

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: P926987

Luminaire Tested: DFN2DIP-HX4F0-070D060US830-FLLFLL

Issue Date: 12/12/2024

Test Information

Test Method: LM-79-2019
Report Number: P926987
REPORT IS A COMBINATION OF REPORTS P899341 AND P896187
Test Lab: INNOVATION CENTER
Issue Date: 12/12/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-HX4F0-070D060US830-FLLFLL
Description: 4 foot, Hexagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

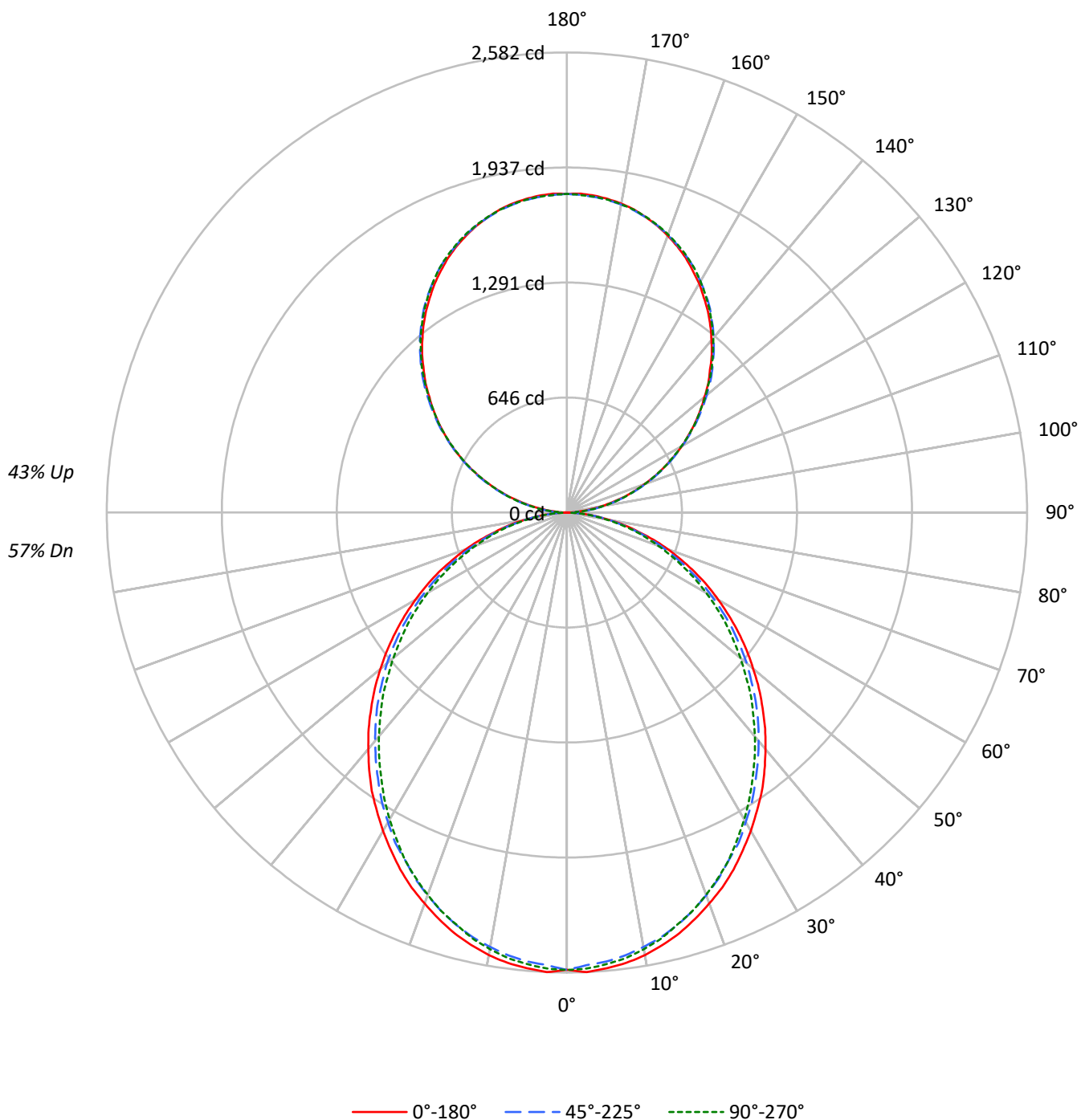
Lumens per Lamp: N/A
Luminaire Lumens: 11536.2 lumens
Efficiency: N/A
Efficacy: 104.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.54' x L: 4.09' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 110.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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	109	109	109	109	101	101	101	101	87	87	87	74	74	74	62	62	62
1	99	95	91	87	92	88	85	82	76	74	72	65	63	62	55	54	53
2	90	83	77	71	84	77	72	67	67	63	59	57	54	52	48	46	44
3	82	73	65	60	76	68	62	56	59	54	50	51	47	44	43	40	38
4	75	65	57	50	70	60	53	48	53	47	43	45	41	37	38	35	33
5	69	58	49	43	64	54	47	41	47	41	37	41	36	32	35	31	28
6	64	52	43	38	59	48	41	36	42	36	32	37	32	28	31	28	25
7	59	47	39	33	55	44	37	31	38	33	28	33	29	25	29	25	22
8	55	42	35	29	51	40	33	28	35	29	25	31	26	23	26	23	20
9	51	39	31	26	48	37	30	25	32	27	23	28	24	20	24	21	18
10	48	36	28	23	45	34	27	22	30	24	20	26	22	18	23	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1909	1909	1909
5°	1912	1882	1895
10°	1897	1857	1869
15°	1869	1827	1829
20°	1831	1785	1789
25°	1794	1734	1741
30°	1747	1687	1681
35°	1703	1631	1617
40°	1648	1575	1557
45°	1594	1519	1494
50°	1534	1460	1423
55°	1472	1392	1357
60°	1402	1311	1281
65°	1325	1227	1192
70°	1227	1124	1096
75°	1091	1002	1008
80°	928	846	838
85°	674	577	557

