

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: P918754

Luminaire Tested: DFN2DIP-4P4F0-070D070US935-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918754
REPORT IS A COMBINATION OF REPORTS P899135 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-070D070US935-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

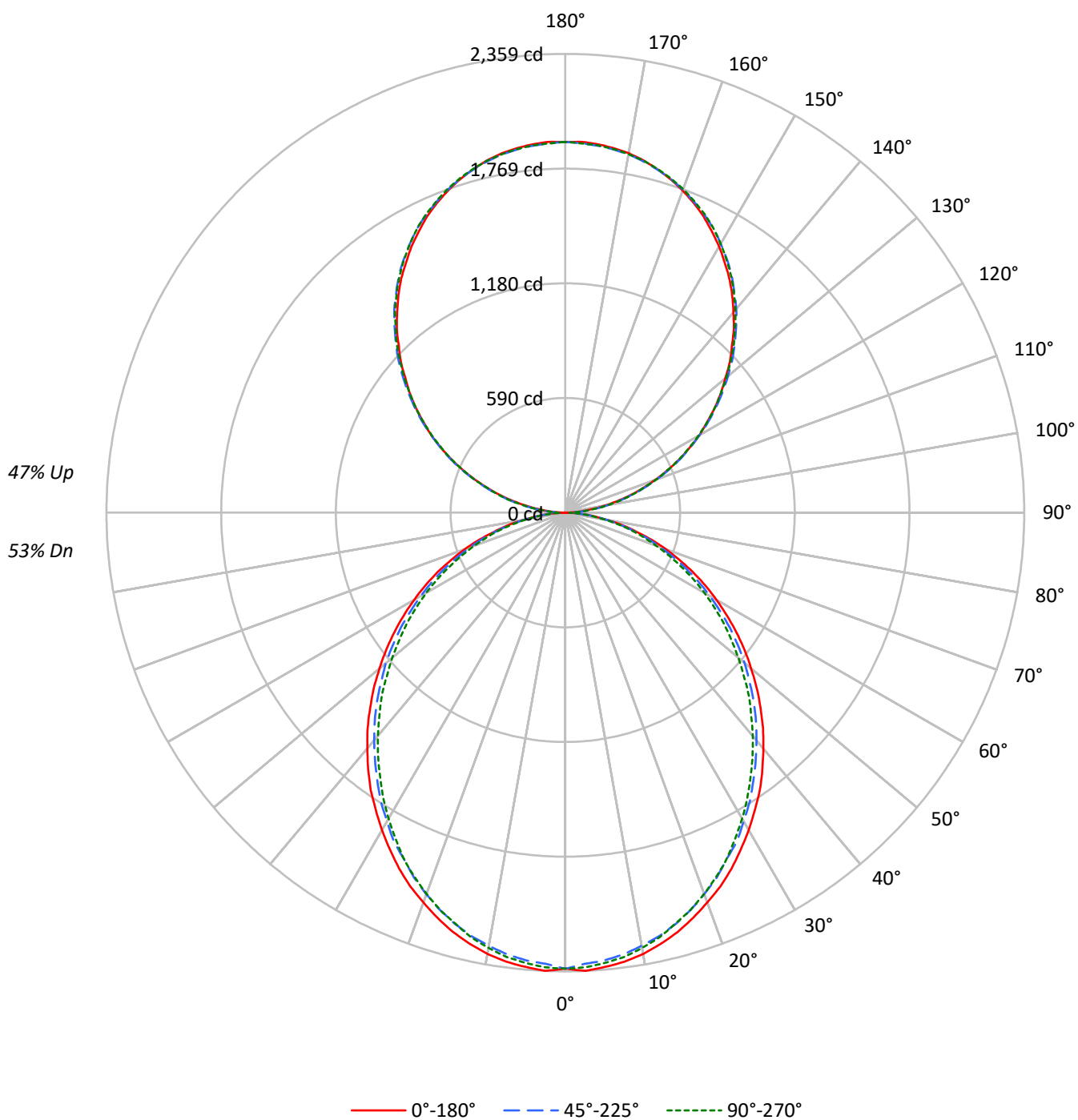
Lumens per Lamp: N/A
Luminaire Lumens: 11300.6 lumens
Efficiency: N/A
Efficacy: 83.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 135.4
Input Voltage (V):
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
RCR																	
0	108	108	108	108	100	100	100	100	85	85	85	71	71	71	59	59	59
1	98	94	90	87	91	87	84	81	74	72	70	63	61	59	52	51	50
2	90	82	76	71	83	76	71	66	65	61	58	55	52	50	46	44	42
3	82	72	65	59	75	67	61	55	58	53	49	49	45	42	41	38	36
4	75	64	56	50	69	60	52	47	51	46	41	43	39	36	36	33	31
5	69	57	49	43	63	53	46	40	46	40	36	39	35	31	33	29	27
6	63	51	43	37	58	48	40	35	41	36	31	35	31	27	30	26	24
7	59	46	38	33	54	43	36	31	37	32	28	32	28	24	27	24	21
8	54	42	34	29	50	39	32	27	34	29	24	29	25	22	25	21	19
9	51	38	31	26	47	36	29	24	31	26	22	27	23	19	23	20	17
10	47	35	28	23	44	33	26	22	29	23	20	25	21	18	21	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1521	1521	1521
5°	1524	1501	1511
10°	1512	1481	1491
15°	1490	1457	1460
20°	1460	1424	1427
25°	1430	1384	1390
30°	1393	1346	1343
35°	1357	1302	1292
40°	1314	1258	1244
45°	1270	1214	1195
50°	1223	1167	1139
55°	1173	1113	1087
60°	1117	1049	1027
65°	1056	983	957
70°	978	902	882
75°	870	805	813
80°	740	683	680
85°	537	469	459

