

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: P927596

Luminaire Tested: DFN2DIP-HX4F0-060D050US840-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927596
REPORT IS A COMBINATION OF REPORTS P900841 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D050US840-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

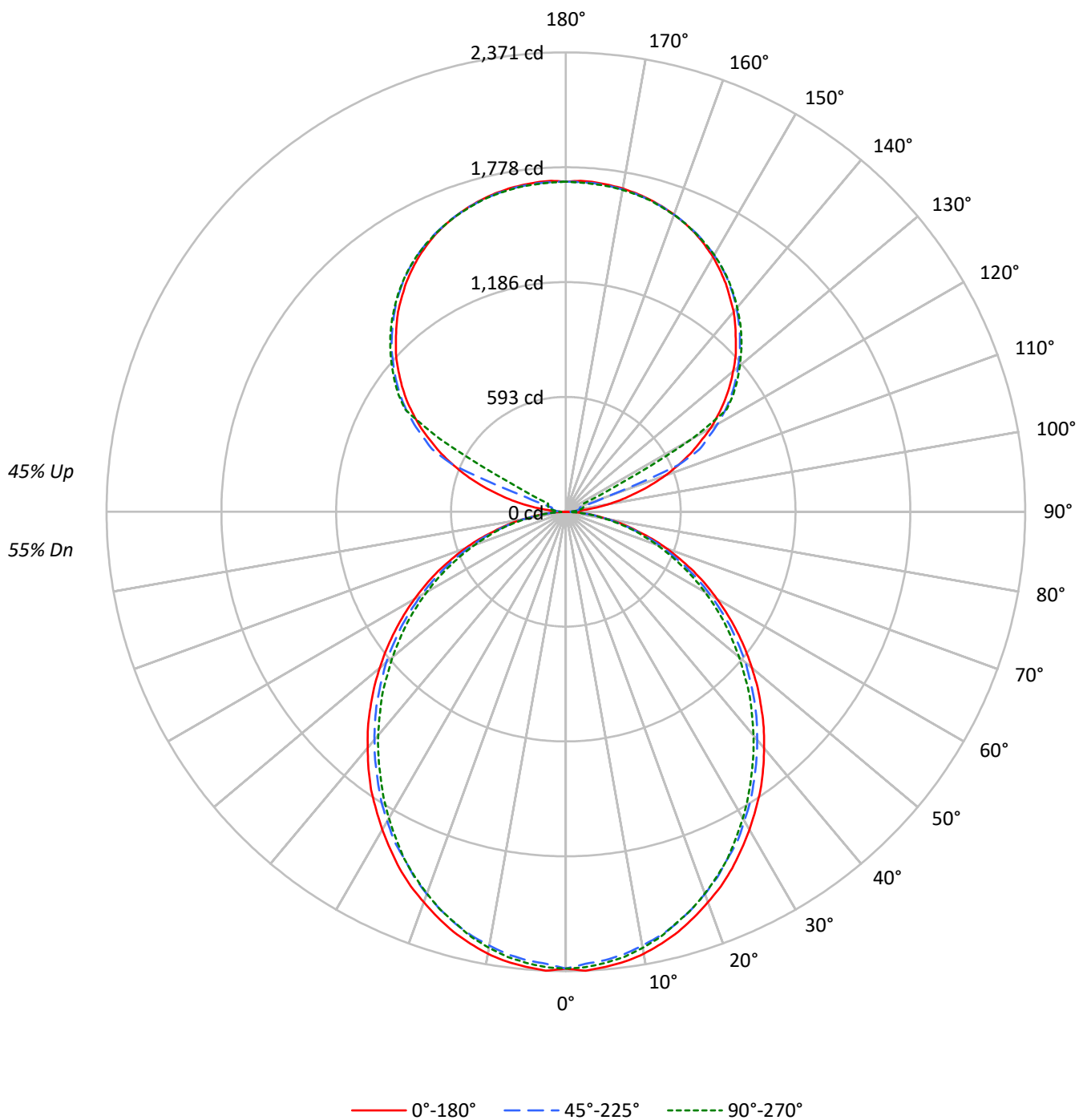
Lumens per Lamp: N/A
Luminaire Lumens: 10996.7 lumens
Efficiency: N/A
Efficacy: 119.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 91.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P927596

CATALOG NUMBER: DFN2DIP-HX4F0-060D050US840-FLLONL

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	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°	1753	1753	1753
5°	1756	1729	1740
10°	1742	1706	1717
15°	1716	1678	1680
20°	1682	1639	1643
25°	1648	1592	1599
30°	1605	1549	1544
35°	1564	1498	1485
40°	1514	1447	1429
45°	1464	1395	1372
50°	1409	1341	1306
55°	1352	1278	1246
60°	1287	1204	1176
65°	1217	1127	1094
70°	1127	1033	1006
75°	1002	920	925
80°	853	777	770
85°	619	529	512

