

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: P905444

Luminaire Tested: DFN2DIP-HX4F0-050D100US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905444
REPORT IS A COMBINATION OF REPORTS P899409 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D100US835-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

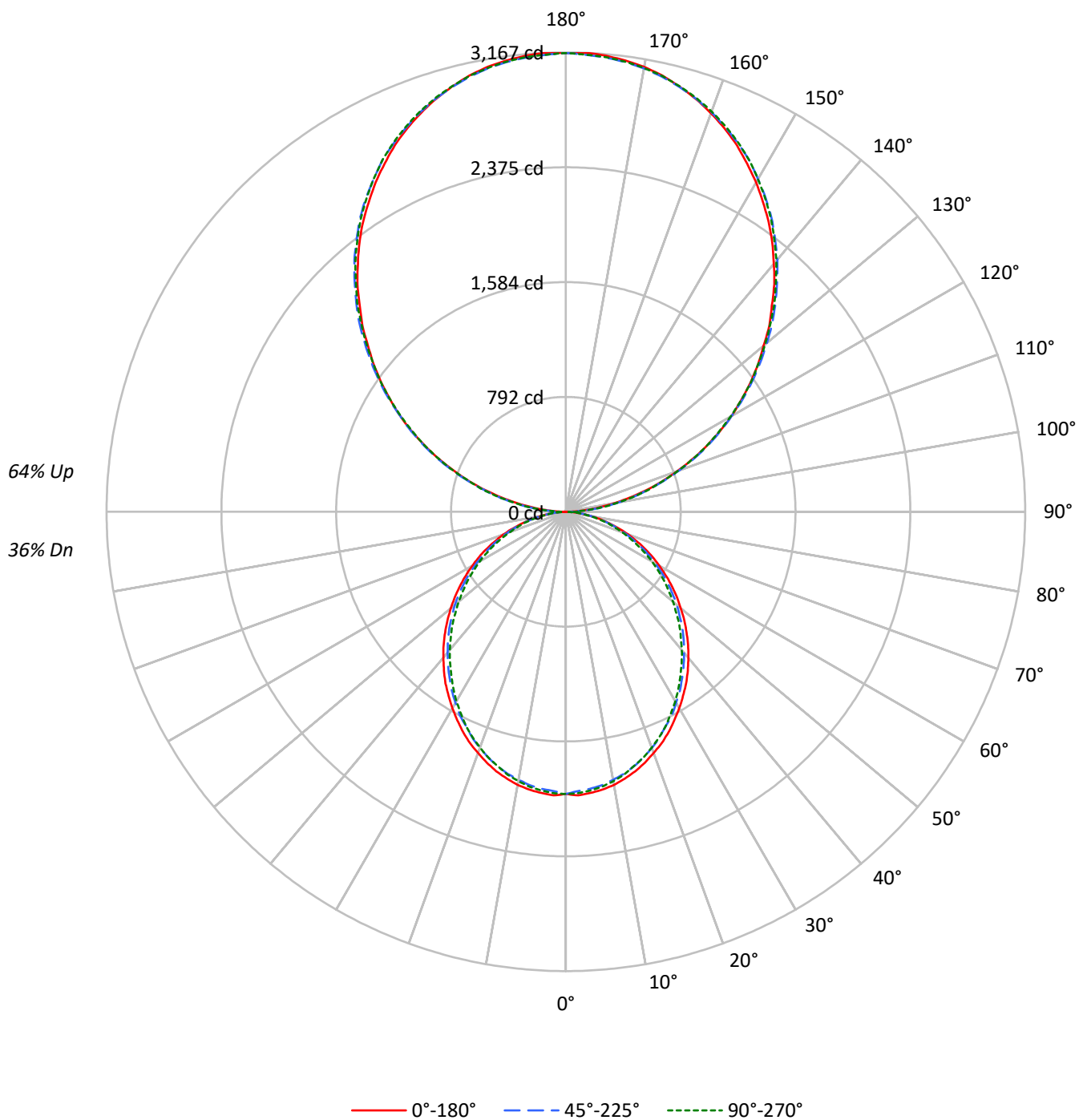
Lumens per Lamp: N/A
Luminaire Lumens: 13800.0 lumens
Efficiency: N/A
Efficacy: 136.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 101.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1447	1447	1447
5°	1449	1427	1436
10°	1437	1408	1417
15°	1416	1385	1386
20°	1388	1352	1355
25°	1360	1314	1320
30°	1324	1278	1274
35°	1291	1236	1226
40°	1249	1194	1180
45°	1208	1151	1133
50°	1163	1106	1078
55°	1116	1055	1028
60°	1062	993	971
65°	1004	930	903
70°	930	852	831
75°	827	759	764
80°	704	641	635
85°	511	437	422

