

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: P928432

Luminaire Tested: DFN2DIP-HX4F0-110D070US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928432
REPORT IS A COMBINATION OF REPORTS P900887 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-110D070US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

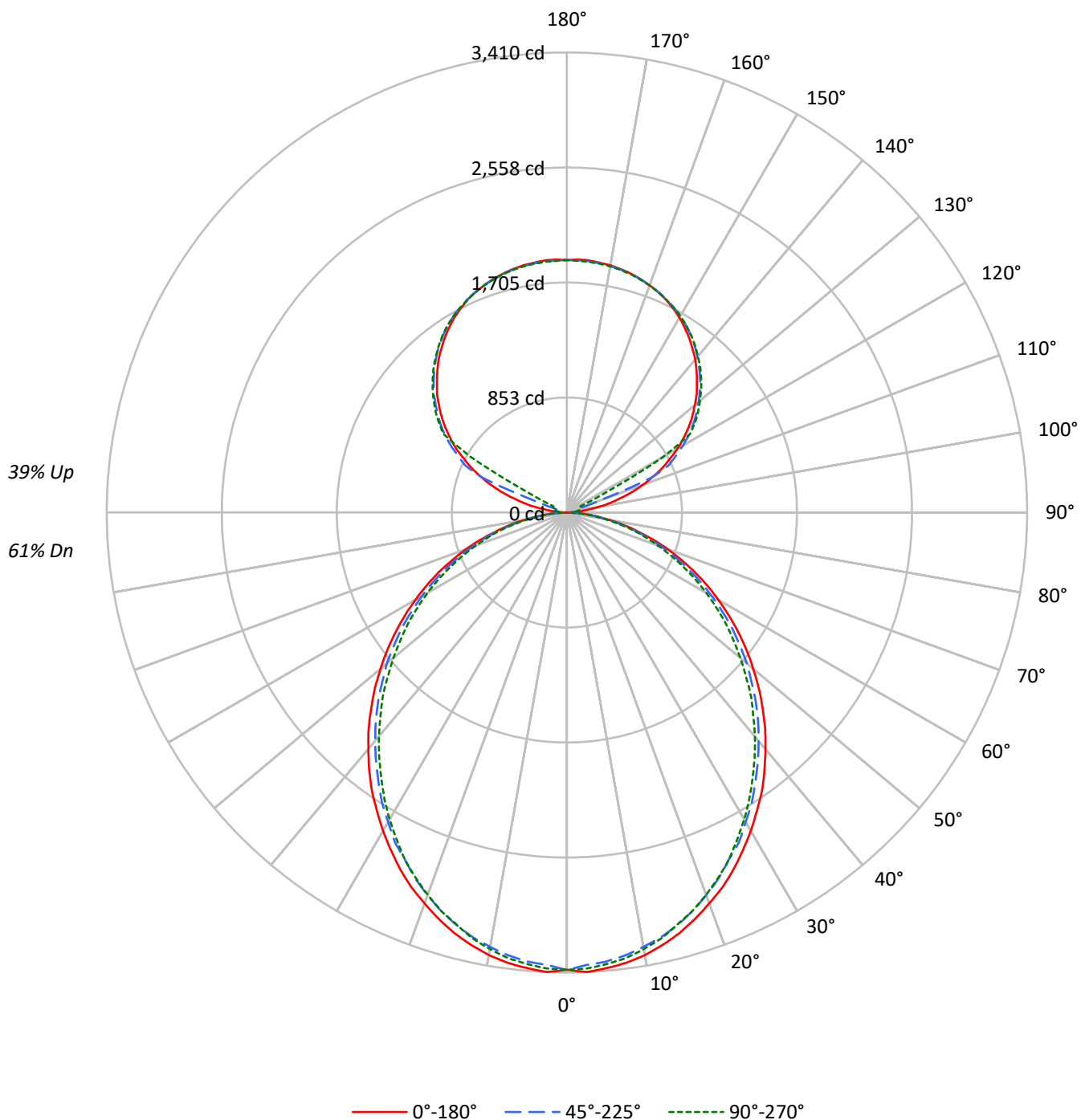
Lumens per Lamp: N/A
Luminaire Lumens: 14113.4 lumens
Efficiency: N/A
Efficacy: 85.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 164.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9967
Total Harmonic Distortion (THDi): 0.063
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928432

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US927-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928432