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1443 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	220.7	2.0
10°-20°	621.0	5.5
20°-30°	912.7	8.1
30°-40°	1060.0	9.4
40°-50°	1058.7	9.4
50°-60°	923.2	8.2
60°-70°	682.4	6.0
70°-80°	386.1	3.4
80°-90°	107.3	0.9
90°-100°	117.9	1.0
100°-110°	374.8	3.3
110°-120°	641.3	5.7
120°-130°	843.5	7.5
130°-140°	946.7	8.4
140°-150°	928.4	8.2
150°-160°	778.8	6.9
160°-170°	516.5	4.6
170°-180°	180.5	1.6
0°-30°	1754.4	15.5
0°-40°	2814.4	24.9
0°-60°	4796.3	42.4
0°-90°	5972.2	52.8
90°-120°	1134.1	10.0
90°-150°	3852.7	34.1
90°-180°	5328.0	47.1
0°-180°	11300.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2345	2345	2345	2345	2345	
5°	2345	2336	2311	2329	2325	223
15°	2232	2219	2190	2199	2188	629
25°	2020	2002	1964	1969	1964	930
35°	1743	1721	1684	1671	1660	1089
45°	1418	1403	1369	1344	1335	1095
55°	1074	1060	1033	1006	994	960
65°	724	710	688	668	656	716
75°	379	374	363	350	354	404
85°	92	90	88	81	79	103
90°	2	21	56	53	55	11
95°	84	100	103	103	100	93
105°	346	350	354	357	357	365
115°	644	653	650	648	644	637
125°	936	950	946	941	939	837
135°	1211	1229	1232	1230	1226	936
145°	1470	1481	1491	1492	1486	918
155°	1681	1685	1691	1699	1694	774
165°	1828	1827	1827	1838	1830	516
175°	1903	1898	1895	1906	1896	181
180°	1906	1906	1906	1906	1906	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2345.1	2345.1	2345.1	2345.1	2345.1
2.5°	2358.8	2347.5	2322.6	2345.1	2340.8
5°	2345.1	2336.3	2311.4	2329.3	2325.0
7.5°	2329.3	2315.9	2291.0	2309.3	2304.7
10°	2304.7	2288.9	2261.8	2279.8	2273.1
12.5°	2270.7	2257.4	2230.3	2241.5	2237.0
15°	2232.5	2219.0	2189.6	2198.7	2187.5
17.5°	2185.0	2171.7	2142.2	2153.5	2142.2
20°	2133.1	2119.8	2088.2	2094.9	2086.0
22.5°	2081.5	2061.1	2031.7	2031.7	2027.1
25°	2020.5	2002.5	1964.3	1968.6	1964.3
27.5°	1952.7	1937.0	1907.8	1901.1	1889.8
30°	1885.3	1867.1	1833.4	1826.7	1817.6
32.5°	1813.0	1799.7	1763.5	1749.9	1740.8
35°	1743.2	1720.7	1684.5	1670.9	1659.7
37.5°	1664.2	1643.9	1607.7	1592.0	1580.7
40°	1583.1	1564.9	1528.8	1508.7	1499.6
42.5°	1504.2	1486.0	1450.1	1427.4	1413.9
45°	1418.5	1402.7	1368.7	1344.1	1335.0
47.5°	1335.0	1319.2	1283.1	1258.2	1244.8
50°	1247.0	1235.7	1204.1	1172.6	1161.3
52.5°	1161.3	1145.6	1116.4	1091.5	1075.6
55°	1073.5	1059.9	1032.9	1005.8	994.5
57.5°	985.5	974.2	944.8	917.7	908.7
60°	897.4	888.5	857.0	832.2	825.4
62.5°	811.7	796.0	773.5	751.0	741.9
65°	724.0	710.3	687.9	667.5	656.3
67.5°	633.8	622.3	602.2	586.4	577.3
70°	550.3	541.2	520.8	505.1	496.2
72.5°	464.6	455.6	444.3	428.5	421.8
75°	378.8	374.4	362.9	349.6	354.1
77.5°	302.2	293.1	288.5	281.8	275.2
80°	225.6	223.3	218.7	212.0	207.4
82.5°	153.3	153.3	151.2	142.2	142.2
85°	92.4	90.2	88.1	81.1	79.0
87.5°	40.6	36.2	31.6	24.9	22.5
90°	1.7	20.7	56.3	52.9	54.6
92.5°	35.6	48.3	50.0	51.7	51.7
95°	83.9	100.0	102.9	102.9	100.0
97.5°	139.7	154.5	160.9	160.9	160.9
100°	204.0	217.2	221.8	221.8	220.1
102.5°	271.8	281.5	287.9	289.6	287.9
105°	345.9	350.5	354.0	356.9	356.9
107.5°	419.5	426.4	426.4	427.6	419.5
110°	490.8	500.0	500.0	500.0	495.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	567.7	577.6	575.8	571.2	567.7
115°	643.6	652.8	650.0	648.2	643.6
117.5°	718.8	731.5	723.5	718.8	714.3
120°	794.7	807.4	794.7	794.7	789.5
122.5°	863.7	879.8	871.8	867.1	863.7
125°	936.1	950.5	945.9	940.7	939.0
127.5°	1006.8	1024.6	1018.3	1011.4	1006.8
130°	1072.9	1093.6	1090.7	1087.3	1080.9
132.5°	1147.0	1163.1	1164.2	1156.2	1151.6
135°	1210.8	1228.6	1232.1	1230.3	1225.7
137.5°	1282.0	1296.4	1299.2	1298.1	1291.2
140°	1344.7	1359.1	1367.1	1367.1	1360.8
142.5°	1409.0	1423.4	1428.0	1429.7	1423.4
145°	1470.0	1481.4	1490.6	1492.4	1486.1
147.5°	1524.6	1538.9	1545.8	1548.7	1542.4
150°	1580.9	1590.6	1597.0	1602.1	1597.0
152.5°	1630.8	1640.6	1648.6	1655.0	1648.6
155°	1680.8	1685.4	1690.7	1698.7	1693.5
157.5°	1724.0	1727.4	1730.3	1741.8	1733.7
160°	1762.5	1765.9	1767.6	1777.4	1770.5
162.5°	1798.1	1798.1	1799.8	1810.7	1802.7
165°	1828.5	1826.8	1826.8	1838.3	1830.2
167.5°	1856.1	1851.0	1851.0	1862.4	1854.4
170°	1876.8	1872.2	1870.5	1882.0	1872.2
172.5°	1891.2	1886.5	1884.8	1896.3	1886.5
175°	1902.6	1898.1	1894.6	1906.1	1896.3
177.5°	1909.0	1904.4	1900.9	1910.7	1900.9
180°	1906.1	1906.1	1906.1	1906.1	1906.1

