

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: P927098

Luminaire Tested: DFN2DIP-HX4F0-100D060US830-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927098
REPORT IS A COMBINATION OF REPORTS P900868 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D060US830-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

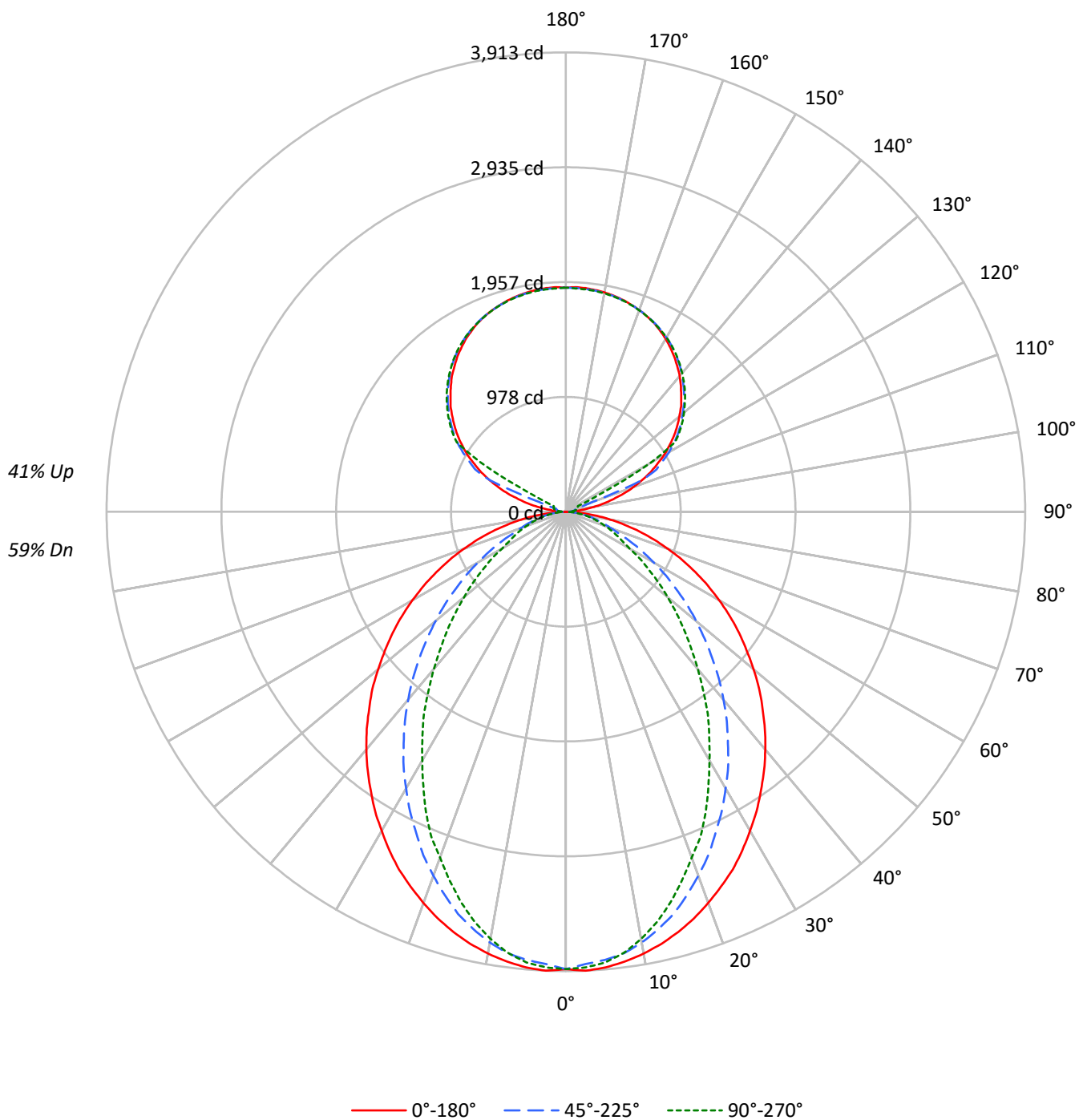
Lumens per Lamp: N/A
Luminaire Lumens: 13609.6 lumens
Efficiency: N/A
Efficacy: 94.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

