

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: P924543

Luminaire Tested: DFN2DIP-HX4F0-050D110US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924543
REPORT IS A COMBINATION OF REPORTS P899428 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D110US950-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

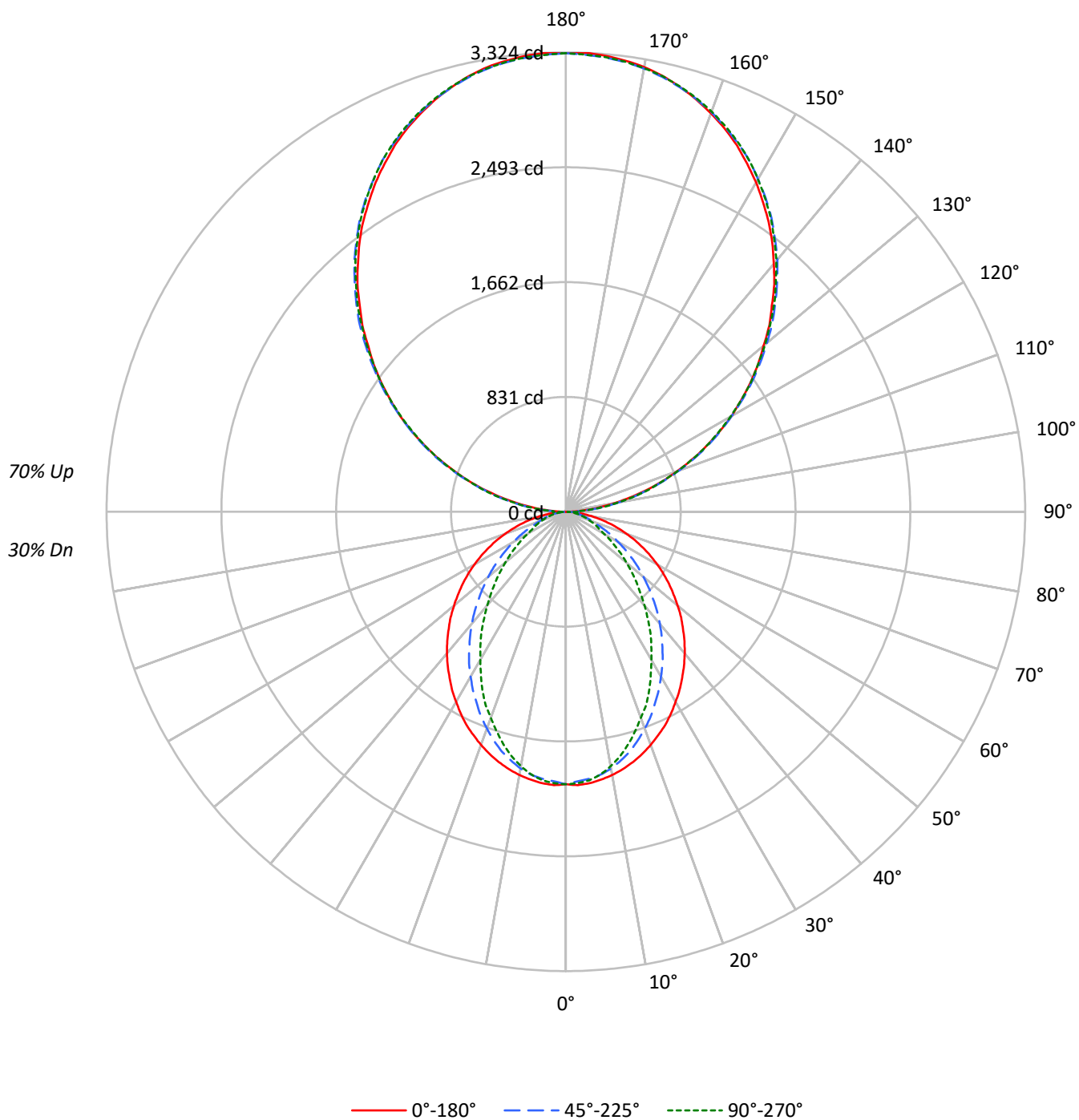
Lumens per Lamp: N/A
Luminaire Lumens: 13341.7 lumens
Efficiency: N/A
Efficacy: 122.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 108.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	102	102	102	102	92	92	92	92	72	72	72	55	55	55	38	38	38
1	94	90	86	83	84	81	78	75	64	62	60	48	47	46	34	33	33
2	86	79	73	68	77	71	66	62	56	53	50	43	41	39	30	29	28
3	78	69	62	57	70	62	57	52	50	46	42	38	35	33	27	26	24
4	72	61	54	48	64	55	49	44	44	40	36	34	31	29	24	23	21
5	66	55	47	41	59	50	43	38	40	35	31	31	27	25	22	20	18
6	60	49	41	36	54	44	38	33	36	31	27	28	24	22	20	18	16
7	56	44	37	31	50	40	34	29	32	28	24	25	22	19	18	16	15
8	52	40	33	28	47	36	30	26	30	25	21	23	20	17	17	15	13
9	48	37	29	25	43	33	27	23	27	22	19	21	18	16	16	14	12
10	45	33	27	22	40	31	24	20	25	20	17	20	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1466	1466	1466
5°	1468	1443	1452
10°	1454	1415	1405
15°	1434	1368	1332
20°	1408	1304	1242
25°	1381	1232	1156
30°	1344	1158	1046
35°	1309	1078	950
40°	1273	996	839
45°	1231	904	739
50°	1187	812	641
55°	1142	714	547
60°	1089	610	450
65°	1029	506	405
70°	956	408	367
75°	864	360	334
80°	731	303	290
85°	511	203	219