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US927-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	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66
1	100	96	92	88	94	90	86	83	79	76	74	68	66	65	59	57	56
2	91	84	77	72	85	79	73	68	69	65	61	60	57	54	52	49	47
3	83	74	66	60	78	69	63	57	61	56	51	53	49	46	46	43	40
4	76	65	57	51	71	61	54	49	54	48	44	47	43	39	41	38	35
5	70	58	50	44	65	55	47	42	48	42	38	42	38	34	37	33	30
6	65	52	44	38	60	49	42	36	44	38	33	38	34	30	34	30	27
7	60	47	39	33	56	45	37	32	40	34	29	35	30	26	31	27	24
8	56	43	35	30	52	41	33	28	36	30	26	32	27	24	28	24	21
9	52	39	32	27	48	37	30	25	33	27	23	30	25	21	26	22	19
10	48	36	29	24	45	34	28	23	31	25	21	27	23	19	24	20	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2521	2521	2521
5°	2525	2486	2502
10°	2505	2452	2469
15°	2468	2412	2416
20°	2418	2357	2362
25°	2369	2290	2299
30°	2307	2227	2220
35°	2249	2154	2135
40°	2177	2080	2055
45°	2105	2006	1974
50°	2026	1928	1879
55°	1944	1838	1791
60°	1851	1731	1692
65°	1749	1620	1574
70°	1620	1485	1447
75°	1441	1323	1330
80°	1226	1117	1107
85°	890	762	736

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2105 cd/sqm

TEST NUMBER: P928432

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US927-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	319.1	2.3
10°-20°	897.7	6.4
20°-30°	1319.3	9.3
30°-40°	1532.2	10.9
40°-50°	1530.4	10.8
50°-60°	1334.4	9.5
60°-70°	986.4	7.0
70°-80°	558.1	4.0
80°-90°	150.6	1.1
90°-100°	61.7	0.4
100°-110°	230.0	1.6
110°-120°	610.0	4.3
120°-130°	1011.7	7.2
130°-140°	1074.6	7.6
140°-150°	998.8	7.1
150°-160°	803.0	5.7
160°-170°	517.4	3.7
170°-180°	178.1	1.3
0°-30°	2536.0	18.0
0°-40°	4068.3	28.8
0°-60°	6933.0	49.1
0°-90°	8628.2	61.1
90°-120°	901.6	6.4
90°-150°	3986.8	28.2
90°-180°	5485.0	38.9
0°-180°	14113.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3390	3390	3390	3390	3390	
5°	3390	3377	3341	3367	3361	322
15°	3227	3208	3165	3178	3162	909
25°	2921	2895	2839	2846	2839	1344
35°	2520	2487	2435	2415	2399	1573
45°	2050	2028	1978	1943	1930	1582
55°	1552	1532	1493	1454	1438	1387
65°	1046	1027	994	965	949	1035
75°	547	541	525	505	512	584
85°	134	130	127	117	114	149
90°	1	16	27	34	36	13
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	778	801	835	208	111	766
125°	1101	1118	1144	1154	1158	982
135°	1362	1384	1396	1409	1407	1052
145°	1580	1579	1602	1611	1604	988
155°	1740	1728	1744	1752	1741	802
165°	1833	1825	1829	1838	1829	518
175°	1875	1866	1868	1878	1864	178
180°	1871	1871	1871	1871	1871	

TEST NUMBER: P928432

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US927-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3389.9	3389.9	3389.9	3389.9	3389.9
2.5°	3409.6	3393.3	3357.4	3389.9	3383.7
5°	3389.9	3377.1	3341.1	3367.0	3360.9
7.5°	3367.0	3347.7	3311.7	3338.0	3331.5
10°	3331.5	3308.6	3269.5	3295.4	3285.8
12.5°	3282.4	3263.0	3223.9	3240.2	3233.6
15°	3227.0	3207.6	3165.1	3178.2	3162.0
17.5°	3158.5	3139.2	3096.6	3112.9	3096.6
20°	3083.5	3064.1	3018.5	3028.1	3015.4
22.5°	3008.8	2979.3	2936.8	2936.8	2930.2
25°	2920.6	2894.7	2839.3	2845.6	2839.3
27.5°	2822.7	2799.9	2757.7	2748.0	2731.8
30°	2725.2	2698.9	2650.1	2640.4	2627.3
32.5°	2620.7	2601.4	2549.1	2529.4	2516.3
35°	2519.7	2487.3	2435.0	2415.3	2399.0
37.5°	2405.6	2376.2	2324.0	2301.2	2284.9
40°	2288.4	2262.1	2209.9	2180.9	2167.7
42.5°	2174.3	2148.0	2096.1	2063.2	2043.9
45°	2050.5	2027.6	1978.5	1942.9	1929.8
47.5°	1929.8	1907.0	1854.7	1818.7	1799.3
50°	1802.5	1786.3	1740.6	1695.0	1678.7
52.5°	1678.7	1655.8	1613.7	1577.7	1554.9
55°	1551.8	1532.0	1493.0	1453.9	1437.6
57.5°	1424.5	1408.3	1365.7	1326.6	1313.5
60°	1297.2	1284.5	1238.8	1202.8	1193.1
62.5°	1173.4	1150.6	1118.1	1085.6	1072.4
65°	1046.5	1026.7	994.3	964.9	948.7
67.5°	916.1	899.6	870.5	847.7	834.5
70°	795.4	782.3	752.9	730.1	717.2
72.5°	671.6	658.5	642.2	619.4	609.7
75°	547.4	541.3	524.6	505.3	511.9
77.5°	436.8	423.6	417.1	407.4	397.7
80°	326.1	322.7	316.1	306.4	299.9
82.5°	221.7	221.7	218.6	205.4	205.4
85°	133.5	130.4	127.3	117.2	114.1
87.5°	58.8	52.2	45.6	36.0	32.5
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.2	36.5
95°	87.9	43.2	52.7	59.6	58.2
97.5°	158.3	47.4	69.0	73.2	74.4
100°	239.7	54.2	77.1	87.9	90.7
102.5°	328.9	326.4	79.9	94.7	98.8
105°	411.6	452.2	82.6	97.4	102.9
107.5°	507.7	541.5	85.4	100.2	105.7
110°	599.9	628.1	237.0	101.6	106.9

