

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: P924423

Luminaire Tested: DFN2DIP-HX3F0-060D050US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924423
REPORT IS A COMBINATION OF REPORTS P900755 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-060D050US950-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

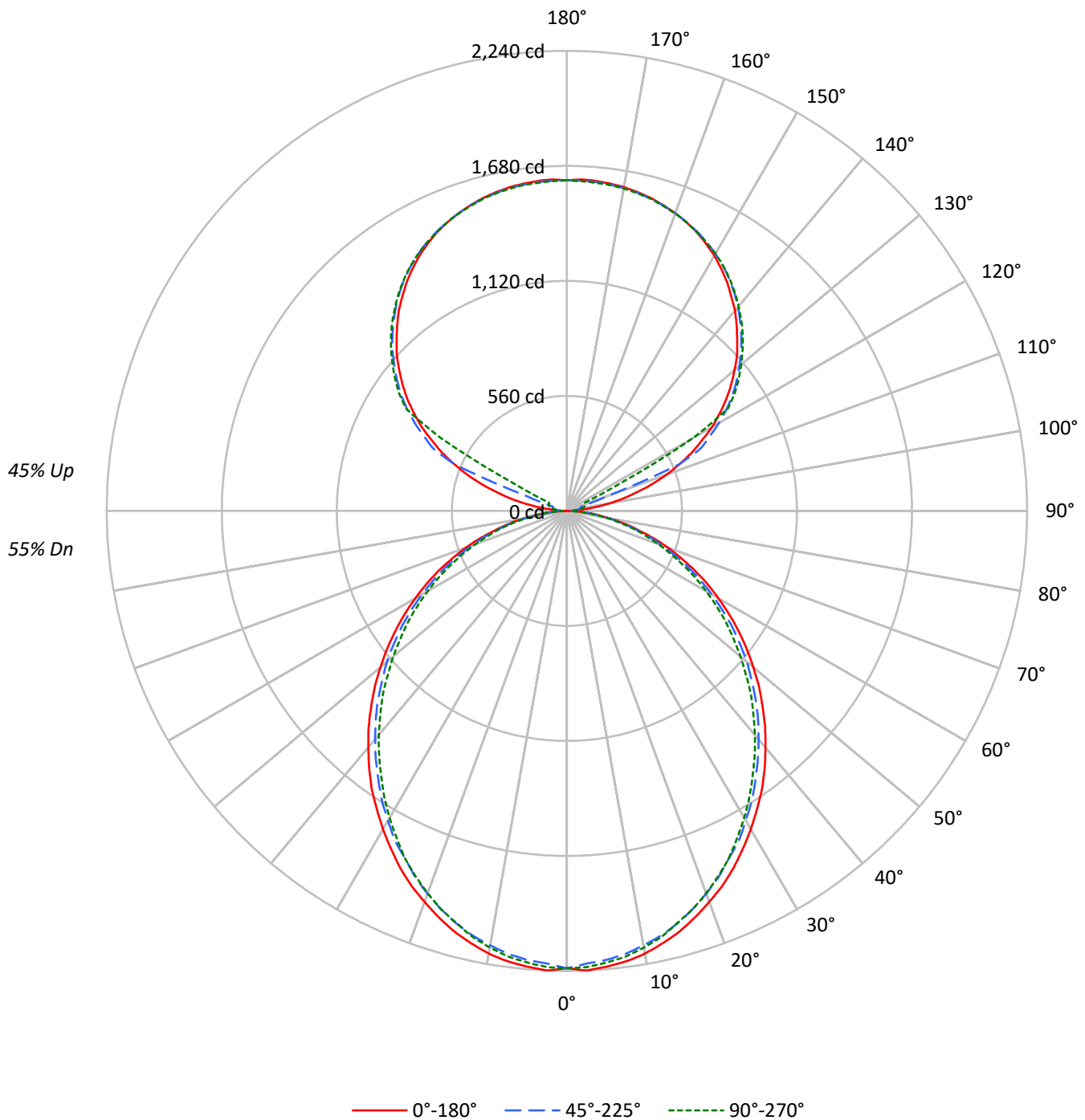
Lumens per Lamp: N/A
Luminaire Lumens: 10389.1 lumens
Efficiency: N/A
Efficacy: 111.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 93.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924423

CATALOG NUMBER: DFN2DIP-HX3F0-060D050US950-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P924423

CATALOG NUMBER: DFN2DIP-HX3F0-060D050US950-FLLONL

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	86	86	86	73	73	73	60	60	60
1	99	94	91	87	92	88	84	81	75	73	71	64	62	60	53	52	51
2	90	82	76	71	83	77	71	67	66	62	58	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	69	60	53	47	52	46	42	44	40	37	37	34	32
5	69	57	49	43	64	53	46	41	46	41	36	40	35	32	34	30	27
6	64	51	43	37	59	48	41	35	42	36	32	36	31	28	30	27	24
7	59	46	38	33	54	43	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	17
10	48	35	28	23	44	33	27	22	29	24	20	25	21	18	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2580	2580	2580
5°	2583	2542	2560
10°	2561	2506	2524
15°	2522	2463	2468
20°	2470	2404	2411
25°	2418	2334	2346
30°	2354	2268	2263
35°	2292	2191	2175
40°	2217	2113	2092
45°	2142	2035	2006
50°	2059	1953	1907
55°	1973	1858	1816
60°	1875	1745	1712
65°	1769	1628	1588
70°	1633	1485	1455
75°	1445	1315	1330
80°	1219	1096	1095
85°	864	725	711

