

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: P928224

Luminaire Tested: DFN2DIP-HX4F0-050D090US927-FLLONL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P928224
REPORT IS A COMBINATION OF REPORTS P900911 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-050D090US927-FLLONL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

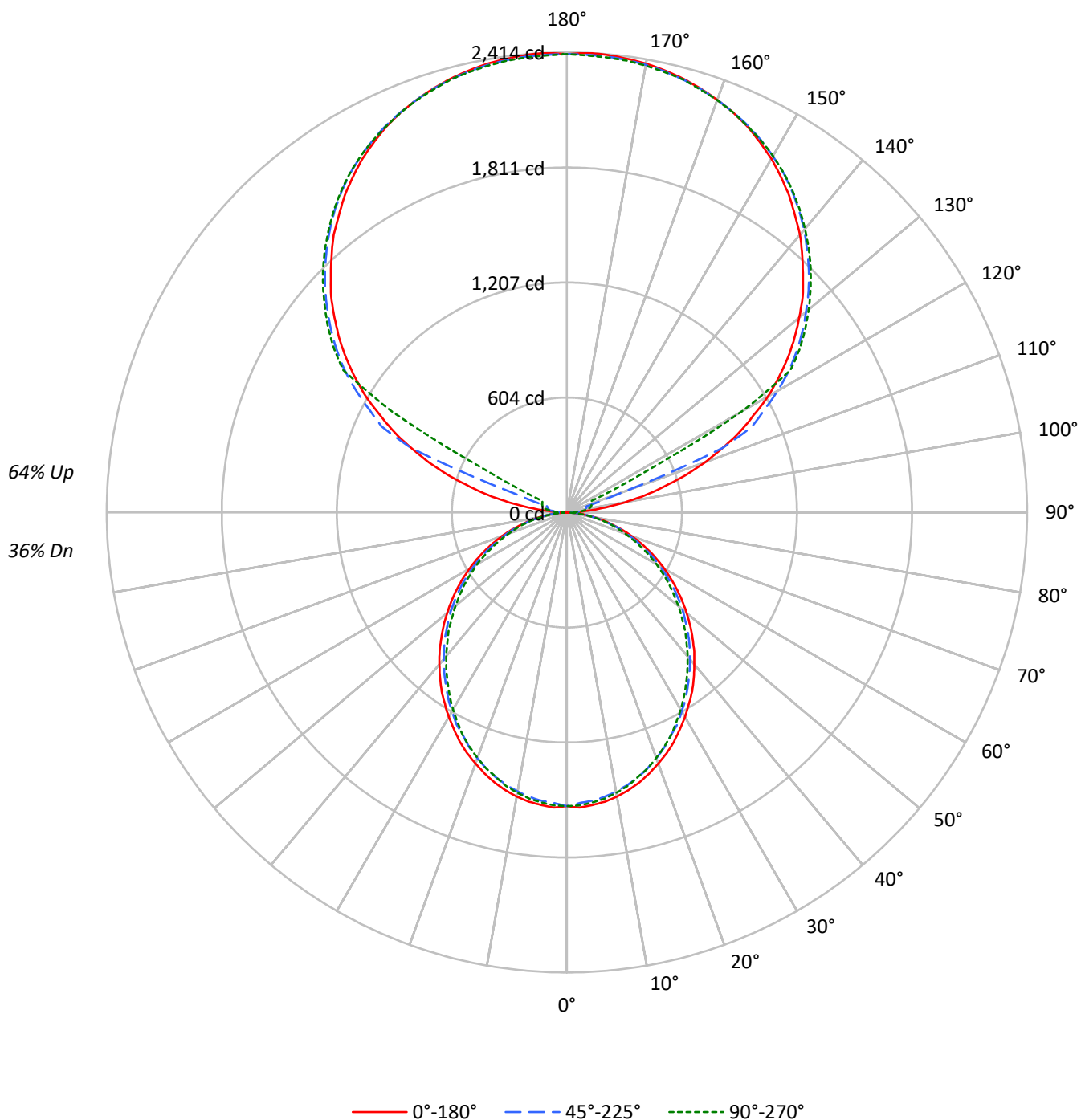
Lumens per Lamp: N/A
Luminaire Lumens: 10977.1 lumens
Efficiency: N/A
Efficacy: 98.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 111.6
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	104	104	104	104	94	94	94	94	75	75	75	59	59	59	43	43	43
1	95	90	87	83	85	82	79	76	66	64	62	51	50	49	38	37	36
2	86	79	73	68	78	72	66	62	58	54	51	45	43	41	33	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	26	24	22
5	66	54	47	41	59	50	43	38	40	35	31	32	28	25	24	21	19
6	61	49	41	35	55	44	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	15	13	11

