

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: P924075

Luminaire Tested: DFN2DIP-4P3F0-050D060US950-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924075
REPORT IS A COMBINATION OF REPORTS P900595 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D060US950-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

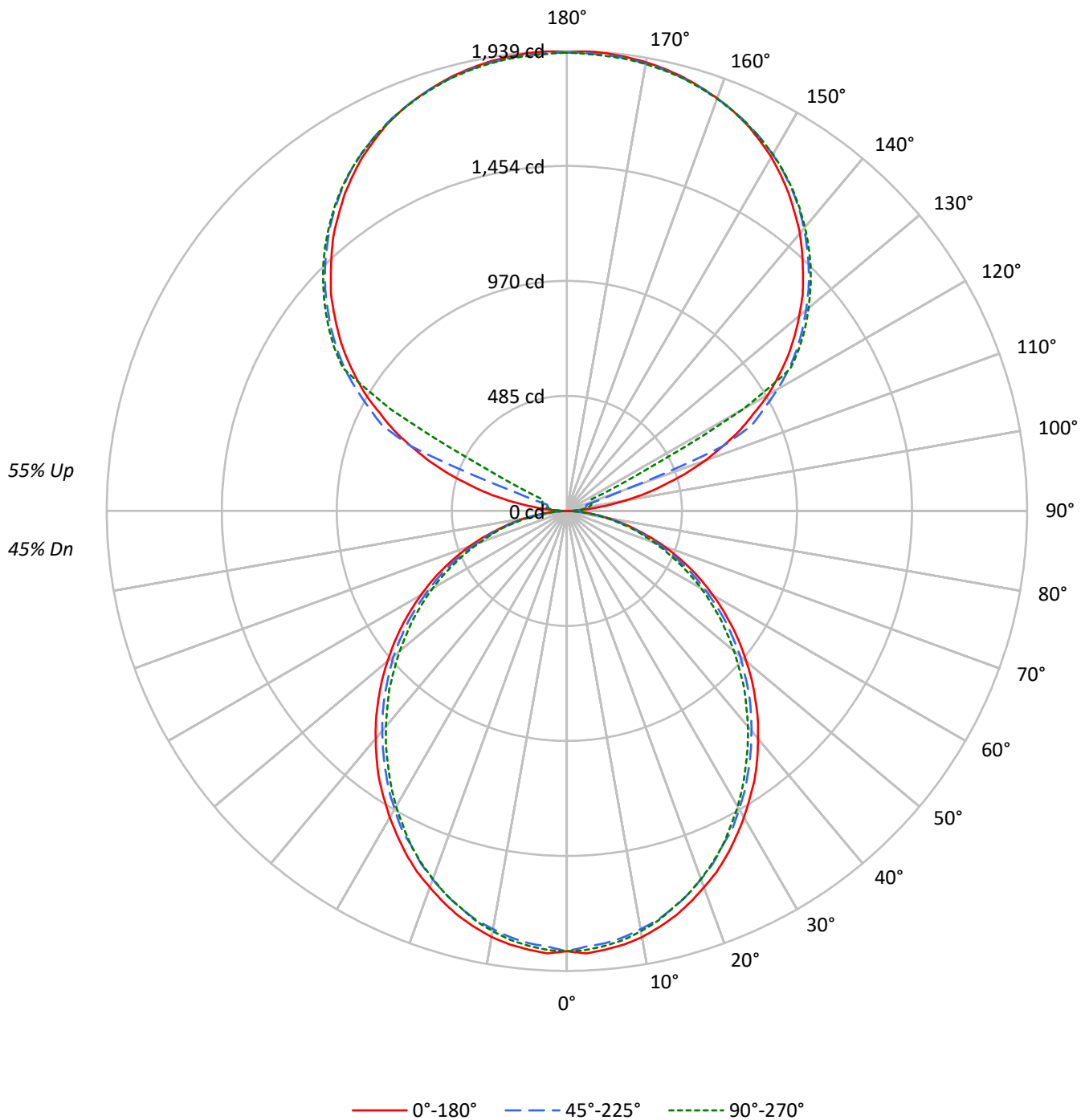
Lumens per Lamp: N/A
Luminaire Lumens: 10389.0 lumens
Efficiency: N/A
Efficacy: 108.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 96
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
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	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°	2115	2115	2115
5°	2117	2084	2099
10°	2099	2055	2070
15°	2066	2020	2025
20°	2023	1971	1979
25°	1981	1914	1925
30°	1927	1860	1858
35°	1877	1797	1787
40°	1814	1733	1719
45°	1752	1669	1649
50°	1684	1602	1569
55°	1613	1524	1494
60°	1533	1432	1410
65°	1444	1336	1309
70°	1332	1219	1201
75°	1177	1079	1101
80°	989	901	910
85°	697	596	596