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2142 cd/sqm

TEST NUMBER: P924423

CATALOG NUMBER: DFN2DIP-HX3F0-060D050US950-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.6	2.0
10°-20°	589.8	5.7
20°-30°	866.8	8.3
30°-40°	1006.7	9.7
40°-50°	1005.5	9.7
50°-60°	876.7	8.4
60°-70°	648.1	6.2
70°-80°	366.7	3.5
80°-90°	99.6	1.0
90°-100°	53.1	0.5
100°-110°	197.9	1.9
110°-120°	524.8	5.1
120°-130°	870.4	8.4
130°-140°	924.6	8.9
140°-150°	859.3	8.3
150°-160°	690.9	6.7
160°-170°	445.2	4.3
170°-180°	153.2	1.5
0°-30°	1666.2	16.0
0°-40°	2673.0	25.7
0°-60°	4555.2	43.8
0°-90°	5669.6	54.6
90°-120°	775.8	7.5
90°-150°	3430.2	33.0
90°-180°	4719.0	45.4
0°-180°	10389.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2227	2227	2227	2227	2227	
5°	2227	2219	2195	2212	2208	211
15°	2120	2108	2080	2088	2078	597
25°	1919	1902	1866	1870	1866	883
35°	1656	1634	1600	1587	1576	1034
45°	1347	1332	1300	1276	1268	1040
55°	1020	1007	981	955	945	912
65°	688	675	653	634	623	680
75°	360	356	345	332	336	384
85°	88	86	84	77	75	98
90°	1	14	23	29	31	10
95°	76	37	45	51	50	90
105°	354	389	71	84	88	378
115°	670	690	719	179	96	659
125°	947	962	984	992	996	845
135°	1172	1191	1201	1213	1210	905
145°	1359	1358	1378	1386	1380	850
155°	1497	1486	1500	1507	1498	690
165°	1577	1570	1574	1582	1574	446
175°	1613	1605	1608	1616	1604	154
180°	1610	1610	1610	1610	1610	

TEST NUMBER: P924423

CATALOG NUMBER: DFN2DIP-HX3F0-060D050US950-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2227.2	2227.2	2227.2	2227.2	2227.2
2.5°	2240.2	2229.5	2205.8	2227.2	2223.1
5°	2227.2	2218.8	2195.2	2212.2	2208.1
7.5°	2212.2	2199.5	2175.9	2193.2	2188.9
10°	2188.9	2173.9	2148.1	2165.2	2158.8
12.5°	2156.6	2143.8	2118.2	2128.9	2124.6
15°	2120.2	2107.5	2079.5	2088.2	2077.5
17.5°	2075.2	2062.5	2034.6	2045.2	2034.6
20°	2025.9	2013.2	1983.2	1989.6	1981.2
22.5°	1976.9	1957.5	1929.6	1929.6	1925.3
25°	1918.9	1901.9	1865.5	1869.6	1865.5
27.5°	1854.6	1839.6	1811.8	1805.5	1794.9
30°	1790.6	1773.2	1741.2	1734.8	1726.2
32.5°	1721.9	1709.2	1674.8	1661.9	1653.3
35°	1655.6	1634.2	1599.9	1586.9	1576.2
37.5°	1580.6	1561.2	1527.0	1511.9	1501.2
40°	1503.5	1486.2	1452.0	1432.9	1424.2
42.5°	1428.5	1411.3	1377.2	1355.6	1342.9
45°	1347.2	1332.2	1299.9	1276.5	1267.9
47.5°	1267.9	1252.9	1218.6	1195.0	1182.2
50°	1184.3	1173.6	1143.7	1113.6	1102.9
52.5°	1102.9	1087.9	1060.2	1036.6	1021.6
55°	1019.5	1006.6	980.9	955.2	944.6
57.5°	936.0	925.3	897.3	871.7	863.0
60°	852.3	843.9	814.0	790.3	783.9
62.5°	770.9	755.9	734.6	713.2	704.6
65°	687.5	674.7	653.3	633.9	623.2
67.5°	601.9	591.0	571.9	556.9	548.3
70°	522.6	514.0	494.6	479.7	471.3
72.5°	441.2	432.6	422.0	407.0	400.6
75°	359.7	355.7	344.7	332.0	336.3
77.5°	287.0	278.4	274.0	267.7	261.3
80°	214.3	212.0	207.7	201.3	197.0
82.5°	145.7	145.7	143.6	135.0	135.0
85°	87.7	85.7	83.6	77.0	75.0
87.5°	38.6	34.3	30.0	23.7	21.4
90°	1.1	13.9	23.3	29.2	31.4
92.5°	29.2	24.5	28.0	30.3	31.4
95°	75.7	37.2	45.4	51.3	50.1
97.5°	136.2	40.8	59.3	63.0	64.0
100°	206.3	46.7	66.4	75.7	78.0
102.5°	283.1	280.8	68.8	81.5	85.1
105°	354.1	389.1	71.1	83.9	88.5
107.5°	436.8	465.8	73.5	86.1	90.9
110°	516.1	540.4	203.9	87.4	92.0



