	589.7	568.8	559.9
75°	502.7	497.0	481.8	464.0	470.0
77.5°	401.1	389.0	383.0	374.1	365.2
80°	299.5	296.3	290.3	281.4	275.3
82.5°	203.6	203.6	200.7	188.6	188.6
85°	122.6	119.7	116.9	107.7	104.8
87.5°	54.0	48.0	41.9	33.0	29.9
90°	3.1	37.8	102.8	96.5	99.6
92.5°	65.0	88.1	91.2	94.4	94.4
95°	153.1	182.5	187.7	187.7	182.5
97.5°	254.9	282.1	293.7	293.7	293.7
100°	372.3	396.4	404.8	404.8	401.7
102.5°	496.1	513.9	525.5	528.6	525.5
105°	631.4	639.8	646.1	651.3	651.3
107.5°	765.6	778.2	778.2	780.3	765.6
110°	895.7	912.5	912.5	912.5	904.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1036.2	1054.0	1050.9	1042.5	1036.2
115°	1174.7	1191.4	1186.2	1183.1	1174.7
117.5°	1312.1	1335.1	1320.4	1312.1	1303.7
120°	1450.5	1473.6	1450.5	1450.5	1441.1
122.5°	1576.4	1605.7	1591.0	1582.6	1576.4
125°	1708.5	1734.7	1726.3	1716.9	1713.7
127.5°	1837.5	1870.0	1858.5	1845.9	1837.5
130°	1958.1	1995.9	1990.6	1984.3	1972.8
132.5°	2093.4	2122.8	2124.9	2110.2	2101.8
135°	2209.8	2242.3	2248.6	2245.5	2237.1
137.5°	2339.9	2366.1	2371.3	2369.2	2356.7
140°	2454.2	2480.4	2495.1	2495.1	2483.6
142.5°	2571.7	2597.9	2606.3	2609.4	2597.9
145°	2682.8	2703.8	2720.6	2723.7	2712.2
147.5°	2782.5	2808.7	2821.3	2826.5	2815.0
150°	2885.3	2903.1	2914.6	2924.1	2914.6
152.5°	2976.5	2994.3	3009.0	3020.6	3009.0
155°	3067.8	3076.1	3085.6	3100.3	3090.8
157.5°	3146.4	3152.7	3157.9	3178.9	3164.2
160°	3216.7	3223.0	3226.1	3244.0	3231.4
162.5°	3281.7	3281.7	3284.9	3304.8	3290.1
165°	3337.3	3334.1	3334.1	3355.1	3340.4
167.5°	3387.6	3378.2	3378.2	3399.2	3384.5
170°	3425.4	3417.0	3413.9	3434.8	3417.0
172.5°	3451.6	3443.2	3440.1	3461.1	3443.2
175°	3472.6	3464.2	3457.9	3478.9	3461.1
177.5°	3484.1	3475.7	3469.4	3487.3	3469.4
180°	3478.9	3478.9	3478.9	3478.9	3478.9

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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	9.70	10.52	10.70	11.53	12.87	9.27	10.08	10.27	11.09	12.44
	3H	11.36	12.09	12.37	13.11	14.47	10.88	11.62	11.89	12.63	14.00
	4H	11.94	12.64	12.96	13.66	15.03	11.47	12.16	12.49	13.18	14.56
	6H	12.34	12.98	13.37	14.01	15.39	11.86	12.50	12.90	13.53	14.91
	8H	12.44	13.05	13.48	14.10	15.47	11.97	12.58	13.01	13.62	15.00
	12H	12.49	13.07	13.53	14.11	15.51	12.01	12.59	13.05	13.63	15.03
4H	2H	10.15	10.85	11.18	11.87	13.24	9.81	10.50	10.84	11.53	12.90
	3H	12.02	12.60	13.06	13.65	15.03	11.62	12.20	12.66	13.25	14.64
	4H	12.73	13.26	13.78	14.30	15.71	12.33	12.86	13.37	13.90	15.30
	6H	13.24	13.70	14.30	14.77	16.17	12.83	13.29	13.89	14.36	15.76
	8H	13.39	13.82	14.45	14.88	16.30	12.98	13.41	14.04	14.47	15.88
	12H	13.47	13.85	14.54	14.92	16.35	13.04	13.43	14.12	14.50	15.92
8H	4H	12.92	13.35	13.98	14.41	15.83	12.56	12.99	13.62	14.05	15.47
	6H	13.56	13.91	14.63	15.01	16.42	13.19	13.55	14.27	14.65	16.06
	8H	13.78	14.09	14.86	15.17	16.60	13.41	13.72	14.49	14.80	16.23
	12H	13.91	14.18	15.00	15.26	16.73	13.52	13.79	14.61	14.87	16.35
12H	4H	12.91	13.29	13.98	14.37	15.79	12.56	12.94	13.63	14.01	15.44
	6H	13.59	13.90	14.67	14.98	16.41	13.23	13.54	14.32	14.63	16.06
	8H	13.83	14.10	14.92	15.18	16.65	13.47	13.74	14.56	14.82	16.29