

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: P928664

Luminaire Tested: DFN2DIP-HX4F0-080D110US930-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928664
REPORT IS A COMBINATION OF REPORTS P900953 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US930-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

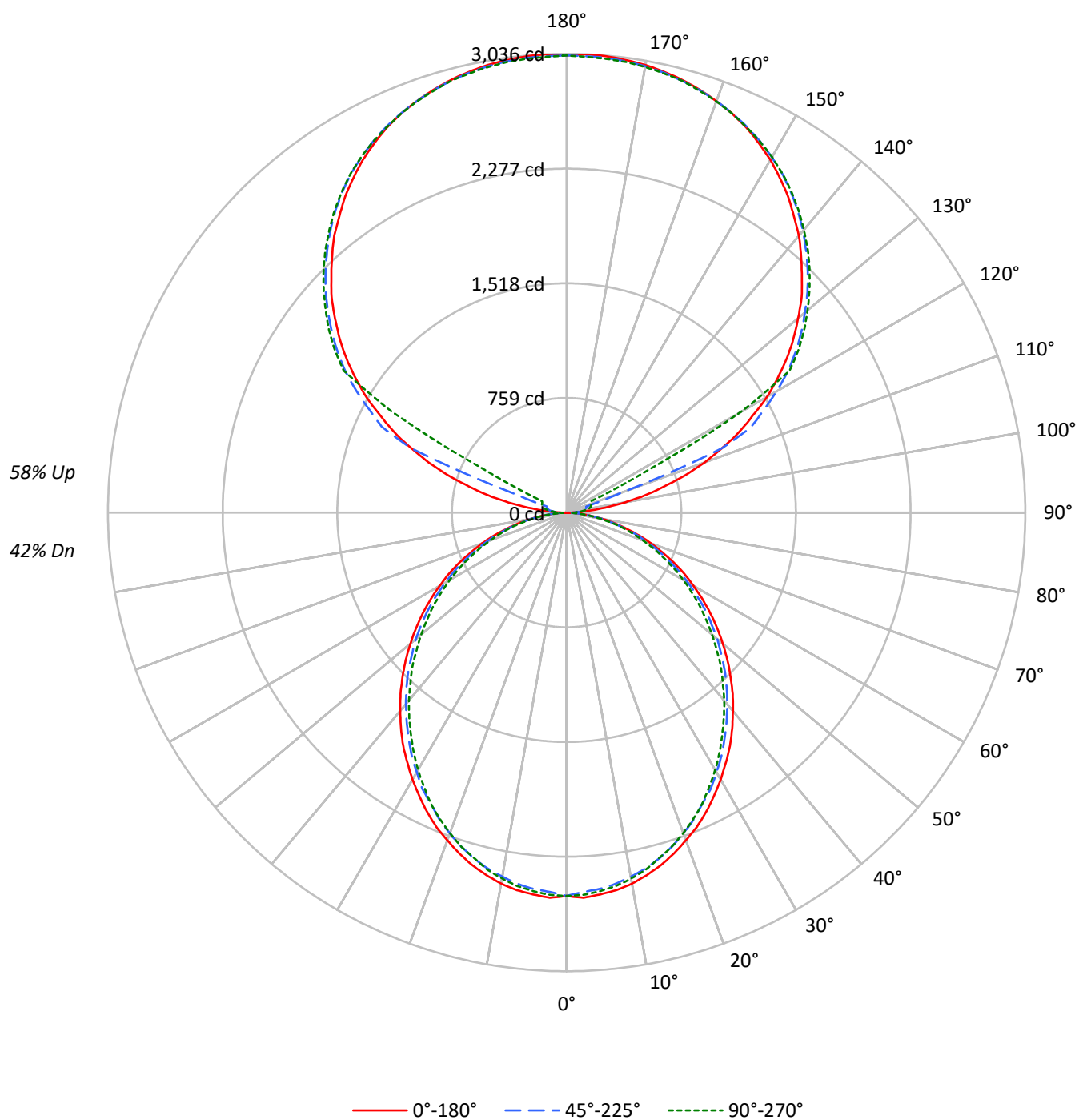
Lumens per Lamp: N/A
Luminaire Lumens: 15330.1 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 163.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928664

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928664

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-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	105	105	105	105	96	96	96	96	79	79	79	63	63	63	49	49	49
1	96	92	88	84	88	84	81	78	69	67	65	56	54	53	43	42	41
2	87	80	74	69	80	73	68	64	61	57	54	49	46	44	38	36	35
3	80	70	63	57	72	65	58	53	53	49	45	43	40	37	34	31	30
4	73	62	54	49	66	57	50	45	47	42	38	38	35	32	30	28	25
5	67	55	47	41	61	51	44	39	42	37	33	35	31	28	27	24	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	28	24	21	22	20	17
8	53	41	33	28	48	37	31	26	32	26	22	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1886	1886	1886
5°	1890	1860	1873
10°	1874	1835	1848
15°	1847	1805	1808
20°	1810	1764	1768
25°	1773	1714	1721
30°	1727	1667	1661
35°	1683	1612	1598
40°	1629	1557	1538
45°	1575	1501	1477
50°	1516	1443	1406
55°	1455	1375	1341
60°	1385	1295	1266
65°	1309	1212	1178
70°	1213	1111	1083
75°	1079	990	995
80°	918	836	828
85°	666	570	551

