

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: P929312

Luminaire Tested: DFN2DIP-HX4F0-080D110US940-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P929312
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-HX4F0-080D110US940-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

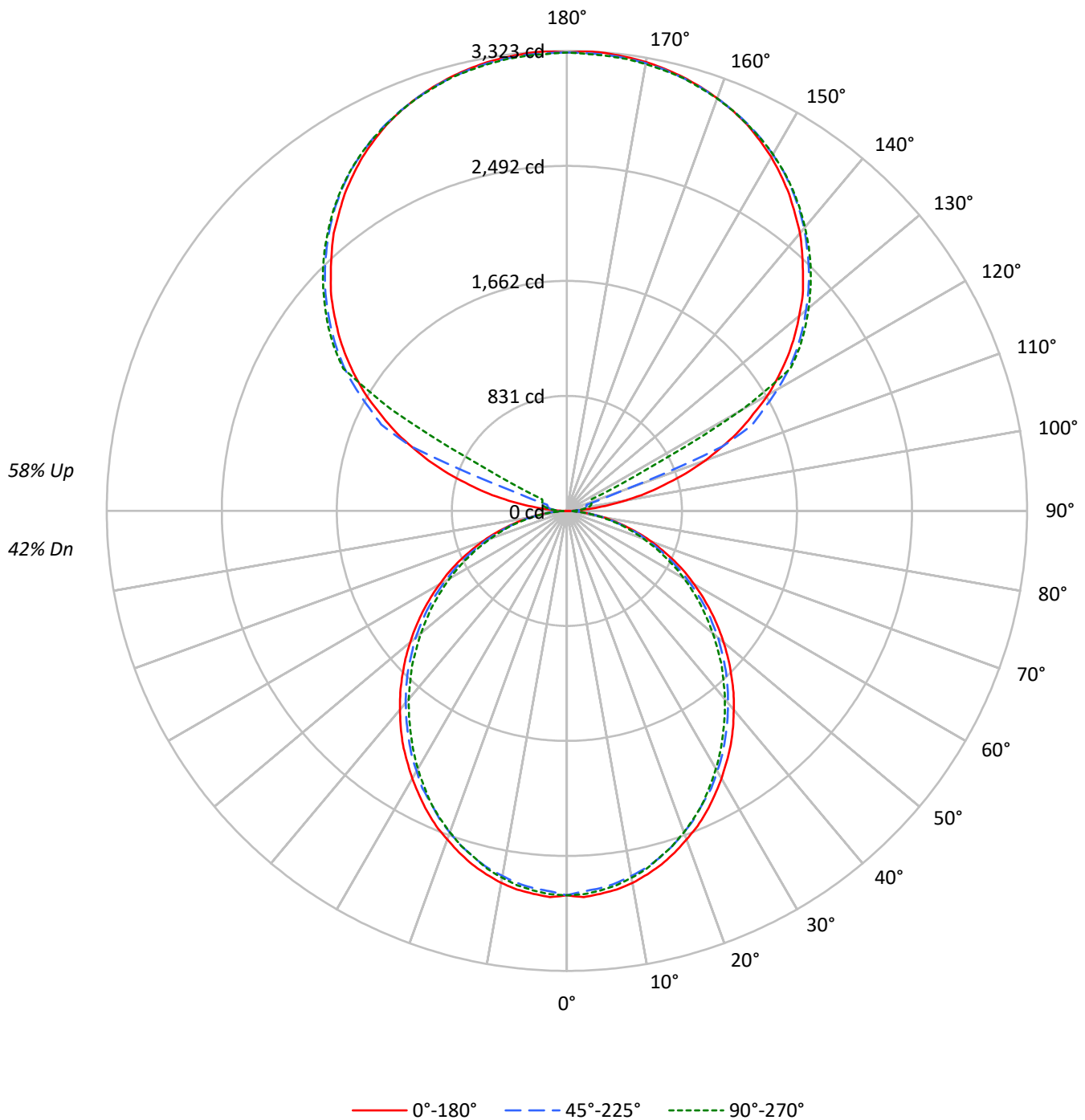
Lumens per Lamp: N/A
Luminaire Lumens: 16778.5 lumens
Efficiency: N/A
Efficacy: 102.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

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

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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	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°	2065	2065	2065
5°	2068	2036	2050
10°	2051	2009	2022
15°	2022	1976	1979
20°	1981	1930	1935
25°	1941	1875	1883
30°	1890	1825	1818
35°	1842	1764	1749
40°	1783	1704	1684
45°	1724	1643	1617
50°	1659	1579	1539
55°	1592	1505	1467
60°	1516	1417	1386
65°	1433	1327	1289
70°	1327	1216	1185
75°	1180	1084	1089
80°	1005	915	906
85°	729	624	603

