

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: P927111

Luminaire Tested: DFN2DIP-HX4F0-100D100US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927111
REPORT IS A COMBINATION OF REPORTS P899419 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D100US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

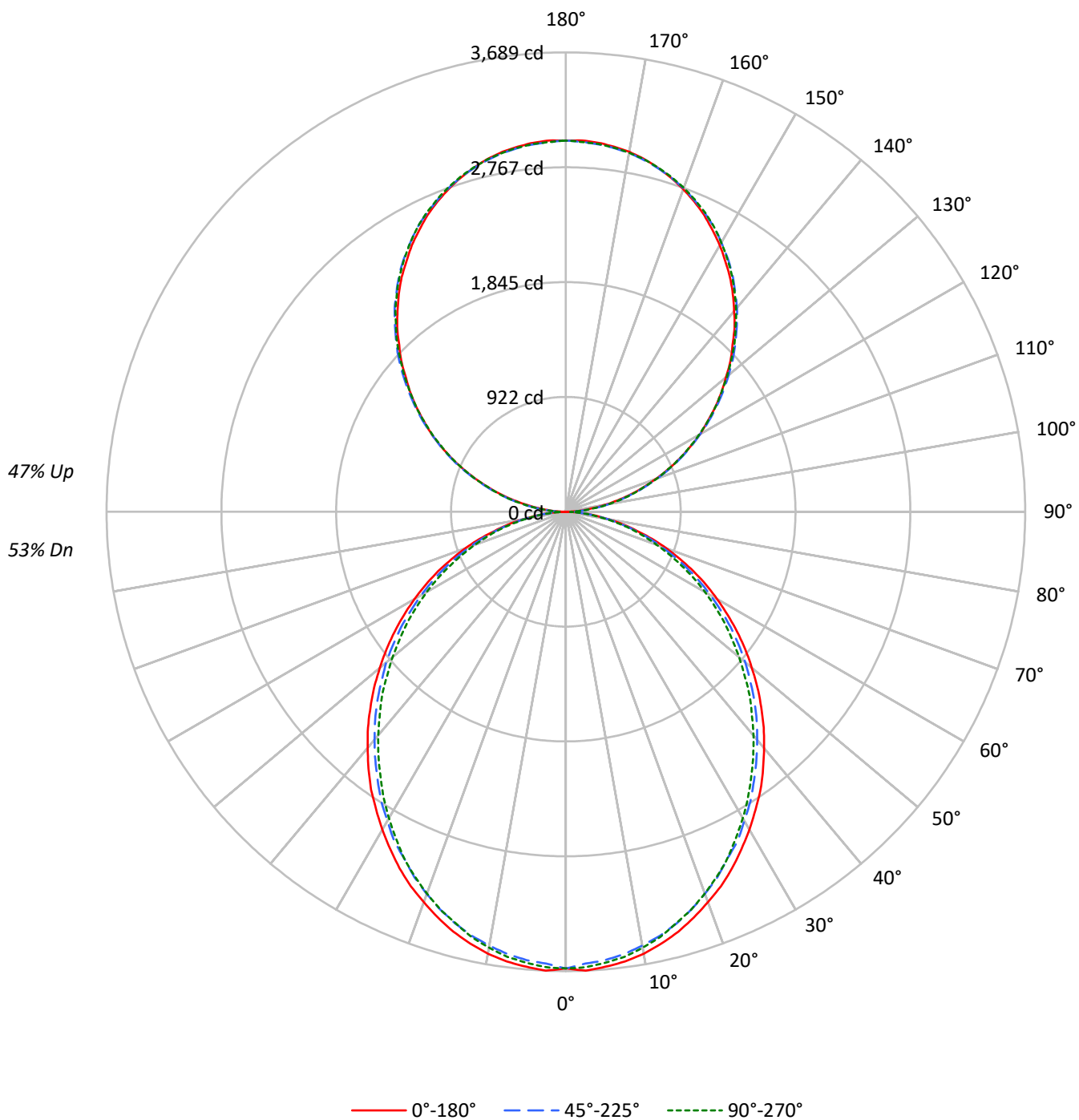
Lumens per Lamp: N/A
Luminaire Lumens: 17671.9 lumens
Efficiency: N/A
Efficacy: 100.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 175.5
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	30	10
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2727	2727	2727
5°	2732	2689	2707
10°	2710	2653	2671
15°	2670	2610	2614
20°	2616	2549	2555
25°	2563	2477	2487
30°	2496	2410	2401
35°	2433	2330	2310
40°	2355	2250	2224
45°	2277	2170	2135
50°	2192	2086	2032
55°	2103	1988	1938
60°	2002	1872	1830
65°	1893	1753	1703
70°	1753	1606	1566
75°	1559	1432	1439
80°	1327	1209	1197
85°	963	824	797

