

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: P924557

Luminaire Tested: DFN2DIP-HX4F0-060D090US950-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924557
REPORT IS A COMBINATION OF REPORTS P899394 AND P896188
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-060D090US950-RLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

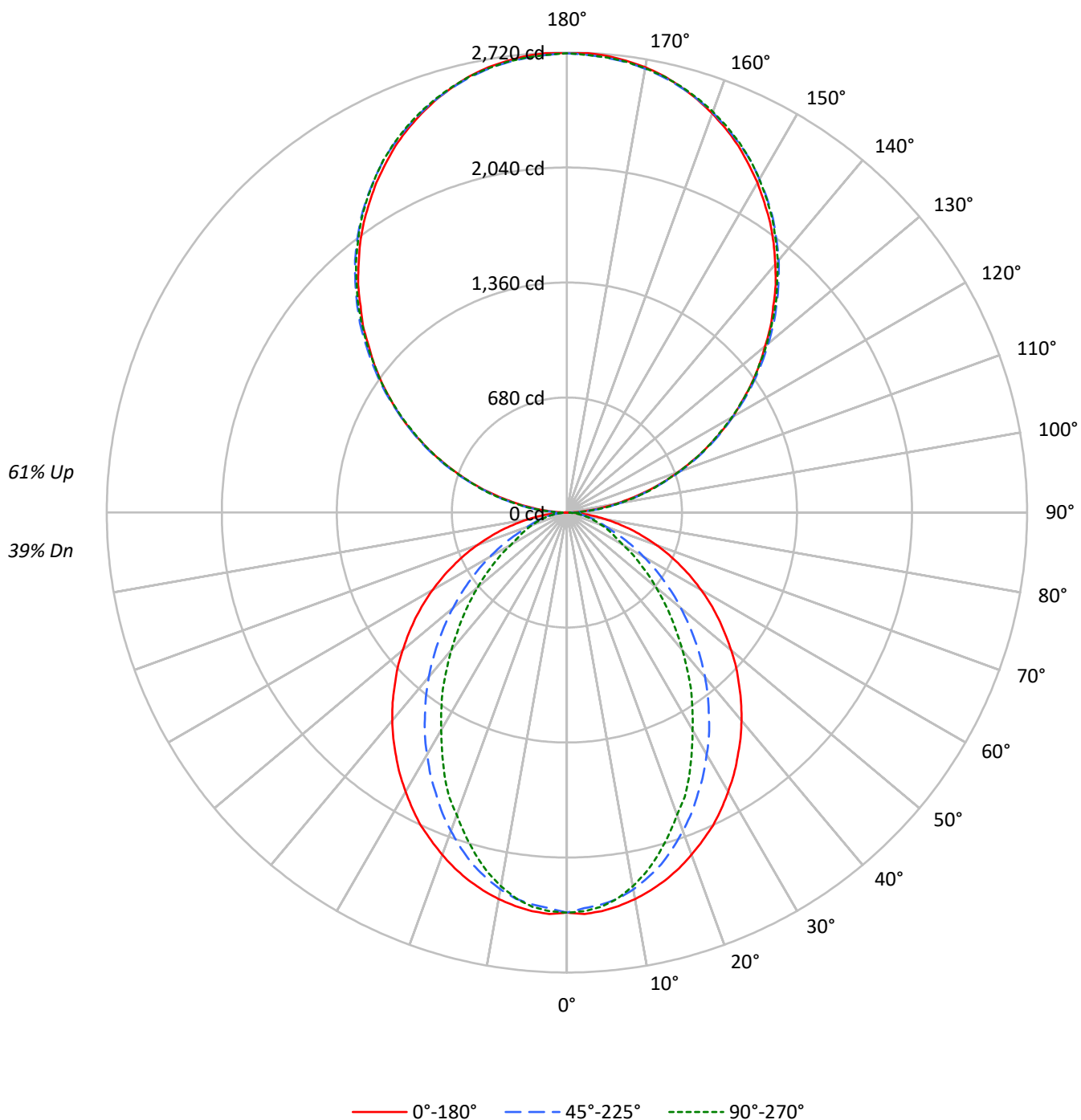
Lumens per Lamp: N/A
Luminaire Lumens: 12464.0 lumens
Efficiency: N/A
Efficacy: 118.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 105.2
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: P924557

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US950-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P924557

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US950-RLLFLL

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	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	51	41	40	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	66	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	24	22
6	62	51	43	37	56	46	40	35	39	33	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	30	35	30	26	29	25	22	22	20	18
8	53	41	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1759	1759	1759
5°	1762	1731	1742
10°	1745	1698	1686
15°	1721	1642	1598
20°	1689	1564	1491
25°	1657	1478	1387
30°	1613	1389	1255
35°	1571	1294	1140
40°	1527	1195	1007
45°	1477	1085	887
50°	1425	975	769
55°	1370	856	656
60°	1307	733	540
65°	1235	607	487
70°	1147	489	440
75°	1037	432	401
80°	877	363	348
85°	613	243	262