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1724 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.3	1.6
10°-20°	735.3	4.4
20°-30°	1080.6	6.4
30°-40°	1255.1	7.5
40°-50°	1253.5	7.5
50°-60°	1093.0	6.5
60°-70°	808.0	4.8
70°-80°	457.1	2.7
80°-90°	126.5	0.8
90°-100°	109.2	0.7
100°-110°	407.0	2.4
110°-120°	1079.6	6.4
120°-130°	1790.5	10.7
130°-140°	1902.0	11.3
140°-150°	1767.7	10.5
150°-160°	1421.2	8.5
160°-170°	915.7	5.5
170°-180°	315.2	1.9
0°-30°	2077.3	12.4
0°-40°	3332.3	19.9
0°-60°	5678.8	33.8
0°-90°	7070.4	42.1
90°-120°	1595.8	9.5
90°-150°	7055.9	42.1
90°-180°	9708.0	57.9
0°-180°	16778.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2777	2777	2777	2777	2777	
5°	2777	2766	2737	2758	2753	264
15°	2643	2627	2592	2603	2590	744
25°	2392	2371	2326	2331	2326	1101
35°	2064	2037	1994	1978	1965	1289
45°	1680	1661	1621	1591	1581	1296
55°	1271	1255	1223	1191	1178	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	2	29	48	60	65	15
95°	156	76	93	106	103	184
105°	728	800	146	172	182	778
115°	1378	1418	1478	369	197	1356
125°	1948	1979	2025	2042	2049	1737
135°	2411	2449	2470	2495	2490	1862
145°	2796	2794	2834	2851	2839	1749
155°	3079	3058	3086	3101	3082	1419
165°	3244	3230	3237	3254	3237	917
175°	3318	3302	3307	3323	3300	316
180°	3312	3312	3312	3312	3312	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2776.6	2776.6	2776.6	2776.6	2776.6
2.5°	2792.8	2779.5	2750.0	2776.6	2771.5
5°	2776.6	2766.2	2736.7	2758.0	2752.9
7.5°	2758.0	2742.1	2712.7	2734.2	2728.8
10°	2728.8	2710.1	2678.1	2699.3	2691.4
12.5°	2688.6	2672.7	2640.7	2654.0	2648.6
15°	2643.3	2627.4	2592.5	2603.3	2590.0
17.5°	2587.2	2571.3	2536.4	2549.8	2536.4
20°	2525.7	2509.8	2472.4	2480.4	2469.9
22.5°	2464.5	2440.4	2405.5	2405.5	2400.2
25°	2392.3	2371.0	2325.7	2330.8	2325.7
27.5°	2312.1	2293.4	2258.8	2250.9	2237.6
30°	2232.2	2210.6	2170.8	2162.8	2152.0
32.5°	2146.7	2130.8	2088.0	2071.8	2061.1
35°	2063.9	2037.3	1994.5	1978.4	1965.1
37.5°	1970.4	1946.3	1903.6	1884.9	1871.6
40°	1874.4	1852.9	1810.1	1786.3	1775.5
42.5°	1781.0	1759.4	1716.9	1690.0	1674.2
45°	1679.5	1660.8	1620.6	1591.4	1580.7
47.5°	1580.7	1562.0	1519.2	1489.7	1473.9
50°	1476.4	1463.1	1425.7	1388.3	1375.0
52.5°	1375.0	1356.3	1321.8	1292.3	1273.6
55°	1271.0	1254.9	1222.9	1190.9	1177.5
57.5°	1166.8	1153.5	1118.7	1086.6	1075.8
60°	1062.6	1052.1	1014.6	985.2	977.3
62.5°	961.1	942.5	915.8	889.2	878.4
65°	857.2	841.1	814.4	790.3	777.0
67.5°	750.4	736.8	713.0	694.3	683.5
70°	651.5	640.7	616.7	598.0	587.5
72.5°	550.1	539.4	526.0	507.4	499.4
75°	448.4	443.3	429.8	413.9	419.2
77.5°	357.8	347.0	341.6	333.7	325.8
80°	267.2	264.3	258.9	251.0	245.6
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.4	106.8	104.3	96.1	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	2.3	28.7	47.8	60.0	64.6
92.5°	60.0	50.4	57.4	62.4	64.6
95°	155.7	76.5	93.3	105.5	103.0
97.5°	280.3	83.9	122.0	129.4	131.7
100°	424.2	95.9	136.6	155.7	160.5
102.5°	582.1	577.6	141.4	167.6	175.0
105°	728.4	800.4	146.3	172.4	182.1
107.5°	898.6	958.3	151.1	177.2	187.0
110°	1061.6	1111.7	419.4	179.8	189.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1215.0	1257.9	1217.2	184.4	191.8
115°	1377.7	1418.4	1478.5	369.0	196.6
117.5°	1519.2	1567.0	1607.9	1265.0	637.3
120°	1677.3	1713.2	1756.4	1785.2	1461.6
122.5°	1811.4	1849.7	1897.8	1912.1	1914.7
125°	1947.9	1979.3	2024.8	2041.5	2048.7
127.5°	2072.6	2106.1	2142.2	2166.1	2168.5
130°	2190.0	2228.5	2254.6	2281.1	2278.9
132.5°	2309.8	2341.1	2367.4	2389.0	2386.7
135°	2410.6	2449.0	2470.3	2494.6	2489.7
137.5°	2515.9	2544.6	2568.8	2592.7	2585.6
140°	2618.9	2638.2	2664.4	2686.0	2674.0
142.5°	2705.3	2722.1	2753.2	2772.2	2760.3
145°	2796.4	2793.8	2834.5	2851.4	2839.4
147.5°	2875.3	2868.1	2908.8	2920.8	2911.4
150°	2952.1	2935.3	2973.7	2987.9	2976.0
152.5°	3016.7	2997.6	3033.4	3048.0	3031.2
155°	3079.0	3057.6	3086.3	3100.6	3081.5
157.5°	3129.3	3110.2	3131.9	3148.7	3129.3
160°	3172.6	3158.0	3172.6	3186.8	3170.0
162.5°	3210.7	3196.5	3208.4	3225.2	3203.6
165°	3244.3	3230.0	3237.2	3253.9	3237.2
167.5°	3270.7	3256.2	3263.6	3280.4	3258.8
170°	3292.4	3277.8	3282.6	3299.5	3277.8
172.5°	3306.6	3292.4	3297.2	3314.0	3292.4
175°	3318.5	3301.7	3306.6	3323.4	3299.5
177.5°	3323.4	3306.6	3309.1	3325.9	3304.3
180°	3311.5	3311.5	3311.5	3311.5	3311.5

