

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: P913591

Luminaire Tested: DFN2DIP-HX3F0-090D070US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913591
REPORT IS A COMBINATION OF REPORTS P900789 AND P897645
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D070US927-FLLONL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

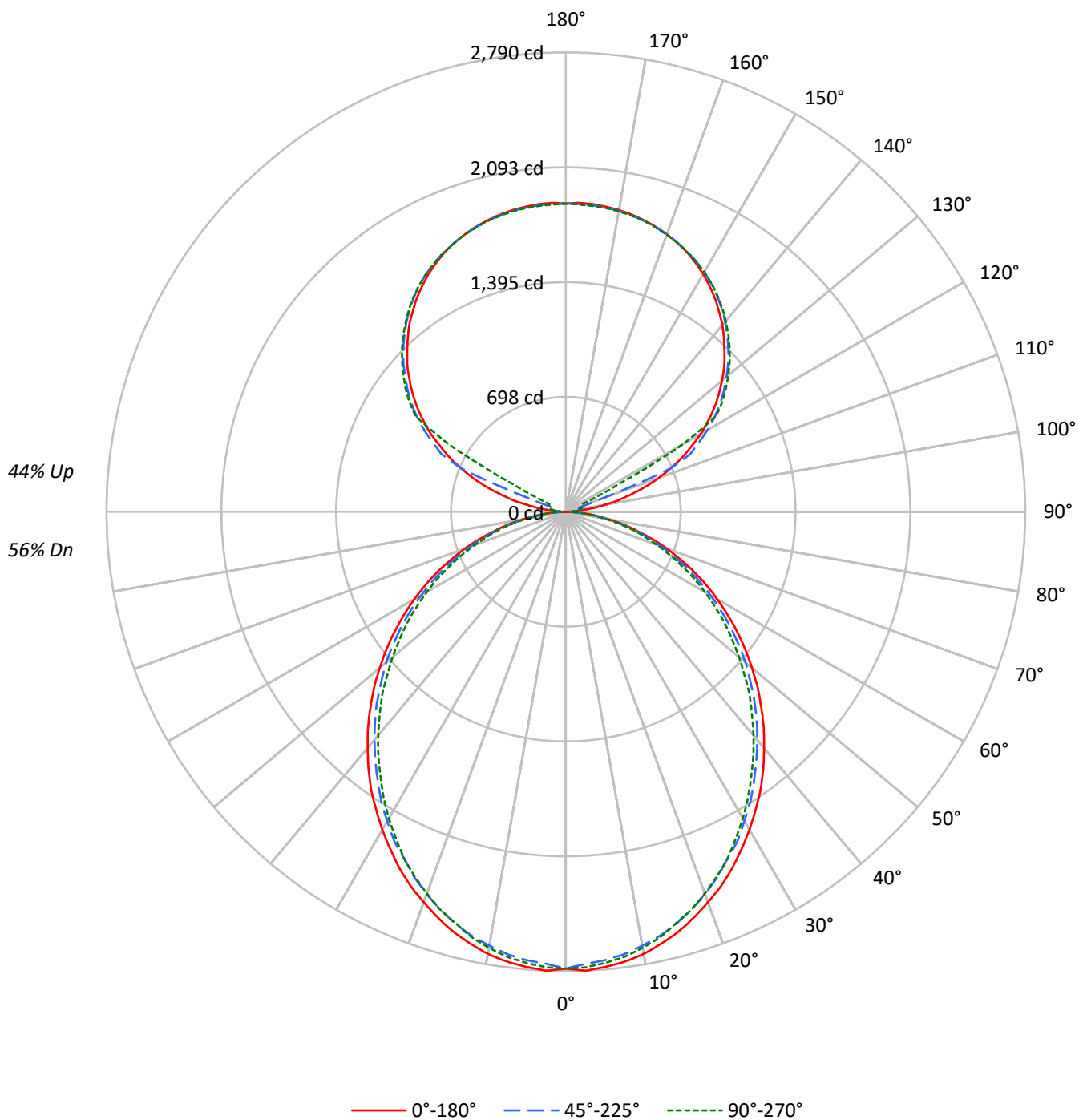
Lumens per Lamp: N/A
Luminaire Lumens: 12548.1 lumens
Efficiency: N/A
Efficacy: 85.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 146.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	99	95	91	87	92	88	85	82	76	74	71	65	63	62	55	53	52
2	90	83	77	71	84	77	72	67	67	63	59	57	54	51	48	46	44
3	82	73	65	59	76	68	61	56	59	54	50	51	47	44	43	40	38
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32
5	69	58	49	43	64	54	46	41	47	41	37	40	36	32	34	31	28
6	64	52	43	38	59	48	41	36	42	36	32	37	32	28	31	28	25
7	59	47	39	33	55	44	37	31	38	33	28	33	29	25	29	25	22
8	55	42	35	29	51	40	33	28	35	29	25	30	26	22	26	23	20
9	51	39	31	26	48	36	30	25	32	26	23	28	23	20	24	21	18
10	48	36	28	23	44	34	27	22	30	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3213	3213	3213
5°	3217	3166	3188
10°	3190	3122	3143
15°	3141	3068	3074
20°	3076	2994	3003
25°	3012	2907	2922
30°	2931	2825	2818
35°	2855	2729	2709
40°	2761	2632	2605
45°	2667	2534	2499
50°	2565	2432	2376
55°	2457	2314	2262
60°	2336	2174	2132
65°	2203	2028	1978
70°	2034	1850	1812
75°	1800	1638	1657
80°	1518	1365	1364
85°	1076	904	885