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°	184.8	1.4
10°-20°	507.2	3.8
20°-30°	712.1	5.3
30°-40°	776.3	5.8
40°-50°	713.5	5.3
50°-60°	560.3	4.2
60°-70°	364.7	2.7
70°-80°	187.7	1.4
80°-90°	57.4	0.4
90°-100°	205.4	1.5
100°-110°	652.5	4.9
110°-120°	1116.7	8.4
120°-130°	1468.6	11.0
130°-140°	1648.4	12.4
140°-150°	1616.5	12.1
150°-160°	1356.0	10.2
160°-170°	899.3	6.7
170°-180°	314.3	2.4
0°-30°	1404.1	10.5
0°-40°	2180.4	16.3
0°-60°	3454.1	25.9
0°-90°	4064.0	30.5
90°-120°	1974.6	14.8
90°-150°	6708.2	50.3
90°-180°	9278.0	69.5
0°-180°	13341.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1971	1971	1971	1971	1971	
5°	1971	1963	1939	1955	1950	187
15°	1875	1855	1795	1761	1743	528
25°	1702	1645	1527	1454	1427	783
35°	1467	1376	1219	1106	1067	918
45°	1199	1079	892	765	722	926
55°	912	772	580	473	439	815
65°	616	471	310	250	244	610
75°	328	203	143	130	128	347
85°	77	39	34	34	34	88
90°	3	36	98	92	95	13
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°	1971.4	1971.4	1971.4	1971.4	1971.4
2.5°	1980.3	1971.4	1951.8	1969.7	1966.1
5°	1971.4	1962.6	1939.3	1955.3	1950.1
7.5°	1955.3	1944.7	1919.7	1926.8	1917.8
10°	1933.9	1921.5	1885.9	1880.4	1869.7
12.5°	1907.2	1891.2	1842.9	1832.3	1812.6
15°	1875.1	1855.4	1794.9	1761.0	1743.1
17.5°	1837.6	1809.1	1734.1	1694.9	1666.3
20°	1794.9	1759.1	1669.9	1625.4	1586.0
22.5°	1748.5	1707.4	1603.9	1543.3	1516.6
25°	1702.0	1644.9	1527.2	1454.1	1427.2
27.5°	1646.8	1586.0	1455.8	1371.9	1330.9
30°	1587.9	1520.0	1377.3	1286.4	1238.1
32.5°	1530.8	1448.6	1302.5	1195.4	1150.7
35°	1466.6	1375.6	1218.6	1106.2	1066.9
37.5°	1404.1	1305.9	1140.1	1016.9	972.4
40°	1338.1	1231.1	1057.9	931.3	884.9
42.5°	1270.3	1156.2	975.9	843.8	799.4
45°	1199.0	1079.4	892.1	765.3	722.5