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2048 cd/sqm

TEST NUMBER: P924557

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US950-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	221.7	1.8
10°-20°	608.7	4.9
20°-30°	854.5	6.9
30°-40°	931.5	7.5
40°-50°	856.2	6.9
50°-60°	672.4	5.4
60°-70°	437.7	3.5
70°-80°	225.3	1.8
80°-90°	65.2	0.5
90°-100°	168.0	1.3
100°-110°	533.9	4.3
110°-120°	913.7	7.3
120°-130°	1201.6	9.6
130°-140°	1348.7	10.8
140°-150°	1322.6	10.6
150°-160°	1109.5	8.9
160°-170°	735.8	5.9
170°-180°	257.2	2.1
0°-30°	1684.9	13.5
0°-40°	2616.4	21.0
0°-60°	4144.9	33.3
0°-90°	4873.1	39.1
90°-120°	1615.6	13.0
90°-150°	5488.5	44.0
90°-180°	7591.0	60.9
0°-180°	12464.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2366	2366	2366	2366	2366	
5°	2366	2355	2327	2346	2340	224
15°	2250	2226	2154	2113	2092	634
25°	2042	1974	1833	1745	1713	939
35°	1760	1651	1462	1327	1280	1102
45°	1439	1295	1071	918	867	1111
55°	1094	927	696	567	527	978
65°	739	565	372	300	293	732
75°	394	244	171	156	154	417
85°	92	47	41	41	41	106
90°	2	30	80	75	78	12
95°	120	142	146	146	142	133
105°	493	499	504	508	508	520
115°	917	930	926	924	917	907
125°	1334	1354	1348	1340	1338	1192
135°	1725	1750	1755	1753	1746	1333
145°	2094	2110	2124	2126	2117	1308
155°	2394	2401	2408	2420	2413	1102
165°	2605	2602	2602	2619	2607	735
175°	2710	2704	2699	2716	2702	258
180°	2716	2716	2716	2716	2716	

TEST NUMBER: P924557

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US950-RLFL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2365.7	2365.7	2365.7	2365.7	2365.7
2.5°	2376.4	2365.7	2342.1	2363.6	2359.3
5°	2365.7	2355.0	2327.1	2346.5	2340.1
7.5°	2346.5	2333.7	2303.7	2312.1	2301.4
10°	2320.7	2305.7	2263.1	2256.5	2243.7
12.5°	2288.7	2269.4	2211.5	2198.8	2175.1
15°	2250.1	2226.4	2153.8	2113.1	2091.7
17.5°	2205.2	2170.8	2080.9	2033.8	1999.6
20°	2153.8	2110.8	2003.9	1950.5	1903.2
22.5°	2098.1	2048.8	1924.6	1851.9	1819.9
25°	2042.5	1973.9	1832.6	1745.0	1712.7
27.5°	1976.2	1903.2	1747.0	1646.3	1597.1
30°	1905.5	1824.0	1652.7	1543.7	1485.8
32.5°	1836.9	1738.4	1563.0	1434.4	1380.8
35°	1759.9	1650.7	1462.4	1327.4	1280.2
37.5°	1685.0	1567.0	1368.1	1220.3	1166.8
40°	1605.7	1477.4	1269.5	1117.5	1061.9
42.5°	1524.4	1387.4	1171.1	1012.6	959.2
45°	1438.7	1295.2	1070.6	918.3	867.0
47.5°	1357.4	1205.5	974.2	822.1	775.0
50°	1267.5	1115.5	880.0	732.1	687.4
52.5°	1179.5	1019.0	790.0	648.7	608.1
55°	1094.0	927.0	695.8	567.4	526.7
57.5°	1006.3	834.9	612.4	492.5	458.1
60°	916.3	745.1	524.5	415.5	381.1
62.5°	828.6	657.4	449.5	346.9	329.8
65°	738.7	565.1	372.5	299.8	293.3
67.5°	653.0	479.5	299.8	263.3	256.9
70°	563.1	396.1	248.2	227.0	218.3
72.5°	477.5	318.9	207.6	190.6	186.2
75°	393.9	243.9	171.2	156.3	154.3
77.5°	310.5	173.3	134.9	126.3	122.0
80°	233.3	124.2	102.7	94.3	94.3
82.5°	162.7	83.6	70.6	66.3	66.3
85°	92.0	47.0	40.6	40.6	40.6
87.5°	34.3	17.1	17.1	15.0	15.0
90°	2.5	29.5	80.2	75.3	77.8
92.5°	50.8	68.8	71.3	73.6	73.6
95°	119.5	142.4	146.5	146.5	142.4
97.5°	198.9	220.2	229.2	229.2	229.2
100°	290.6	309.5	316.0	316.0	313.6
102.5°	387.2	401.2	410.1	412.6	410.1
105°	492.8	499.3	504.3	508.4	508.4
107.5°	597.6	607.4	607.4	609.0	597.6
110°	699.1	712.3	712.3	712.3	705.7

