

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: P920311

Luminaire Tested: DFN2DIP-SQ4F0-060D070US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920311
REPORT IS A COMBINATION OF REPORTS P901598 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-060D070US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

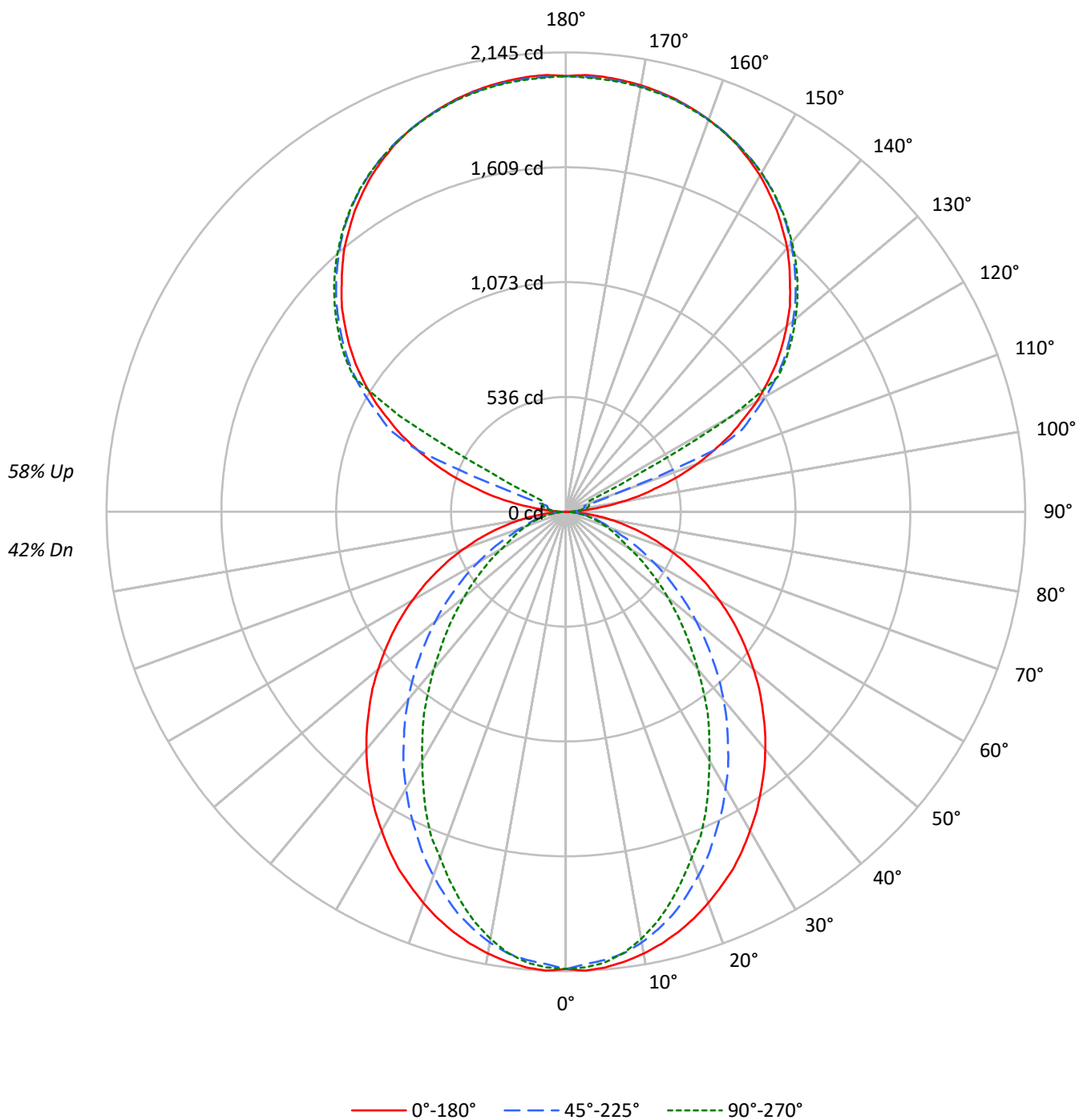
Lumens per Lamp: N/A
Luminaire Lumens: 10357.8 lumens
Efficiency: N/A
Efficacy: 101.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 102.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.946
Total Harmonic Distortion (THDi): 0.132
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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	89	85	88	85	81	79	70	68	66	56	55	54	44	43	42
2	88	81	75	70	80	74	69	65	62	58	55	50	48	45	39	38	36
3	81	72	65	59	74	66	60	55	55	50	47	45	42	39	35	33	31
4	74	64	56	50	67	59	52	47	49	44	40	40	36	34	32	29	27
5	68	57	49	43	62	52	46	40	44	39	35	36	32	29	29	26	24
6	63	51	43	38	57	47	40	35	40	34	31	33	29	26	26	23	21
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	35	29	49	39	32	28	33	28	24	27	24	21	22	19	17
9	50	38	31	26	46	36	29	25	30	25	22	25	21	19	21	18	16
10	47	35	28	24	43	33	26	22	28	23	20	23	20	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1498	1498	1498
5°	1501	1475	1484
10°	1486	1446	1436
15°	1465	1399	1362
20°	1438	1333	1271
25°	1410	1259	1183
30°	1373	1184	1071
35°	1337	1103	972
40°	1299	1019	859
45°	1256	925	757
50°	1212	831	657
55°	1165	730	561
60°	1111	625	462
65°	1049	518	417
70°	974	418	378
75°	880	369	345
80°	743	311	300
85°	517	209	229

