

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: P924622

Luminaire Tested: DFN2DIP-HX4F0-100D060US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924622
REPORT IS A COMBINATION OF REPORTS P899347 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D060US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

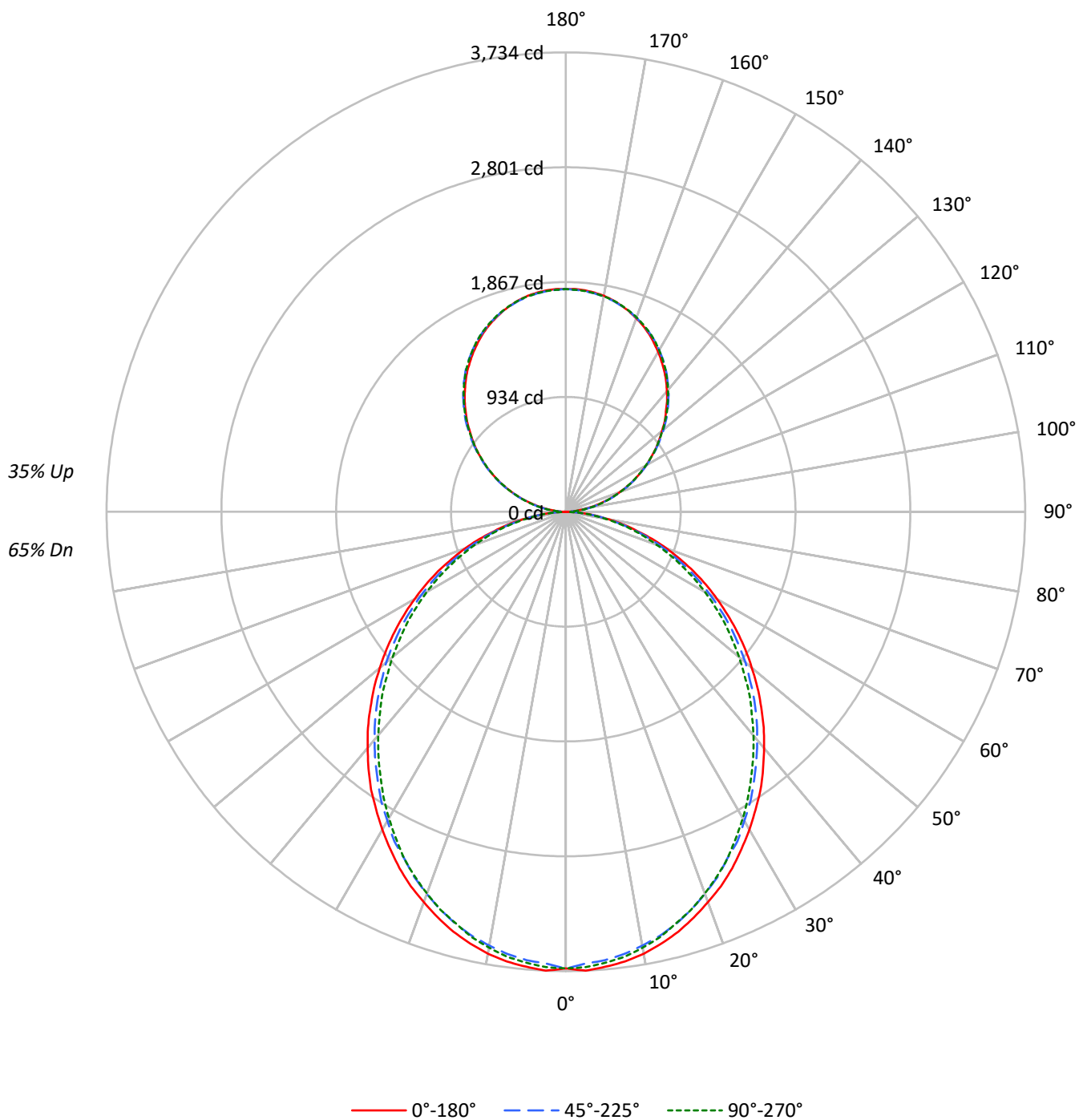
Lumens per Lamp: N/A
Luminaire Lumens: 14510.4 lumens
Efficiency: N/A
Efficacy: 108.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 133.4
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	111	111	111	111	104	104	104	104	92	92	92	80	80	80	70	70	70
1	101	97	93	89	95	91	88	84	81	78	75	71	69	67	62	60	59
2	92	85	78	73	86	80	74	69	71	66	63	62	59	56	55	52	50
3	84	74	67	61	79	70	63	58	62	57	53	55	51	47	48	45	42
4	77	66	58	52	72	62	55	49	55	50	45	49	44	41	43	40	37
5	71	59	50	44	66	56	48	42	50	44	39	44	39	35	39	35	32
6	65	53	45	39	61	50	43	37	45	39	34	40	35	31	35	31	28
7	60	48	40	34	57	45	38	33	41	35	30	36	31	28	32	28	25
8	56	44	36	30	53	41	34	29	37	31	27	33	28	25	30	26	22
9	52	40	32	27	49	38	31	26	34	28	24	31	26	22	27	23	20
10	49	37	29	24	46	35	28	23	32	26	22	28	24	20	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2760	2760	2760
5°	2765	2722	2740
10°	2743	2686	2703
15°	2703	2642	2645
20°	2648	2580	2586
25°	2594	2507	2518
30°	2527	2439	2431
35°	2463	2359	2338
40°	2383	2278	2251
45°	2305	2196	2161
50°	2219	2111	2057
55°	2129	2012	1962
60°	2027	1895	1852
65°	1916	1774	1723
70°	1774	1626	1585
75°	1578	1449	1457
80°	1343	1223	1212
85°	975	834	806