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2385 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	183.1	1.3
10°-20°	515.2	3.7
20°-30°	757.2	5.5
30°-40°	879.4	6.4
40°-50°	878.3	6.4
50°-60°	765.8	5.5
60°-70°	566.1	4.1
70°-80°	320.3	2.3
80°-90°	93.5	0.7
90°-100°	195.7	1.4
100°-110°	621.8	4.5
110°-120°	1064.1	7.7
120°-130°	1399.5	10.1
130°-140°	1570.9	11.4
140°-150°	1540.4	11.2
150°-160°	1292.2	9.4
160°-170°	856.9	6.2
170°-180°	299.5	2.2
0°-30°	1455.5	10.5
0°-40°	2334.9	16.9
0°-60°	3979.0	28.8
0°-90°	4959.0	35.9
90°-120°	1881.6	13.6
90°-150°	6392.4	46.3
90°-180°	8841.0	64.1
0°-180°	13800.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1946	1946	1946	1946	1946	
5°	1946	1938	1918	1932	1929	185
15°	1852	1841	1816	1824	1815	522
25°	1676	1661	1630	1633	1630	771
35°	1446	1428	1398	1386	1377	903
45°	1177	1164	1136	1115	1108	908
55°	891	879	857	834	825	796
65°	601	589	571	554	544	594
75°	314	311	301	290	294	335
85°	77	75	73	67	66	85
90°	3	34	93	88	91	14
95°	139	166	171	171	166	155
105°	574	582	587	592	592	606
115°	1068	1083	1078	1076	1068	1056
125°	1553	1577	1569	1561	1558	1388
135°	2009	2038	2044	2041	2034	1553
145°	2439	2458	2473	2476	2466	1524
155°	2789	2796	2805	2818	2810	1284
165°	3034	3031	3031	3050	3037	856
175°	3157	3149	3144	3163	3146	300
180°	3163	3163	3163	3163	3163	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1945.5	1945.5	1945.5	1945.5	1945.5
2.5°	1956.8	1947.5	1926.9	1945.5	1942.0
5°	1945.5	1938.2	1917.5	1932.4	1928.9
7.5°	1932.4	1921.3	1900.7	1915.8	1912.0
10°	1912.0	1898.9	1876.5	1891.3	1885.8
12.5°	1883.8	1872.7	1850.3	1859.6	1855.8
15°	1852.0	1840.9	1816.5	1824.1	1814.7
17.5°	1812.7	1801.6	1777.2	1786.5	1777.2
20°	1769.7	1758.6	1732.4	1737.9	1730.6
22.5°	1726.8	1709.9	1685.5	1685.5	1681.7
25°	1676.2	1661.3	1629.5	1633.1	1629.5
27.5°	1620.0	1606.9	1582.7	1577.1	1567.8
30°	1564.0	1549.0	1521.0	1515.4	1507.9
32.5°	1504.1	1493.0	1463.0	1451.7	1444.2
35°	1446.1	1427.5	1397.5	1386.2	1376.9
37.5°	1380.6	1363.8	1333.8	1320.7	1311.4
40°	1313.4	1298.3	1268.3	1251.6	1244.1
42.5°	1247.9	1232.8	1203.0	1184.1	1173.0
45°	1176.8	1163.7	1135.5	1115.1	1107.5
47.5°	1107.5	1094.4	1064.5	1043.8	1032.7
50°	1034.5	1025.2	999.0	972.8	963.4
52.5°	963.4	950.3	926.1	905.5	892.4
55°	890.6	879.3	856.8	834.4	825.1
57.5°	817.5	808.2	783.8	761.4	753.8
60°	744.5	737.2	711.0	690.3	684.8
62.5°	673.5	660.4	641.7	623.0	615.5
65°	600.6	589.3	570.6	553.8	544.4
67.5°	525.8	516.3	499.6	486.5	478.9
70°	456.5	449.0	432.1	419.0	411.7
72.5°	385.5	377.9	368.6	355.5	349.9
75°	314.2	310.6	301.1	290.0	293.8
77.5°	250.7	243.1	239.4	233.8	228.3
80°	187.2	185.2	181.4	175.9	172.1
82.5°	127.2	127.2	125.4	117.9	117.9
85°	76.6	74.8	73.0	67.3	65.5
87.5°	33.7	30.0	26.2	20.6	18.7
90°	2.9	34.3	93.4	87.7	90.6
92.5°	59.1	80.1	83.0	85.8	85.8
95°	139.2	165.9	170.7	170.7	165.9
97.5°	231.7	256.5	267.0	267.0	267.0
100°	338.5	360.4	368.0	368.0	365.2
102.5°	451.0	467.2	477.7	480.5	477.7
105°	574.0	581.6	587.3	592.1	592.1
107.5°	696.0	707.5	707.5	709.4	696.0
110°	814.3	829.5	829.5	829.5	821.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	942.0	958.2	955.4	947.7	942.0
115°	1067.9	1083.1	1078.4	1075.5	1067.9
117.5°	1192.8	1213.8	1200.4	1192.8	1185.1
120°	1318.6	1339.6	1318.6	1318.6	1310.1
122.5°	1433.0	1459.7	1446.4	1438.8	1433.0
125°	1553.2	1577.0	1569.4	1560.8	1558.0
127.5°	1670.5	1700.0	1689.5	1678.1	1670.5
130°	1780.1	1814.4	1809.7	1803.9	1793.5
132.5°	1903.1	1929.8	1931.7	1918.4	1910.7
135°	2008.9	2038.5	2044.2	2041.4	2033.7
137.5°	2127.2	2151.0	2155.8	2153.9	2142.4
140°	2231.1	2254.9	2268.3	2268.3	2257.8
142.5°	2337.9	2361.7	2369.3	2372.2	2361.7
145°	2438.9	2458.0	2473.3	2476.1	2465.6
147.5°	2529.5	2553.4	2564.8	2569.6	2559.1
150°	2623.0	2639.2	2649.7	2658.2	2649.7
152.5°	2705.9	2722.1	2735.5	2746.0	2735.5
155°	2788.9	2796.5	2805.1	2818.4	2809.8
157.5°	2860.4	2866.1	2870.9	2889.9	2876.6
160°	2924.3	2930.0	2932.8	2949.0	2937.6
162.5°	2983.4	2983.4	2986.2	3004.3	2991.0
165°	3033.9	3031.0	3031.0	3050.1	3036.8
167.5°	3079.7	3071.1	3071.1	3090.2	3076.8
170°	3114.0	3106.4	3103.5	3122.6	3106.4
172.5°	3137.8	3130.2	3127.3	3146.4	3130.2
175°	3156.9	3149.3	3143.6	3162.6	3146.4
177.5°	3167.4	3159.8	3154.0	3170.2	3154.0
180°	3162.6	3162.6	3162.6	3162.6	3162.6

