

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: P924596

Luminaire Tested: DFN2DIP-HX4F0-080D110US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924596
REPORT IS A COMBINATION OF REPORTS P899433 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-080D110US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

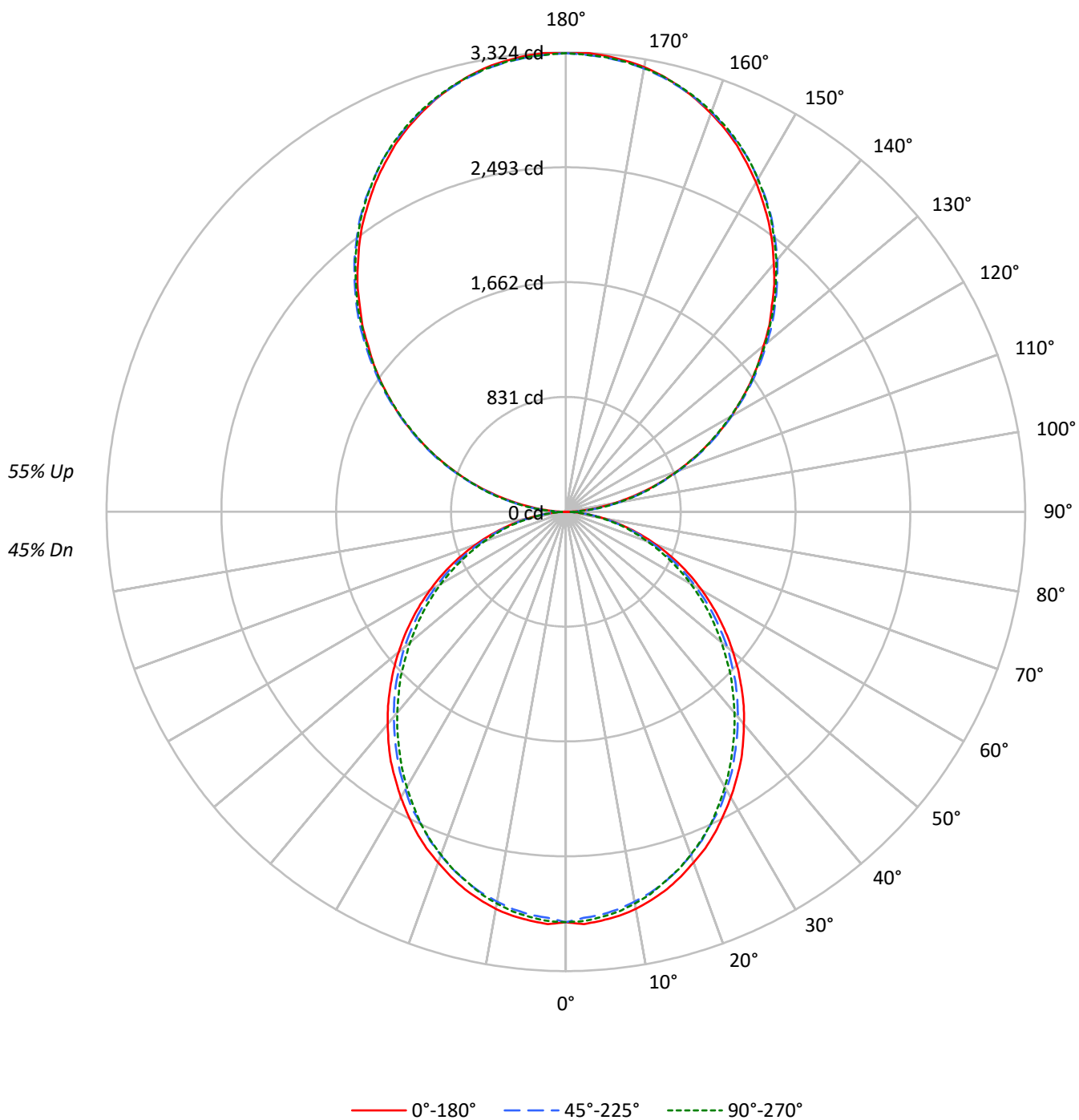
Lumens per Lamp: N/A
Luminaire Lumens: 16842.9 lumens
Efficiency: N/A
Efficacy: 118.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 141.9
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	106	106	106	106	97	97	97	97	81	81	81	65	65	65	51	51	51
1	97	92	88	85	88	85	81	78	71	68	66	57	56	54	45	44	43
2	88	81	75	69	80	74	69	64	62	58	55	50	48	45	40	38	37
3	80	71	64	58	73	65	59	54	55	50	46	45	41	38	35	33	31
4	73	63	55	49	67	58	51	46	48	43	39	40	36	33	32	29	27
5	67	56	48	42	61	51	44	39	43	38	34	36	32	28	29	26	23
6	62	50	42	36	57	46	39	34	39	33	29	32	28	25	26	23	21
7	57	45	37	32	52	42	35	30	35	30	26	29	25	22	24	21	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	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	18	23	19	16	19	16	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2208	2208	2208
5°	2212	2178	2192
10°	2194	2148	2163
15°	2162	2113	2116
20°	2119	2064	2069
25°	2075	2006	2014
30°	2021	1951	1944
35°	1970	1887	1871
40°	1907	1822	1801
45°	1844	1757	1729
50°	1775	1689	1646
55°	1703	1610	1569
60°	1621	1516	1482
65°	1533	1419	1379
70°	1419	1301	1268
75°	1263	1159	1165
80°	1074	979	969
85°	780	667	645