TEST NUMBER: P924423

CATALOG NUMBER: DFN2DIP-HX3F0-060D050US950-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	590.6	611.5	591.8	89.7	93.2
115°	669.8	689.6	718.7	179.4	95.6
117.5°	738.5	761.8	781.7	614.9	309.9
120°	815.4	832.8	853.8	867.9	710.5
122.5°	880.5	899.2	922.6	929.6	930.8
125°	946.9	962.2	984.3	992.4	996.0
127.5°	1007.5	1023.8	1041.5	1053.0	1054.2
130°	1064.7	1083.4	1096.1	1108.9	1107.9
132.5°	1123.0	1138.1	1150.8	1161.4	1160.3
135°	1171.9	1190.6	1200.9	1212.7	1210.3
137.5°	1223.0	1237.1	1248.8	1260.4	1257.0
140°	1273.1	1282.6	1295.2	1305.7	1300.0
142.5°	1315.2	1323.4	1338.5	1347.7	1341.9
145°	1359.4	1358.2	1378.0	1386.2	1380.3
147.5°	1397.8	1394.3	1414.1	1419.9	1415.4
150°	1435.1	1427.0	1445.6	1452.6	1446.7
152.5°	1466.5	1457.2	1474.7	1481.8	1473.5
155°	1496.8	1486.4	1500.4	1507.3	1498.1
157.5°	1521.2	1512.0	1522.5	1530.7	1521.2
160°	1542.3	1535.3	1542.3	1549.2	1541.1
162.5°	1560.8	1554.0	1559.7	1567.9	1557.4
165°	1577.2	1570.3	1573.7	1581.8	1573.7
167.5°	1590.0	1583.0	1586.6	1594.7	1584.2
170°	1600.5	1593.5	1595.9	1604.0	1593.5
172.5°	1607.5	1600.5	1602.9	1611.0	1600.5
175°	1613.3	1605.1	1607.5	1615.6	1604.0
177.5°	1615.6	1607.5	1608.7	1616.8	1606.3
180°	1609.8	1609.8	1609.8	1609.8	1609.8

TEST NUMBER: P924423

CATALOG NUMBER: DFN2DIP-HX3F0-060D050US950-FLLONL

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	10.93	11.84	11.85	12.77	13.98	10.51	11.41	11.42	12.34	13.55
	3H	12.59	13.40	13.52	14.35	15.57	12.12	12.93	13.05	13.88	15.11
	4H	13.17	13.94	14.12	14.89	16.13	12.71	13.47	13.65	14.42	15.66
	6H	13.57	14.28	14.52	15.23	16.48	13.10	13.81	14.05	14.76	16.01
	8H	13.67	14.35	14.63	15.32	16.57	13.20	13.88	14.17	14.85	16.10
	12H	13.72	14.36	14.69	15.33	16.60	13.25	13.89	14.21	14.85	16.13
4H	2H	11.40	12.17	12.35	13.11	14.35	11.06	11.82	12.00	12.77	14.01
	3H	13.26	13.90	14.22	14.88	16.13	12.87	13.51	13.83	14.49	15.74
	4H	13.97	14.55	14.94	15.53	16.80	13.57	14.15	14.54	15.13	16.40
	6H	14.48	14.98	15.46	15.98	17.26	14.07	14.58	15.06	15.58	16.85
	8H	14.63	15.10	15.61	16.09	17.38	14.22	14.69	15.20	15.68	16.97
	12H	14.70	15.12	15.70	16.13	17.42	14.28	14.71	15.28	15.71	17.01
8H	4H	14.17	14.64	15.15	15.63	16.92	13.81	14.28	14.79	15.27	16.56
	6H	14.79	15.18	15.80	16.21	17.50	14.43	14.82	15.44	15.85	17.14
	8H	15.01	15.35	16.02	16.37	17.68	14.64	14.98	15.66	16.00	17.31
	12H	15.13	15.44	16.15	16.45	17.80	14.75	15.06	15.77	16.07	17.42
12H	4H	14.15	14.58	15.15	15.59	16.88	13.80	14.23	14.80	15.24	16.53
	6H	14.82	15.16	15.83	16.18	17.49	14.47	14.81	15.49	15.83	17.14
	8H	15.06	15.36	16.08	16.37	17.72	14.70	15.01	15.72	16.02	17.37