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1594 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	241.6	2.1
10°-20°	679.8	5.9
20°-30°	999.1	8.7
30°-40°	1160.4	10.1
40°-50°	1158.9	10.0
50°-60°	1010.5	8.8
60°-70°	747.0	6.5
70°-80°	422.7	3.7
80°-90°	116.6	1.0
90°-100°	110.7	1.0
100°-110°	351.6	3.0
110°-120°	601.7	5.2
120°-130°	791.4	6.9
130°-140°	888.3	7.7
140°-150°	871.1	7.6
150°-160°	730.7	6.3
160°-170°	484.6	4.2
170°-180°	169.4	1.5
0°-30°	1920.5	16.6
0°-40°	3080.9	26.7
0°-60°	5250.3	45.5
0°-90°	6536.6	56.7
90°-120°	1064.0	9.2
90°-150°	3614.9	31.3
90°-180°	5000.0	43.3
0°-180°	11536.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2567	2567	2567	2567	2567	
5°	2567	2558	2530	2550	2545	244
15°	2444	2429	2397	2407	2394	688
25°	2212	2192	2150	2155	2150	1018
35°	1908	1884	1844	1829	1817	1192
45°	1553	1536	1498	1471	1461	1198
55°	1175	1160	1131	1101	1089	1051
65°	792	778	753	731	718	784
75°	415	410	397	383	388	443
85°	101	99	96	89	86	113
90°	2	19	53	50	51	11
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	612	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1581	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1788	1779	170
180°	1788	1788	1788	1788	1788	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2567.1	2567.1	2567.1	2567.1	2567.1
2.5°	2582.1	2569.7	2542.5	2567.1	2562.4
5°	2567.1	2557.5	2530.2	2549.8	2545.1
7.5°	2549.8	2535.1	2507.9	2527.9	2522.9
10°	2522.9	2505.5	2475.9	2495.6	2488.3
12.5°	2485.7	2471.0	2441.5	2453.7	2448.7
15°	2443.8	2429.1	2396.9	2406.9	2394.5
17.5°	2391.9	2377.3	2345.0	2357.4	2345.0
20°	2335.0	2320.4	2285.8	2293.2	2283.5
22.5°	2278.5	2256.3	2224.0	2224.0	2219.0
25°	2211.8	2192.1	2150.2	2154.9	2150.2
27.5°	2137.6	2120.3	2088.4	2081.0	2068.7
30°	2063.8	2043.8	2007.0	1999.6	1989.6
32.5°	1984.6	1970.0	1930.4	1915.5	1905.5
35°	1908.2	1883.6	1844.0	1829.1	1816.8
37.5°	1821.8	1799.5	1759.9	1742.7	1730.3
40°	1733.0	1713.1	1673.5	1651.5	1641.6
42.5°	1646.5	1626.7	1587.4	1562.5	1547.8
45°	1552.8	1535.5	1498.3	1471.3	1461.3
47.5°	1461.3	1444.1	1404.5	1377.3	1362.7
50°	1365.0	1352.7	1318.1	1283.6	1271.2
52.5°	1271.2	1254.0	1222.0	1194.8	1177.5
55°	1175.1	1160.2	1130.6	1101.0	1088.7
57.5°	1078.8	1066.4	1034.2	1004.6	994.7
60°	982.4	972.7	938.2	910.9	903.6
62.5°	888.6	871.3	846.7	822.1	812.2
65°	792.5	777.6	753.0	730.7	718.4
67.5°	693.8	681.2	659.2	641.9	631.9
70°	602.4	592.5	570.1	552.9	543.2
72.5°	508.6	498.7	486.3	469.1	461.7
75°	414.6	409.9	397.3	382.7	387.7
77.5°	330.8	320.8	315.8	308.5	301.2
80°	246.9	244.4	239.4	232.0	227.0
82.5°	167.9	167.9	165.5	155.6	155.6
85°	101.1	98.8	96.4	88.8	86.4
87.5°	44.5	39.6	34.6	27.2	24.6
90°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.0	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.1	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.7

