

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: P903657

Luminaire Tested: DFN2DIP-SQ3F0-050D060US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903657
REPORT IS A COMBINATION OF REPORTS P901419 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-050D060US830-FLLONL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

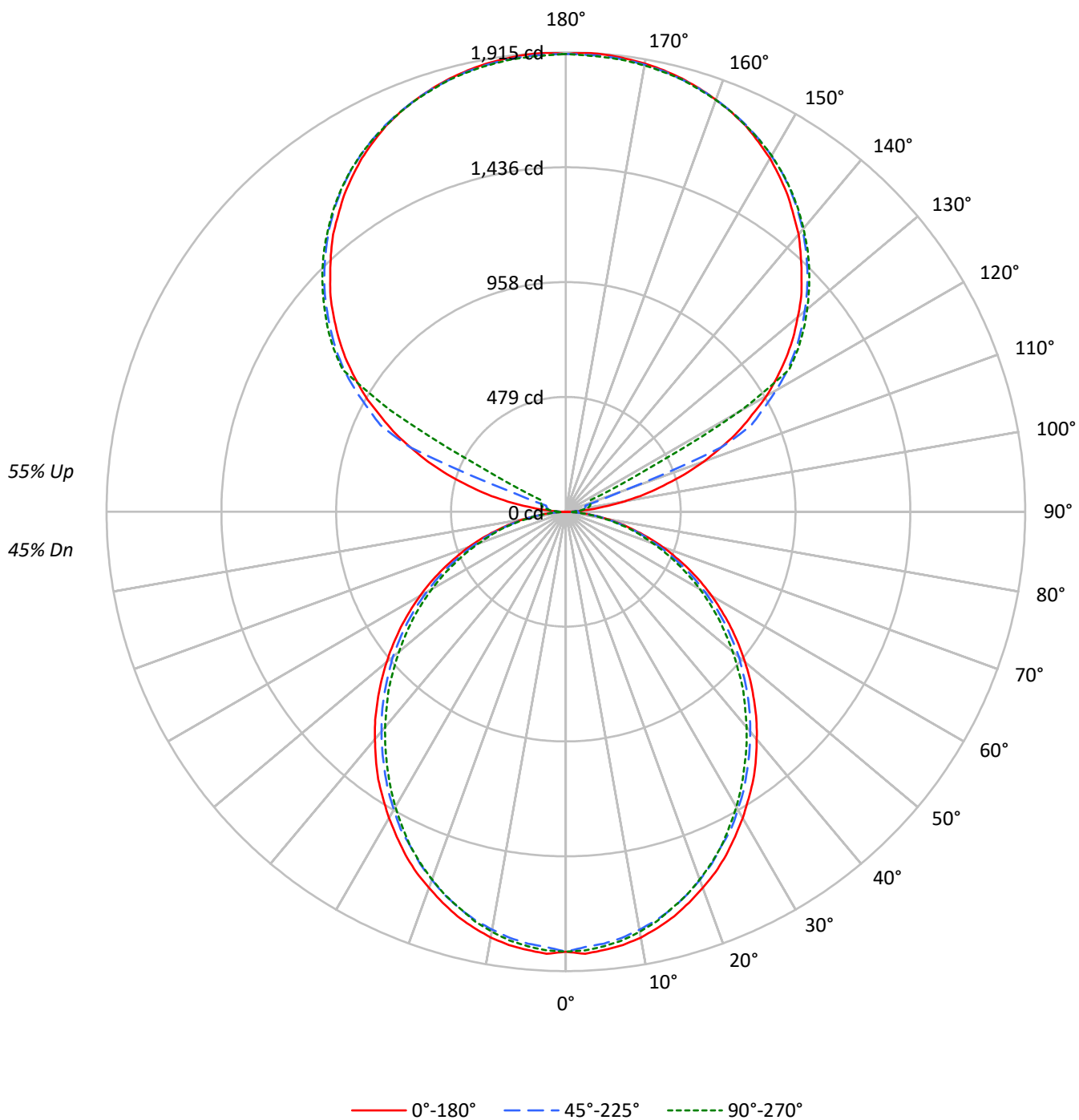
Lumens per Lamp: N/A
Luminaire Lumens: 10264.3 lumens
Efficiency: N/A
Efficacy: 117.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 87.3
Input Voltage (V): 120
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
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	50	30	10
RCR																				
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52	45	45	45
1	97	92	89	85	89	85	82	79	71	68	66	58	56	55	46	45	44	38	38	38
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	40	39	37	32	32	32
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	33	31	27	27	27
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27	23	23	23
5	67	56	48	42	62	52	45	39	43	38	34	36	32	29	29	26	24	20	20	20
6	62	50	42	36	57	46	39	34	39	34	30	32	28	25	26	23	21	18	18	18
7	57	45	37	32	53	42	35	30	35	30	26	30	25	22	24	21	18	16	16	16
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17	14	14	14
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15	13	13	13
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14	12	12	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2101	2101	2101
5°	2103	2070	2085
10°	2085	2041	2056
15°	2053	2006	2011
20°	2010	1958	1966
25°	1967	1901	1913
30°	1914	1848	1846
35°	1864	1785	1775
40°	1802	1721	1707
45°	1741	1658	1638
50°	1673	1591	1558
55°	1602	1514	1484
60°	1522	1422	1400
65°	1434	1327	1300
70°	1323	1211	1193
75°	1169	1072	1093
80°	982	894	903
85°	691	592	591