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2501 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	279.5	1.7
10°-20°	786.4	4.7
20°-30°	1155.7	6.9
30°-40°	1342.3	8.0
40°-50°	1340.6	8.0
50°-60°	1169.0	6.9
60°-70°	864.1	5.1
70°-80°	488.9	2.9
80°-90°	138.5	0.8
90°-100°	205.4	1.2
100°-110°	652.5	3.9
110°-120°	1116.7	6.6
120°-130°	1468.6	8.7
130°-140°	1648.4	9.8
140°-150°	1616.5	9.6
150°-160°	1356.0	8.1
160°-170°	899.3	5.3
170°-180°	314.3	1.9
0°-30°	2221.6	13.2
0°-40°	3563.9	21.2
0°-60°	6073.6	36.1
0°-90°	7565.1	44.9
90°-120°	1974.6	11.7
90°-150°	6708.2	39.8
90°-180°	9278.0	55.1
0°-180°	16842.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2970	2970	2970	2970	2970	
5°	2970	2958	2927	2950	2944	282
15°	2827	2810	2773	2784	2770	796
25°	2558	2536	2487	2493	2487	1177
35°	2207	2179	2133	2116	2102	1378
45°	1796	1776	1733	1702	1691	1386
55°	1359	1342	1308	1274	1259	1215
65°	917	900	871	845	831	906
75°	480	474	460	443	448	512
85°	117	114	112	103	100	130
90°	3	36	98	92	95	16
95°	146	174	179	179	174	163
105°	602	610	616	621	621	636
115°	1121	1137	1132	1129	1121	1108
125°	1630	1655	1647	1638	1635	1457
135°	2108	2139	2145	2142	2134	1630
145°	2559	2579	2596	2598	2587	1599
155°	2927	2935	2944	2958	2949	1347
165°	3184	3181	3181	3201	3187	898
175°	3313	3305	3299	3319	3302	315
180°	3319	3319	3319	3319	3319	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2969.6	2969.6	2969.6	2969.6	2969.6
2.5°	2986.9	2972.7	2941.2	2969.6	2964.2
5°	2969.6	2958.4	2927.0	2949.7	2944.2
7.5°	2949.7	2932.7	2901.2	2924.2	2918.5
10°	2918.5	2898.4	2864.2	2886.9	2878.5
12.5°	2875.5	2858.5	2824.2	2838.4	2832.7
15°	2827.0	2810.0	2772.7	2784.2	2770.0
17.5°	2767.0	2750.0	2712.7	2727.0	2712.7
20°	2701.3	2684.3	2644.3	2652.8	2641.5
22.5°	2635.8	2610.0	2572.7	2572.7	2567.0
25°	2558.5	2535.8	2487.4	2492.8	2487.4
27.5°	2472.8	2452.8	2415.8	2407.3	2393.1
30°	2387.4	2364.3	2321.7	2313.2	2301.6
32.5°	2295.9	2278.9	2233.1	2215.9	2204.4
35°	2207.4	2178.9	2133.1	2115.9	2101.7
37.5°	2107.4	2081.6	2035.9	2015.9	2001.7
40°	2004.7	1981.6	1936.0	1910.5	1898.9
42.5°	1904.8	1881.7	1836.3	1807.4	1790.6
45°	1796.3	1776.3	1733.2	1702.0	1690.6
47.5°	1690.6	1670.5	1624.8	1593.3	1576.3
50°	1579.1	1564.8	1524.8	1484.8	1470.6
52.5°	1470.6	1450.6	1413.6	1382.2	1362.1
55°	1359.4	1342.1	1307.9	1273.7	1259.4
57.5°	1247.9	1233.7	1196.4	1162.2	1150.6
60°	1136.4	1125.2	1085.2	1053.7	1045.2
62.5°	1027.9	1008.0	979.5	951.0	939.5
65°	916.8	899.5	871.0	845.2	831.0
67.5°	802.5	788.0	762.5	742.6	731.1
70°	696.8	685.3	659.6	639.6	628.3
72.5°	588.3	576.9	562.6	542.6	534.1
75°	479.6	474.1	459.6	442.7	448.4
77.5°	382.6	371.1	365.4	356.9	348.4
80°	285.7	282.7	276.9	268.5	262.6
82.5°	194.2	194.2	191.5	179.9	179.9
85°	117.0	114.2	111.5	102.7	100.0
87.5°	51.5	45.8	40.0	31.5	28.5
90°	3.0	36.1	98.1	92.1	95.0
92.5°	62.0	84.0	87.0	90.1	90.1
95°	146.1	174.1	179.1	179.1	174.1
97.5°	243.2	269.1	280.2	280.2	280.2
100°	355.2	378.2	386.2	386.2	383.2
102.5°	473.3	490.3	501.3	504.3	501.3
105°	602.4	610.4	616.4	621.3	621.3
107.5°	730.4	742.4	742.4	744.4	730.4
110°	854.5	870.5	870.5	870.5	862.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	988.5	1005.5	1002.6	994.5	988.5
115°	1120.7	1136.6	1131.6	1128.7	1120.7
117.5°	1251.7	1273.7	1259.7	1251.7	1243.7
120°	1383.8	1405.8	1383.8	1383.8	1374.8
122.5°	1503.9	1531.8	1517.8	1509.8	1503.9
125°	1629.9	1654.9	1646.9	1637.9	1634.9
127.5°	1753.0	1784.0	1773.0	1761.0	1753.0
130°	1868.0	1904.1	1899.0	1893.0	1882.1
132.5°	1997.1	2025.2	2027.2	2013.1	2005.1
135°	2108.1	2139.2	2145.2	2142.2	2134.2
137.5°	2232.3	2257.3	2262.2	2260.2	2248.3
140°	2341.3	2366.3	2380.3	2380.3	2369.4
142.5°	2453.4	2478.4	2486.4	2489.4	2478.4
145°	2559.4	2579.4	2595.5	2598.4	2587.4
147.5°	2654.5	2679.5	2691.5	2696.5	2685.5
150°	2752.6	2769.6	2780.5	2789.6	2780.5
152.5°	2839.6	2856.6	2870.6	2881.7	2870.6
155°	2926.7	2934.6	2943.7	2957.7	2948.6
157.5°	3001.7	3007.7	3012.6	3032.7	3018.6
160°	3068.7	3074.7	3077.7	3094.8	3082.8
162.5°	3130.7	3130.7	3133.8	3152.8	3138.8
165°	3183.8	3180.7	3180.7	3200.8	3186.7
167.5°	3231.8	3222.8	3222.8	3242.8	3228.8
170°	3267.8	3259.8	3256.9	3276.8	3259.8
172.5°	3292.8	3284.8	3281.9	3301.9	3284.8
175°	3312.9	3304.8	3298.8	3318.9	3301.9
177.5°	3323.8	3315.8	3309.8	3326.9	3309.8
180°	3318.9	3318.9	3318.9	3318.9	3318.9

