

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: P917689

Luminaire Tested: DFN2DIP-SQ4F0-090D070US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P917689
REPORT IS A COMBINATION OF REPORTS P901603 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D070US930-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

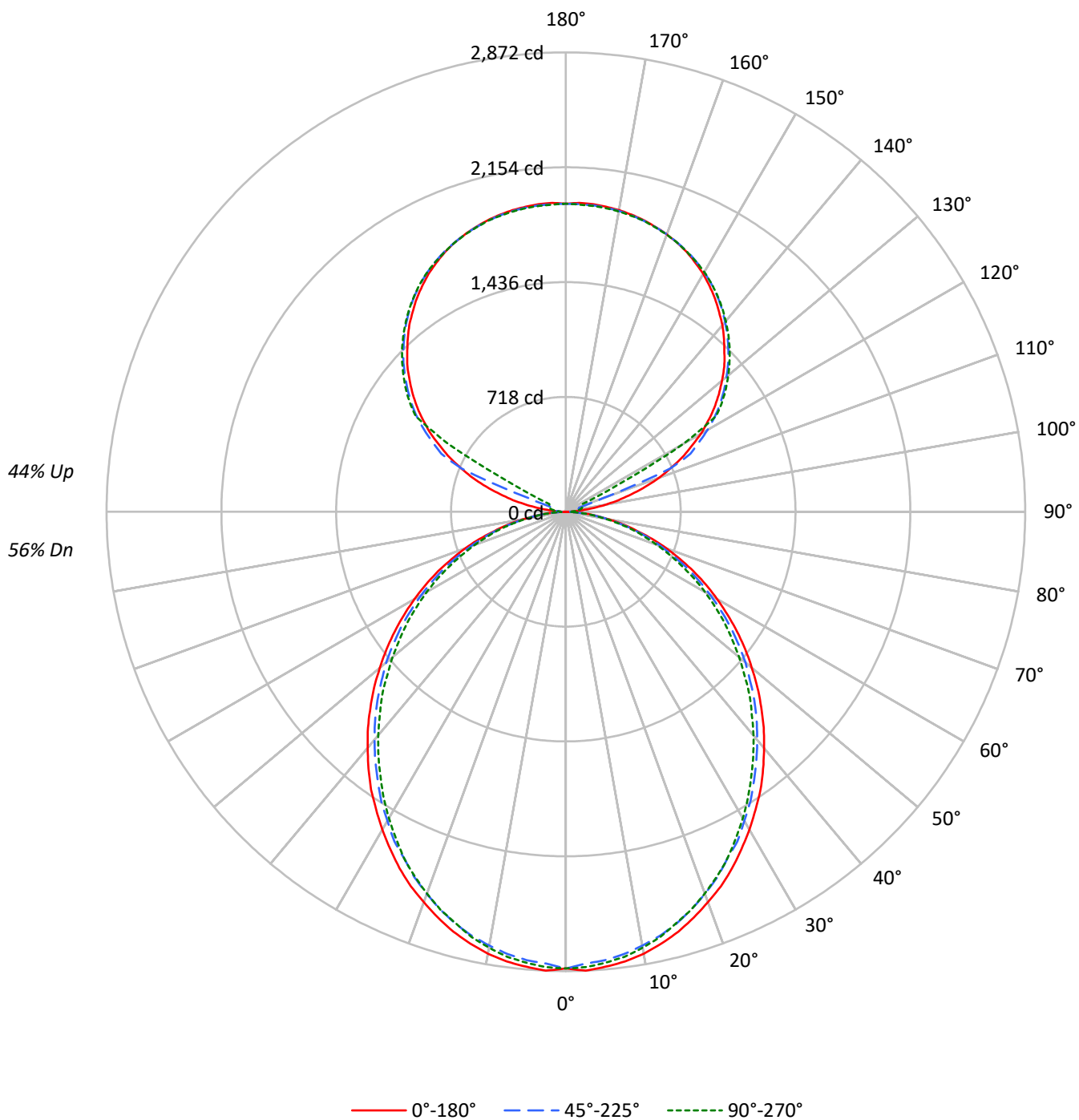
Lumens per Lamp: N/A
Luminaire Lumens: 12914.3 lumens
Efficiency: N/A
Efficacy: 95.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 134.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	71	65	63	62	55	53	52
2	90	83	77	71	84	77	72	67	67	63	59	57	54	51	48	46	44
3	82	73	65	59	76	68	61	56	59	54	50	51	47	44	43	40	38
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32
5	69	58	49	43	64	54	46	41	47	41	37	40	36	32	34	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	30	26	22	26	23	20
9	51	39	31	26	48	36	30	25	32	26	23	28	23	20	24	21	18
10	48	36	28	23	44	34	27	22	30	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2003	2003	2003
5°	2007	1976	1989
10°	1990	1950	1963
15°	1961	1918	1921
20°	1921	1874	1879
25°	1882	1821	1830
30°	1833	1771	1767
35°	1786	1713	1700
40°	1728	1655	1637
45°	1671	1596	1573
50°	1608	1534	1498
55°	1543	1463	1429
60°	1468	1378	1351
65°	1387	1290	1258
70°	1284	1183	1158
75°	1141	1056	1067
80°	970	893	892
85°	700	611	599