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	30	10
RCR																	
0	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	55
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	51	49	48
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	43	41
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32
6	66	54	46	40	61	51	44	38	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	23	21
10	50	38	31	26	46	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2896	2896	2896
5°	2901	2851	2869
10°	2873	2795	2776
15°	2834	2703	2631
20°	2781	2576	2454
25°	2728	2433	2284
30°	2656	2287	2067
35°	2586	2130	1876
40°	2515	1968	1658
45°	2432	1787	1460
50°	2346	1605	1267
55°	2256	1410	1081
60°	2153	1206	890
65°	2033	999	801
70°	1889	806	725
75°	1707	711	660
80°	1444	598	573
85°	1010	400	431

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2432 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.1	2.7
10°-20°	1002.2	7.4
20°-30°	1407.1	10.3
30°-40°	1533.8	11.3
40°-50°	1409.7	10.4
50°-60°	1107.1	8.1
60°-70°	720.6	5.3
70°-80°	370.9	2.7
80°-90°	98.1	0.7
90°-100°	62.9	0.5
100°-110°	234.6	1.7
110°-120°	622.2	4.6
120°-130°	1031.9	7.6
130°-140°	1096.2	8.1
140°-150°	1018.8	7.5
150°-160°	819.1	6.0
160°-170°	527.8	3.9
170°-180°	181.7	1.3
0°-30°	2774.3	20.4
0°-40°	4308.1	31.7
0°-60°	6825.0	50.1
0°-90°	8014.6	58.9
90°-120°	919.7	6.8
90°-150°	4066.6	29.9
90°-180°	5595.0	41.1
0°-180°	13609.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3895	3895	3895	3895	3895	
5°	3895	3878	3832	3864	3853	369
15°	3705	3666	3546	3479	3444	1044
25°	3363	3250	3018	2873	2820	1547
35°	2898	2718	2408	2186	2108	1814
45°	2369	2133	1763	1512	1428	1829
55°	1801	1526	1146	934	867	1610
65°	1216	930	613	494	483	1206
75°	648	402	282	257	254	686
85°	152	77	67	67	67	174
90°	1	17	28	35	37	13
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1774	1762	1779	1787	1776	818
165°	1870	1862	1866	1875	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1908	1908	1908	1908	1908	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3895.4	3895.4	3895.4	3895.4	3895.4
2.5°	3912.9	3895.4	3856.4	3892.0	3884.9
5°	3895.4	3877.7	3831.7	3863.6	3853.0
7.5°	3863.6	3842.6	3793.2	3807.0	3789.5
10°	3821.3	3796.6	3726.3	3715.4	3694.5
12.5°	3768.6	3736.7	3641.3	3620.4	3581.5
15°	3705.0	3666.0	3546.3	3479.4	3444.3
17.5°	3630.9	3574.4	3426.4	3348.9	3292.4
20°	3546.3	3475.7	3299.5	3211.7	3133.8
22.5°	3454.7	3373.6	3169.0	3049.4	2996.6
25°	3363.1	3250.2	3017.5	2873.1	2820.1
27.5°	3253.9	3133.8	2876.5	2710.8	2629.7
30°	3137.6	3003.3	2721.3	2541.8	2446.4
32.5°	3024.7	2862.3	2573.6	2361.9	2273.6
35°	2897.8	2718.0	2407.9	2185.8	2107.9
37.5°	2774.4	2580.3	2252.7	2009.2	1921.3
40°	2643.9	2432.6	2090.4	1840.1	1748.5
42.5°	2510.0	2284.4	1928.4	1667.4	1579.4
45°	2369.0	2132.6	1762.8	1512.1	1427.6
47.5°	2235.1	1984.9	1604.1	1353.5	1276.1
50°	2087.0	1836.7	1448.9	1205.5	1131.8
52.5°	1942.2	1677.8	1300.8	1068.1	1001.2
55°	1801.2	1526.4	1145.6	934.3	867.3
57.5°	1656.9	1374.8	1008.4	810.8	754.4
60°	1508.8	1226.8	863.6	684.1	627.6
62.5°	1364.4	1082.4	740.1	571.2	543.1
65°	1216.3	930.5	613.4	493.7	482.8
67.5°	1075.3	789.5	493.7	433.5	423.0
70°	927.1	652.3	408.8	373.6	359.5
72.5°	786.1	525.1	341.8	313.8	306.7
75°	648.5	401.7	282.0	257.3	253.9
77.5°	511.3	285.4	222.1	207.9	200.8
80°	384.1	204.6	169.1	155.2	155.2
82.5°	267.8	137.6	116.3	109.2	109.2
85°	151.5	77.4	66.9	66.9	66.9
87.5°	56.5	28.1	28.1	24.7	24.7
90°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.5	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.8
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.0