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1256 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	200.1	1.9
10°-20°	549.3	5.3
20°-30°	771.2	7.4
30°-40°	840.7	8.1
40°-50°	772.7	7.5
50°-60°	606.8	5.9
60°-70°	395.0	3.8
70°-80°	203.3	2.0
80°-90°	55.5	0.5
90°-100°	67.1	0.6
100°-110°	250.0	2.4
110°-120°	663.1	6.4
120°-130°	1099.8	10.6
130°-140°	1168.3	11.3
140°-150°	1085.8	10.5
150°-160°	872.9	8.4
160°-170°	562.5	5.4
170°-180°	193.6	1.9
0°-30°	1520.7	14.7
0°-40°	2361.4	22.8
0°-60°	3740.9	36.1
0°-90°	4394.7	42.4
90°-120°	980.2	9.5
90°-150°	4334.1	41.8
90°-180°	5963.0	57.6
0°-180°	10357.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2135	2135	2135	2135	2135	
5°	2135	2126	2100	2118	2112	202
15°	2031	2009	1944	1907	1888	572
25°	1843	1782	1654	1575	1546	848
35°	1588	1490	1320	1198	1155	994
45°	1298	1169	966	829	782	1003
55°	987	837	628	512	475	882
65°	667	510	336	271	265	661
75°	356	220	154	141	139	376
85°	83	42	37	37	37	95
90°	1	18	29	37	40	10
95°	96	47	57	65	63	113
105°	448	492	90	106	112	478
115°	846	871	908	227	121	833
125°	1196	1216	1244	1254	1258	1067
135°	1481	1504	1517	1532	1529	1144
145°	1718	1716	1741	1751	1744	1074
155°	1891	1878	1896	1904	1893	872
165°	1993	1984	1988	1999	1988	563
175°	2038	2028	2031	2041	2027	194
180°	2034	2034	2034	2034	2034	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2135.1	2135.1	2135.1	2135.1	2135.1
2.5°	2144.7	2135.1	2113.7	2133.2	2129.3
5°	2135.1	2125.5	2100.2	2117.7	2111.9
7.5°	2117.7	2106.2	2079.1	2086.7	2077.1
10°	2094.5	2080.9	2042.5	2036.5	2025.0
12.5°	2065.6	2048.1	1995.9	1984.4	1963.1
15°	2030.7	2009.4	1943.8	1907.1	1887.8
17.5°	1990.2	1959.2	1878.0	1835.6	1804.7
20°	1943.8	1905.0	1808.5	1760.3	1717.7
22.5°	1893.6	1849.1	1737.0	1671.4	1642.4
25°	1843.4	1781.5	1654.0	1574.9	1545.7
27.5°	1783.6	1717.7	1576.7	1485.8	1441.4
30°	1719.8	1646.1	1491.6	1393.2	1340.9
32.5°	1657.9	1568.9	1410.7	1294.6	1246.2
35°	1588.4	1489.8	1319.8	1198.0	1155.4
37.5°	1520.7	1414.3	1234.8	1101.3	1053.1
40°	1449.1	1333.3	1145.7	1008.6	958.4
42.5°	1375.8	1252.1	1057.0	913.9	865.7
45°	1298.5	1168.9	966.2	828.8	782.5
47.5°	1225.1	1088.0	879.3	741.9	699.5
50°	1143.9	1006.8	794.2	660.7	620.3
52.5°	1064.5	919.6	713.0	585.5	548.8
55°	987.3	836.6	627.9	512.1	475.4
57.5°	908.2	753.5	552.7	444.4	413.5
60°	827.0	672.4	473.4	375.0	344.0
62.5°	747.9	593.3	405.7	313.1	297.6
65°	666.7	510.1	336.2	270.6	264.7
67.5°	589.4	432.7	270.6	237.6	231.9
70°	508.2	357.5	224.0	204.8	197.0
72.5°	430.9	287.8	187.4	172.0	168.1
75°	355.5	220.2	154.5	141.0	139.2
77.5°	280.3	156.4	121.7	114.0	110.1
80°	210.5	112.1	92.6	85.1	85.1
82.5°	146.8	75.4	63.7	59.8	59.8
85°	83.0	42.4	36.7	36.7	36.7
87.5°	31.0	15.4	15.4	13.5	13.5
90°	1.4	17.7	29.4	36.9	39.7
92.5°	36.9	30.9	35.3	38.3	39.7
95°	95.6	47.0	57.3	64.8	63.3
97.5°	172.1	51.6	75.0	79.6	80.9
100°	260.6	58.9	83.9	95.6	98.6
102.5°	357.6	354.8	86.9	103.0	107.5
105°	447.5	491.6	89.8	105.9	111.8
107.5°	551.9	588.7	92.8	108.9	114.9
110°	652.1	682.9	257.6	110.5	116.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	746.3	772.7	747.7	113.2	117.8
115°	846.3	871.2	908.1	226.7	120.8
117.5°	933.1	962.5	987.7	777.1	391.5
120°	1030.3	1052.3	1078.9	1096.6	897.8
122.5°	1112.6	1136.2	1165.8	1174.5	1176.0
125°	1196.5	1215.7	1243.7	1254.0	1258.3
127.5°	1273.1	1293.6	1315.9	1330.6	1332.0
130°	1345.2	1368.8	1384.9	1401.2	1399.8
132.5°	1418.8	1438.0	1454.1	1467.4	1466.0
135°	1480.7	1504.2	1517.4	1532.2	1529.3
137.5°	1545.3	1563.1	1577.9	1592.6	1588.2
140°	1608.6	1620.5	1636.6	1649.8	1642.5
142.5°	1661.7	1672.1	1691.1	1702.8	1695.5
145°	1717.7	1716.1	1741.1	1751.4	1744.1
147.5°	1766.1	1761.8	1786.7	1794.1	1788.3
150°	1813.3	1803.0	1826.6	1835.3	1828.0
152.5°	1853.0	1841.2	1863.3	1872.2	1861.9
155°	1891.3	1878.1	1895.7	1904.5	1892.8
157.5°	1922.2	1910.5	1923.7	1934.1	1922.2
160°	1948.8	1939.8	1948.8	1957.5	1947.1
162.5°	1972.2	1963.4	1970.7	1981.1	1967.8
165°	1992.8	1984.1	1988.4	1998.7	1988.4
167.5°	2009.1	2000.1	2004.7	2015.0	2001.7
170°	2022.3	2013.4	2016.4	2026.7	2013.4
172.5°	2031.1	2022.3	2025.3	2035.6	2022.3
175°	2038.4	2028.1	2031.1	2041.3	2026.7
177.5°	2041.3	2031.1	2032.6	2043.0	2029.6
180°	2034.0	2034.0	2034.0	2034.0	2034.0