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2667 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.1	2.1
10°-20°	734.7	5.9
20°-30°	1079.6	8.6
30°-40°	1253.9	10.0
40°-50°	1252.4	10.0
50°-60°	1092.1	8.7
60°-70°	807.3	6.4
70°-80°	456.7	3.6
80°-90°	123.8	1.0
90°-100°	61.7	0.5
100°-110°	230.0	1.8
110°-120°	610.1	4.9
120°-130°	1011.9	8.1
130°-140°	1074.9	8.6
140°-150°	999.0	8.0
150°-160°	803.2	6.4
160°-170°	517.5	4.1
170°-180°	178.1	1.4
0°-30°	2075.4	16.5
0°-40°	3329.4	26.5
0°-60°	5673.8	45.2
0°-90°	7061.6	56.3
90°-120°	901.9	7.2
90°-150°	3987.7	31.8
90°-180°	5487.0	43.7
0°-180°	12548.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2774	2774	2774	2774	2774	
5°	2774	2764	2734	2756	2750	263
15°	2641	2625	2590	2601	2588	744
25°	2390	2369	2324	2329	2324	1100
35°	2062	2036	1993	1977	1963	1288
45°	1678	1659	1619	1590	1579	1295
55°	1270	1254	1222	1190	1176	1135
65°	856	840	814	790	776	847
75°	448	443	429	414	419	478
85°	109	107	104	96	93	122
90°	1	16	27	34	36	12
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	779	802	836	209	111	767
125°	1101	1119	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1612	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1834	1826	1830	1839	1830	518
175°	1876	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2774.1	2774.1	2774.1	2774.1	2774.1
2.5°	2790.3	2777.0	2747.6	2774.1	2769.1
5°	2774.1	2763.7	2734.3	2755.5	2750.4
7.5°	2755.5	2739.7	2710.2	2731.8	2726.4
10°	2726.4	2707.7	2675.7	2696.9	2689.0
12.5°	2686.1	2670.3	2638.4	2651.6	2646.3
15°	2640.9	2625.1	2590.2	2601.0	2587.7
17.5°	2584.8	2569.0	2534.2	2547.5	2534.2
20°	2523.4	2507.6	2470.2	2478.1	2467.6
22.5°	2462.3	2438.3	2403.4	2403.4	2398.0
25°	2390.1	2368.9	2323.6	2328.7	2323.6
27.5°	2310.0	2291.3	2256.8	2248.9	2235.6
30°	2230.2	2208.7	2168.8	2160.8	2150.1
32.5°	2144.8	2128.9	2086.1	2070.0	2059.3
35°	2062.1	2035.5	1992.7	1976.7	1963.3
37.5°	1968.7	1944.6	1901.9	1883.3	1869.9
40°	1872.7	1851.2	1808.5	1784.7	1774.0
42.5°	1779.3	1757.8	1715.4	1688.5	1672.7
45°	1678.0	1659.4	1619.1	1590.0	1579.3
47.5°	1579.3	1560.6	1517.8	1488.4	1472.6
50°	1475.1	1461.8	1424.4	1387.1	1373.8
52.5°	1373.8	1355.1	1320.6	1291.2	1272.5
55°	1269.9	1253.8	1221.8	1189.9	1176.5
57.5°	1165.8	1152.5	1117.7	1085.7	1074.9
60°	1061.6	1051.1	1013.8	984.4	976.4
62.5°	960.3	941.6	915.0	888.4	877.7
65°	856.4	840.3	813.6	789.6	776.3
67.5°	749.7	736.2	712.3	693.7	682.9
70°	650.9	640.2	616.2	597.5	587.0
72.5°	549.6	538.8	525.5	506.9	499.0
75°	448.1	442.9	429.4	413.5	418.9
77.5°	357.4	346.7	341.4	333.4	325.5
80°	266.9	264.0	258.6	250.7	245.4
82.5°	181.4	181.4	178.9	168.1	168.1
85°	109.2	106.7	104.2	95.9	93.4
87.5°	48.1	42.7	37.4	29.5	26.6
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.5
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.5	79.9	94.7	98.9
105°	411.7	452.3	82.6	97.4	102.9
107.5°	507.8	541.6	85.4	100.2	105.7
110°	600.0	628.3	237.0	101.6	106.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	686.7	710.9	687.9	104.2	108.4
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.6	885.6	908.7	714.9	360.2
120°	947.9	968.2	992.7	1008.9	826.1
122.5°	1023.7	1045.4	1072.6	1080.6	1082.0
125°	1100.9	1118.6	1144.3	1153.8	1157.8
127.5°	1171.3	1190.3	1210.7	1224.2	1225.5
130°	1237.7	1259.4	1274.2	1289.2	1287.9
132.5°	1305.4	1323.1	1337.9	1350.1	1348.8
135°	1362.3	1384.0	1396.1	1409.8	1407.1
137.5°	1421.8	1438.1	1451.8	1465.3	1461.3
140°	1480.0	1491.0	1505.8	1518.0	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1560.0
145°	1580.4	1579.0	1601.9	1611.5	1604.7
147.5°	1624.9	1621.0	1643.9	1650.7	1645.4
150°	1668.3	1658.9	1680.6	1688.6	1681.9
152.5°	1704.9	1694.1	1714.4	1722.5	1713.1
155°	1740.1	1728.0	1744.2	1752.3	1741.5
157.5°	1768.5	1757.8	1770.0	1779.5	1768.5
160°	1793.0	1784.8	1793.0	1801.0	1791.5
162.5°	1814.6	1806.5	1813.2	1822.7	1810.5
165°	1833.5	1825.5	1829.5	1839.0	1829.5
167.5°	1848.5	1840.2	1844.4	1853.9	1841.7
170°	1860.7	1852.5	1855.2	1864.7	1852.5
172.5°	1868.8	1860.7	1863.4	1872.9	1860.7
175°	1875.5	1866.0	1868.8	1878.2	1864.7
177.5°	1878.2	1868.8	1870.2	1879.7	1867.4
180°	1871.4	1871.4	1871.4	1871.4	1871.4