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1464 cd/sqm

TEST NUMBER: P927596

CATALOG NUMBER: DFN2DIP-HX4F0-060D050US840-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.9	2.0
10°-20°	624.3	5.7
20°-30°	917.5	8.3
30°-40°	1065.6	9.7
40°-50°	1064.3	9.7
50°-60°	928.0	8.4
60°-70°	686.0	6.2
70°-80°	388.1	3.5
80°-90°	105.4	1.0
90°-100°	56.2	0.5
100°-110°	209.5	1.9
110°-120°	555.5	5.1
120°-130°	921.4	8.4
130°-140°	978.7	8.9
140°-150°	909.6	8.3
150°-160°	731.3	6.7
160°-170°	471.2	4.3
170°-180°	162.2	1.5
0°-30°	1763.7	16.0
0°-40°	2829.3	25.7
0°-60°	4821.6	43.8
0°-90°	6001.2	54.6
90°-120°	821.2	7.5
90°-150°	3630.8	33.0
90°-180°	4996.0	45.4
0°-180°	10996.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2358	2358	2358	2358	2358	
5°	2358	2349	2324	2342	2337	224
15°	2244	2231	2201	2210	2199	632
25°	2031	2013	1975	1979	1975	935
35°	1752	1730	1693	1680	1668	1094
45°	1426	1410	1376	1351	1342	1101
55°	1079	1065	1038	1011	1000	965
65°	728	714	692	671	660	720
75°	381	376	365	351	356	406
85°	93	91	88	82	79	104
90°	1	15	25	31	33	10
95°	80	39	48	54	53	95
105°	375	412	75	89	94	401
115°	709	730	761	190	101	698
125°	1002	1018	1042	1050	1054	894
135°	1240	1260	1271	1284	1281	958
145°	1439	1438	1459	1467	1461	900
155°	1584	1573	1588	1596	1586	730
165°	1669	1662	1666	1674	1666	472
175°	1708	1699	1702	1710	1698	163
180°	1704	1704	1704	1704	1704	

TEST NUMBER: P927596

CATALOG NUMBER: DFN2DIP-HX4F0-060D050US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2357.5	2357.5	2357.5	2357.5	2357.5
2.5°	2371.2	2359.9	2334.9	2357.5	2353.1
5°	2357.5	2348.6	2323.5	2341.6	2337.3
7.5°	2341.6	2328.2	2303.2	2321.4	2316.9
10°	2316.9	2301.0	2273.8	2291.8	2285.1
12.5°	2282.8	2269.2	2242.1	2253.4	2248.8
15°	2244.2	2230.7	2201.2	2210.4	2199.0
17.5°	2196.6	2183.2	2153.6	2164.8	2153.6
20°	2144.4	2131.0	2099.2	2105.9	2097.1
22.5°	2092.5	2072.0	2042.4	2042.4	2037.9
25°	2031.1	2013.1	1974.6	1978.9	1974.6
27.5°	1963.1	1947.2	1917.8	1911.1	1899.8
30°	1895.3	1876.9	1843.1	1836.3	1827.1
32.5°	1822.6	1809.2	1772.8	1759.1	1750.0
35°	1752.4	1729.8	1693.4	1679.7	1668.4
37.5°	1673.0	1652.5	1616.3	1600.3	1589.0
40°	1591.4	1573.2	1536.9	1516.7	1507.5
42.5°	1512.1	1493.8	1457.7	1434.9	1421.4
45°	1426.0	1410.1	1376.0	1351.2	1342.0
47.5°	1342.0	1326.2	1289.9	1264.9	1251.3
50°	1253.6	1242.3	1210.5	1178.7	1167.4
52.5°	1167.4	1151.6	1122.2	1097.2	1081.4
55°	1079.2	1065.4	1038.3	1011.1	999.8
57.5°	990.7	979.4	949.8	922.7	913.5
60°	902.2	893.3	861.6	836.5	829.8
62.5°	816.0	800.2	777.5	754.9	745.8
65°	727.8	714.1	691.5	671.0	659.7
67.5°	637.1	625.6	605.4	589.5	580.3
70°	553.2	544.1	523.6	507.7	498.8
72.5°	467.0	457.9	446.6	430.8	424.0
75°	380.7	376.5	364.8	351.4	356.0
77.5°	303.7	294.7	290.0	283.3	276.6
80°	226.8	224.4	219.8	213.1	208.5
82.5°	154.2	154.2	152.0	142.9	142.9
85°	92.8	90.7	88.5	81.5	79.4
87.5°	40.9	36.4	31.7	25.0	22.6
90°	1.2	14.7	24.6	30.9	33.2
92.5°	30.9	26.0	29.6	32.1	33.2
95°	80.1	39.4	48.1	54.3	53.0
97.5°	144.2	43.2	62.8	66.6	67.8
100°	218.3	49.4	70.3	80.1	82.6
102.5°	299.6	297.2	72.8	86.2	90.1
105°	374.8	411.9	75.2	88.8	93.7
107.5°	462.4	493.1	77.8	91.2	96.2
110°	546.3	572.1	215.8	92.5	97.3

