

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: P927040

Luminaire Tested: DFN2DIP-HX4F0-080D100US830-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P927040
REPORT IS A COMBINATION OF REPORTS P900935 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D100US830-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

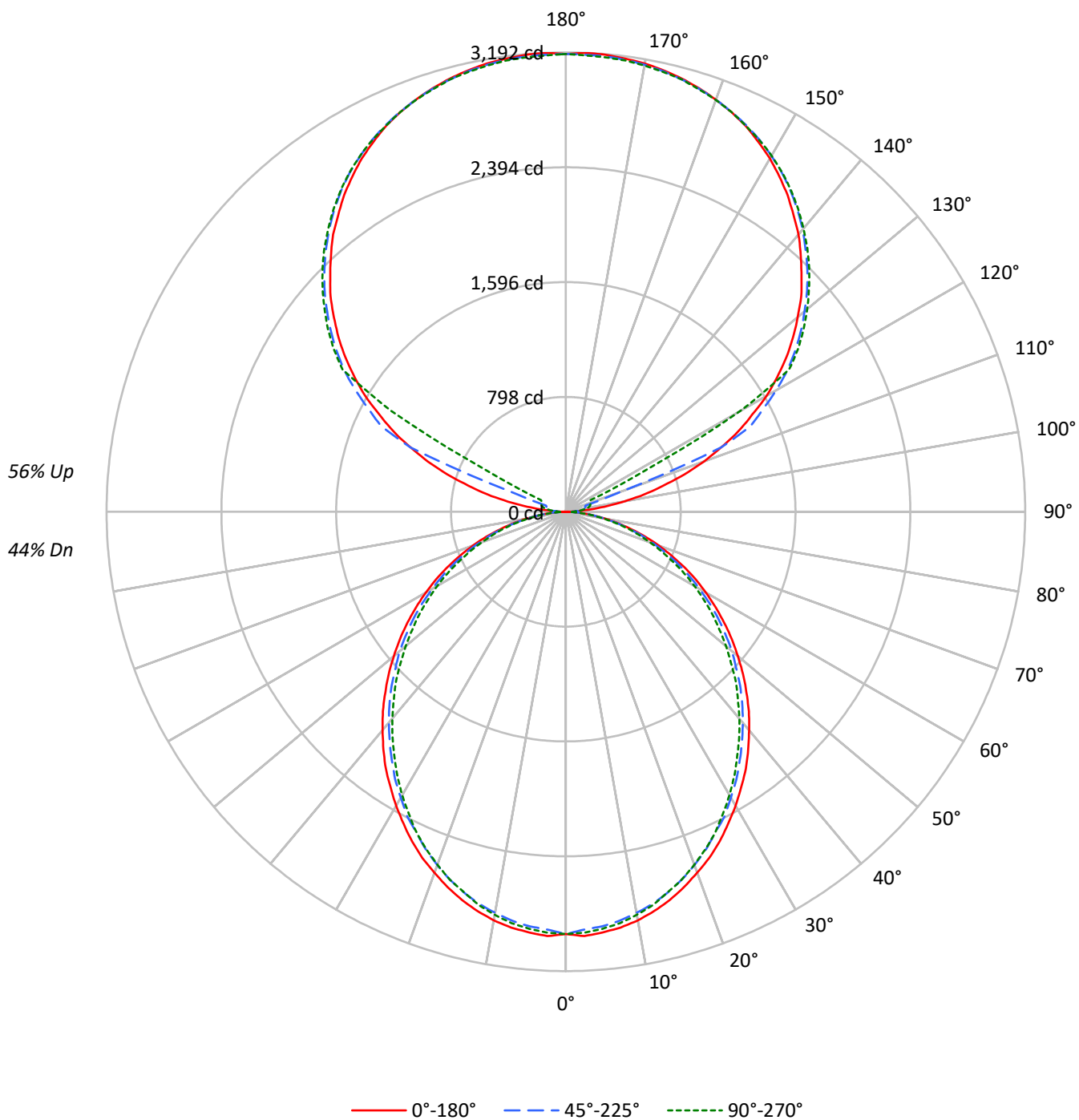
Lumens per Lamp: N/A
Luminaire Lumens: 16795.4 lumens
Efficiency: N/A
Efficacy: 109.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 152.8
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: P927040

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US830-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
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	51	51	51
1	97	92	88	85	88	85	81	78	70	68	66	57	56	54	45	44	43
2	88	81	74	69	80	74	69	64	62	58	55	50	48	45	40	38	36
3	80	71	64	58	73	65	59	54	54	50	46	44	41	38	35	33	31
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	31	29	27
5	67	56	48	42	61	51	44	39	43	38	34	35	31	28	28	25	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	20
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	23	20	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	16
9	49	37	30	25	45	35	28	23	29	24	20	25	20	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2181	2181	2181
5°	2185	2151	2166
10°	2168	2123	2137
15°	2136	2088	2091
20°	2093	2039	2044
25°	2050	1982	1990
30°	1997	1928	1921
35°	1946	1864	1848
40°	1884	1800	1779
45°	1822	1736	1708
50°	1753	1668	1626
55°	1682	1591	1550
60°	1602	1498	1464
65°	1514	1402	1362
70°	1402	1285	1252
75°	1247	1145	1151
80°	1062	967	958
85°	771	659	637

