

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: P924542

Luminaire Tested: DFN2DIP-HX4F0-050D110US950-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924542
REPORT IS A COMBINATION OF REPORTS P899427 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D110US950-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

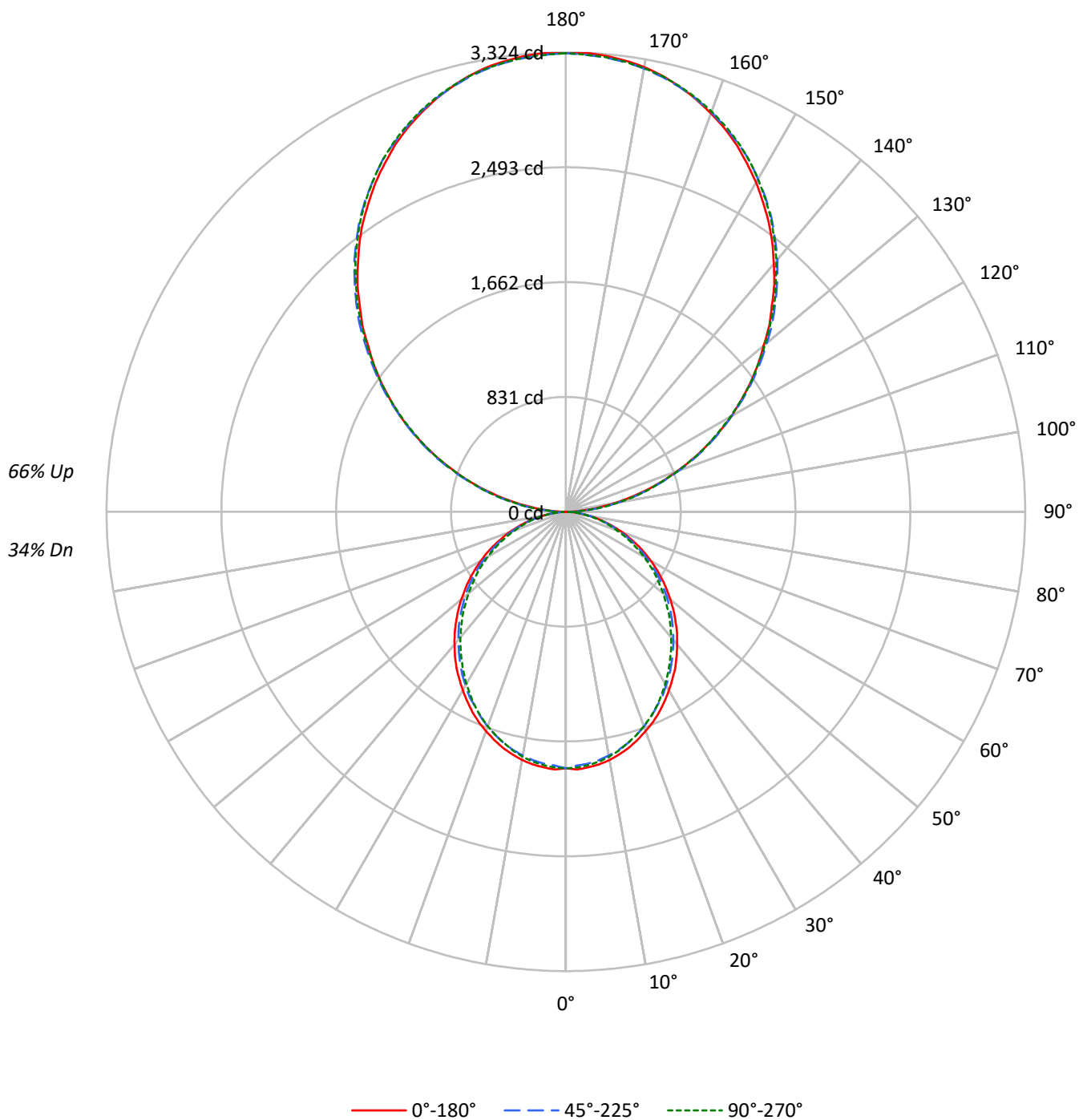
Lumens per Lamp: N/A
Luminaire Lumens: 14009.5 lumens
Efficiency: N/A
Efficacy: 128.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 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

TEST NUMBER: P924542

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US950-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924542

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US950-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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	36	36	35
2	86	78	73	67	77	71	66	62	57	53	50	44	42	40	32	31	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	44	45	40	36	35	31	29	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	19
6	60	48	41	35	54	44	37	32	36	31	27	28	24	22	21	18	16
7	56	44	36	31	50	40	33	28	32	27	24	25	22	19	19	16	15
8	52	40	32	27	46	36	29	25	29	24	21	23	20	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	14	12
10	45	33	26	21	40	30	24	20	25	20	17	20	16	14	15	12	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1380	1380	1380
5°	1382	1361	1370
10°	1371	1343	1352
15°	1351	1321	1323
20°	1324	1290	1293
25°	1297	1254	1259
30°	1263	1220	1215
35°	1231	1179	1169
40°	1192	1139	1125
45°	1152	1098	1081
50°	1109	1056	1029
55°	1064	1006	981
60°	1013	948	926
65°	958	887	862
70°	887	813	792
75°	789	724	728
80°	672	612	606
85°	487	416	403