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.8	540.2	535.9	532.7
115°	603.9	612.5	609.8	608.2	603.9
117.5°	674.5	686.4	678.8	674.5	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.4	817.9	813.7	810.4
125°	878.3	891.8	887.5	882.7	881.0
127.5°	944.7	961.4	955.4	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.2
132.5°	1076.2	1091.3	1092.4	1084.8	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.0
137.5°	1202.9	1216.4	1219.1	1218.0	1211.6
140°	1261.7	1275.2	1282.7	1282.7	1276.8
142.5°	1322.0	1335.5	1339.9	1341.5	1335.5
145°	1379.3	1390.0	1398.7	1400.3	1394.3
147.5°	1430.4	1443.9	1450.4	1453.1	1447.1
150°	1483.3	1492.4	1498.4	1503.2	1498.4
152.5°	1530.1	1539.4	1546.9	1552.9	1546.9
155°	1577.1	1581.4	1586.2	1593.9	1589.0
157.5°	1617.5	1620.8	1623.5	1634.3	1626.8
160°	1653.7	1656.9	1658.5	1667.7	1661.3
162.5°	1687.1	1687.1	1688.7	1699.0	1691.4
165°	1715.6	1714.0	1714.0	1724.9	1717.3
167.5°	1741.6	1736.7	1736.7	1747.5	1739.9
170°	1761.0	1756.6	1755.0	1765.8	1756.6
172.5°	1774.4	1770.1	1768.5	1779.3	1770.1
175°	1785.2	1780.9	1777.6	1788.5	1779.3
177.5°	1791.1	1786.9	1783.6	1792.7	1783.6
180°	1788.5	1788.5	1788.5	1788.5	1788.5

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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	10.11	11.04	11.01	11.95	13.13	9.68	10.60	10.58	11.52	12.69
	3H	11.78	12.61	12.69	13.53	14.73	11.30	12.13	12.21	13.06	14.26
	4H	12.37	13.15	13.29	14.09	15.29	11.89	12.68	12.82	13.61	14.82
	6H	12.77	13.50	13.71	14.43	15.65	12.30	13.02	13.23	13.96	15.18
	8H	12.88	13.57	13.82	14.52	15.74	12.40	13.09	13.35	14.05	15.27
	12H	12.93	13.59	13.88	14.54	15.78	12.45	13.10	13.40	14.05	15.30
4H	2H	10.58	11.37	11.51	12.30	13.50	10.24	11.02	11.17	11.95	13.16
	3H	12.45	13.11	13.39	14.07	15.29	12.06	12.72	13.00	13.68	14.90
	4H	13.17	13.77	14.12	14.73	15.97	12.77	13.36	13.72	14.32	15.57
	6H	13.69	14.21	14.66	15.19	16.43	13.28	13.80	14.25	14.78	16.02
	8H	13.84	14.33	14.81	15.30	16.56	13.43	13.91	14.40	14.89	16.15
	12H	13.92	14.36	14.90	15.35	16.61	13.50	13.93	14.48	14.92	16.19
8H	4H	13.37	13.86	14.34	14.83	16.09	13.01	13.50	13.98	14.47	15.73
	6H	14.01	14.41	15.00	15.42	16.68	13.65	14.05	14.64	15.06	16.32
	8H	14.23	14.58	15.23	15.59	16.87	13.86	14.21	14.86	15.22	16.50
	12H	14.37	14.68	15.37	15.68	17.00	13.98	14.29	14.99	15.29	16.61
12H	4H	13.36	13.80	14.35	14.79	16.06	13.01	13.45	14.00	14.44	15.70
	6H	14.04	14.39	15.04	15.40	16.67	13.69	14.04	14.69	15.05	16.32
	8H	14.29	14.60	15.29	15.59	16.92	13.93	14.24	14.93	15.24	16.56