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1822 cd/sqm

TEST NUMBER: P927040

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US830-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	276.1	1.6
10°-20°	776.9	4.6
20°-30°	1141.8	6.8
30°-40°	1326.1	7.9
40°-50°	1324.5	7.9
50°-60°	1154.9	6.9
60°-70°	853.7	5.1
70°-80°	483.0	2.9
80°-90°	133.1	0.8
90°-100°	104.9	0.6
100°-110°	391.0	2.3
110°-120°	1037.0	6.2
120°-130°	1719.9	10.2
130°-140°	1827.0	10.9
140°-150°	1697.9	10.1
150°-160°	1365.1	8.1
160°-170°	879.6	5.2
170°-180°	302.8	1.8
0°-30°	2194.9	13.1
0°-40°	3521.0	21.0
0°-60°	6000.4	35.7
0°-90°	7470.2	44.5
90°-120°	1532.9	9.1
90°-150°	6777.7	40.4
90°-180°	9325.0	55.5
0°-180°	16795.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2934	2934	2934	2934	2934	
5°	2934	2923	2892	2914	2909	278
15°	2793	2776	2739	2751	2737	787
25°	2528	2505	2457	2463	2457	1163
35°	2181	2153	2107	2090	2076	1362
45°	1775	1755	1712	1682	1670	1370
55°	1343	1326	1292	1258	1244	1201
65°	906	889	860	835	821	895
75°	474	468	454	437	443	506
85°	116	113	110	102	99	129
90°	2	28	46	58	62	15
95°	150	74	90	101	99	177
105°	700	769	140	166	175	748
115°	1323	1362	1420	354	189	1303
125°	1871	1901	1945	1961	1968	1669
135°	2316	2352	2373	2396	2392	1789
145°	2686	2684	2723	2739	2727	1680
155°	2958	2937	2965	2978	2960	1363
165°	3116	3103	3110	3126	3110	880
175°	3188	3172	3176	3192	3169	303
180°	3181	3181	3181	3181	3181	

TEST NUMBER: P927040

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2933.8	2933.8	2933.8	2933.8	2933.8
2.5°	2950.9	2936.8	2905.7	2933.8	2928.4
5°	2933.8	2922.8	2891.7	2914.1	2908.7
7.5°	2914.1	2897.3	2866.2	2889.0	2883.3
10°	2883.3	2863.5	2829.7	2852.1	2843.8
12.5°	2840.8	2824.0	2790.2	2804.2	2798.6
15°	2792.9	2776.1	2739.3	2750.7	2736.6
17.5°	2733.6	2716.9	2680.0	2694.1	2680.0
20°	2668.7	2651.9	2612.4	2620.8	2609.7
22.5°	2604.0	2578.6	2541.7	2541.7	2536.1
25°	2527.7	2505.3	2457.4	2462.8	2457.4
27.5°	2443.0	2423.3	2386.7	2378.3	2364.3
30°	2358.6	2335.8	2293.7	2285.3	2273.9
32.5°	2268.2	2251.4	2206.2	2189.1	2177.8
35°	2180.8	2152.7	2107.4	2090.4	2076.3
37.5°	2082.0	2056.5	2011.4	1991.6	1977.6
40°	1980.6	1957.8	1912.6	1887.5	1876.0
42.5°	1881.8	1859.0	1814.1	1785.7	1769.0
45°	1774.6	1754.8	1712.3	1681.5	1670.2
47.5°	1670.2	1650.4	1605.2	1574.1	1557.3
50°	1560.0	1546.0	1506.4	1466.9	1452.9
52.5°	1452.9	1433.1	1396.6	1365.5	1345.7
55°	1343.0	1325.9	1292.2	1258.3	1244.2
57.5°	1232.9	1218.8	1182.0	1148.2	1136.7
60°	1122.7	1111.7	1072.1	1041.0	1032.6
62.5°	1015.5	995.8	967.7	939.6	928.2
65°	905.7	888.7	860.5	835.1	821.0
67.5°	792.8	778.5	753.3	733.6	722.2
70°	688.4	677.0	651.6	631.9	620.7
72.5°	581.2	569.9	555.8	536.1	527.7
75°	473.8	468.4	454.1	437.3	443.0
77.5°	378.0	366.6	361.0	352.6	344.2
80°	282.3	279.3	273.6	265.2	259.5
82.5°	191.9	191.9	189.2	177.8	177.8
85°	115.6	112.8	110.2	101.5	98.8
87.5°	50.9	45.2	39.5	31.1	28.2
90°	2.2	27.6	45.9	57.7	62.0
92.5°	57.7	48.4	55.2	59.8	62.0
95°	149.5	73.5	89.6	101.4	99.0
97.5°	269.2	80.6	117.2	124.3	126.6
100°	407.5	92.1	131.2	149.5	154.2
102.5°	559.2	554.8	135.8	161.0	168.0
105°	699.7	768.8	140.5	165.6	174.9
107.5°	863.1	920.5	145.1	170.3	179.5
110°	1019.7	1067.9	402.8	172.8	181.7