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2277 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	2.0
10°-20°	971.2	5.5
20°-30°	1427.2	8.1
30°-40°	1657.6	9.4
40°-50°	1655.6	9.4
50°-60°	1443.6	8.2
60°-70°	1067.2	6.0
70°-80°	603.8	3.4
80°-90°	167.8	0.9
90°-100°	184.5	1.0
100°-110°	586.1	3.3
110°-120°	1002.9	5.7
120°-130°	1319.0	7.5
130°-140°	1480.5	8.4
140°-150°	1451.8	8.2
150°-160°	1217.9	6.9
160°-170°	807.7	4.6
170°-180°	282.3	1.6
0°-30°	2743.6	15.5
0°-40°	4401.2	24.9
0°-60°	7500.4	42.4
0°-90°	9339.2	52.8
90°-120°	1773.4	10.0
90°-150°	6024.8	34.1
90°-180°	8333.0	47.2
0°-180°	17671.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3667	3667	3667	3667	3667	
5°	3667	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2595	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	3	32	88	83	85	17
95°	131	156	161	161	156	146
105°	541	548	554	558	558	571
115°	1006	1021	1016	1014	1006	995
125°	1464	1486	1479	1471	1468	1308
135°	1893	1921	1927	1924	1917	1464
145°	2299	2317	2331	2334	2324	1436
155°	2628	2636	2644	2656	2648	1210
165°	2860	2857	2857	2875	2862	807
175°	2975	2968	2963	2981	2966	283
180°	2981	2981	2981	2981	2981	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.4	3667.4	3667.4	3667.4	3667.4
2.5°	3688.7	3671.0	3632.1	3667.4	3660.6
5°	3667.4	3653.5	3614.6	3642.7	3635.9
7.5°	3642.7	3621.7	3582.7	3611.2	3604.1
10°	3604.1	3579.4	3537.1	3565.2	3554.7
12.5°	3551.0	3530.0	3487.7	3505.3	3498.2
15°	3491.1	3470.2	3424.1	3438.3	3420.8
17.5°	3417.0	3396.1	3350.0	3367.6	3350.0
20°	3335.8	3314.9	3265.5	3275.9	3262.1
22.5°	3255.0	3223.3	3177.2	3177.2	3170.1
25°	3159.6	3131.6	3071.7	3078.4	3071.7
27.5°	3053.7	3029.0	2983.4	2972.9	2955.3
30°	2948.2	2919.8	2867.0	2856.5	2842.3
32.5°	2835.2	2814.3	2757.8	2736.5	2722.2
35°	2726.0	2690.8	2634.3	2613.0	2595.4
37.5°	2602.5	2570.7	2514.2	2489.5	2471.9
40°	2475.7	2447.2	2390.7	2359.4	2345.1
42.5°	2352.2	2323.7	2267.7	2232.1	2211.2
45°	2218.3	2193.6	2140.4	2101.9	2087.7
47.5°	2087.7	2063.0	2006.5	1967.6	1946.6
50°	1950.0	1932.4	1883.0	1833.6	1816.1
52.5°	1816.1	1791.4	1745.7	1706.9	1682.2
55°	1678.8	1657.5	1615.2	1572.8	1555.3
57.5°	1541.1	1523.5	1477.5	1435.2	1421.0
60°	1403.4	1389.5	1340.1	1301.2	1290.8
62.5°	1269.5	1244.8	1209.6	1174.4	1160.2
65°	1132.1	1110.8	1075.7	1043.8	1026.3
67.5°	991.1	973.1	941.7	917.1	902.8
70°	860.5	846.3	814.5	789.8	776.0
72.5°	726.6	712.3	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.6	553.7
77.5°	472.6	458.3	451.2	440.7	430.3
80°	352.8	349.1	341.9	331.5	324.4
82.5°	239.9	239.9	236.5	222.2	222.2
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	2.7	32.3	88.0	82.7	85.4
92.5°	55.7	75.5	78.2	80.9	80.9
95°	131.2	156.4	160.9	160.9	156.4
97.5°	218.4	241.8	251.6	251.6	251.6
100°	319.0	339.7	346.8	346.8	344.2
102.5°	425.1	440.3	450.2	452.9	450.2
105°	541.0	548.2	553.5	558.1	558.1
107.5°	656.0	666.8	666.8	668.6	656.0
110°	767.5	781.8	781.8	781.8	774.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	887.8	903.1	900.5	893.2	887.8
115°	1006.5	1020.8	1016.4	1013.7	1006.5
117.5°	1124.2	1144.0	1131.4	1124.2	1117.0
120°	1242.8	1262.6	1242.8	1242.8	1234.8
122.5°	1350.6	1375.8	1363.2	1356.1	1350.6
125°	1463.9	1486.3	1479.2	1471.1	1468.4
127.5°	1574.4	1602.2	1592.4	1581.6	1574.4
130°	1677.7	1710.1	1705.6	1700.2	1690.4
132.5°	1793.7	1818.8	1820.6	1808.1	1800.8
135°	1893.4	1921.3	1926.7	1924.0	1916.8
137.5°	2004.9	2027.3	2031.8	2030.1	2019.2
140°	2102.8	2125.2	2137.9	2137.9	2128.0
142.5°	2203.5	2225.9	2233.1	2235.8	2225.9
145°	2298.7	2316.7	2331.1	2333.7	2323.8
147.5°	2384.1	2406.6	2417.3	2421.8	2412.0
150°	2472.2	2487.4	2497.3	2505.4	2497.3
152.5°	2550.3	2565.6	2578.2	2588.1	2578.2
155°	2628.5	2635.7	2643.8	2656.3	2648.2
157.5°	2695.9	2701.3	2705.8	2723.7	2711.2
160°	2756.2	2761.5	2764.2	2779.4	2768.7
162.5°	2811.9	2811.9	2814.5	2831.6	2819.0
165°	2859.5	2856.7	2856.7	2874.7	2862.2
167.5°	2902.6	2894.5	2894.5	2912.5	2899.9
170°	2934.9	2927.8	2925.0	2943.1	2927.8
172.5°	2957.4	2950.2	2947.5	2965.5	2950.2
175°	2975.4	2968.2	2962.8	2980.8	2965.5
177.5°	2985.3	2978.1	2972.6	2987.9	2972.6
180°	2980.8	2980.8	2980.8	2980.8	2980.8

