

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: P928738

Luminaire Tested: DFN2DIP-HX4F0-100D110US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928738
REPORT IS A COMBINATION OF REPORTS P900958 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-100D110US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

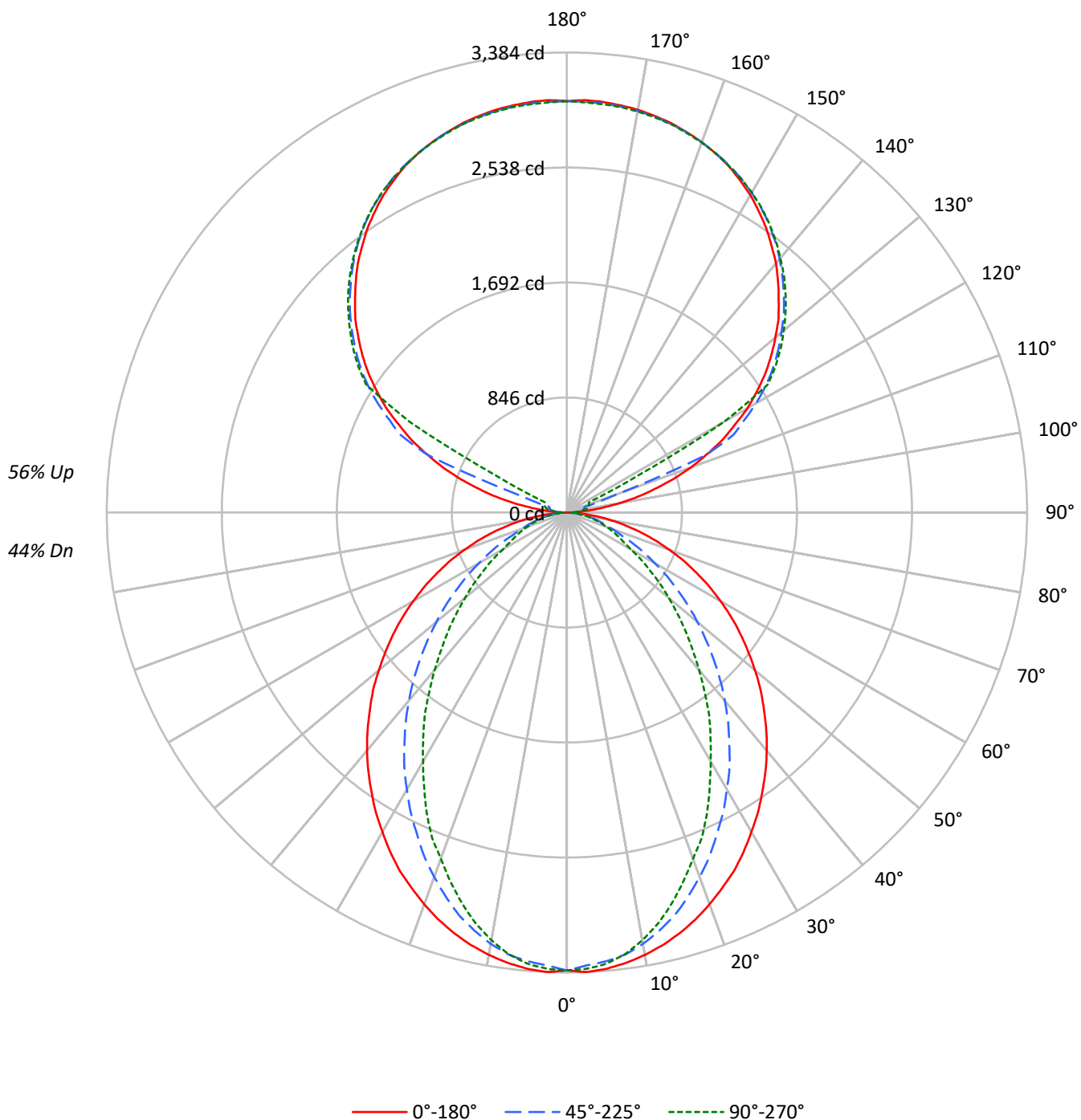
Lumens per Lamp: N/A
Luminaire Lumens: 15802.8 lumens
Efficiency: N/A
Efficacy: 84.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 186.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P928738