TEST NUMBER: P924557

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US950-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	808.8	822.7	820.2	813.8	808.8
115°	916.9	930.0	925.9	923.5	916.9
117.5°	1024.1	1042.1	1030.7	1024.1	1017.5
120°	1132.2	1150.1	1132.2	1132.2	1124.8
122.5°	1230.4	1253.4	1241.9	1235.3	1230.4
125°	1333.6	1354.0	1347.5	1340.1	1337.7
127.5°	1434.2	1459.6	1450.7	1440.8	1434.2
130°	1528.4	1557.9	1553.8	1548.8	1539.9
132.5°	1634.0	1656.9	1658.5	1647.1	1640.6
135°	1724.8	1750.2	1755.2	1752.7	1746.2
137.5°	1826.3	1846.8	1851.0	1849.3	1839.5
140°	1915.6	1936.0	1947.5	1947.5	1938.5
142.5°	2007.3	2027.7	2034.3	2036.8	2027.7
145°	2094.1	2110.4	2123.5	2126.0	2117.0
147.5°	2171.9	2192.3	2202.1	2206.2	2197.3
150°	2252.1	2266.0	2275.0	2282.3	2275.0
152.5°	2323.3	2337.2	2348.7	2357.7	2348.7
155°	2394.5	2401.0	2408.5	2419.9	2412.6
157.5°	2455.9	2460.8	2464.9	2481.3	2469.8
160°	2510.7	2515.7	2518.2	2532.0	2522.2
162.5°	2561.5	2561.5	2564.0	2579.5	2568.1
165°	2604.9	2602.4	2602.4	2618.8	2607.4
167.5°	2644.2	2636.9	2636.9	2653.2	2641.7
170°	2673.7	2667.1	2664.7	2681.0	2667.1
172.5°	2694.1	2687.6	2685.1	2701.5	2687.6
175°	2710.5	2703.9	2699.1	2715.5	2701.5
177.5°	2719.5	2713.0	2708.0	2722.0	2708.0
180°	2715.5	2715.5	2715.5	2715.5	2715.5

TEST NUMBER: P924557

CATALOG NUMBER: DFN2DIP-HX4F0-060D090US950-RLFL

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	8.00	8.75	9.05	9.80	11.22	3.97	4.72	5.02	5.77	7.19
	3H	9.67	10.34	10.73	11.40	12.84	5.15	5.82	6.22	6.88	8.32
	4H	10.27	10.91	11.35	11.97	13.42	5.60	6.24	6.68	7.30	8.75
	6H	10.69	11.28	11.77	12.34	13.80	5.92	6.50	7.00	7.57	9.03
	8H	10.82	11.37	11.90	12.45	13.91	6.01	6.57	7.10	7.65	9.10
	12H	10.88	11.40	11.97	12.48	13.96	6.05	6.58	7.14	7.65	9.13
4H	2H	8.01	8.64	9.08	9.70	11.15	4.56	5.19	5.64	6.25	7.70
	3H	9.83	10.36	10.91	11.45	12.90	5.90	6.43	6.99	7.52	8.98
	4H	10.52	11.00	11.61	12.08	13.56	6.45	6.93	7.54	8.01	9.49
	6H	11.03	11.44	12.13	12.55	14.02	6.86	7.28	7.96	8.38	9.86
	8H	11.20	11.59	12.30	12.69	14.18	6.99	7.38	8.09	8.47	9.96
	12H	11.30	11.65	12.41	12.75	14.25	7.05	7.40	8.17	8.51	10.01
8H	4H	10.48	10.87	11.58	11.96	13.45	6.72	7.11	7.82	8.20	9.69
	6H	11.04	11.36	12.17	12.50	13.99	7.24	7.56	8.36	8.70	10.18
	8H	11.26	11.54	12.39	12.66	14.17	7.43	7.71	8.56	8.83	10.34
	12H	11.40	11.64	12.53	12.76	14.30	7.55	7.79	8.68	8.91	10.45
12H	4H	10.43	10.78	11.54	11.89	13.38	6.72	7.07	7.84	8.18	9.68
	6H	11.02	11.30	12.15	12.42	13.93	7.29	7.57	8.42	8.69	10.19
	8H	11.24	11.48	12.37	12.60	14.14	7.50	7.74	8.63	8.86	10.40