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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	11.02	11.90	11.95	12.85	14.08	10.58	11.47	11.52	12.42	13.65
	3H	12.68	13.48	13.62	14.43	15.69	12.21	13.00	13.15	13.96	15.22
	4H	13.27	14.02	14.23	14.99	16.25	12.80	13.55	13.75	14.51	15.77
	6H	13.67	14.37	14.64	15.33	16.61	13.20	13.89	14.16	14.86	16.13
	8H	13.78	14.44	14.75	15.42	16.70	13.30	13.96	14.28	14.95	16.22
	12H	13.83	14.46	14.81	15.44	16.73	13.35	13.97	14.33	14.95	16.25
4H	2H	11.48	12.24	12.45	13.20	14.46	11.14	11.89	12.10	12.85	14.12
	3H	13.35	13.98	14.32	14.97	16.25	12.96	13.59	13.93	14.58	15.86
	4H	14.07	14.64	15.05	15.63	16.93	13.66	14.24	14.64	15.22	16.52
	6H	14.59	15.08	15.58	16.09	17.39	14.18	14.67	15.17	15.68	16.98
	8H	14.74	15.20	15.73	16.20	17.52	14.32	14.79	15.32	15.79	17.10
	12H	14.81	15.23	15.83	16.25	17.57	14.39	14.81	15.40	15.83	17.14
8H	4H	14.27	14.73	15.26	15.73	17.05	13.91	14.37	14.90	15.37	16.69
	6H	14.90	15.28	15.92	16.33	17.64	14.54	14.92	15.56	15.97	17.28
	8H	15.12	15.46	16.15	16.49	17.82	14.75	15.09	15.78	16.12	17.45
	12H	15.26	15.55	16.29	16.58	17.95	14.87	15.17	15.90	16.19	17.57
12H	4H	14.25	14.67	15.27	15.69	17.01	13.90	14.32	14.92	15.34	16.66
	6H	14.93	15.27	15.96	16.30	17.63	14.58	14.92	15.61	15.95	17.28
	8H	15.18	15.47	16.21	16.50	17.87	14.82	15.11	15.85	16.14	17.51