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1146	1146	1146
5°	1148	1130	1137
10°	1138	1115	1122
15°	1122	1097	1098
20°	1099	1071	1073
25°	1077	1041	1045
30°	1049	1012	1009
35°	1022	979	971
40°	989	945	934
45°	957	912	897
50°	921	876	854
55°	884	835	814
60°	841	787	769
65°	795	736	715
70°	736	675	658
75°	655	602	605
80°	558	508	503
85°	405	346	335

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1235 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	145.0	1.3
10°-20°	408.0	3.7
20°-30°	599.7	5.5
30°-40°	696.5	6.3
40°-50°	695.6	6.3
50°-60°	606.6	5.5
60°-70°	448.4	4.1
70°-80°	253.7	2.3
80°-90°	71.2	0.6
90°-100°	79.3	0.7
100°-110°	295.7	2.7
110°-120°	784.2	7.1
120°-130°	1300.7	11.8
130°-140°	1381.7	12.6
140°-150°	1284.1	11.7
150°-160°	1032.4	9.4
160°-170°	665.2	6.1
170°-180°	229.0	2.1
0°-30°	1152.7	10.5
0°-40°	1849.2	16.8
0°-60°	3151.4	28.7
0°-90°	3924.6	35.8
90°-120°	1159.3	10.6
90°-150°	5125.8	46.7
90°-180°	7052.0	64.2
0°-180°	10977.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1541	1541	1541	1541	1541	
5°	1541	1535	1519	1530	1528	146
15°	1467	1458	1439	1445	1437	413
25°	1328	1316	1291	1293	1291	611
35°	1145	1131	1107	1098	1090	715
45°	932	922	899	883	877	719
55°	705	696	679	661	654	631
65°	476	467	452	439	431	470
75°	249	246	238	230	233	266
85°	61	59	58	53	52	68
90°	2	21	35	44	47	10
95°	113	56	68	77	75	134
105°	529	582	106	125	132	565
115°	1001	1030	1074	268	143	985
125°	1415	1438	1471	1483	1488	1262
135°	1751	1779	1795	1812	1809	1353
145°	2032	2030	2059	2071	2063	1271
155°	2237	2221	2242	2252	2239	1031
165°	2357	2346	2352	2364	2352	666
175°	2411	2399	2402	2414	2397	229
180°	2406	2406	2406	2406	2406	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1540.8	1540.8	1540.8	1540.8	1540.8
2.5°	1549.8	1542.4	1526.1	1540.8	1538.1
5°	1540.8	1535.1	1518.7	1530.5	1527.7
7.5°	1530.5	1521.7	1505.4	1517.3	1514.3
10°	1514.3	1503.9	1486.2	1497.9	1493.6
12.5°	1492.0	1483.2	1465.4	1472.8	1469.8
15°	1466.8	1458.0	1438.7	1444.7	1437.2
17.5°	1435.7	1426.9	1407.5	1414.9	1407.5
20°	1401.6	1392.8	1372.1	1376.4	1370.6
22.5°	1367.6	1354.2	1334.9	1334.9	1331.9
25°	1327.6	1315.7	1290.6	1293.4	1290.6
27.5°	1283.0	1272.7	1253.5	1249.1	1241.7
30°	1238.7	1226.8	1204.6	1200.2	1194.3
32.5°	1191.2	1182.5	1158.7	1149.7	1143.8
35°	1145.3	1130.6	1106.8	1097.9	1090.5
37.5°	1093.4	1080.1	1056.4	1046.0	1038.6
40°	1040.2	1028.3	1004.5	991.3	985.3
42.5°	988.3	976.4	952.8	937.8	929.0
45°	932.0	921.7	899.3	883.2	877.1
47.5°	877.1	866.8	843.1	826.7	817.9
50°	819.3	812.0	791.2	770.5	763.0
52.5°	763.0	752.6	733.5	717.2	706.8
55°	705.4	696.4	678.6	660.8	653.5
57.5°	647.5	640.1	620.8	603.0	597.0
60°	589.6	583.9	563.1	546.7	542.4
62.5°	533.4	523.0	508.2	493.4	487.5
65°	475.7	466.7	451.9	438.6	431.2
67.5°	416.4	408.9	395.7	385.3	379.3
70°	361.5	355.6	342.2	331.8	326.1
72.5°	305.3	299.3	291.9	281.6	277.1
75°	248.8	246.0	238.5	229.7	232.7
77.5°	198.6	192.5	189.6	185.2	180.8
80°	148.3	146.7	143.7	139.3	136.3
82.5°	100.7	100.7	99.3	93.4	93.4
85°	60.7	59.2	57.8	53.3	51.9
87.5°	26.7	23.8	20.8	16.3	14.8
90°	1.7	20.9	34.7	43.6	46.9
92.5°	43.6	36.6	41.7	45.3	46.9
95°	113.1	55.6	67.8	76.7	74.8
97.5°	203.6	61.0	88.7	94.0	95.7
100°	308.2	69.7	99.2	113.1	116.6
102.5°	422.9	419.6	102.7	121.7	127.1
105°	529.1	581.5	106.2	125.3	132.3
107.5°	652.8	696.2	109.8	128.8	135.8
110°	771.2	807.6	304.7	130.6	137.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	882.6	913.8	884.3	133.9	139.3
115°	1000.9	1030.4	1074.0	268.1	142.8
117.5°	1103.6	1138.3	1168.0	919.0	463.0
120°	1218.5	1244.5	1276.0	1296.8	1061.8
122.5°	1315.9	1343.8	1378.7	1389.0	1390.9
125°	1415.1	1437.8	1470.9	1483.1	1488.2
127.5°	1505.6	1530.0	1556.3	1573.6	1575.3
130°	1591.0	1618.9	1637.9	1657.1	1655.5
132.5°	1678.0	1700.7	1719.7	1735.5	1733.8
135°	1751.2	1779.1	1794.6	1812.2	1808.7
137.5°	1827.7	1848.5	1866.1	1883.5	1878.3
140°	1902.5	1916.6	1935.6	1951.3	1942.6
142.5°	1965.3	1977.5	2000.0	2013.9	2005.3
145°	2031.5	2029.6	2059.2	2071.4	2062.7
147.5°	2088.7	2083.6	2113.1	2121.8	2115.0
150°	2144.6	2132.4	2160.3	2170.6	2161.9
152.5°	2191.5	2177.6	2203.7	2214.2	2202.0
155°	2236.8	2221.2	2242.1	2252.4	2238.6
157.5°	2273.4	2259.5	2275.2	2287.4	2273.4
160°	2304.7	2294.2	2304.7	2315.1	2302.9
162.5°	2332.4	2322.1	2330.8	2343.0	2327.3
165°	2356.8	2346.5	2351.7	2363.9	2351.7
167.5°	2376.1	2365.5	2370.9	2383.0	2367.4
170°	2391.8	2381.2	2384.7	2396.9	2381.2
172.5°	2402.1	2391.8	2395.2	2407.4	2391.8
175°	2410.8	2398.6	2402.1	2414.3	2396.9
177.5°	2414.3	2402.1	2404.0	2416.2	2400.5
180°	2405.6	2405.6	2405.6	2405.6	2405.6

