

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: P913596

Luminaire Tested: DFN2DIP-HX3F0-090D090US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P913596
REPORT IS A COMBINATION OF REPORTS P899297 AND P896089
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX3F0-090D090US927-FLLFLL
Description: 3 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

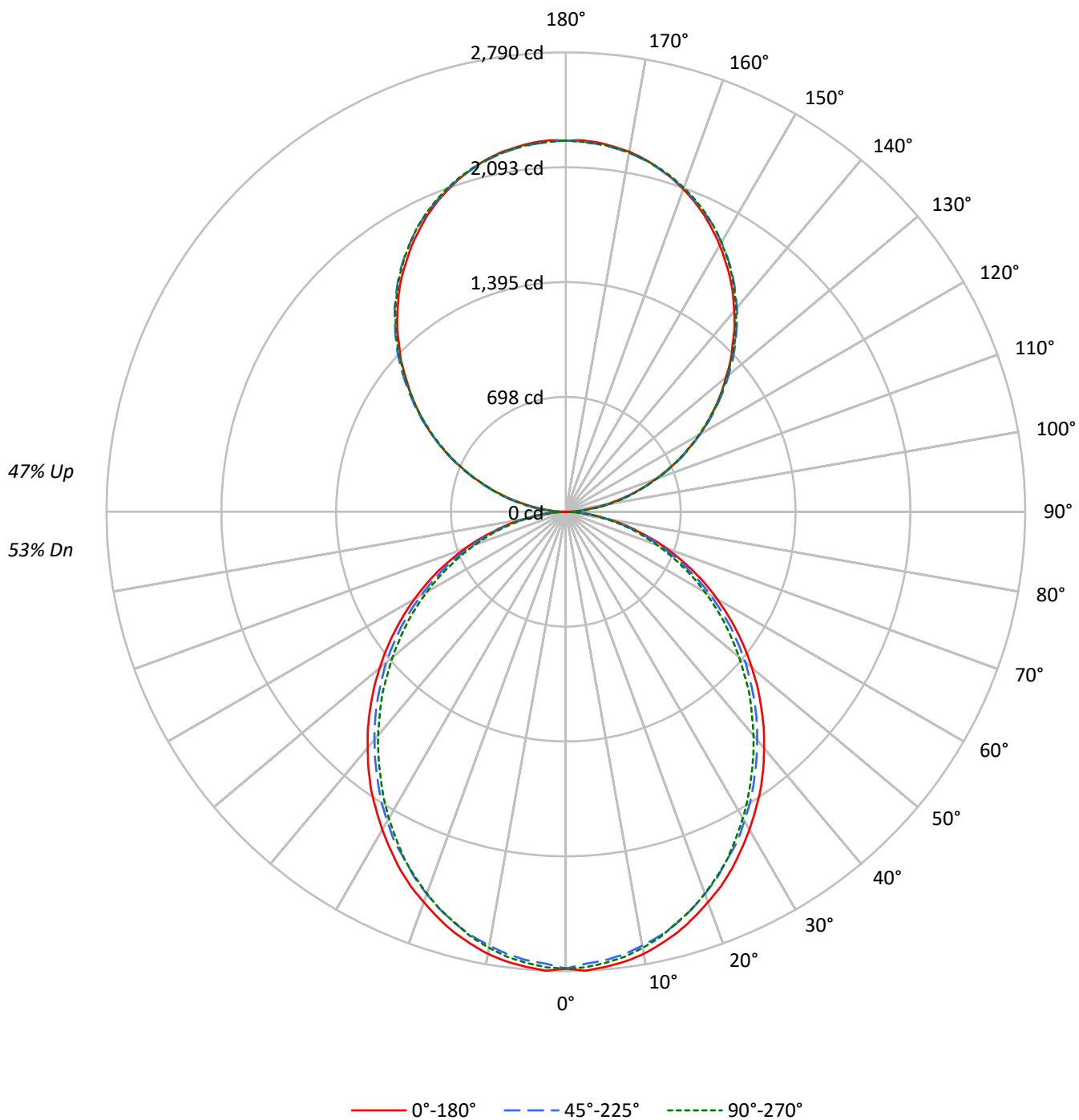
Lumens per Lamp: N/A
Luminaire Lumens: 13368.1 lumens
Efficiency: N/A
Efficacy: 81.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.84' x L: 3.28' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 163.8
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

TEST NUMBER: P913596

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US927-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P913596

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US927-FLLFL

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	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

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

TEST NUMBER: P913596

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US927-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.1	2.0
10°-20°	734.7	5.5
20°-30°	1079.6	8.1
30°-40°	1253.9	9.4
40°-50°	1252.4	9.4
50°-60°	1092.1	8.2
60°-70°	807.3	6.0
70°-80°	456.7	3.4
80°-90°	127.0	0.9
90°-100°	139.5	1.0
100°-110°	443.3	3.3
110°-120°	758.7	5.7
120°-130°	997.8	7.5
130°-140°	1120.0	8.4
140°-150°	1098.2	8.2
150°-160°	921.3	6.9
160°-170°	611.0	4.6
170°-180°	213.5	1.6
0°-30°	2075.4	15.5
0°-40°	3329.4	24.9
0°-60°	5673.8	42.4
0°-90°	7064.7	52.8
90°-120°	1341.5	10.0
90°-150°	4557.5	34.1
90°-180°	6303.0	47.1
0°-180°	13368.1	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°	2	24	67	62	65	13
95°	99	118	122	122	118	110
105°	409	415	419	422	422	432
115°	761	772	769	767	761	753
125°	1107	1124	1119	1113	1111	990
135°	1432	1453	1458	1455	1450	1107
145°	1739	1752	1763	1765	1758	1086
155°	1988	1994	2000	2009	2003	915
165°	2163	2161	2161	2175	2165	610
175°	2251	2245	2241	2255	2243	214
180°	2255	2255	2255	2255	2255	