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2305 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	349.4	2.4
10°-20°	983.0	6.8
20°-30°	1444.7	10.0
30°-40°	1677.9	11.6
40°-50°	1675.8	11.5
50°-60°	1461.2	10.1
60°-70°	1080.2	7.4
70°-80°	611.1	4.2
80°-90°	166.5	1.1
90°-100°	112.0	0.8
100°-110°	355.9	2.5
110°-120°	609.1	4.2
120°-130°	801.1	5.5
130°-140°	899.2	6.2
140°-150°	881.7	6.1
150°-160°	739.6	5.1
160°-170°	490.5	3.4
170°-180°	171.4	1.2
0°-30°	2777.1	19.1
0°-40°	4454.9	30.7
0°-60°	7592.0	52.3
0°-90°	9449.7	65.1
90°-120°	1077.0	7.4
90°-150°	3659.0	25.2
90°-180°	5061.0	34.9
0°-180°	14510.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3712	3712	3712	3712	3712	
5°	3712	3698	3659	3687	3680	352
15°	3534	3512	3466	3480	3462	995
25°	3198	3170	3109	3116	3109	1472
35°	2759	2724	2666	2645	2627	1723
45°	2245	2220	2166	2128	2113	1733
55°	1699	1678	1635	1592	1574	1519
65°	1146	1124	1089	1057	1039	1133
75°	600	593	574	553	560	640
85°	146	143	139	128	125	163
90°	2	20	54	50	52	14
95°	80	95	98	98	95	89
105°	329	333	336	339	339	347
115°	611	620	617	616	611	605
125°	889	903	898	893	892	794
135°	1150	1167	1170	1168	1164	889
145°	1396	1407	1416	1417	1411	872
155°	1596	1601	1606	1613	1608	735
165°	1737	1735	1735	1746	1738	490
175°	1807	1803	1799	1810	1801	172
180°	1810	1810	1810	1810	1810	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3712.1	3712.1	3712.1	3712.1	3712.1
2.5°	3733.7	3715.8	3676.4	3712.1	3705.2
5°	3712.1	3698.1	3658.7	3687.1	3680.2
7.5°	3687.1	3665.8	3626.4	3655.3	3648.1
10°	3648.1	3623.1	3580.3	3608.7	3598.1
12.5°	3594.3	3573.1	3530.3	3548.1	3540.9
15°	3533.7	3512.5	3465.9	3480.3	3462.5
17.5°	3458.7	3437.5	3390.9	3408.7	3390.9
20°	3376.5	3355.3	3305.3	3315.9	3301.9
22.5°	3294.7	3262.6	3215.9	3215.9	3208.8
25°	3198.2	3169.8	3109.2	3116.0	3109.2
27.5°	3091.0	3066.0	3019.8	3009.2	2991.4
30°	2984.2	2955.4	2902.0	2891.4	2877.0
32.5°	2869.8	2848.6	2791.4	2769.8	2755.4
35°	2759.3	2723.7	2666.4	2644.9	2627.0
37.5°	2634.3	2602.0	2544.9	2519.9	2502.1
40°	2505.9	2477.1	2419.9	2388.1	2373.7
42.5°	2380.9	2352.1	2295.3	2259.4	2238.2
45°	2245.3	2220.3	2166.5	2127.5	2113.2
47.5°	2113.2	2088.2	2031.0	1991.6	1970.4
50°	1973.8	1956.0	1906.0	1856.0	1838.3
52.5°	1838.3	1813.3	1767.0	1727.7	1702.7
55°	1699.3	1677.7	1634.9	1592.0	1574.3
57.5°	1559.9	1542.0	1495.5	1452.8	1438.3
60°	1420.5	1406.5	1356.5	1317.1	1306.5
62.5°	1284.9	1259.9	1224.4	1188.8	1174.4
65°	1145.9	1124.4	1088.8	1056.6	1038.8
67.5°	1003.2	985.0	953.2	928.2	913.8
70°	871.0	856.6	824.4	799.5	785.4
72.5°	735.4	721.0	703.3	678.3	667.6
75°	599.5	592.7	574.5	553.3	560.5
77.5°	478.3	463.9	456.7	446.1	435.5
80°	357.1	353.4	346.1	335.5	328.4
82.5°	242.8	242.8	239.4	225.0	225.0
85°	146.2	142.8	139.4	128.4	125.0
87.5°	64.4	57.1	50.0	39.4	35.6
90°	1.6	19.7	53.5	50.2	51.8
92.5°	33.9	45.9	47.5	49.1	49.1
95°	79.7	94.9	97.7	97.7	94.9
97.5°	132.6	146.8	152.8	152.8	152.8
100°	193.8	206.3	210.6	210.6	209.0
102.5°	258.2	267.4	273.4	275.0	273.4
105°	328.6	332.9	336.2	339.0	339.0
107.5°	398.4	405.0	405.0	406.0	398.4
110°	466.1	474.8	474.8	474.8	470.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	539.2	548.5	546.8	542.4	539.2
115°	611.2	620.0	617.2	615.6	611.2
117.5°	682.8	694.8	687.1	682.8	678.4
120°	754.8	766.8	754.8	754.8	749.8
122.5°	820.2	835.5	827.9	823.6	820.2
125°	889.0	902.7	898.3	893.4	891.8
127.5°	956.2	973.1	967.1	960.6	956.2
130°	1019.0	1038.6	1035.9	1032.6	1026.6
132.5°	1089.4	1104.6	1105.7	1098.1	1093.7
135°	1150.0	1166.8	1170.1	1168.5	1164.1
137.5°	1217.6	1231.2	1234.0	1232.9	1226.4
140°	1277.1	1290.8	1298.4	1298.4	1292.4
142.5°	1338.2	1351.8	1356.2	1357.8	1351.8
145°	1396.1	1407.0	1415.7	1417.4	1411.3
147.5°	1447.9	1461.5	1468.1	1470.8	1464.8
150°	1501.4	1510.7	1516.7	1521.5	1516.7
152.5°	1548.8	1558.2	1565.8	1571.8	1565.8
155°	1596.3	1600.7	1605.6	1613.3	1608.3
157.5°	1637.3	1640.6	1643.3	1654.2	1646.6
160°	1673.9	1677.1	1678.8	1688.0	1681.5
162.5°	1707.7	1707.7	1709.3	1719.7	1712.0
165°	1736.6	1734.9	1734.9	1745.9	1738.3
167.5°	1762.8	1757.9	1757.9	1768.8	1761.2
170°	1782.5	1778.1	1776.4	1787.3	1778.1
172.5°	1796.1	1791.7	1790.1	1801.0	1791.7
175°	1807.0	1802.7	1799.3	1810.3	1801.0
177.5°	1813.0	1808.7	1805.3	1814.6	1805.3
180°	1810.3	1810.3	1810.3	1810.3	1810.3