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1671 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	268.7	2.1
10°-20°	756.1	5.9
20°-30°	1111.2	8.6
30°-40°	1290.5	10.0
40°-50°	1288.9	10.0
50°-60°	1123.9	8.7
60°-70°	830.8	6.4
70°-80°	470.1	3.6
80°-90°	127.4	1.0
90°-100°	63.5	0.5
100°-110°	236.8	1.8
110°-120°	627.9	4.9
120°-130°	1041.5	8.1
130°-140°	1106.3	8.6
140°-150°	1028.1	8.0
150°-160°	826.6	6.4
160°-170°	532.6	4.1
170°-180°	183.3	1.4
0°-30°	2136.0	16.5
0°-40°	3426.5	26.5
0°-60°	5839.4	45.2
0°-90°	7267.7	56.3
90°-120°	928.2	7.2
90°-150°	4104.1	31.8
90°-180°	5647.0	43.7
0°-180°	12914.3	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2855	2855	2855	2855	2855	
5°	2855	2844	2814	2836	2831	271
15°	2718	2702	2666	2677	2663	765
25°	2460	2438	2391	2397	2391	1132
35°	2122	2095	2051	2034	2021	1325
45°	1727	1708	1666	1636	1625	1333
55°	1307	1290	1257	1225	1211	1169
65°	881	865	837	813	799	871
75°	461	456	442	426	431	492
85°	112	110	107	99	96	125
90°	1	17	28	35	38	12
95°	90	44	54	61	60	107
105°	424	466	85	100	106	453
115°	801	825	860	215	114	789
125°	1133	1151	1178	1188	1192	1010
135°	1402	1424	1437	1451	1448	1083
145°	1626	1625	1649	1658	1652	1017
155°	1791	1778	1795	1803	1792	825
165°	1887	1879	1883	1893	1883	533
175°	1930	1920	1923	1933	1919	184
180°	1926	1926	1926	1926	1926	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2855.1	2855.1	2855.1	2855.1	2855.1
2.5°	2871.7	2858.0	2827.8	2855.1	2849.9
5°	2855.1	2844.3	2814.1	2835.9	2830.6
7.5°	2835.9	2819.6	2789.3	2811.5	2805.9
10°	2805.9	2786.7	2753.8	2775.6	2767.4
12.5°	2764.5	2748.2	2715.4	2729.0	2723.5
15°	2718.0	2701.7	2665.8	2676.9	2663.2
17.5°	2660.2	2643.9	2608.1	2621.8	2608.1
20°	2597.1	2580.7	2542.3	2550.4	2539.7
22.5°	2534.1	2509.4	2473.5	2473.5	2468.0
25°	2459.8	2438.0	2391.4	2396.7	2391.4
27.5°	2377.4	2358.2	2322.7	2314.6	2300.9
30°	2295.3	2273.1	2232.0	2223.9	2212.9
32.5°	2207.3	2191.0	2147.0	2130.5	2119.4
35°	2122.3	2094.9	2050.9	2034.3	2020.6
37.5°	2026.2	2001.4	1957.4	1938.2	1924.5
40°	1927.4	1905.3	1861.2	1836.8	1825.8
42.5°	1831.2	1809.1	1765.4	1737.8	1721.5
45°	1727.0	1707.8	1666.4	1636.4	1625.4
47.5°	1625.4	1606.1	1562.1	1531.9	1515.6
50°	1518.2	1504.5	1466.0	1427.6	1413.9
52.5°	1413.9	1394.6	1359.1	1328.9	1309.6
55°	1307.0	1290.4	1257.4	1224.6	1210.9
57.5°	1199.8	1186.1	1150.3	1117.4	1106.3
60°	1092.6	1081.8	1043.3	1013.1	1004.9
62.5°	988.3	969.1	941.7	914.4	903.3
65°	881.4	864.8	837.4	812.7	799.0
67.5°	771.6	757.7	733.1	714.0	702.9
70°	669.9	658.8	634.1	614.9	604.1
72.5°	565.7	554.6	540.9	521.7	513.6
75°	461.1	455.8	441.9	425.6	431.1
77.5°	367.9	356.9	351.3	343.2	335.0
80°	274.7	271.7	266.2	258.0	252.6
82.5°	186.7	186.7	184.1	173.0	173.0
85°	112.4	109.8	107.2	98.7	96.1
87.5°	49.5	43.9	38.5	30.3	27.4
90°	1.3	16.7	27.8	34.9	37.6
92.5°	34.9	29.3	33.4	36.3	37.6
95°	90.5	44.5	54.3	61.4	59.9
97.5°	163.0	48.8	71.0	75.3	76.6
100°	246.8	55.8	79.4	90.5	93.4
102.5°	338.6	336.0	82.3	97.5	101.7
105°	423.7	465.5	85.0	100.3	105.9
107.5°	522.6	557.4	87.9	103.1	108.8
110°	617.5	646.6	243.9	104.6	110.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	706.7	731.6	708.0	107.2	111.5
115°	801.4	825.0	859.9	214.7	114.4
117.5°	883.6	911.4	935.2	735.8	370.7
120°	975.6	996.5	1021.7	1038.4	850.2
122.5°	1053.5	1075.9	1103.9	1112.1	1113.6
125°	1133.0	1151.2	1177.7	1187.5	1191.6
127.5°	1205.5	1225.0	1246.0	1260.0	1261.3
130°	1273.8	1296.2	1311.4	1326.8	1325.5
132.5°	1343.5	1361.7	1377.0	1389.5	1388.2
135°	1402.1	1424.4	1436.9	1450.9	1448.1
137.5°	1463.3	1480.1	1494.1	1508.1	1503.9
140°	1523.2	1534.5	1549.7	1562.3	1555.3
142.5°	1573.5	1583.3	1601.3	1612.4	1605.5
145°	1626.5	1625.1	1648.7	1658.5	1651.5
147.5°	1672.3	1668.3	1691.9	1698.8	1693.4
150°	1717.0	1707.3	1729.7	1737.9	1731.0
152.5°	1754.6	1743.5	1764.4	1772.8	1763.1
155°	1790.9	1778.4	1795.1	1803.4	1792.4
157.5°	1820.2	1809.1	1821.6	1831.4	1820.2
160°	1845.3	1836.9	1845.3	1853.6	1843.8
162.5°	1867.5	1859.2	1866.1	1875.9	1863.4
165°	1887.0	1878.8	1882.8	1892.6	1882.8
167.5°	1902.4	1893.9	1898.3	1908.0	1895.5
170°	1915.0	1906.6	1909.3	1919.1	1906.6
172.5°	1923.3	1915.0	1917.8	1927.5	1915.0
175°	1930.2	1920.4	1923.3	1933.0	1919.1
177.5°	1933.0	1923.3	1924.8	1934.5	1921.9
180°	1926.1	1926.1	1926.1	1926.1	1926.1