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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	9.02	9.81	10.04	10.84	12.22	8.59	9.38	9.61	10.41	11.79
	3H	10.68	11.39	11.71	12.43	13.83	10.20	10.91	11.23	11.95	13.35
	4H	11.26	11.94	12.30	12.98	14.38	10.79	11.46	11.83	12.50	13.91
	6H	11.66	12.28	12.71	13.32	14.74	11.18	11.80	12.24	12.85	14.27
	8H	11.76	12.35	12.82	13.41	14.83	11.28	11.88	12.34	12.94	14.35
	12H	11.81	12.37	12.87	13.43	14.86	11.33	11.89	12.39	12.94	14.38
4H	2H	9.47	10.15	10.52	11.19	12.60	9.13	9.80	10.18	10.84	12.25
	3H	11.33	11.90	12.39	12.97	14.39	10.94	11.50	12.00	12.57	13.99
	4H	12.05	12.56	13.11	13.62	15.06	11.64	12.16	12.71	13.22	14.66
	6H	12.56	13.00	13.63	14.09	15.52	12.15	12.59	13.22	13.68	15.11
	8H	12.71	13.12	13.78	14.20	15.65	12.29	12.71	13.37	13.79	15.24
	12H	12.78	13.15	13.87	14.24	15.70	12.36	12.73	13.45	13.82	15.28
8H	4H	12.24	12.65	13.31	13.73	15.18	11.88	12.29	12.95	13.37	14.82
	6H	12.87	13.21	13.97	14.33	15.78	12.50	12.85	13.60	13.97	15.41
	8H	13.09	13.39	14.19	14.49	15.96	12.72	13.02	13.82	14.12	15.59
	12H	13.22	13.48	14.33	14.58	16.09	12.83	13.10	13.94	14.19	15.70
12H	4H	12.22	12.60	13.31	13.69	15.14	11.87	12.24	12.96	13.33	14.79
	6H	12.90	13.20	14.00	14.30	15.77	12.55	12.85	13.65	13.95	15.42
	8H	13.14	13.40	14.25	14.50	16.01	12.78	13.04	13.89	14.14	15.65

END OF REPORT