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1575 cd/sqm

TEST NUMBER: P928664

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	238.8	1.6
10°-20°	671.8	4.4
20°-30°	987.3	6.4
30°-40°	1146.7	7.5
40°-50°	1145.3	7.5
50°-60°	998.7	6.5
60°-70°	738.2	4.8
70°-80°	417.7	2.7
80°-90°	115.6	0.8
90°-100°	99.8	0.7
100°-110°	371.9	2.4
110°-120°	986.4	6.4
120°-130°	1636.0	10.7
130°-140°	1737.8	11.3
140°-150°	1615.1	10.5
150°-160°	1298.5	8.5
160°-170°	836.7	5.5
170°-180°	288.0	1.9
0°-30°	1898.0	12.4
0°-40°	3044.7	19.9
0°-60°	5188.6	33.8
0°-90°	6460.1	42.1
90°-120°	1458.0	9.5
90°-150°	6446.8	42.1
90°-180°	8870.0	57.9
0°-180°	15330.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2537	2537	2537	2537	2537	
5°	2537	2527	2500	2520	2515	241
15°	2415	2401	2369	2379	2366	680
25°	2186	2166	2125	2130	2125	1006
35°	1886	1862	1822	1808	1795	1178
45°	1535	1517	1481	1454	1444	1184
55°	1161	1146	1117	1088	1076	1038
65°	783	768	744	722	710	774
75°	410	405	393	378	383	437
85°	100	98	95	88	85	111
90°	2	26	44	55	59	14
95°	142	70	85	96	94	168
105°	666	731	134	158	166	711
115°	1259	1296	1351	337	180	1239
125°	1780	1808	1850	1865	1872	1587
135°	2202	2238	2257	2279	2275	1701
145°	2555	2553	2590	2605	2594	1598
155°	2813	2794	2820	2833	2816	1296
165°	2964	2951	2958	2973	2958	837
175°	3032	3017	3021	3036	3015	289
180°	3026	3026	3026	3026	3026	

TEST NUMBER: P928664

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2536.9	2536.9	2536.9	2536.9	2536.9
2.5°	2551.7	2539.5	2512.6	2536.9	2532.3
5°	2536.9	2527.4	2500.5	2519.9	2515.3
7.5°	2519.9	2505.4	2478.5	2498.1	2493.2
10°	2493.2	2476.1	2446.9	2466.3	2459.1
12.5°	2456.5	2442.0	2412.7	2424.9	2420.0
15°	2415.1	2400.6	2368.7	2378.6	2366.4
17.5°	2363.8	2349.3	2317.5	2329.7	2317.5
20°	2307.7	2293.2	2259.0	2266.3	2256.7
22.5°	2251.8	2229.8	2197.9	2197.9	2193.0
25°	2185.7	2166.4	2124.9	2129.6	2124.9
27.5°	2112.5	2095.4	2063.8	2056.6	2044.4
30°	2039.5	2019.8	1983.4	1976.1	1966.3
32.5°	1961.4	1946.9	1907.8	1893.0	1883.2
35°	1885.7	1861.5	1822.3	1807.6	1795.4
37.5°	1800.3	1778.3	1739.3	1722.2	1710.0
40°	1712.6	1692.9	1653.9	1632.1	1622.3
42.5°	1627.2	1607.5	1568.7	1544.1	1529.7
45°	1534.6	1517.4	1480.7	1454.0	1444.3
47.5°	1444.3	1427.1	1388.0	1361.1	1346.6
50°	1349.0	1336.8	1302.6	1268.5	1256.3
52.5°	1256.3	1239.2	1207.7	1180.8	1163.7
55°	1161.3	1146.5	1117.4	1088.1	1075.9
57.5°	1066.1	1054.0	1022.1	992.8	983.0
60°	970.8	961.3	927.1	900.2	892.9
62.5°	878.2	861.1	836.8	812.5	802.6
65°	783.2	768.5	744.1	722.1	709.9
67.5°	685.6	673.2	651.4	634.4	624.5
70°	595.3	585.4	563.5	546.4	536.8
72.5°	502.6	492.8	480.6	463.6	456.3
75°	409.7	405.1	392.7	378.2	383.0
77.5°	326.9	317.0	312.1	304.9	297.6
80°	244.1	241.5	236.6	229.3	224.4
82.5°	165.9	165.9	163.6	153.7	153.7
85°	99.9	97.6	95.3	87.8	85.4
87.5°	44.0	39.1	34.1	26.9	24.4
90°	2.1	26.2	43.7	54.8	59.0
92.5°	54.8	46.0	52.5	57.0	59.0
95°	142.2	69.9	85.2	96.4	94.1
97.5°	256.1	76.7	111.5	118.3	120.4
100°	387.6	87.6	124.8	142.2	146.6
102.5°	531.9	527.7	129.2	153.1	159.9
105°	665.5	731.3	133.7	157.5	166.4
107.5°	821.0	875.6	138.1	161.9	170.8
110°	969.9	1015.7	383.2	164.3	172.9