TEST NUMBER: P928432

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US927-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.5	710.7	687.8	104.1	108.3
115°	778.5	801.4	835.3	208.5	111.1
117.5°	858.4	885.4	908.5	714.8	360.1
120°	947.7	968.0	992.5	1008.7	825.9
122.5°	1023.4	1045.1	1072.4	1080.4	1081.8
125°	1100.6	1118.3	1144.0	1153.5	1157.5
127.5°	1171.1	1190.0	1210.4	1224.0	1225.2
130°	1237.4	1259.1	1273.9	1288.9	1287.6
132.5°	1305.1	1322.8	1337.6	1349.8	1348.5
135°	1362.0	1383.7	1395.8	1409.4	1406.8
137.5°	1421.5	1437.8	1451.4	1465.0	1460.9
140°	1479.7	1490.6	1505.4	1517.6	1510.9
142.5°	1528.6	1538.1	1555.6	1566.3	1559.6
145°	1580.0	1578.6	1601.6	1611.1	1604.4
147.5°	1624.6	1620.6	1643.6	1650.3	1645.0
150°	1668.0	1658.5	1680.2	1688.2	1681.5
152.5°	1704.5	1693.7	1714.0	1722.1	1712.7
155°	1739.7	1727.6	1743.8	1751.9	1741.1
157.5°	1768.1	1757.4	1769.6	1779.1	1768.1
160°	1792.6	1784.4	1792.6	1800.6	1791.1
162.5°	1814.2	1806.1	1812.8	1822.3	1810.1
165°	1833.1	1825.1	1829.0	1838.5	1829.0
167.5°	1848.1	1839.8	1844.0	1853.5	1841.3
170°	1860.2	1852.1	1854.8	1864.3	1852.1
172.5°	1868.3	1860.2	1863.0	1872.4	1860.2
175°	1875.1	1865.6	1868.3	1877.8	1864.3
177.5°	1877.8	1868.3	1869.8	1879.3	1867.0
180°	1871.0	1871.0	1871.0	1871.0	1871.0

TEST NUMBER: P928432

CATALOG NUMBER: DFN2DIP-HX4F0-110D070US927-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	11.45	12.42	12.31	13.30	14.40	11.02	11.99	11.88	12.87	13.97
	3H	13.12	13.99	13.99	14.88	16.01	12.65	13.52	13.52	14.41	15.54
	4H	13.72	14.54	14.60	15.43	16.57	13.24	14.07	14.13	14.96	16.10
	6H	14.12	14.88	15.02	15.78	16.93	13.65	14.41	14.54	15.31	16.46
	8H	14.23	14.95	15.13	15.87	17.02	13.76	14.48	14.66	15.40	16.55
	12H	14.28	14.97	15.19	15.88	17.06	13.80	14.49	14.71	15.40	16.58
4H	2H	11.93	12.75	12.82	13.65	14.78	11.58	12.41	12.47	13.30	14.44
	3H	13.81	14.49	14.71	15.42	16.57	13.41	14.10	14.31	15.02	16.18
	4H	14.53	15.15	15.44	16.07	17.25	14.12	14.75	15.03	15.67	16.85
	6H	15.05	15.59	15.97	16.53	17.72	14.64	15.18	15.56	16.12	17.31
	8H	15.20	15.71	16.13	16.65	17.84	14.79	15.29	15.72	16.23	17.43
	12H	15.28	15.74	16.23	16.69	17.89	14.86	15.31	15.80	16.27	17.47
8H	4H	14.73	15.24	15.66	16.18	17.37	14.37	14.88	15.30	15.82	17.01
	6H	15.37	15.79	16.32	16.77	17.96	15.01	15.42	15.96	16.40	17.60
	8H	15.59	15.96	16.56	16.93	18.14	15.22	15.59	16.19	16.56	17.77
	12H	15.73	16.06	16.70	17.02	18.28	15.34	15.67	16.31	16.63	17.89
12H	4H	14.72	15.18	15.67	16.14	17.34	14.37	14.83	15.32	15.78	16.98
	6H	15.40	15.77	16.36	16.74	17.95	15.05	15.42	16.01	16.39	17.60
	8H	15.65	15.97	16.62	16.94	18.20	15.29	15.62	16.26	16.58	17.84