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1741 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	1.7
10°-20°	485.6	4.7
20°-30°	713.7	7.0
30°-40°	828.9	8.1
40°-50°	827.8	8.1
50°-60°	721.8	7.0
60°-70°	533.6	5.2
70°-80°	301.9	2.9
80°-90°	83.0	0.8
90°-100°	62.9	0.6
100°-110°	234.6	2.3
110°-120°	622.2	6.1
120°-130°	1032.0	10.1
130°-140°	1096.2	10.7
140°-150°	1018.8	9.9
150°-160°	819.1	8.0
160°-170°	527.8	5.1
170°-180°	181.7	1.8
0°-30°	1371.9	13.4
0°-40°	2200.7	21.4
0°-60°	3750.4	36.5
0°-90°	4668.9	45.5
90°-120°	919.8	9.0
90°-150°	4066.8	39.6
90°-180°	5595.0	54.5
0°-180°	10264.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1834	1834	1834	1834	1834	
5°	1834	1827	1807	1821	1818	174
15°	1746	1735	1712	1719	1710	492
25°	1580	1566	1536	1539	1536	727
35°	1363	1346	1317	1307	1298	851
45°	1109	1097	1070	1051	1044	856
55°	839	829	808	786	778	750
65°	566	555	538	522	513	560
75°	296	293	284	273	277	316
85°	72	70	69	63	62	81
90°	1	17	28	35	37	9
95°	90	44	54	61	59	106
105°	420	461	84	99	105	449
115°	794	818	852	213	113	782
125°	1123	1141	1167	1177	1181	1001
135°	1389	1412	1424	1438	1435	1073
145°	1612	1610	1634	1643	1636	1008
155°	1775	1762	1779	1787	1776	818
165°	1870	1862	1866	1876	1866	528
175°	1913	1903	1906	1915	1902	182
180°	1909	1909	1909	1909	1909	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.7	1833.7	1833.7	1833.7	1833.7
2.5°	1844.4	1835.6	1816.2	1833.7	1830.4
5°	1833.7	1826.8	1807.3	1821.4	1818.1
7.5°	1821.4	1810.9	1791.5	1805.7	1802.1
10°	1802.1	1789.8	1768.7	1782.6	1777.4
12.5°	1775.6	1765.1	1744.0	1752.8	1749.2
15°	1745.6	1735.1	1712.1	1719.3	1710.4
17.5°	1708.5	1698.1	1675.1	1683.9	1675.1
20°	1668.0	1657.6	1632.9	1638.0	1631.2
22.5°	1627.6	1611.7	1588.7	1588.7	1585.1
25°	1579.9	1565.8	1535.9	1539.3	1535.9
27.5°	1526.9	1514.6	1491.8	1486.5	1477.7
30°	1474.1	1460.0	1433.6	1428.3	1421.3
32.5°	1417.7	1407.2	1378.9	1368.3	1361.2
35°	1363.0	1345.5	1317.2	1306.6	1297.8
37.5°	1301.3	1285.4	1257.2	1244.8	1236.0
40°	1237.9	1223.7	1195.4	1179.7	1172.6
42.5°	1176.2	1162.0	1133.9	1116.1	1105.6
45°	1109.2	1096.8	1070.3	1051.0	1043.9
47.5°	1043.9	1031.5	1003.3	983.8	973.4
50°	975.1	966.3	941.6	916.9	908.0
52.5°	908.0	895.7	872.9	853.5	841.1
55°	839.4	828.8	807.6	786.5	777.7
57.5°	770.5	761.8	738.8	717.7	710.5
60°	701.7	694.8	670.1	650.6	645.5
62.5°	634.8	622.5	604.8	587.2	580.1
65°	566.1	555.4	537.8	522.0	513.1
67.5°	495.6	486.6	470.9	458.5	451.4
70°	430.3	423.2	407.3	394.9	388.0
72.5°	363.4	356.2	347.4	335.1	329.8
75°	296.1	292.8	283.8	273.3	276.9
77.5°	236.3	229.1	225.6	220.4	215.2
80°	176.4	174.6	171.0	165.8	162.2
82.5°	119.9	119.9	118.2	111.1	111.1
85°	72.2	70.5	68.8	63.4	61.7
87.5°	31.8	28.3	24.7	19.4	17.6
90°	1.3	16.6	27.5	34.6	37.2
92.5°	34.6	29.0	33.1	35.9	37.2
95°	89.7	44.1	53.8	60.9	59.4
97.5°	161.6	48.4	70.3	74.6	76.0
100°	244.5	55.2	78.7	89.7	92.5
102.5°	335.5	332.9	81.5	96.6	100.9
105°	419.8	461.3	84.3	99.3	105.0
107.5°	517.9	552.3	87.1	102.2	107.7
110°	611.9	640.7	241.8	103.7	109.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	700.2	725.0	701.5	106.2	110.6
115°	794.1	817.6	852.2	212.7	113.3
117.5°	875.5	903.1	926.7	729.2	367.3
120°	966.8	987.4	1012.4	1028.9	842.4
122.5°	1044.0	1066.1	1093.8	1102.0	1103.5
125°	1122.8	1140.8	1167.0	1176.7	1180.7
127.5°	1194.6	1213.9	1234.7	1248.5	1249.8
130°	1262.3	1284.4	1299.5	1314.8	1313.4
132.5°	1331.3	1349.3	1364.4	1376.9	1375.5
135°	1389.4	1411.6	1423.8	1437.8	1434.9
137.5°	1450.0	1466.6	1480.5	1494.3	1490.3
140°	1509.4	1520.6	1535.7	1548.1	1541.2
142.5°	1559.2	1569.0	1586.9	1597.8	1590.9
145°	1611.7	1610.2	1633.7	1643.4	1636.5
147.5°	1657.2	1653.0	1676.5	1683.4	1678.0
150°	1701.5	1691.8	1713.9	1722.1	1715.2
152.5°	1738.7	1727.7	1748.3	1756.7	1747.0
155°	1774.6	1762.3	1778.9	1787.1	1776.0
157.5°	1803.6	1792.6	1805.1	1814.8	1803.6
160°	1828.5	1820.1	1828.5	1836.7	1827.1
162.5°	1850.5	1842.3	1849.2	1858.9	1846.4
165°	1869.9	1861.7	1865.8	1875.5	1865.8
167.5°	1885.1	1876.8	1881.0	1890.7	1878.2
170°	1897.6	1889.2	1892.1	1901.7	1889.2
172.5°	1905.8	1897.6	1900.4	1910.1	1897.6
175°	1912.7	1903.0	1905.8	1915.4	1901.7
177.5°	1915.4	1905.8	1907.2	1916.9	1904.5
180°	1908.6	1908.6	1908.6	1908.6	1908.6