TEST NUMBER: P927040

CATALOG NUMBER: DFN2DIP-HX4F0-080D100US830-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1167.0	1208.3	1169.3	177.1	184.3
115°	1323.4	1362.5	1420.2	354.5	188.9
117.5°	1459.2	1505.2	1544.5	1215.2	612.2
120°	1611.2	1645.6	1687.2	1714.8	1404.0
122.5°	1739.9	1776.8	1823.0	1836.6	1839.1
125°	1871.1	1901.2	1944.9	1961.1	1967.8
127.5°	1990.8	2023.1	2057.8	2080.8	2082.9
130°	2103.7	2140.6	2165.8	2191.1	2189.0
132.5°	2218.7	2248.8	2274.0	2294.7	2292.5
135°	2315.5	2352.4	2372.9	2396.1	2391.5
137.5°	2416.7	2444.3	2467.5	2490.5	2483.6
140°	2515.5	2534.2	2559.3	2580.1	2568.6
142.5°	2598.7	2614.8	2644.6	2662.8	2651.4
145°	2686.1	2683.7	2722.8	2738.9	2727.4
147.5°	2761.8	2755.0	2794.0	2805.5	2796.6
150°	2835.6	2819.5	2856.4	2870.1	2858.6
152.5°	2897.6	2879.3	2913.8	2927.7	2911.6
155°	2957.6	2937.0	2964.6	2978.3	2960.0
157.5°	3005.9	2987.6	3008.4	3024.5	3005.9
160°	3047.5	3033.5	3047.5	3061.1	3045.0
162.5°	3084.0	3070.4	3081.9	3098.0	3077.3
165°	3116.3	3102.6	3109.5	3125.6	3109.5
167.5°	3141.7	3127.8	3134.9	3151.1	3130.2
170°	3162.5	3148.6	3153.2	3169.3	3148.6
172.5°	3176.1	3162.5	3167.2	3183.3	3162.5
175°	3187.6	3171.5	3176.1	3192.3	3169.3
177.5°	3192.3	3176.1	3178.7	3194.8	3174.0
180°	3180.8	3180.8	3180.8	3180.8	3180.8

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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	9.45	10.26	10.45	11.28	12.63	9.02	9.83	10.02	10.85	12.19
	3H	11.11	11.84	12.12	12.86	14.23	10.63	11.36	11.65	12.39	13.76
	4H	11.69	12.38	12.72	13.41	14.79	11.22	11.91	12.25	12.94	14.31
	6H	12.09	12.73	13.13	13.76	15.15	11.62	12.25	12.65	13.28	14.67
	8H	12.20	12.80	13.24	13.85	15.23	11.72	12.33	12.76	13.37	14.76
	12H	12.24	12.82	13.29	13.86	15.27	11.76	12.34	12.81	13.38	14.79
4H	2H	9.91	10.60	10.94	11.62	13.00	9.56	10.25	10.59	11.28	12.65
	3H	11.77	12.35	12.81	13.40	14.79	11.38	11.95	12.42	13.01	14.40
	4H	12.48	13.01	13.53	14.06	15.47	12.08	12.60	13.12	13.65	15.06
	6H	13.00	13.45	14.05	14.52	15.93	12.59	13.04	13.64	14.11	15.52
	8H	13.14	13.57	14.20	14.63	16.05	12.73	13.16	13.79	14.22	15.64
	12H	13.22	13.60	14.29	14.68	16.10	12.79	13.18	13.87	14.25	15.68
8H	4H	12.68	13.10	13.73	14.16	15.58	12.32	12.74	13.37	13.80	15.22
	6H	13.31	13.66	14.39	14.76	16.18	12.94	13.29	14.03	14.40	15.82
	8H	13.53	13.84	14.62	14.92	16.36	13.16	13.47	14.25	14.55	15.99
	12H	13.66	13.93	14.75	15.01	16.49	13.27	13.54	14.37	14.63	16.10
12H	4H	12.66	13.04	13.74	14.12	15.55	12.31	12.69	13.38	13.77	15.19
	6H	13.34	13.64	14.42	14.73	16.17	12.98	13.29	14.07	14.38	15.82
	8H	13.58	13.85	14.67	14.93	16.41	13.22	13.49	14.31	14.57	16.05