

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: P928376

Luminaire Tested: DFN2DIP-HX4F0-090D110US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928376
REPORT IS A COMBINATION OF REPORTS P900955 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-090D110US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

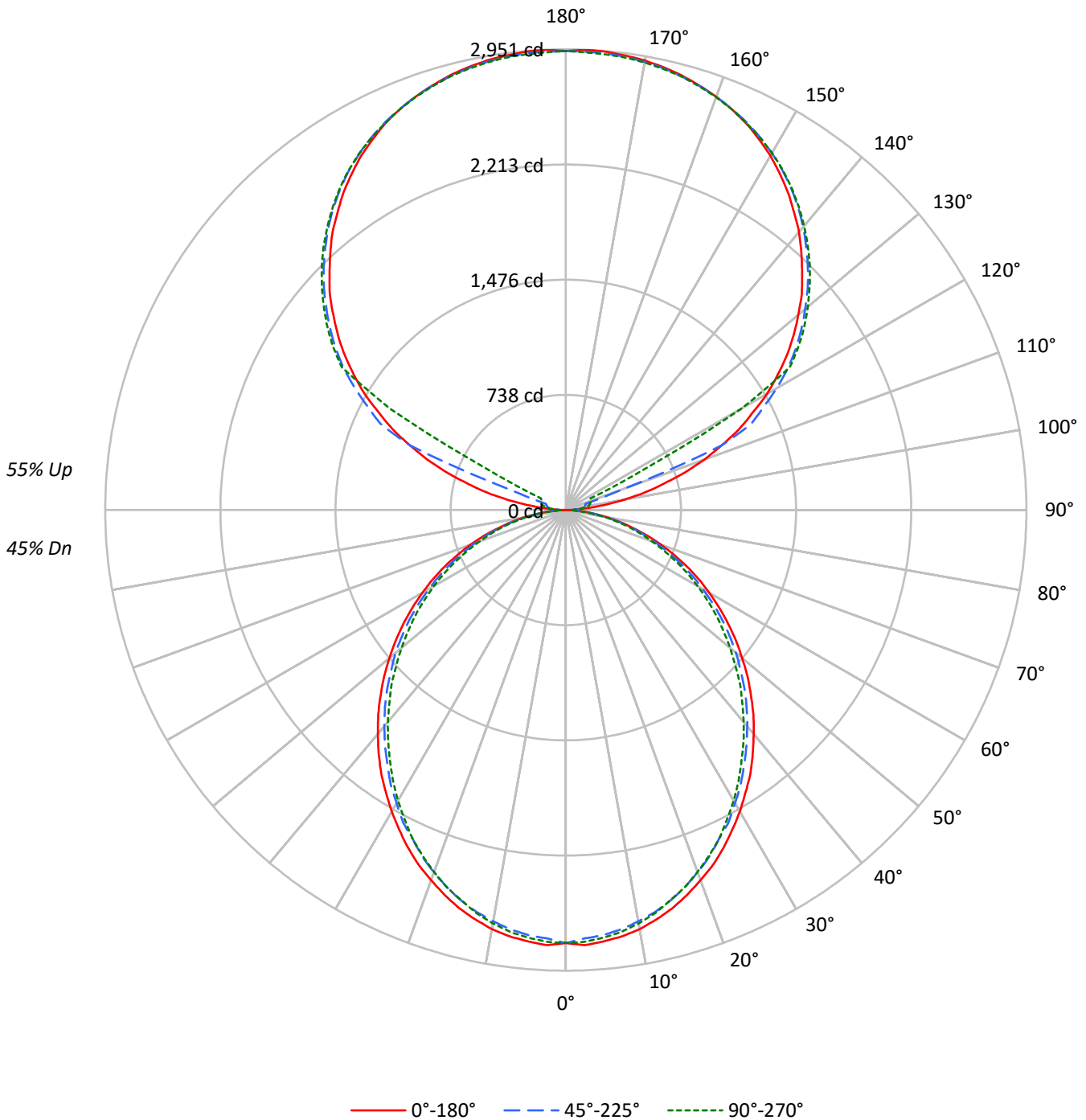
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 15681.6 lumens
Efficiency: N/A
Efficacy: 89.2 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): 175.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9821
Total Harmonic Distortion (THDi): 0.08
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928376
CATALOG NUMBER: DFN2DIP-HX4F0-090D110US927-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			0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	97	97	97	97	81	81	81	65	65	65	52	52	52	45	45	45	45
1	97	92	89	85	88	85	82	79	71	68	66	58	56	54	46	45	44	38	38	38	38
2	88	81	75	69	80	74	69	64	62	58	55	51	48	45	40	38	37	32	32	32	32
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	36	33	31	27	27	27	27
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27	23	23	23	23
5	67	56	48	42	61	52	44	39	43	38	34	36	32	29	29	26	23	20	20	20	20
6	62	50	42	36	57	46	39	34	39	34	29	32	28	25	26	23	21	18	18	18	18
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	18	16	16	16	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16	14	14	14	14
9	50	37	30	25	45	35	28	23	30	24	21	25	21	18	20	17	15	13	13	13	13
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13	11	11	11	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2062	2062	2062
5°	2066	2034	2047
10°	2049	2007	2020
15°	2019	1974	1977
20°	1979	1928	1932
25°	1938	1873	1881
30°	1888	1822	1816
35°	1840	1762	1747
40°	1781	1702	1682
45°	1722	1641	1615
50°	1658	1577	1537
55°	1590	1503	1466
60°	1514	1416	1384
65°	1431	1325	1288
70°	1326	1215	1184
75°	1179	1083	1088
80°	1003	914	906
85°	728	623	602