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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	6.26	7.01	7.33	8.08	9.54	5.83	6.58	6.90	7.65	9.11
	3H	7.92	8.58	8.99	9.66	11.14	7.44	8.11	8.52	9.19	10.67
	4H	8.50	9.13	9.59	10.21	11.70	8.02	8.66	9.11	9.74	11.23
	6H	8.89	9.48	9.99	10.56	12.06	8.42	9.00	9.52	10.09	11.58
	8H	8.99	9.55	10.10	10.65	12.14	8.52	9.07	9.62	10.18	11.67
	12H	9.04	9.57	10.15	10.66	12.18	8.56	9.09	9.67	10.18	11.70
4H	2H	6.71	7.34	7.81	8.43	9.91	6.37	7.00	7.46	8.08	9.57
	3H	8.57	9.10	9.67	10.21	11.70	8.17	8.70	9.28	9.81	11.31
	4H	9.28	9.76	10.39	10.86	12.38	8.87	9.36	9.98	10.46	11.98
	6H	9.79	10.20	10.90	11.33	12.84	9.38	9.79	10.49	10.92	12.43
	8H	9.93	10.32	11.05	11.44	12.97	9.52	9.91	10.64	11.03	12.55
	12H	10.00	10.36	11.14	11.48	13.01	9.58	9.93	10.71	11.06	12.59
8H	4H	9.47	9.85	10.58	10.97	12.50	9.10	9.49	10.22	10.61	12.14
	6H	10.09	10.41	11.23	11.57	13.10	9.73	10.05	10.87	11.21	12.73
	8H	10.31	10.59	11.46	11.73	13.28	9.94	10.23	11.09	11.36	12.91
	12H	10.44	10.69	11.59	11.82	13.40	10.06	10.30	11.20	11.44	13.02
12H	4H	9.45	9.80	10.58	10.92	12.46	9.09	9.45	10.23	10.57	12.11
	6H	10.12	10.40	11.27	11.54	13.08	9.77	10.05	10.91	11.19	12.73
	8H	10.36	10.61	11.51	11.74	13.32	10.00	10.25	11.15	11.38	12.96

END OF REPORT