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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	7.09	7.84	8.16	8.91	10.37	6.66	7.41	7.73	8.48	9.94
	3H	8.74	9.41	9.82	10.49	11.97	8.27	8.94	9.35	10.02	11.50
	4H	9.33	9.96	10.42	11.04	12.53	8.85	9.49	9.94	10.57	12.05
	6H	9.72	10.31	10.82	11.39	12.89	9.25	9.83	10.34	10.92	12.41
	8H	9.82	10.38	10.93	11.48	12.97	9.35	9.91	10.45	11.01	12.49
	12H	9.87	10.40	10.98	11.49	13.00	9.39	9.92	10.49	11.01	12.52
4H	2H	7.54	8.18	8.64	9.26	10.74	7.19	7.83	8.29	8.91	10.39
	3H	9.40	9.93	10.50	11.03	12.53	9.00	9.53	10.11	10.64	12.14
	4H	10.11	10.59	11.21	11.69	13.21	9.70	10.19	10.81	11.29	12.80
	6H	10.62	11.03	11.73	12.16	13.66	10.21	10.62	11.32	11.75	13.25
	8H	10.76	11.15	11.88	12.27	13.79	10.35	10.74	11.47	11.85	13.38
	12H	10.83	11.19	11.96	12.31	13.84	10.41	10.76	11.54	11.89	13.42
8H	4H	10.29	10.68	11.41	11.80	13.32	9.93	10.32	11.05	11.44	12.96
	6H	10.92	11.25	12.06	12.40	13.92	10.56	10.88	11.70	12.04	13.56
	8H	11.14	11.43	12.29	12.56	14.10	10.77	11.06	11.92	12.19	13.73
	12H	11.27	11.52	12.42	12.65	14.23	10.89	11.13	12.03	12.27	13.84
12H	4H	10.28	10.63	11.41	11.75	13.28	9.92	10.28	11.06	11.40	12.93
	6H	10.95	11.23	12.09	12.37	13.91	10.60	10.88	11.74	12.02	13.56
	8H	11.19	11.44	12.34	12.57	14.15	10.83	11.08	11.98	12.21	13.79