

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: P924562

Luminaire Tested: DFN2DIP-HX4F0-060D120US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924562
REPORT IS A COMBINATION OF REPORTS P899447 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D120US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

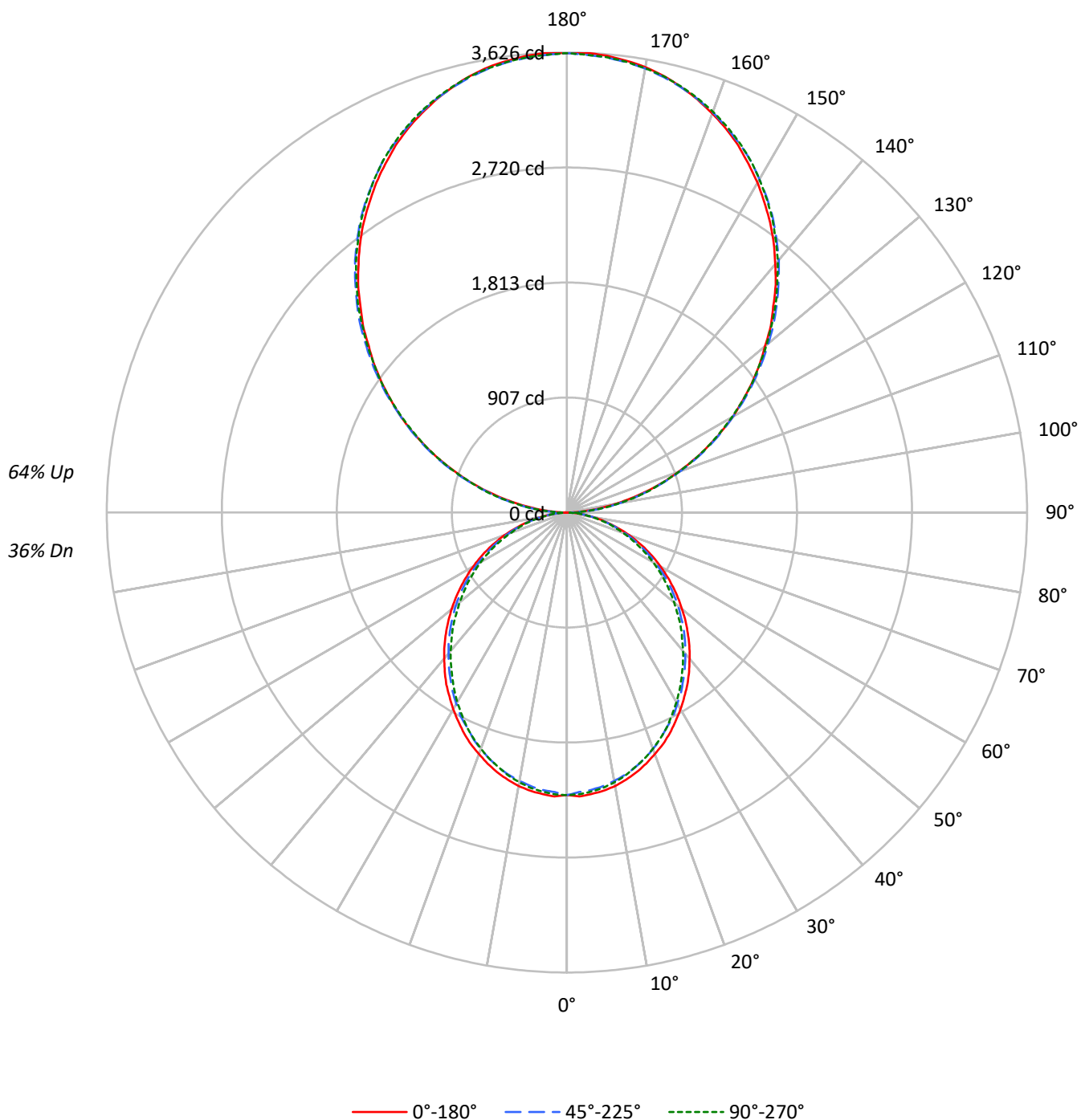
Lumens per Lamp: N/A
Luminaire Lumens: 15798.2 lumens
Efficiency: N/A
Efficacy: 124.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 127.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.099
Total Harmonic Distortion (THDi): 0.979
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924562

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US950-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924562

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US950-FLLFL

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	94	94	94	94	76	76	76	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	52	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	34	32	31
3	79	69	62	56	71	63	57	52	51	47	43	40	37	34	30	28	26
4	72	61	54	48	65	56	49	44	45	40	37	36	32	29	27	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	22	20
6	61	49	41	35	55	45	38	33	36	31	27	29	25	22	22	19	17
7	56	44	36	31	50	40	33	28	33	28	24	26	22	20	20	17	15
8	52	40	32	27	47	36	30	25	30	25	21	24	20	17	18	16	14
9	48	36	29	24	44	33	27	22	27	22	19	22	18	16	17	14	12
10	45	33	26	21	41	30	24	20	25	20	17	20	17	14	16	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1656	1656	1656
5°	1659	1633	1644
10°	1646	1611	1622
15°	1621	1585	1587
20°	1589	1548	1552
25°	1557	1504	1511
30°	1516	1463	1458
35°	1478	1415	1403
40°	1430	1367	1350
45°	1383	1318	1297
50°	1331	1267	1234
55°	1277	1207	1177
60°	1216	1137	1111
65°	1149	1064	1034
70°	1065	975	951
75°	947	869	874
80°	806	734	727
85°	585	500	484

