

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: P928666

Luminaire Tested: DFN2DIP-HX4F0-080D110US930-RLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928666
REPORT IS A COMBINATION OF REPORTS P900954 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US930-RLLONL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

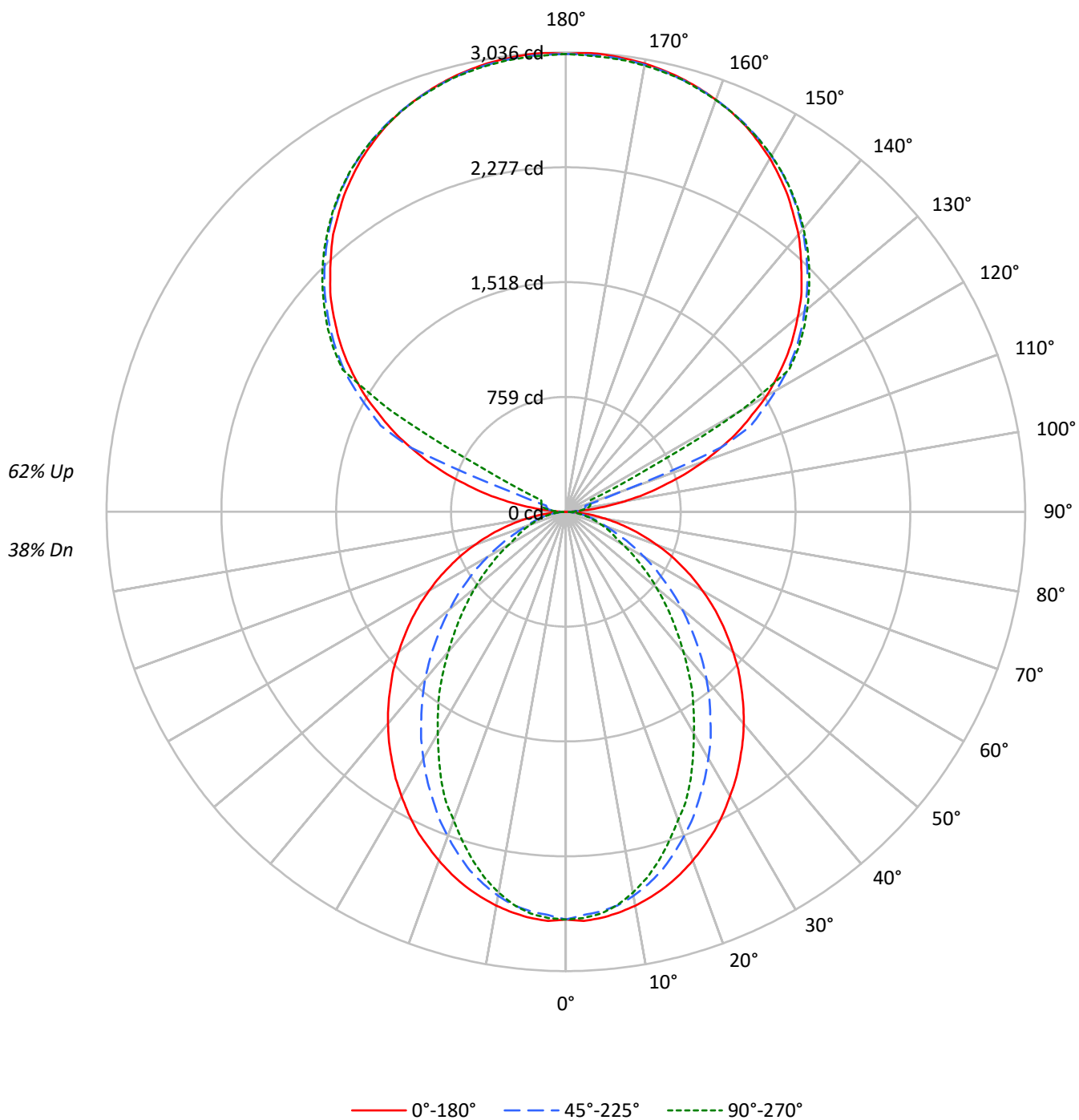
Lumens per Lamp: N/A
Luminaire Lumens: 14417.3 lumens
Efficiency: N/A
Efficacy: 88.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