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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	7.81	8.59	8.84	9.61	10.99	3.77	4.55	4.80	5.58	6.95
	3H	9.49	10.18	10.53	11.22	12.62	4.96	5.65	5.99	6.69	8.09
	4H	10.10	10.75	11.15	11.79	13.20	5.41	6.06	6.46	7.10	8.51
	6H	10.52	11.12	11.58	12.17	13.59	5.73	6.33	6.78	7.37	8.79
	8H	10.65	11.22	11.71	12.28	13.69	5.82	6.39	6.88	7.45	8.86
	12H	10.71	11.25	11.78	12.31	13.74	5.86	6.40	6.92	7.45	8.89
4H	2H	7.82	8.48	8.88	9.52	10.92	4.36	5.02	5.42	6.06	7.46
	3H	9.65	10.20	10.72	11.27	12.68	5.71	6.25	6.77	7.32	8.74
	4H	10.35	10.84	11.41	11.90	13.34	6.26	6.75	7.33	7.81	9.25
	6H	10.86	11.29	11.94	12.37	13.81	6.67	7.10	7.75	8.18	9.62
	8H	11.04	11.44	12.12	12.51	13.96	6.80	7.20	7.88	8.28	9.73
	12H	11.13	11.49	12.23	12.58	14.04	6.87	7.23	7.96	8.31	9.77
8H	4H	10.31	10.71	11.39	11.78	13.23	6.54	6.93	7.61	8.01	9.46
	6H	10.88	11.21	11.98	12.32	13.77	7.05	7.38	8.15	8.50	9.95
	8H	11.10	11.39	12.20	12.49	13.95	7.24	7.53	8.35	8.63	10.10
	12H	11.24	11.49	12.35	12.59	14.09	7.36	7.62	8.47	8.71	10.22
12H	4H	10.26	10.62	11.35	11.71	13.16	6.54	6.90	7.63	7.99	9.44
	6H	10.85	11.14	11.96	12.24	13.71	7.10	7.39	8.21	8.49	9.96
	8H	11.08	11.33	12.18	12.42	13.93	7.31	7.57	8.42	8.66	10.17