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2730 cd/sqm

TEST NUMBER: P924562

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	209.6	1.3
10°-20°	589.8	3.7
20°-30°	866.8	5.5
30°-40°	1006.7	6.4
40°-50°	1005.5	6.4
50°-60°	876.7	5.5
60°-70°	648.1	4.1
70°-80°	366.7	2.3
80°-90°	107.1	0.7
90°-100°	224.0	1.4
100°-110°	711.8	4.5
110°-120°	1218.2	7.7
120°-130°	1602.1	10.1
130°-140°	1798.3	11.4
140°-150°	1763.5	11.2
150°-160°	1479.3	9.4
160°-170°	981.0	6.2
170°-180°	342.9	2.2
0°-30°	1666.2	10.5
0°-40°	2673.0	16.9
0°-60°	4555.2	28.8
0°-90°	5677.1	35.9
90°-120°	2154.1	13.6
90°-150°	7318.0	46.3
90°-180°	10121.0	64.1
0°-180°	15798.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2227	2227	2227	2227	2227	
5°	2227	2219	2195	2212	2208	211
15°	2120	2108	2080	2088	2078	597
25°	1919	1902	1866	1870	1866	883
35°	1656	1634	1600	1587	1576	1034
45°	1347	1332	1300	1276	1268	1040
55°	1020	1007	981	955	945	912
65°	688	675	653	634	623	680
75°	360	356	345	332	336	384
85°	88	86	84	77	75	98
90°	3	39	107	100	104	15
95°	159	190	195	195	190	177
105°	657	666	672	678	678	693
115°	1222	1240	1234	1231	1222	1209
125°	1778	1805	1797	1787	1784	1589
135°	2300	2334	2340	2337	2328	1778
145°	2792	2814	2831	2835	2823	1745
155°	3193	3201	3211	3226	3217	1470
165°	3473	3470	3470	3492	3476	980
175°	3614	3605	3599	3620	3602	343
180°	3620	3620	3620	3620	3620	

TEST NUMBER: P924562

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2227.2	2227.2	2227.2	2227.2	2227.2
2.5°	2240.2	2229.5	2205.8	2227.2	2223.1
5°	2227.2	2218.8	2195.2	2212.2	2208.1
7.5°	2212.2	2199.5	2175.9	2193.2	2188.9
10°	2188.9	2173.9	2148.1	2165.2	2158.8
12.5°	2156.6	2143.8	2118.2	2128.9	2124.6
15°	2120.2	2107.5	2079.5	2088.2	2077.5
17.5°	2075.2	2062.5	2034.6	2045.2	2034.6
20°	2025.9	2013.2	1983.2	1989.6	1981.2
22.5°	1976.9	1957.5	1929.6	1929.6	1925.3
25°	1918.9	1901.9	1865.5	1869.6	1865.5
27.5°	1854.6	1839.6	1811.8	1805.5	1794.9
30°	1790.6	1773.2	1741.2	1734.8	1726.2
32.5°	1721.9	1709.2	1674.8	1661.9	1653.3
35°	1655.6	1634.2	1599.9	1586.9	1576.2
37.5°	1580.6	1561.2	1527.0	1511.9	1501.2
40°	1503.5	1486.2	1452.0	1432.9	1424.2
42.5°	1428.5	1411.3	1377.2	1355.6	1342.9
45°	1347.2	1332.2	1299.9	1276.5	1267.9
47.5°	1267.9	1252.9	1218.6	1195.0	1182.2
50°	1184.3	1173.6	1143.7	1113.6	1102.9
52.5°	1102.9	1087.9	1060.2	1036.6	1021.6
55°	1019.5	1006.6	980.9	955.2	944.6
57.5°	936.0	925.3	897.3	871.7	863.0
60°	852.3	843.9	814.0	790.3	783.9
62.5°	770.9	755.9	734.6	713.2	704.6
65°	687.5	674.7	653.3	633.9	623.2
67.5°	601.9	591.0	571.9	556.9	548.3
70°	522.6	514.0	494.6	479.7	471.3
72.5°	441.2	432.6	422.0	407.0	400.6
75°	359.7	355.7	344.7	332.0	336.3
77.5°	287.0	278.4	274.0	267.7	261.3
80°	214.3	212.0	207.7	201.3	197.0
82.5°	145.7	145.7	143.6	135.0	135.0
85°	87.7	85.7	83.6	77.0	75.0
87.5°	38.6	34.3	30.0	23.7	21.4
90°	3.2	39.3	106.9	100.5	103.7
92.5°	67.6	91.7	94.9	98.3	98.3
95°	159.3	189.9	195.4	195.4	189.9
97.5°	265.2	293.6	305.7	305.7	305.7
100°	387.5	412.6	421.3	421.3	418.0
102.5°	516.3	534.8	546.8	550.2	546.8
105°	657.1	665.8	672.4	677.8	677.8
107.5°	796.8	809.9	809.9	812.0	796.8
110°	932.2	949.6	949.6	949.6	940.9