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: P928666

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLLONL

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	104	104	104	104	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	91	88	84	87	83	80	77	68	66	64	54	52	51	41	40	39
2	87	80	74	70	79	73	68	64	60	56	53	48	45	43	36	35	34
3	80	71	64	58	72	65	59	54	53	49	45	42	39	37	33	31	29
4	73	63	55	50	66	58	51	46	47	43	39	38	35	32	29	27	25
5	67	56	48	43	61	51	45	40	43	38	34	34	31	28	27	24	22
6	62	50	43	37	56	46	39	35	38	33	30	31	27	25	24	22	20
7	57	46	38	33	52	42	35	30	35	30	26	28	25	22	22	20	18
8	53	41	34	29	48	38	32	27	32	27	23	26	22	20	20	18	16
9	50	38	31	26	45	35	28	24	29	24	21	24	20	18	19	16	14
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2004	2004	2004
5°	2007	1972	1985
10°	1987	1934	1920
15°	1960	1870	1820
20°	1924	1782	1698
25°	1887	1683	1580
30°	1838	1582	1430
35°	1789	1474	1298
40°	1740	1361	1147
45°	1682	1236	1010
50°	1623	1110	876
55°	1561	975	748
60°	1489	835	616
65°	1407	691	554
70°	1307	558	502
75°	1181	492	457
80°	999	414	396
85°	699	277	299

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1682 cd/sqm

TEST NUMBER: P928666

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	252.6	1.8
10°-20°	693.3	4.8
20°-30°	973.4	6.8
30°-40°	1061.0	7.4
40°-50°	975.2	6.8
50°-60°	765.9	5.3
60°-70°	498.5	3.5
70°-80°	256.6	1.8
80°-90°	70.8	0.5
90°-100°	99.8	0.7
100°-110°	371.9	2.6
110°-120°	986.4	6.8
120°-130°	1636.0	11.3
130°-140°	1737.8	12.1
140°-150°	1615.1	11.2
150°-160°	1298.5	9.0
160°-170°	836.7	5.8
170°-180°	288.0	2.0
0°-30°	1919.2	13.3
0°-40°	2980.3	20.7
0°-60°	4721.4	32.7
0°-90°	5547.3	38.5
90°-120°	1458.0	10.1
90°-150°	6446.8	44.7
90°-180°	8870.0	61.5
0°-180°	14417.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2695	2695	2695	2695	2695	
5°	2695	2683	2651	2673	2666	256
15°	2563	2536	2453	2407	2383	722
25°	2326	2248	2088	1988	1951	1070
35°	2005	1880	1666	1512	1458	1255
45°	1639	1475	1219	1046	988	1266
55°	1246	1056	792	646	600	1113
65°	841	644	424	342	334	834
75°	449	278	195	178	176	475
85°	105	54	46	46	46	120
90°	2	26	44	55	59	13
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: P928666

