

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: P927103

Luminaire Tested: DFN2DIP-HX4F0-100D080US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927103
REPORT IS A COMBINATION OF REPORTS P899383 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D080US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

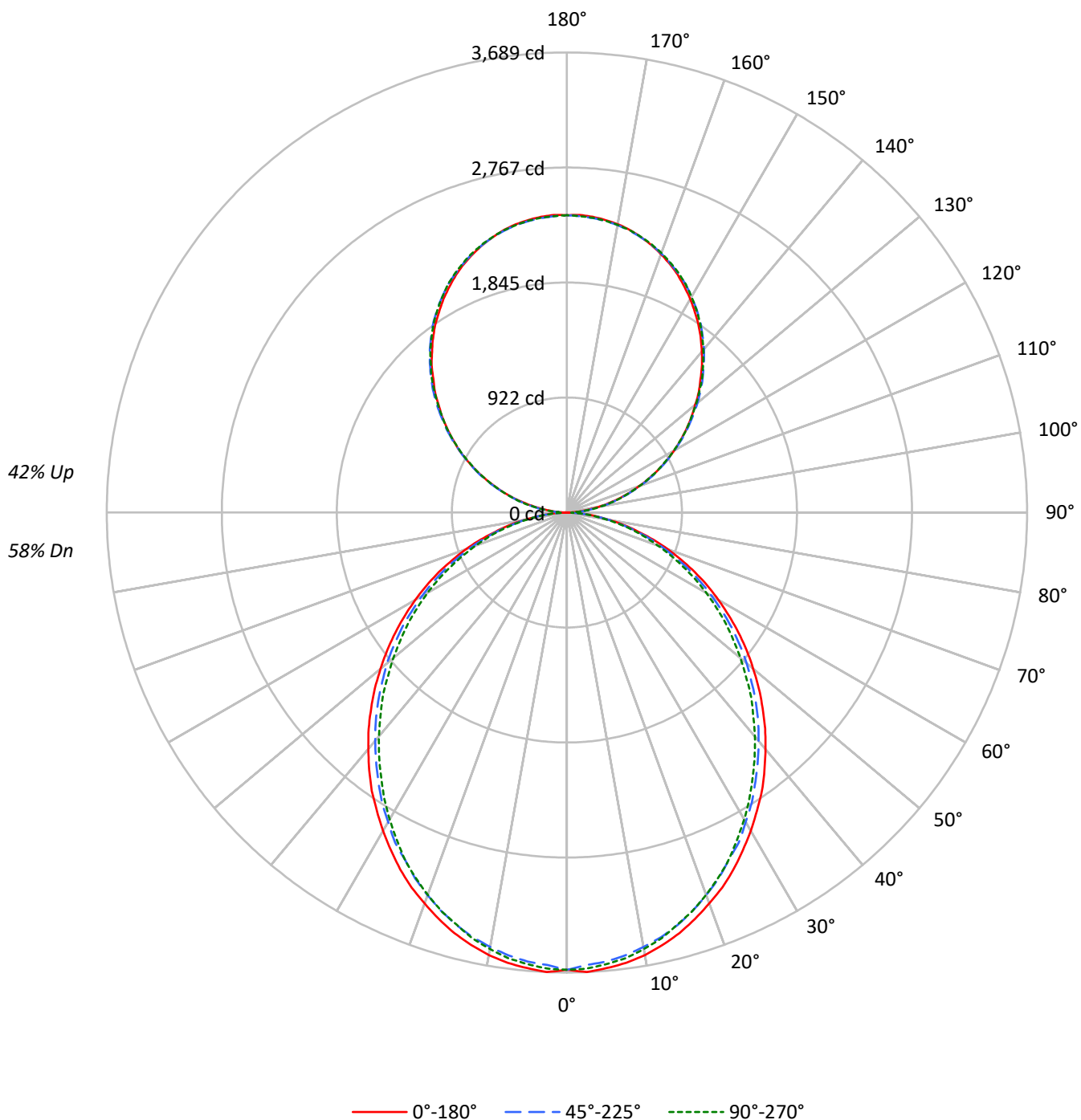
Lumens per Lamp: N/A
Luminaire Lumens: 16003.7 lumens
Efficiency: N/A
Efficacy: 101.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 157.7
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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	64	64	64
1	100	95	91	88	93	89	86	82	77	75	72	66	65	63	56	55	54
2	91	83	77	72	84	78	72	68	68	64	60	58	55	52	50	47	45
3	83	73	66	60	77	69	62	57	60	55	50	52	48	44	44	41	39
4	76	65	57	51	70	61	54	48	53	47	43	46	42	38	39	36	33
5	70	58	50	43	65	54	47	41	48	42	37	41	37	33	35	32	29
6	64	52	44	38	60	49	41	36	43	37	32	37	33	29	32	29	26
7	59	47	39	33	55	44	37	32	39	33	29	34	29	26	29	26	23
8	55	43	35	29	51	40	33	28	36	30	26	31	26	23	27	23	20
9	51	39	31	26	48	37	30	25	33	27	23	29	24	21	25	21	18
10	48	36	28	24	45	34	27	23	30	25	21	27	22	19	23	19	17