TEST NUMBER: P924562

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US950-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1078.4	1097.0	1093.7	1085.0	1078.4
115°	1222.5	1240.0	1234.5	1231.2	1222.5
117.5°	1365.5	1389.5	1374.2	1365.5	1356.8
120°	1509.6	1533.6	1509.6	1509.6	1499.8
122.5°	1640.6	1671.1	1655.9	1647.1	1640.6
125°	1778.1	1805.3	1796.7	1786.8	1783.5
127.5°	1912.4	1946.2	1934.1	1921.1	1912.4
130°	2037.8	2077.1	2071.7	2065.1	2053.1
132.5°	2178.6	2209.3	2211.4	2196.1	2187.4
135°	2299.8	2333.7	2340.3	2336.9	2328.2
137.5°	2435.2	2462.5	2467.9	2465.7	2452.6
140°	2554.1	2581.4	2596.7	2596.7	2584.7
142.5°	2676.4	2703.7	2712.4	2715.7	2703.7
145°	2792.1	2813.9	2831.4	2834.7	2822.7
147.5°	2895.8	2923.1	2936.2	2941.7	2929.6
150°	3002.8	3021.3	3033.3	3043.2	3033.3
152.5°	3097.7	3116.2	3131.6	3143.6	3131.6
155°	3192.7	3201.4	3211.3	3226.5	3216.7
157.5°	3274.6	3281.1	3286.5	3308.4	3293.1
160°	3347.7	3354.3	3357.5	3376.1	3362.9
162.5°	3415.3	3415.3	3418.7	3439.4	3424.1
165°	3473.2	3470.0	3470.0	3491.7	3476.5
167.5°	3525.6	3515.8	3515.8	3537.6	3522.4
170°	3564.9	3556.1	3552.9	3574.7	3556.1
172.5°	3592.2	3583.4	3580.2	3602.0	3583.4
175°	3614.0	3605.3	3598.8	3620.5	3602.0
177.5°	3626.1	3617.3	3610.7	3629.3	3610.7
180°	3620.5	3620.5	3620.5	3620.5	3620.5

TEST NUMBER: P924562

CATALOG NUMBER: DFN2DIP-HX4F0-060D120US950-FLLFLL

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	7.56	8.31	8.63	9.38	10.84	7.13	7.88	8.20	8.95	10.41
	3H	9.21	9.88	10.29	10.96	12.44	8.74	9.41	9.82	10.49	11.97
	4H	9.80	10.43	10.89	11.51	13.00	9.32	9.96	10.41	11.04	12.52
	6H	10.19	10.78	11.29	11.86	13.36	9.72	10.30	10.81	11.39	12.88
	8H	10.29	10.85	11.40	11.95	13.44	9.82	10.38	10.92	11.48	12.96
	12H	10.34	10.87	11.45	11.96	13.47	9.86	10.39	10.96	11.48	12.99
4H	2H	8.01	8.65	9.11	9.73	11.21	7.67	8.30	8.76	9.38	10.87
	3H	9.87	10.40	10.97	11.50	13.00	9.47	10.00	10.58	11.11	12.61
	4H	10.58	11.06	11.68	12.16	13.68	10.17	10.66	11.28	11.76	13.27
	6H	11.09	11.50	12.20	12.63	14.13	10.68	11.09	11.79	12.22	13.72
	8H	11.23	11.62	12.35	12.74	14.26	10.82	11.21	11.94	12.32	13.85
	12H	11.30	11.66	12.43	12.78	14.31	10.88	11.23	12.01	12.36	13.89
8H	4H	10.76	11.16	11.88	12.27	13.79	10.40	10.79	11.52	11.91	13.43
	6H	11.39	11.72	12.53	12.87	14.39	11.03	11.35	12.17	12.51	14.03
	8H	11.61	11.90	12.76	13.03	14.57	11.24	11.53	12.39	12.66	14.20
	12H	11.74	11.99	12.89	13.12	14.70	11.36	11.60	12.50	12.74	14.31
12H	4H	10.75	11.10	11.88	12.22	13.75	10.39	10.75	11.53	11.87	13.40
	6H	11.42	11.70	12.56	12.84	14.38	11.07	11.35	12.21	12.49	14.03
	8H	11.66	11.91	12.81	13.04	14.62	11.30	11.55	12.45	12.68	14.26