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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	10.26	11.18	11.16	12.10	13.28	9.81	10.74	10.72	11.66	12.84
	3H	11.93	12.75	12.84	13.68	14.89	11.44	12.26	12.35	13.19	14.40
	4H	12.52	13.30	13.45	14.24	15.45	12.03	12.81	12.96	13.74	14.96
	6H	12.93	13.65	13.87	14.59	15.82	12.43	13.15	13.37	14.09	15.32
	8H	13.04	13.72	13.98	14.68	15.90	12.53	13.22	13.48	14.18	15.40
	12H	13.09	13.74	14.04	14.69	15.94	12.58	13.23	13.53	14.18	15.43
4H	2H	10.73	11.51	11.66	12.44	13.66	10.37	11.15	11.31	12.09	13.30
	3H	12.60	13.26	13.55	14.22	15.45	12.20	12.85	13.14	13.81	15.04
	4H	13.32	13.92	14.28	14.88	16.13	12.90	13.50	13.85	14.46	15.71
	6H	13.85	14.36	14.81	15.34	16.60	13.41	13.93	14.38	14.91	16.16
	8H	14.00	14.48	14.97	15.46	16.72	13.56	14.04	14.53	15.02	16.29
	12H	14.08	14.51	15.07	15.51	16.78	13.63	14.06	14.62	15.06	16.33
8H	4H	13.53	14.01	14.49	14.98	16.25	13.15	13.63	14.12	14.61	15.87
	6H	14.16	14.56	15.16	15.58	16.84	13.78	14.18	14.78	15.20	16.46
	8H	14.39	14.74	15.39	15.75	17.03	14.00	14.35	15.00	15.35	16.64
	12H	14.53	14.83	15.53	15.84	17.16	14.11	14.42	15.12	15.42	16.75
12H	4H	13.51	13.95	14.50	14.94	16.21	13.15	13.58	14.13	14.57	15.85
	6H	14.19	14.55	15.20	15.55	16.84	13.82	14.17	14.83	15.18	16.46
	8H	14.44	14.75	15.45	15.75	17.08	14.06	14.37	15.07	15.37	16.70