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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	12.09	13.10	12.90	13.94	14.98	11.66	12.67	12.47	13.51	14.55
	3H	13.76	14.67	14.59	15.52	16.59	13.29	14.20	14.12	15.05	16.11
	4H	14.36	15.22	15.20	16.07	17.15	13.88	14.75	14.73	15.60	16.68
	6H	14.77	15.56	15.62	16.42	17.51	14.29	15.09	15.15	15.95	17.04
	8H	14.88	15.63	15.74	16.51	17.60	14.40	15.16	15.27	16.04	17.13
	12H	14.93	15.65	15.80	16.53	17.64	14.45	15.17	15.32	16.04	17.16
4H	2H	12.57	13.43	13.42	14.29	15.36	12.23	13.09	13.07	13.94	15.02
	3H	14.45	15.17	15.31	16.06	17.15	14.06	14.78	14.92	15.67	16.76
	4H	15.17	15.83	16.05	16.71	17.83	14.77	15.42	15.64	16.31	17.43
	6H	15.70	16.26	16.59	17.17	18.29	15.29	15.85	16.18	16.76	17.88
	8H	15.85	16.38	16.74	17.28	18.42	15.44	15.97	16.33	16.87	18.01
	12H	15.93	16.41	16.84	17.33	18.47	15.51	15.99	16.42	16.91	18.05
8H	4H	15.38	15.91	16.27	16.82	17.95	15.02	15.55	15.91	16.45	17.59
	6H	16.02	16.46	16.94	17.41	18.54	15.66	16.10	16.58	17.04	18.18
	8H	16.24	16.63	17.17	17.57	18.72	15.87	16.26	16.80	17.20	18.35
	12H	16.38	16.73	17.32	17.66	18.86	16.00	16.34	16.93	17.27	18.47
12H	4H	15.38	15.85	16.29	16.78	17.92	15.02	15.50	15.93	16.42	17.56
	6H	16.05	16.44	16.98	17.38	18.53	15.70	16.09	16.63	17.03	18.18
	8H	16.30	16.65	17.24	17.58	18.78	15.95	16.29	16.88	17.22	18.42