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	2.2
10°-20°	971.2	6.1
20°-30°	1427.2	8.9
30°-40°	1657.6	10.4
40°-50°	1655.6	10.3
50°-60°	1443.6	9.0
60°-70°	1067.2	6.7
70°-80°	603.8	3.8
80°-90°	166.2	1.0
90°-100°	147.6	0.9
100°-110°	468.9	2.9
110°-120°	802.3	5.0
120°-130°	1055.2	6.6
130°-140°	1184.4	7.4
140°-150°	1161.5	7.3
150°-160°	974.3	6.1
160°-170°	646.1	4.0
170°-180°	225.8	1.4
0°-30°	2743.6	17.1
0°-40°	4401.2	27.5
0°-60°	7500.4	46.9
0°-90°	9337.5	58.3
90°-120°	1418.8	8.9
90°-150°	4819.9	30.1
90°-180°	6666.0	41.7
0°-180°	16003.7	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°	2	26	70	66	68	15
95°	105	125	129	129	125	117
105°	433	438	443	446	446	457
115°	805	817	813	811	805	796
125°	1171	1189	1183	1177	1175	1047
135°	1515	1537	1541	1539	1533	1171
145°	1839	1853	1865	1867	1859	1149
155°	2103	2109	2115	2125	2119	968
165°	2288	2285	2285	2300	2290	645
175°	2380	2374	2370	2385	2372	226
180°	2385	2385	2385	2385	2385	

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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°	2.2	25.9	70.5	66.2	68.3
92.5°	44.6	60.4	62.6	64.7	64.7
95°	105.0	125.1	128.7	128.7	125.1
97.5°	174.7	193.4	201.3	201.3	201.3
100°	255.2	271.7	277.5	277.5	275.3
102.5°	340.1	352.3	360.1	362.3	360.1
105°	432.8	438.5	442.9	446.5	446.5
107.5°	524.8	533.5	533.5	534.9	524.8
110°	613.9	625.4	625.4	625.4	619.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	710.3	722.5	720.4	714.6	710.3
115°	805.2	816.7	813.1	810.9	805.2
117.5°	899.3	915.2	905.1	899.3	893.6
120°	994.2	1010.1	994.2	994.2	987.7
122.5°	1080.5	1100.7	1090.6	1084.8	1080.5
125°	1171.1	1189.1	1183.3	1176.8	1174.7
127.5°	1259.6	1281.8	1273.9	1265.3	1259.6
130°	1342.2	1368.0	1364.5	1360.2	1352.3
132.5°	1435.0	1455.0	1456.5	1446.5	1440.7
135°	1514.7	1537.0	1541.4	1539.2	1533.4
137.5°	1603.9	1621.9	1625.4	1624.0	1615.4
140°	1682.3	1700.2	1710.3	1710.3	1702.3
142.5°	1762.8	1780.8	1786.5	1788.7	1780.8
145°	1839.0	1853.3	1864.8	1867.0	1859.1
147.5°	1907.2	1925.2	1933.8	1937.5	1929.6
150°	1977.7	1989.9	1997.8	2004.3	1997.8
152.5°	2040.2	2052.5	2062.6	2070.5	2062.6
155°	2102.8	2108.6	2115.1	2125.1	2118.6
157.5°	2156.7	2161.1	2164.6	2179.0	2169.0
160°	2204.9	2209.2	2211.4	2223.5	2215.0
162.5°	2249.5	2249.5	2251.6	2265.3	2255.2
165°	2287.5	2285.4	2285.4	2299.8	2289.7
167.5°	2322.0	2315.6	2315.6	2330.0	2319.9
170°	2348.0	2342.2	2340.0	2354.5	2342.2
172.5°	2366.0	2360.2	2358.0	2372.4	2360.2
175°	2380.3	2374.5	2370.2	2384.6	2372.4
177.5°	2388.2	2382.5	2378.1	2390.4	2378.1
180°	2384.6	2384.6	2384.6	2384.6	2384.6

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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	11.49	12.44	12.38	13.34	14.48	11.06	12.00	11.94	12.91	14.05
	3H	13.16	14.01	14.05	14.92	16.09	12.69	13.53	13.58	14.45	15.62
	4H	13.75	14.55	14.66	15.47	16.65	13.28	14.08	14.19	15.00	16.18
	6H	14.16	14.89	15.08	15.82	17.01	13.68	14.42	14.60	15.34	16.54
	8H	14.27	14.97	15.19	15.91	17.10	13.79	14.49	14.72	15.43	16.63
	12H	14.32	14.98	15.25	15.92	17.14	13.84	14.50	14.77	15.44	16.66
4H	2H	11.97	12.76	12.88	13.68	14.86	11.62	12.42	12.54	13.34	14.52
	3H	13.84	14.51	14.77	15.46	16.65	13.45	14.11	14.37	15.06	16.26
	4H	14.56	15.17	15.49	16.11	17.33	14.15	14.76	15.09	15.71	16.93
	6H	15.08	15.60	16.03	16.57	17.79	14.67	15.19	15.62	16.16	17.38
	8H	15.23	15.72	16.18	16.68	17.92	14.82	15.31	15.77	16.27	17.51
	12H	15.31	15.75	16.28	16.73	17.97	14.89	15.33	15.86	16.31	17.55
8H	4H	14.76	15.25	15.71	16.21	17.45	14.40	14.89	15.35	15.85	17.09
	6H	15.40	15.80	16.38	16.81	18.04	15.04	15.44	16.01	16.44	17.68
	8H	15.62	15.98	16.61	16.97	18.22	15.25	15.61	16.24	16.60	17.85
	12H	15.76	16.07	16.75	17.06	18.36	15.37	15.69	16.36	16.67	17.97
12H	4H	14.75	15.19	15.72	16.17	17.41	14.40	14.84	15.37	15.82	17.06
	6H	15.43	15.79	16.42	16.78	18.03	15.08	15.44	16.06	16.43	17.68
	8H	15.68	15.99	16.67	16.98	18.28	15.32	15.63	16.31	16.62	17.92