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 1722 cd/sqm



TEST NUMBER: P928376

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US927-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.0	1.7
10°-20°	734.5	4.7
20°-30°	1079.4	6.9
30°-40°	1253.7	8.0
40°-50°	1252.1	8.0
50°-60°	1091.8	7.0
60°-70°	807.1	5.1
70°-80°	456.6	2.9
80°-90°	125.7	0.8
90°-100°	96.9	0.6
100°-110°	361.4	2.3
110°-120°	958.5	6.1
120°-130°	1589.8	10.1
130°-140°	1688.7	10.8
140°-150°	1569.5	10.0
150°-160°	1261.8	8.0
160°-170°	813.1	5.2
170°-180°	279.9	1.8
0°-30°	2074.9	13.2
0°-40°	3328.6	21.2
0°-60°	5672.5	36.2
0°-90°	7061.9	45.0
90°-120°	1416.9	9.0
90°-150°	6264.9	40.0
90°-180°	8620.0	55.0
0°-180°	15681.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2774	2774	2774	2774	2774	
5°	2774	2763	2734	2755	2750	263
15°	2640	2624	2590	2600	2587	744
25°	2390	2368	2323	2328	2323	1100
35°	2062	2035	1992	1976	1963	1287
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	413	419	478
85°	109	107	104	96	93	122
90°	2	26	42	53	57	14
95°	138	68	83	94	92	164
105°	647	711	130	153	162	691
115°	1223	1259	1313	328	175	1204
125°	1730	1757	1798	1813	1819	1543
135°	2140	2174	2193	2215	2211	1653
145°	2483	2481	2517	2532	2521	1553
155°	2734	2715	2740	2753	2736	1260
165°	2881	2868	2874	2889	2874	814
175°	2946	2932	2936	2951	2930	280
180°	2940	2940	2940	2940	2940	



TEST NUMBER: P928376

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US927-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2773.5	2773.5	2773.5	2773.5	2773.5
2.5°	2789.7	2776.4	2747.0	2773.5	2768.4
5°	2773.5	2763.1	2733.7	2754.9	2749.7
7.5°	2754.9	2739.1	2709.6	2731.1	2725.7
10°	2725.7	2707.1	2675.1	2696.3	2688.4
12.5°	2685.5	2669.7	2637.8	2651.0	2645.7
15°	2640.3	2624.5	2589.6	2600.4	2587.1
17.5°	2584.2	2568.4	2533.6	2546.9	2533.6
20°	2522.8	2507.0	2469.6	2477.5	2467.1
22.5°	2461.7	2437.7	2402.8	2402.8	2397.5
25°	2389.5	2368.3	2323.1	2328.2	2323.1
27.5°	2309.5	2290.8	2256.3	2248.4	2235.1
30°	2229.7	2208.2	2168.3	2160.3	2149.6
32.5°	2144.3	2128.4	2085.7	2069.6	2058.8
35°	2061.7	2035.0	1992.3	1976.2	1962.9
37.5°	1968.3	1944.2	1901.4	1882.8	1869.5
40°	1872.3	1850.8	1808.1	1784.3	1773.6
42.5°	1778.9	1757.4	1715.0	1688.1	1672.3
45°	1677.6	1659.0	1618.8	1589.6	1578.9
47.5°	1578.9	1560.2	1517.5	1488.1	1472.2
50°	1474.8	1461.5	1424.1	1386.8	1373.5
52.5°	1373.5	1354.8	1320.3	1290.9	1272.2
55°	1269.7	1253.5	1221.5	1189.6	1176.3
57.5°	1165.5	1152.2	1117.4	1085.4	1074.7
60°	1061.4	1050.9	1013.5	984.1	976.2
62.5°	960.1	941.4	914.8	888.2	877.5
65°	856.2	840.1	813.5	789.5	776.2
67.5°	749.5	736.0	712.2	693.6	682.8
70°	650.8	640.0	616.0	597.3	586.9
72.5°	549.5	538.7	525.4	506.8	498.9
75°	448.0	442.8	429.3	413.4	418.8
77.5°	357.4	346.7	341.3	333.4	325.4
80°	266.8	264.0	258.6	250.7	245.4
82.5°	181.4	181.4	178.8	168.1	168.1
85°	109.2	106.7	104.1	95.9	93.4
87.5°	48.1	42.7	37.4	29.5	26.6
90°	2.1	25.5	42.5	53.3	57.3
92.5°	53.3	44.7	51.0	55.4	57.3
95°	138.2	68.0	82.8	93.7	91.5
97.5°	248.8	74.5	108.3	114.9	117.0
100°	376.7	85.1	121.3	138.2	142.5
102.5°	516.9	512.8	125.5	148.8	155.4
105°	646.7	710.7	129.9	153.1	161.7
107.5°	797.9	850.8	134.2	157.4	166.0
110°	942.6	987.1	372.4	159.7	168.0