TEST NUMBER: P927596

CATALOG NUMBER: DFN2DIP-HX4F0-060D050US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	625.2	647.3	626.4	94.9	98.7
115°	709.0	729.9	760.8	189.9	101.2
117.5°	781.7	806.3	827.4	650.9	328.0
120°	863.1	881.6	903.8	918.6	752.1
122.5°	932.0	951.8	976.6	983.9	985.3
125°	1002.3	1018.5	1041.9	1050.5	1054.2
127.5°	1066.4	1083.7	1102.4	1114.6	1115.8
130°	1126.9	1146.7	1160.2	1173.8	1172.7
132.5°	1188.6	1204.7	1218.1	1229.3	1228.1
135°	1240.4	1260.2	1271.1	1283.7	1281.1
137.5°	1294.6	1309.4	1321.8	1334.1	1330.5
140°	1347.6	1357.6	1371.0	1382.1	1376.1
142.5°	1392.1	1400.8	1416.7	1426.5	1420.4
145°	1439.0	1437.7	1458.6	1467.2	1461.1
147.5°	1479.6	1475.8	1496.8	1503.0	1498.1
150°	1519.0	1510.5	1530.1	1537.5	1531.4
152.5°	1552.3	1542.5	1560.9	1568.4	1559.7
155°	1584.4	1573.4	1588.1	1595.5	1585.7
157.5°	1610.2	1600.4	1611.5	1620.2	1610.2
160°	1632.5	1625.1	1632.5	1639.8	1631.2
162.5°	1652.1	1644.9	1650.9	1659.6	1648.5
165°	1669.4	1662.1	1665.8	1674.3	1665.8
167.5°	1683.0	1675.6	1679.4	1688.0	1676.9
170°	1694.1	1686.7	1689.2	1697.8	1686.7
172.5°	1701.5	1694.1	1696.7	1705.2	1694.1
175°	1707.7	1699.0	1701.5	1710.1	1697.8
177.5°	1710.1	1701.5	1702.8	1711.4	1700.3
180°	1703.9	1703.9	1703.9	1703.9	1703.9

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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	9.64	10.54	10.55	11.48	12.68	9.20	10.11	10.12	11.04	12.25
	3H	11.30	12.11	12.23	13.06	14.28	10.83	11.64	11.76	12.58	13.81
	4H	11.89	12.66	12.83	13.61	14.84	11.42	12.18	12.36	13.13	14.37
	6H	12.29	13.00	13.25	13.96	15.21	11.82	12.52	12.77	13.48	14.73
	8H	12.40	13.07	13.36	14.05	15.29	11.92	12.60	12.89	13.57	14.82
	12H	12.45	13.09	13.42	14.06	15.33	11.97	12.61	12.94	13.58	14.85
4H	2H	10.10	10.87	11.05	11.82	13.06	9.76	10.53	10.71	11.48	12.71
	3H	11.97	12.61	12.93	13.59	14.85	11.58	12.22	12.54	13.20	14.45
	4H	12.69	13.28	13.66	14.25	15.53	12.29	12.87	13.25	13.84	15.12
	6H	13.21	13.71	14.19	14.71	15.99	12.80	13.30	13.78	14.30	15.58
	8H	13.36	13.83	14.34	14.82	16.11	12.95	13.42	13.93	14.41	15.70
	12H	13.44	13.86	14.44	14.87	16.16	13.01	13.44	14.02	14.45	15.74
8H	4H	12.89	13.36	13.87	14.35	15.64	12.53	13.00	13.51	13.99	15.28
	6H	13.53	13.92	14.53	14.95	16.24	13.16	13.55	14.17	14.59	15.87
	8H	13.75	14.09	14.76	15.11	16.42	13.38	13.72	14.40	14.74	16.05
	12H	13.88	14.19	14.90	15.20	16.55	13.50	13.80	14.52	14.81	16.17
12H	4H	12.88	13.30	13.88	14.31	15.61	12.53	12.95	13.53	13.96	15.25
	6H	13.56	13.90	14.57	14.92	16.23	13.20	13.55	14.22	14.57	15.87
	8H	13.80	14.10	14.82	15.12	16.47	13.44	13.75	14.46	14.76	16.11