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1752 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	174.7	1.7
10°-20°	491.5	4.7
20°-30°	722.3	7.0
30°-40°	838.9	8.1
40°-50°	837.9	8.1
50°-60°	730.6	7.0
60°-70°	540.1	5.2
70°-80°	305.6	2.9
80°-90°	84.0	0.8
90°-100°	63.7	0.6
100°-110°	237.5	2.3
110°-120°	629.8	6.1
120°-130°	1044.5	10.1
130°-140°	1109.5	10.7
140°-150°	1031.2	9.9
150°-160°	829.1	8.0
160°-170°	534.2	5.1
170°-180°	183.9	1.8
0°-30°	1388.5	13.4
0°-40°	2227.5	21.4
0°-60°	3796.0	36.5
0°-90°	4725.7	45.5
90°-120°	930.9	9.0
90°-150°	4116.2	39.6
90°-180°	5663.0	54.5
0°-180°	10389.0	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°	1	17	28	35	38	10
95°	91	45	54	62	60	108
105°	425	467	85	101	106	454
115°	804	828	862	215	115	791
125°	1136	1155	1181	1191	1195	1014
135°	1406	1429	1441	1455	1452	1086
145°	1631	1630	1654	1663	1656	1020
155°	1796	1784	1800	1809	1798	828
165°	1893	1884	1888	1898	1888	535
175°	1936	1926	1929	1939	1925	184
180°	1932	1932	1932	1932	1932	

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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°	1.3	16.8	27.9	35.0	37.7
92.5°	35.0	29.4	33.5	36.3	37.7
95°	90.8	44.6	54.5	61.6	60.1
97.5°	163.5	48.9	71.2	75.6	76.9
100°	247.5	55.9	79.7	90.8	93.6
102.5°	339.6	337.0	82.5	97.8	102.1
105°	424.9	466.9	85.3	100.6	106.3
107.5°	524.2	559.0	88.1	103.4	109.0
110°	619.3	648.5	244.7	104.9	110.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	708.7	733.8	710.1	107.5	111.9
115°	803.7	827.5	862.5	215.3	114.7
117.5°	886.2	914.1	938.0	738.0	371.8
120°	978.5	999.4	1024.7	1041.4	852.7
122.5°	1056.7	1079.1	1107.1	1115.4	1116.9
125°	1136.4	1154.6	1181.1	1191.0	1195.1
127.5°	1209.1	1228.7	1249.7	1263.7	1265.0
130°	1277.6	1300.0	1315.3	1330.7	1329.4
132.5°	1347.5	1365.7	1381.0	1393.6	1392.3
135°	1406.3	1428.7	1441.1	1455.2	1452.4
137.5°	1467.6	1484.4	1498.5	1512.5	1508.4
140°	1527.7	1539.1	1554.4	1566.9	1560.0
142.5°	1578.2	1588.0	1606.2	1617.2	1610.3
145°	1631.3	1629.8	1653.6	1663.4	1656.4
147.5°	1677.3	1673.1	1696.9	1703.8	1698.4
150°	1722.2	1712.3	1734.8	1743.1	1736.1
152.5°	1759.8	1748.7	1769.6	1778.1	1768.2
155°	1796.2	1783.7	1800.5	1808.8	1797.6
157.5°	1825.6	1814.4	1827.0	1836.8	1825.6
160°	1850.8	1842.3	1850.8	1859.1	1849.3
162.5°	1873.0	1864.7	1871.7	1881.5	1868.9
165°	1892.6	1884.3	1888.4	1898.3	1888.4
167.5°	1908.0	1899.6	1903.9	1913.7	1901.0
170°	1920.7	1912.2	1915.1	1924.8	1912.2
172.5°	1929.0	1920.7	1923.5	1933.3	1920.7
175°	1936.0	1926.1	1929.0	1938.7	1924.8
177.5°	1938.7	1929.0	1930.4	1940.2	1927.7
180°	1931.8	1931.8	1931.8	1931.8	1931.8

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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	9.41	10.23	10.40	11.24	12.57	8.96	9.79	9.96	10.79	12.13
	3H	11.06	11.80	12.07	12.81	14.17	10.57	11.31	11.58	12.32	13.68
	4H	11.64	12.34	12.66	13.36	14.72	11.15	11.85	12.17	12.87	14.23
	6H	12.04	12.68	13.07	13.71	15.08	11.54	12.18	12.57	13.21	14.58
	8H	12.14	12.75	13.18	13.79	15.16	11.64	12.25	12.67	13.29	14.66
	12H	12.19	12.77	13.23	13.80	15.20	11.68	12.26	12.72	13.29	14.69
4H	2H	9.86	10.56	10.89	11.58	12.94	9.51	10.20	10.53	11.22	12.59
	3H	11.72	12.30	12.75	13.35	14.72	11.31	11.89	12.34	12.94	14.32
	4H	12.43	12.96	13.47	14.00	15.40	12.00	12.54	13.04	13.58	14.97
	6H	12.94	13.39	13.99	14.46	15.85	12.50	12.96	13.55	14.03	15.42
	8H	13.08	13.51	14.13	14.57	15.98	12.65	13.07	13.70	14.13	15.54
	12H	13.15	13.54	14.22	14.61	16.02	12.70	13.09	13.77	14.16	15.57
8H	4H	12.62	13.05	13.67	14.10	15.51	12.24	12.67	13.29	13.72	15.13
	6H	13.24	13.59	14.32	14.69	16.10	12.86	13.21	13.93	14.31	15.71
	8H	13.46	13.77	14.54	14.85	16.28	13.06	13.38	14.15	14.46	15.88
	12H	13.58	13.86	14.67	14.93	16.40	13.17	13.45	14.26	14.52	15.99
12H	4H	12.60	12.99	13.67	14.06	15.47	12.23	12.62	13.30	13.69	15.10
	6H	13.27	13.58	14.35	14.66	16.09	12.90	13.21	13.98	14.29	15.71
	8H	13.50	13.78	14.59	14.85	16.32	13.12	13.40	14.21	14.47	15.94