47.5°	1131.2	1004.6	811.9	685.1	645.9
50°	1056.3	929.6	733.3	610.1	572.8
52.5°	983.0	849.2	658.4	540.6	506.8
55°	911.6	772.5	579.7	472.8	438.9
57.5°	838.6	695.8	510.3	410.4	381.8
60°	763.6	620.9	437.0	346.2	317.6
62.5°	690.5	547.8	374.6	289.1	274.8
65°	615.5	471.0	310.4	249.9	244.4
67.5°	544.2	399.6	249.9	219.4	214.1
70°	469.3	330.1	206.9	189.1	181.9
72.5°	397.9	265.8	173.1	158.8	155.2
75°	328.3	203.3	142.7	130.2	128.5
77.5°	258.7	144.4	112.5	105.2	101.6
80°	194.4	103.5	85.6	78.5	78.5
82.5°	135.6	69.6	58.9	55.2	55.2
85°	76.7	39.2	33.9	33.9	33.9
87.5°	28.6	14.2	14.2	12.5	12.5
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	6.30	7.00	7.42	8.10	9.63	2.28	2.97	3.39	4.08	5.60
	3H	7.97	8.59	9.09	9.70	11.25	3.46	4.08	4.58	5.19	6.73
	4H	8.57	9.16	9.71	10.28	11.83	3.90	4.49	5.03	5.60	7.15
	6H	8.99	9.53	10.13	10.65	12.21	4.22	4.76	5.36	5.87	7.44
	8H	9.11	9.63	10.26	10.76	12.31	4.30	4.82	5.45	5.95	7.50
	12H	9.17	9.66	10.32	10.78	12.36	4.34	4.83	5.49	5.96	7.53
4H	2H	6.31	6.89	7.44	8.01	9.56	2.86	3.44	4.00	4.56	6.11
	3H	8.12	8.61	9.27	9.75	11.31	4.20	4.68	5.34	5.83	7.39
	4H	8.81	9.26	9.96	10.39	11.97	4.74	5.19	5.89	6.32	7.90
	6H	9.32	9.70	10.47	10.86	12.43	5.15	5.54	6.31	6.69	8.26
	8H	9.49	9.85	10.64	11.00	12.58	5.28	5.64	6.43	6.78	8.37
	12H	9.58	9.91	10.75	11.06	12.66	5.34	5.66	6.51	6.82	8.41
8H	4H	8.77	9.13	9.92	10.27	11.86	5.01	5.37	6.16	6.51	8.10
	6H	9.33	9.63	10.50	10.81	12.40	5.53	5.82	6.70	7.01	8.59
	8H	9.55	9.81	10.73	10.97	12.58	5.72	5.97	6.89	7.14	8.75
	12H	9.68	9.91	10.86	11.07	12.71	5.83	6.06	7.01	7.22	8.86
12H	4H	8.71	9.04	9.88	10.20	11.79	5.01	5.33	6.18	6.49	8.08
	6H	9.31	9.56	10.48	10.73	12.34	5.57	5.83	6.75	7.00	8.60
	8H	9.52	9.75	10.70	10.91	12.55	5.78	6.01	6.96	7.17	8.81

END OF REPORT