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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	11.84	12.77	12.75	13.69	14.87	11.42	12.34	12.32	13.26	14.44
	3H	13.50	14.33	14.42	15.26	16.46	13.03	13.86	13.95	14.79	15.99
	4H	14.09	14.87	15.02	15.80	17.02	13.62	14.40	14.55	15.34	16.55
	6H	14.48	15.20	15.42	16.15	17.37	14.01	14.73	14.95	15.68	16.90
	8H	14.59	15.27	15.53	16.23	17.46	14.12	14.80	15.06	15.76	16.99
	12H	14.63	15.29	15.59	16.24	17.49	14.16	14.81	15.11	15.77	17.01
4H	2H	12.31	13.09	13.24	14.03	15.24	11.97	12.75	12.90	13.68	14.90
	3H	14.17	14.83	15.12	15.79	17.02	13.78	14.44	14.73	15.40	16.63
	4H	14.88	15.48	15.84	16.44	17.69	14.48	15.08	15.44	16.04	17.29
	6H	15.39	15.91	16.36	16.89	18.14	14.99	15.50	15.96	16.49	17.74
	8H	15.54	16.02	16.51	17.00	18.27	15.14	15.61	16.10	16.59	17.86
	12H	15.61	16.05	16.60	17.04	18.31	15.20	15.63	16.19	16.63	17.90
8H	4H	15.08	15.56	16.05	16.54	17.80	14.72	15.20	15.69	16.18	17.45
	6H	15.71	16.10	16.70	17.12	18.39	15.35	15.74	16.34	16.76	18.03
	8H	15.92	16.27	16.93	17.28	18.56	15.56	15.91	16.56	16.92	18.20
	12H	16.05	16.36	17.06	17.36	18.69	15.67	15.98	16.68	16.98	18.31
12H	4H	15.07	15.50	16.06	16.50	17.77	14.72	15.15	15.71	16.15	17.42
	6H	15.74	16.09	16.74	17.09	18.38	15.39	15.74	16.39	16.75	18.03
	8H	15.97	16.28	16.98	17.28	18.61	15.62	15.93	16.63	16.93	18.26