CATALOG NUMBER: DFN2DIP-HX4F0-100D110US930-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P928738

CATALOG NUMBER: DFN2DIP-HX4F0-100D110US930-RLLONL

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	106	106	106	106	97	97	97	97	80	80	80	65	65	65	50	50	50
1	97	93	89	86	89	85	82	79	71	68	66	57	56	55	45	44	43
2	89	81	76	71	81	75	70	66	62	59	56	51	48	46	40	39	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	40	36	34	32
4	74	64	56	51	68	59	52	47	49	45	41	41	37	34	33	30	28
5	68	57	49	44	62	53	46	41	44	39	35	37	33	30	30	27	25
6	63	51	44	38	58	47	41	36	40	35	31	33	29	26	27	24	22
7	58	46	39	33	53	43	36	31	37	31	27	30	26	24	25	22	20
8	54	42	35	30	50	39	33	28	33	28	24	28	24	21	23	20	18
9	50	39	31	26	46	36	29	25	31	26	22	26	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2505	2505	2505
5°	2509	2465	2481
10°	2484	2417	2400
15°	2450	2337	2275
20°	2405	2227	2122
25°	2359	2104	1975
30°	2297	1978	1787
35°	2236	1842	1622
40°	2174	1701	1434
45°	2103	1545	1262
50°	2029	1388	1095
55°	1951	1219	935
60°	1861	1043	769
65°	1758	864	693
70°	1633	697	627
75°	1476	615	571
80°	1249	517	495
85°	873	346	373

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2103 cd/sqm

TEST NUMBER: P928738

CATALOG NUMBER: DFN2DIP-HX4F0-100D110US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	315.7	2.0
10°-20°	866.6	5.5
20°-30°	1216.7	7.7
30°-40°	1326.3	8.4
40°-50°	1219.0	7.7
50°-60°	957.3	6.1
60°-70°	623.1	3.9
70°-80°	320.8	2.0
80°-90°	87.2	0.6
90°-100°	99.8	0.6
100°-110°	371.9	2.4
110°-120°	986.4	6.2
120°-130°	1636.0	10.4
130°-140°	1737.8	11.0
140°-150°	1615.1	10.2
150°-160°	1298.5	8.2
160°-170°	836.7	5.3
170°-180°	288.0	1.8
0°-30°	2399.0	15.2
0°-40°	3725.3	23.6
0°-60°	5901.7	37.3
0°-90°	6932.8	43.9
90°-120°	1458.0	9.2
90°-150°	6446.8	40.8
90°-180°	8870.0	56.1
0°-180°	15802.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3368	3368	3368	3368	3368	
5°	3368	3353	3313	3341	3332	319
15°	3204	3170	3067	3009	2978	903
25°	2908	2810	2609	2484	2439	1337
35°	2506	2350	2082	1890	1823	1568
45°	2048	1844	1524	1308	1234	1582
55°	1558	1320	991	808	750	1392
65°	1052	805	530	427	418	1043
75°	561	347	244	222	220	593
85°	131	67	58	58	58	150
90°	2	26	44	55	59	15
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: P928738