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.5	852.1	212.7	113.3
117.5°	875.5	903.1	926.7	729.1	367.3
120°	966.7	987.4	1012.3	1028.8	842.4
122.5°	1043.9	1066.1	1093.8	1102.0	1103.5
125°	1122.7	1140.7	1166.9	1176.6	1180.7
127.5°	1194.5	1213.8	1234.7	1248.4	1249.8
130°	1262.2	1284.3	1299.4	1314.7	1313.4
132.5°	1331.3	1349.3	1364.4	1376.8	1375.5
135°	1389.3	1411.5	1423.7	1437.7	1434.9
137.5°	1449.9	1466.5	1480.5	1494.2	1490.2
140°	1509.3	1520.5	1535.6	1548.1	1541.2
142.5°	1559.2	1568.9	1586.8	1597.7	1590.8
145°	1611.7	1610.2	1633.6	1643.3	1636.5
147.5°	1657.1	1653.0	1676.4	1683.3	1677.9
150°	1701.4	1691.7	1713.8	1722.0	1715.2
152.5°	1738.6	1727.6	1748.2	1756.6	1746.9
155°	1774.5	1762.2	1778.8	1787.0	1776.0
157.5°	1803.6	1792.5	1805.0	1814.7	1803.6
160°	1828.4	1820.1	1828.4	1836.6	1827.0
162.5°	1850.4	1842.2	1849.1	1858.8	1846.4
165°	1869.8	1861.6	1865.7	1875.4	1865.7
167.5°	1885.0	1876.7	1880.9	1890.7	1878.1
170°	1897.5	1889.1	1892.0	1901.6	1889.1
172.5°	1905.7	1897.5	1900.3	1910.0	1897.5
175°	1912.6	1902.9	1905.7	1915.3	1901.6
177.5°	1915.3	1905.7	1907.1	1916.9	1904.4
180°	1908.5	1908.5	1908.5	1908.5	1908.5

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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	11.63	12.54	12.52	13.44	14.58	7.61	8.52	8.49	9.42	10.56
	3H	13.32	14.13	14.22	15.04	16.21	8.80	9.62	9.70	10.53	11.69
	4H	13.93	14.70	14.84	15.61	16.79	9.26	10.03	10.17	10.94	12.12
	6H	14.36	15.06	15.28	15.99	17.17	9.59	10.29	10.51	11.21	12.40
	8H	14.49	15.16	15.42	16.10	17.29	9.68	10.35	10.61	11.29	12.48
	12H	14.55	15.19	15.49	16.12	17.34	9.73	10.37	10.66	11.30	12.51
4H	2H	11.66	12.43	12.58	13.34	14.52	8.21	8.98	9.13	9.89	11.07
	3H	13.50	14.14	14.43	15.08	16.27	9.57	10.21	10.50	11.16	12.35
	4H	14.20	14.78	15.13	15.72	16.93	10.12	10.71	11.06	11.65	12.86
	6H	14.72	15.22	15.67	16.18	17.40	10.55	11.05	11.50	12.01	13.23
	8H	14.89	15.36	15.85	16.32	17.55	10.68	11.15	11.63	12.11	13.34
	12H	14.99	15.41	15.96	16.39	17.62	10.75	11.17	11.72	12.15	13.38
8H	4H	14.17	14.64	15.12	15.59	16.83	10.41	10.88	11.36	11.84	13.07
	6H	14.74	15.13	15.72	16.13	17.35	10.93	11.32	11.91	12.32	13.55
	8H	14.96	15.30	15.95	16.29	17.53	11.13	11.47	12.12	12.46	13.70
	12H	15.10	15.40	16.09	16.38	17.68	11.25	11.55	12.24	12.53	13.83
12H	4H	14.13	14.55	15.10	15.52	16.76	10.42	10.84	11.39	11.82	13.05
	6H	14.72	15.06	15.70	16.05	17.29	10.98	11.32	11.97	12.31	13.56
	8H	14.94	15.24	15.93	16.22	17.52	11.20	11.50	12.19	12.48	13.78

END OF REPORT