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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	9.53	10.35	10.53	11.36	12.70	9.10	9.92	10.10	10.93	12.27
	3H	11.19	11.92	12.20	12.94	14.31	10.72	11.45	11.73	12.47	13.83
	4H	11.78	12.47	12.80	13.49	14.87	11.30	12.00	12.33	13.02	14.39
	6H	12.18	12.82	13.21	13.84	15.23	11.70	12.34	12.73	13.37	14.75
	8H	12.28	12.89	13.32	13.93	15.31	11.80	12.41	12.84	13.46	14.84
	12H	12.33	12.91	13.37	13.94	15.35	11.85	12.43	12.89	13.46	14.87
4H	2H	9.99	10.69	11.02	11.71	13.08	9.65	10.34	10.68	11.36	12.73
	3H	11.85	12.43	12.89	13.48	14.87	11.46	12.04	12.50	13.09	14.48
	4H	12.57	13.10	13.61	14.14	15.55	12.16	12.69	13.21	13.73	15.14
	6H	13.08	13.54	14.14	14.60	16.00	12.67	13.13	13.73	14.19	15.59
	8H	13.23	13.66	14.29	14.71	16.13	12.82	13.24	13.87	14.30	15.72
	12H	13.30	13.69	14.37	14.76	16.18	12.88	13.26	13.95	14.34	15.76
8H	4H	12.76	13.19	13.82	14.25	15.66	12.40	12.83	13.46	13.89	15.30
	6H	13.39	13.74	14.47	14.84	16.26	13.03	13.38	14.11	14.48	15.90
	8H	13.61	13.92	14.70	15.01	16.44	13.24	13.55	14.33	14.64	16.07
	12H	13.74	14.02	14.83	15.09	16.57	13.36	13.63	14.45	14.71	16.18
12H	4H	12.74	13.13	13.82	14.20	15.63	12.39	12.78	13.47	13.85	15.27
	6H	13.42	13.73	14.51	14.82	16.25	13.07	13.38	14.16	14.46	15.90
	8H	13.66	13.94	14.75	15.01	16.49	13.30	13.58	14.39	14.66	16.13