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2501 cd/sqm

TEST NUMBER: P924542

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US950-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.7	1.2
10°-20°	491.5	3.5
20°-30°	722.3	5.2
30°-40°	838.9	6.0
40°-50°	837.9	6.0
50°-60°	730.6	5.2
60°-70°	540.1	3.9
70°-80°	305.6	2.2
80°-90°	90.1	0.6
90°-100°	205.4	1.5
100°-110°	652.5	4.7
110°-120°	1116.7	8.0
120°-130°	1468.6	10.5
130°-140°	1648.4	11.8
140°-150°	1616.5	11.5
150°-160°	1356.0	9.7
160°-170°	899.3	6.4
170°-180°	314.3	2.2
0°-30°	1388.5	9.9
0°-40°	2227.5	15.9
0°-60°	3796.0	27.1
0°-90°	4731.7	33.8
90°-120°	1974.6	14.1
90°-150°	6708.2	47.9
90°-180°	9278.0	66.2
0°-180°	14009.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1856	1856	1856	1856	1856	
5°	1856	1849	1829	1844	1840	176
15°	1767	1756	1733	1740	1731	498
25°	1599	1585	1554	1558	1554	736
35°	1380	1362	1333	1322	1314	862
45°	1123	1110	1083	1064	1057	866
55°	850	839	817	796	787	760
65°	573	562	544	528	519	567
75°	300	296	287	277	280	320
85°	73	71	70	64	62	82
90°	3	36	98	92	95	14
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	

TEST NUMBER: P924542

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US950-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1856.0	1856.0	1856.0	1856.0	1856.0
2.5°	1866.8	1857.9	1838.3	1856.0	1852.7
5°	1856.0	1849.0	1829.3	1843.5	1840.2
7.5°	1843.5	1832.9	1813.3	1827.7	1824.0
10°	1824.0	1811.6	1790.2	1804.3	1799.1
12.5°	1797.1	1786.6	1765.2	1774.1	1770.4
15°	1766.8	1756.2	1732.9	1740.2	1731.2
17.5°	1729.3	1718.7	1695.4	1704.3	1695.4
20°	1688.3	1677.7	1652.7	1658.0	1651.0
22.5°	1647.4	1631.2	1608.0	1608.0	1604.3
25°	1599.1	1584.9	1554.5	1558.0	1554.5
27.5°	1545.5	1533.0	1509.9	1504.6	1495.7
30°	1492.1	1477.7	1451.0	1445.7	1438.5
32.5°	1434.9	1424.3	1395.7	1384.9	1377.8
35°	1379.6	1361.8	1333.2	1322.4	1313.6
37.5°	1317.1	1301.1	1272.4	1259.9	1251.1
40°	1253.0	1238.6	1210.0	1194.0	1186.9
42.5°	1190.5	1176.1	1147.7	1129.6	1119.0
45°	1122.7	1110.2	1083.3	1063.8	1056.6
47.5°	1056.6	1044.1	1015.5	995.8	985.2
50°	986.9	978.0	953.0	928.1	919.1
52.5°	919.1	906.6	883.5	863.8	851.3
55°	849.6	838.9	817.4	796.0	787.1
57.5°	779.9	771.0	747.7	726.4	719.1
60°	710.3	703.3	678.3	658.5	653.3
62.5°	642.5	630.0	612.2	594.3	587.2
65°	573.0	562.2	544.4	528.3	519.4
67.5°	501.6	492.6	476.6	464.1	456.9
70°	435.5	428.3	412.2	399.7	392.8
72.5°	367.8	360.5	351.6	339.1	333.8
75°	299.7	296.3	287.2	276.7	280.3
77.5°	239.2	231.9	228.4	223.0	217.8
80°	178.6	176.7	173.1	167.8	164.2
82.5°	121.3	121.3	119.6	112.5	112.5
85°	73.1	71.4	69.6	64.2	62.5
87.5°	32.1	28.6	25.0	19.7	17.8
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

TEST NUMBER: P924542

CATALOG NUMBER: DFN2DIP-HX4F0-050D110US950-FLLFLL

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	6.67	7.40	7.75	8.48	9.97	6.23	6.97	7.32	8.05	9.54
	3H	8.32	8.97	9.41	10.07	11.57	7.84	8.50	8.94	9.59	11.10
	4H	8.90	9.52	10.00	10.62	12.13	8.43	9.05	9.53	10.14	11.65
	6H	9.29	9.87	10.41	10.96	12.48	8.82	9.39	9.93	10.49	12.01
	8H	9.39	9.94	10.51	11.05	12.57	8.92	9.47	10.04	10.58	12.09
	12H	9.44	9.96	10.56	11.06	12.60	8.96	9.48	10.08	10.58	12.12
4H	2H	7.11	7.74	8.22	8.83	10.34	6.77	7.39	7.88	8.48	9.99
	3H	8.97	9.49	10.09	10.61	12.13	8.57	9.09	9.69	10.22	11.74
	4H	9.68	10.15	10.80	11.27	12.81	9.27	9.75	10.39	10.86	12.40
	6H	10.19	10.60	11.32	11.73	13.26	9.78	10.19	10.91	11.32	12.85
	8H	10.33	10.72	11.46	11.84	13.39	9.92	10.30	11.05	11.43	12.98
	12H	10.40	10.75	11.55	11.88	13.44	9.98	10.33	11.12	11.46	13.02
8H	4H	9.86	10.25	10.99	11.37	12.92	9.50	9.89	10.63	11.01	12.56
	6H	10.49	10.81	11.64	11.97	13.52	10.13	10.44	11.28	11.61	13.16
	8H	10.71	10.99	11.87	12.13	13.70	10.34	10.62	11.50	11.77	13.33
	12H	10.84	11.08	12.00	12.22	13.83	10.45	10.70	11.61	11.84	13.44
12H	4H	9.84	10.19	10.99	11.33	12.88	9.49	9.84	10.64	10.98	12.53
	6H	10.52	10.80	11.68	11.94	13.51	10.17	10.45	11.32	11.59	13.16
	8H	10.76	11.00	11.92	12.14	13.75	10.40	10.64	11.56	11.79	13.39

END OF REPORT