TEST NUMBER: P913596

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US927-FLLFLL

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°	2.1	24.5	66.6	62.5	64.6
92.5°	42.1	57.1	59.2	61.2	61.2
95°	99.3	118.3	121.7	121.7	118.3
97.5°	165.2	182.8	190.4	190.4	190.4
100°	241.3	257.0	262.4	262.4	260.4
102.5°	321.5	333.1	340.6	342.6	340.6
105°	409.2	414.6	418.7	422.2	422.2
107.5°	496.2	504.4	504.4	505.7	496.2
110°	580.5	591.4	591.4	591.4	586.0

TEST NUMBER: P913596

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US927-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	671.6	683.2	681.1	675.7	671.6
115°	761.4	772.2	768.8	766.8	761.4
117.5°	850.4	865.4	855.9	850.4	844.9
120°	940.2	955.1	940.2	940.2	934.0
122.5°	1021.7	1040.8	1031.3	1025.8	1021.7
125°	1107.4	1124.3	1119.0	1112.8	1110.8
127.5°	1191.0	1212.0	1204.6	1196.4	1191.0
130°	1269.2	1293.6	1290.2	1286.1	1278.7
132.5°	1356.8	1375.9	1377.2	1367.7	1362.3
135°	1432.3	1453.3	1457.5	1455.4	1450.0
137.5°	1516.6	1533.6	1537.0	1535.6	1527.5
140°	1590.7	1607.7	1617.2	1617.2	1609.7
142.5°	1666.8	1683.8	1689.2	1691.3	1683.8
145°	1738.9	1752.5	1763.3	1765.4	1757.9
147.5°	1803.5	1820.4	1828.6	1832.0	1824.6
150°	1870.1	1881.7	1889.1	1895.2	1889.1
152.5°	1929.2	1940.8	1950.3	1957.8	1950.3
155°	1988.4	1993.8	1999.9	2009.4	2003.3
157.5°	2039.3	2043.4	2046.8	2060.4	2050.9
160°	2084.9	2089.0	2091.0	2102.5	2094.4
162.5°	2127.0	2127.0	2129.1	2142.0	2132.5
165°	2163.1	2161.0	2161.0	2174.6	2165.1
167.5°	2195.7	2189.6	2189.6	2203.1	2193.6
170°	2220.2	2214.7	2212.7	2226.3	2214.7
172.5°	2237.1	2231.7	2229.7	2243.3	2231.7
175°	2250.7	2245.3	2241.2	2254.9	2243.3
177.5°	2258.2	2252.8	2248.7	2260.3	2248.7
180°	2254.9	2254.9	2254.9	2254.9	2254.9

TEST NUMBER: P913596

CATALOG NUMBER: DFN2DIP-HX3F0-090D090US927-FLLFLL

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	11.54	12.43	12.47	13.38	14.61	11.11	12.00	12.05	12.95	14.18
	3H	13.20	13.99	14.14	14.95	16.21	12.73	13.52	13.67	14.48	15.74
	4H	13.78	14.53	14.74	15.50	16.76	13.31	14.07	14.27	15.03	16.29
	6H	14.18	14.87	15.15	15.84	17.11	13.71	14.40	14.67	15.37	16.64
	8H	14.28	14.94	15.25	15.93	17.20	13.81	14.47	14.78	15.46	16.73
	12H	14.32	14.95	15.31	15.93	17.23	13.85	14.48	14.83	15.46	16.76
4H	2H	12.00	12.76	12.97	13.72	14.98	11.66	12.41	12.63	13.38	14.64
	3H	13.86	14.49	14.84	15.49	16.76	13.47	14.10	14.45	15.10	16.37
	4H	14.57	15.15	15.56	16.13	17.43	14.17	14.75	15.15	15.73	17.03
	6H	15.08	15.58	16.08	16.59	17.89	14.68	15.17	15.67	16.18	17.48
	8H	15.23	15.69	16.23	16.70	18.01	14.82	15.28	15.82	16.29	17.60
	12H	15.30	15.72	16.31	16.74	18.06	14.88	15.30	15.90	16.32	17.64
8H	4H	14.77	15.23	15.76	16.23	17.55	14.41	14.87	15.41	15.88	17.19
	6H	15.39	15.77	16.41	16.82	18.13	15.03	15.42	16.05	16.46	17.77
	8H	15.61	15.95	16.64	16.98	18.31	15.24	15.58	16.27	16.61	17.94
	12H	15.73	16.03	16.77	17.06	18.43	15.36	15.65	16.39	16.68	18.05
12H	4H	14.75	15.17	15.77	16.19	17.51	14.41	14.82	15.42	15.84	17.16
	6H	15.42	15.76	16.45	16.79	18.12	15.07	15.41	16.10	16.44	17.77
	8H	15.66	15.95	16.69	16.98	18.35	15.30	15.60	16.34	16.63	18.00