CATALOG NUMBER: DFN2DIP-HX4F0-100D110US930-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3368.4	3368.4	3368.4	3368.4	3368.4
2.5°	3383.6	3368.4	3334.7	3365.5	3359.3
5°	3368.4	3353.2	3313.4	3340.9	3331.8
7.5°	3340.9	3322.8	3280.0	3292.0	3276.9
10°	3304.3	3283.0	3222.2	3212.8	3194.7
12.5°	3258.8	3231.2	3148.8	3130.7	3097.0
15°	3203.8	3170.1	3066.6	3008.7	2978.3
17.5°	3139.7	3090.9	2962.9	2895.9	2847.0
20°	3066.6	3005.5	2853.2	2777.2	2709.9
22.5°	2987.4	2917.2	2740.3	2636.9	2591.2
25°	2908.2	2810.5	2609.3	2484.4	2438.6
27.5°	2813.7	2709.9	2487.4	2344.1	2273.9
30°	2713.1	2597.0	2353.1	2198.0	2115.5
32.5°	2615.5	2475.1	2225.4	2042.4	1966.0
35°	2505.8	2350.3	2082.2	1890.1	1822.7
37.5°	2399.1	2231.2	1947.9	1737.4	1661.4
40°	2286.2	2103.5	1807.6	1591.2	1512.0
42.5°	2170.4	1975.4	1667.6	1441.8	1365.8
45°	2048.5	1844.1	1524.3	1307.6	1234.5
47.5°	1932.8	1716.4	1387.1	1170.4	1103.5
50°	1804.7	1588.3	1252.9	1042.4	978.7
52.5°	1679.5	1450.9	1124.9	923.6	865.8
55°	1557.5	1319.9	990.6	807.9	750.0
57.5°	1432.8	1188.8	872.0	701.1	652.3
60°	1304.7	1060.8	746.8	591.5	542.7
62.5°	1179.8	935.9	640.0	493.9	469.6
65°	1051.8	804.6	530.4	426.9	417.5
67.5°	929.8	682.7	426.9	374.8	365.8
70°	801.7	564.1	353.5	323.1	310.8
72.5°	679.8	454.0	295.6	271.3	265.2
75°	560.8	347.4	243.8	222.5	219.6
77.5°	442.1	246.8	192.1	179.8	173.7
80°	332.1	176.9	146.2	134.2	134.2
82.5°	231.5	119.0	100.6	94.5	94.5
85°	131.0	66.9	57.9	57.9	57.9
87.5°	48.8	24.3	24.3	21.4	21.4
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: P928738

CATALOG NUMBER: DFN2DIP-HX4F0-100D110US930-RLLONL

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: P928738

CATALOG NUMBER: DFN2DIP-HX4F0-100D110US930-RLONL

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	9.74	10.52	10.75	11.54	12.90	5.71	6.49	6.72	7.51	8.87
	3H	11.41	12.11	12.44	13.14	14.52	6.90	7.60	7.92	8.62	10.00
	4H	12.02	12.68	13.06	13.71	15.10	7.35	8.01	8.38	9.04	10.43
	6H	12.44	13.05	13.49	14.08	15.48	7.67	8.28	8.71	9.31	10.71
	8H	12.56	13.14	13.62	14.19	15.59	7.76	8.34	8.81	9.39	10.78
	12H	12.62	13.18	13.68	14.22	15.64	7.80	8.35	8.86	9.40	10.81
4H	2H	9.75	10.41	10.79	11.44	12.83	6.30	6.96	7.34	7.99	9.38
	3H	11.58	12.13	12.63	13.19	14.59	7.65	8.20	8.70	9.26	10.66
	4H	12.27	12.77	13.32	13.82	15.24	8.20	8.70	9.25	9.75	11.17
	6H	12.78	13.21	13.85	14.29	15.70	8.61	9.05	9.68	10.12	11.54
	8H	12.96	13.36	14.02	14.43	15.86	8.74	9.15	9.81	10.21	11.65
	12H	13.05	13.41	14.13	14.49	15.93	8.81	9.17	9.89	10.25	11.69
8H	4H	12.23	12.64	13.30	13.70	15.13	8.47	8.88	9.54	9.94	11.37
	6H	12.80	13.13	13.89	14.24	15.67	8.99	9.32	10.08	10.43	11.86
	8H	13.01	13.31	14.11	14.40	15.85	9.18	9.48	10.28	10.57	12.02
	12H	13.15	13.41	14.25	14.50	15.98	9.30	9.56	10.40	10.65	12.14
12H	4H	12.18	12.55	13.27	13.63	15.06	8.48	8.84	9.56	9.92	11.36
	6H	12.77	13.07	13.87	14.16	15.61	9.04	9.33	10.14	10.42	11.87
	8H	12.99	13.25	14.09	14.34	15.82	9.25	9.51	10.35	10.60	12.08