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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	9.39	10.21	10.38	11.21	12.55	8.94	9.76	9.94	10.77	12.10
	3H	11.04	11.78	12.04	12.79	14.15	10.55	11.29	11.55	12.30	13.66
	4H	11.62	12.32	12.64	13.34	14.70	11.13	11.83	12.15	12.84	14.21
	6H	12.02	12.66	13.04	13.68	15.06	11.52	12.16	12.54	13.18	14.56
	8H	12.12	12.73	13.15	13.77	15.14	11.62	12.23	12.65	13.27	14.64
	12H	12.16	12.74	13.20	13.78	15.17	11.65	12.24	12.69	13.27	14.66
4H	2H	9.84	10.54	10.86	11.55	12.92	9.48	10.18	10.51	11.20	12.56
	3H	11.69	12.28	12.73	13.32	14.70	11.29	11.87	12.32	12.92	14.29
	4H	12.40	12.94	13.44	13.98	15.37	11.98	12.51	13.02	13.55	14.95
	6H	12.91	13.37	13.96	14.43	15.83	12.48	12.94	13.53	14.00	15.40
	8H	13.06	13.49	14.11	14.54	15.95	12.62	13.05	13.67	14.10	15.51
	12H	13.13	13.52	14.20	14.58	16.00	12.68	13.07	13.75	14.14	15.55
8H	4H	12.59	13.02	13.64	14.08	15.49	12.22	12.64	13.27	13.70	15.11
	6H	13.22	13.57	14.29	14.67	16.07	12.83	13.19	13.91	14.28	15.69
	8H	13.43	13.74	14.52	14.82	16.25	13.04	13.35	14.12	14.43	15.86
	12H	13.56	13.83	14.65	14.91	16.38	13.15	13.42	14.23	14.50	15.97
12H	4H	12.58	12.96	13.65	14.03	15.45	12.21	12.59	13.28	13.66	15.08
	6H	13.24	13.56	14.33	14.64	16.06	12.87	13.18	13.95	14.26	15.69
	8H	13.48	13.75	14.57	14.83	16.30	13.10	13.37	14.19	14.45	15.92

END OF REPORT