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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	9.01	9.89	9.94	10.84	12.07	8.56	9.45	9.49	10.40	11.63
	3H	10.68	11.47	11.62	12.43	13.68	10.18	10.98	11.13	11.94	13.19
	4H	11.27	12.02	12.23	12.98	14.25	10.77	11.53	11.73	12.49	13.75
	6H	11.67	12.37	12.64	13.34	14.61	11.17	11.87	12.14	12.84	14.11
	8H	11.78	12.44	12.76	13.43	14.70	11.28	11.94	12.26	12.93	14.20
	12H	11.83	12.46	12.81	13.44	14.74	11.32	11.95	12.30	12.93	14.23
4H	2H	9.47	10.23	10.44	11.19	12.45	9.12	9.87	10.08	10.83	12.10
	3H	11.35	11.98	12.32	12.97	14.25	10.94	11.57	11.91	12.56	13.84
	4H	12.07	12.64	13.05	13.63	14.93	11.64	12.22	12.63	13.20	14.50
	6H	12.59	13.08	13.58	14.09	15.39	12.16	12.65	13.15	13.66	14.96
	8H	12.74	13.20	13.74	14.21	15.52	12.30	12.77	13.30	13.77	15.08
	12H	12.82	13.24	13.83	14.26	15.58	12.37	12.79	13.39	13.81	15.13
8H	4H	12.27	12.73	13.26	13.73	15.05	11.89	12.35	12.89	13.36	14.67
	6H	12.91	13.29	13.93	14.33	15.64	12.52	12.90	13.54	13.95	15.26
	8H	13.13	13.47	14.16	14.50	15.83	12.74	13.08	13.77	14.11	15.44
	12H	13.27	13.56	14.30	14.59	15.96	12.86	13.15	13.89	14.18	15.55
12H	4H	12.25	12.67	13.27	13.69	15.01	11.89	12.30	12.90	13.32	14.64
	6H	12.94	13.27	13.97	14.31	15.64	12.56	12.90	13.59	13.93	15.26
	8H	13.18	13.48	14.22	14.51	15.88	12.80	13.10	13.84	14.13	15.50