TEST NUMBER: P928376

CATALOG NUMBER: DFN2DIP-HX4F0-090D110US927-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.8	1116.9	1080.8	163.7	170.3
115°	1223.2	1259.4	1312.7	327.7	174.6
117.5°	1348.9	1391.3	1427.7	1123.2	565.9
120°	1489.3	1521.1	1559.5	1585.0	1297.8
122.5°	1608.3	1642.4	1685.1	1697.7	1700.0
125°	1729.6	1757.4	1797.8	1812.7	1819.0
127.5°	1840.2	1870.0	1902.1	1923.3	1925.4
130°	1944.5	1978.7	2001.9	2025.4	2023.4
132.5°	2050.9	2078.7	2102.0	2121.1	2119.2
135°	2140.4	2174.4	2193.4	2214.9	2210.6
137.5°	2233.8	2259.3	2280.8	2302.0	2295.7
140°	2325.3	2342.4	2365.7	2384.9	2374.3
142.5°	2402.1	2416.9	2444.5	2461.5	2450.8
145°	2482.9	2480.6	2516.7	2531.7	2521.1
147.5°	2552.9	2546.6	2582.7	2593.3	2585.0
150°	2621.1	2606.2	2640.3	2653.0	2642.3
152.5°	2678.5	2661.5	2693.4	2706.3	2691.4
155°	2733.8	2714.8	2740.3	2753.0	2736.0
157.5°	2778.5	2761.5	2780.8	2795.7	2778.5
160°	2816.9	2804.0	2816.9	2829.5	2814.6
162.5°	2850.7	2838.1	2848.7	2863.6	2844.5
165°	2880.6	2867.9	2874.2	2889.1	2874.2
167.5°	2904.0	2891.2	2897.8	2912.7	2893.5
170°	2923.3	2910.4	2914.6	2929.6	2910.4
172.5°	2935.9	2923.3	2927.5	2942.4	2923.3
175°	2946.5	2931.6	2935.9	2950.8	2929.6
177.5°	2950.8	2935.9	2938.2	2953.1	2933.9
180°	2940.2	2940.2	2940.2	2940.2	2940.2



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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	9.31	10.13	10.31	11.14	12.48	8.88	9.70	9.88	10.71	12.05
	3H	10.97	11.70	11.98	12.72	14.08	10.50	11.23	11.50	12.25	13.61
	4H	11.55	12.25	12.58	13.27	14.64	11.08	11.78	12.10	12.80	14.17
	6H	11.95	12.59	12.99	13.62	15.00	11.48	12.12	12.51	13.14	14.52
	8H	12.06	12.67	13.09	13.71	15.09	11.58	12.19	12.62	13.23	14.61
	12H	12.10	12.68	13.15	13.72	15.12	11.62	12.20	12.67	13.24	14.64
4H	2H	9.77	10.46	10.80	11.48	12.85	9.42	10.12	10.45	11.14	12.51
	3H	11.63	12.21	12.67	13.26	14.64	11.24	11.82	12.27	12.87	14.25
	4H	12.34	12.88	13.39	13.92	15.32	11.94	12.47	12.98	13.51	14.92
	6H	12.86	13.31	13.91	14.38	15.78	12.45	12.90	13.50	13.97	15.37
	8H	13.01	13.43	14.06	14.49	15.91	12.59	13.02	13.65	14.08	15.49
	12H	13.08	13.46	14.15	14.54	15.96	12.66	13.04	13.73	14.11	15.53
8H	4H	12.54	12.96	13.59	14.02	15.44	12.18	12.60	13.23	13.66	15.08
	6H	13.17	13.52	14.25	14.62	16.03	12.81	13.16	13.88	14.26	15.67
	8H	13.39	13.70	14.47	14.78	16.21	13.02	13.33	14.11	14.41	15.85
	12H	13.52	13.79	14.61	14.87	16.34	13.14	13.41	14.22	14.49	15.96
12H	4H	12.52	12.91	13.59	13.98	15.40	12.17	12.56	13.24	13.63	15.05
	6H	13.20	13.51	14.28	14.59	16.02	12.85	13.16	13.93	14.24	15.67
	8H	13.44	13.71	14.53	14.79	16.26	13.08	13.35	14.17	14.43	15.91