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-RLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2694.7	2694.7	2694.7	2694.7	2694.7
2.5°	2706.9	2694.7	2667.8	2692.4	2687.5
5°	2694.7	2682.6	2650.7	2672.7	2665.5
7.5°	2672.7	2658.2	2624.1	2633.7	2621.4
10°	2643.5	2626.4	2577.8	2570.3	2555.8
12.5°	2607.0	2585.0	2519.0	2504.5	2477.6
15°	2563.0	2536.1	2453.3	2407.0	2382.7
17.5°	2511.7	2472.7	2370.3	2316.7	2277.6
20°	2453.3	2404.4	2282.6	2221.8	2167.9
22.5°	2389.9	2333.8	2192.3	2109.5	2073.0
25°	2326.5	2248.4	2087.5	1987.6	1950.9
27.5°	2250.9	2167.9	1989.9	1875.3	1819.2
30°	2170.5	2077.6	1882.6	1758.4	1692.3
32.5°	2092.3	1980.1	1780.4	1633.9	1572.9
35°	2004.7	1880.2	1665.7	1512.1	1458.2
37.5°	1919.2	1785.0	1558.4	1389.9	1329.1
40°	1829.0	1682.8	1446.1	1272.9	1209.5
42.5°	1736.4	1580.4	1334.0	1153.5	1092.6
45°	1638.8	1475.3	1219.4	1046.1	987.6
47.5°	1546.2	1373.1	1109.7	936.4	882.8
50°	1443.7	1270.7	1002.4	833.9	782.9
52.5°	1343.6	1160.6	899.8	739.0	692.7
55°	1246.1	1055.9	792.5	646.3	600.0
57.5°	1146.2	951.1	697.6	561.0	521.8
60°	1043.7	848.7	597.4	473.2	434.2
62.5°	943.9	748.7	512.1	395.1	375.7
65°	841.4	643.7	424.3	341.6	334.0
67.5°	743.9	546.2	341.6	299.8	292.7
70°	641.4	451.3	282.8	258.4	248.7
72.5°	543.8	363.2	236.5	217.1	212.1
75°	448.7	277.9	195.1	178.0	175.7
77.5°	353.7	197.4	153.7	143.8	139.0
80°	265.7	141.6	117.0	107.3	107.3
82.5°	185.2	95.2	80.4	75.6	75.6
85°	104.8	53.5	46.3	46.3	46.3
87.5°	39.0	19.4	19.4	17.1	17.1
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: P928666

CATALOG NUMBER: DFN2DIP-HX4F0-080D110US930-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

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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	8.38	9.13	9.44	10.18	11.61	4.36	5.10	5.41	6.16	7.59
	3H	10.05	10.72	11.12	11.78	13.23	5.54	6.20	6.60	7.27	8.72
	4H	10.66	11.29	11.74	12.36	13.81	5.99	6.62	7.06	7.68	9.14
	6H	11.08	11.66	12.16	12.73	14.19	6.31	6.89	7.39	7.96	9.42
	8H	11.20	11.75	12.29	12.84	14.30	6.39	6.95	7.48	8.03	9.49
	12H	11.26	11.78	12.36	12.86	14.35	6.44	6.96	7.53	8.04	9.52
4H	2H	8.39	9.02	9.47	10.09	11.54	4.94	5.57	6.02	6.64	8.09
	3H	10.21	10.74	11.30	11.83	13.30	6.29	6.81	7.38	7.90	9.37
	4H	10.90	11.38	12.00	12.47	13.96	6.83	7.31	7.93	8.40	9.88
	6H	11.41	11.83	12.52	12.93	14.41	7.25	7.66	8.35	8.77	10.25
	8H	11.59	11.97	12.69	13.07	14.57	7.38	7.76	8.48	8.86	10.36
	12H	11.68	12.03	12.80	13.14	14.64	7.44	7.79	8.56	8.90	10.40
8H	4H	10.86	11.25	11.97	12.35	13.85	7.11	7.49	8.21	8.59	10.09
	6H	11.43	11.75	12.55	12.89	14.38	7.62	7.94	8.75	9.08	10.58
	8H	11.65	11.92	12.78	13.05	14.56	7.82	8.09	8.95	9.22	10.73
	12H	11.78	12.03	12.92	13.14	14.70	7.93	8.18	9.07	9.29	10.85
12H	4H	10.81	11.16	11.93	12.27	13.77	7.11	7.45	8.23	8.57	10.07
	6H	11.40	11.68	12.54	12.80	14.32	7.67	7.95	8.80	9.07	10.59
	8H	11.62	11.87	12.76	12.98	14.54	7.88	8.12	9.02	9.24	10.79