TEST NUMBER: P928664

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1110.1	1149.3	1112.1	168.5	175.2
115°	1258.8	1295.9	1350.9	337.2	179.6
117.5°	1388.0	1431.7	1469.1	1155.8	582.3
120°	1532.5	1565.3	1604.8	1631.1	1335.5
122.5°	1655.0	1690.1	1734.0	1747.0	1749.4
125°	1779.8	1808.4	1850.0	1865.3	1871.8
127.5°	1893.7	1924.3	1957.3	1979.1	1981.3
130°	2001.0	2036.1	2060.0	2084.2	2082.2
132.5°	2110.4	2139.0	2163.0	2182.7	2180.7
135°	2202.5	2237.6	2257.1	2279.2	2274.7
137.5°	2298.7	2325.0	2347.0	2368.9	2362.4
140°	2392.8	2410.4	2434.4	2454.1	2443.2
142.5°	2471.8	2487.1	2515.5	2532.9	2522.0
145°	2555.0	2552.7	2589.8	2605.2	2594.3
147.5°	2627.1	2620.6	2657.7	2668.6	2660.1
150°	2697.2	2681.9	2717.0	2730.0	2719.1
152.5°	2756.2	2738.8	2771.6	2784.9	2769.5
155°	2813.2	2793.7	2819.9	2832.9	2815.5
157.5°	2859.2	2841.7	2861.5	2876.9	2859.2
160°	2898.7	2885.4	2898.7	2911.7	2896.3
162.5°	2933.5	2920.6	2931.5	2946.8	2927.1
165°	2964.2	2951.2	2957.7	2973.0	2957.7
167.5°	2988.4	2975.2	2981.9	2997.2	2977.5
170°	3008.2	2994.9	2999.3	3014.7	2994.9
172.5°	3021.1	3008.2	3012.6	3027.9	3008.2
175°	3032.0	3016.7	3021.1	3036.5	3014.7
177.5°	3036.5	3021.1	3023.5	3038.8	3019.1
180°	3025.6	3025.6	3025.6	3025.6	3025.6

TEST NUMBER: P928664

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-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	8.71	9.50	9.73	10.53	11.91	8.27	9.07	9.29	10.10	11.48
	3H	10.36	11.07	11.39	12.11	13.51	9.89	10.60	10.92	11.64	13.04
	4H	10.95	11.62	11.99	12.66	14.07	10.47	11.15	11.52	12.19	13.60
	6H	11.34	11.97	12.40	13.01	14.43	10.87	11.49	11.92	12.53	13.95
	8H	11.45	12.04	12.51	13.10	14.51	10.97	11.56	12.03	12.62	14.04
	12H	11.49	12.06	12.56	13.11	14.55	11.01	11.57	12.08	12.63	14.07
4H	2H	9.16	9.83	10.21	10.88	12.28	8.81	9.49	9.86	10.53	11.94
	3H	11.02	11.58	12.08	12.65	14.07	10.63	11.19	11.69	12.26	13.68
	4H	11.73	12.25	12.80	13.31	14.75	11.33	11.84	12.39	12.90	14.35
	6H	12.25	12.69	13.32	13.77	15.21	11.84	12.28	12.91	13.36	14.80
	8H	12.39	12.81	13.47	13.88	15.34	11.98	12.40	13.06	13.47	14.92
	12H	12.46	12.84	13.56	13.93	15.39	12.04	12.42	13.13	13.51	14.96
8H	4H	11.92	12.34	13.00	13.42	14.87	11.56	11.98	12.64	13.05	14.51
	6H	12.55	12.90	13.65	14.02	15.46	12.19	12.53	13.29	13.65	15.10
	8H	12.78	13.08	13.88	14.18	15.64	12.41	12.71	13.51	13.81	15.28
	12H	12.90	13.17	14.01	14.27	15.77	12.52	12.78	13.63	13.88	15.39
12H	4H	11.91	12.28	13.00	13.37	14.83	11.55	11.93	12.65	13.02	14.48
	6H	12.58	12.89	13.69	13.99	15.45	12.23	12.53	13.34	13.63	15.10
	8H	12.82	13.09	13.93	14.18	15.69	12.47	12.73	13.57	13.83	15.33