

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: P923108

Luminaire Tested: DFN2DIP-SQ4F0-080D070US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923108
REPORT IS A COMBINATION OF REPORTS P900081 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-080D070US940-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

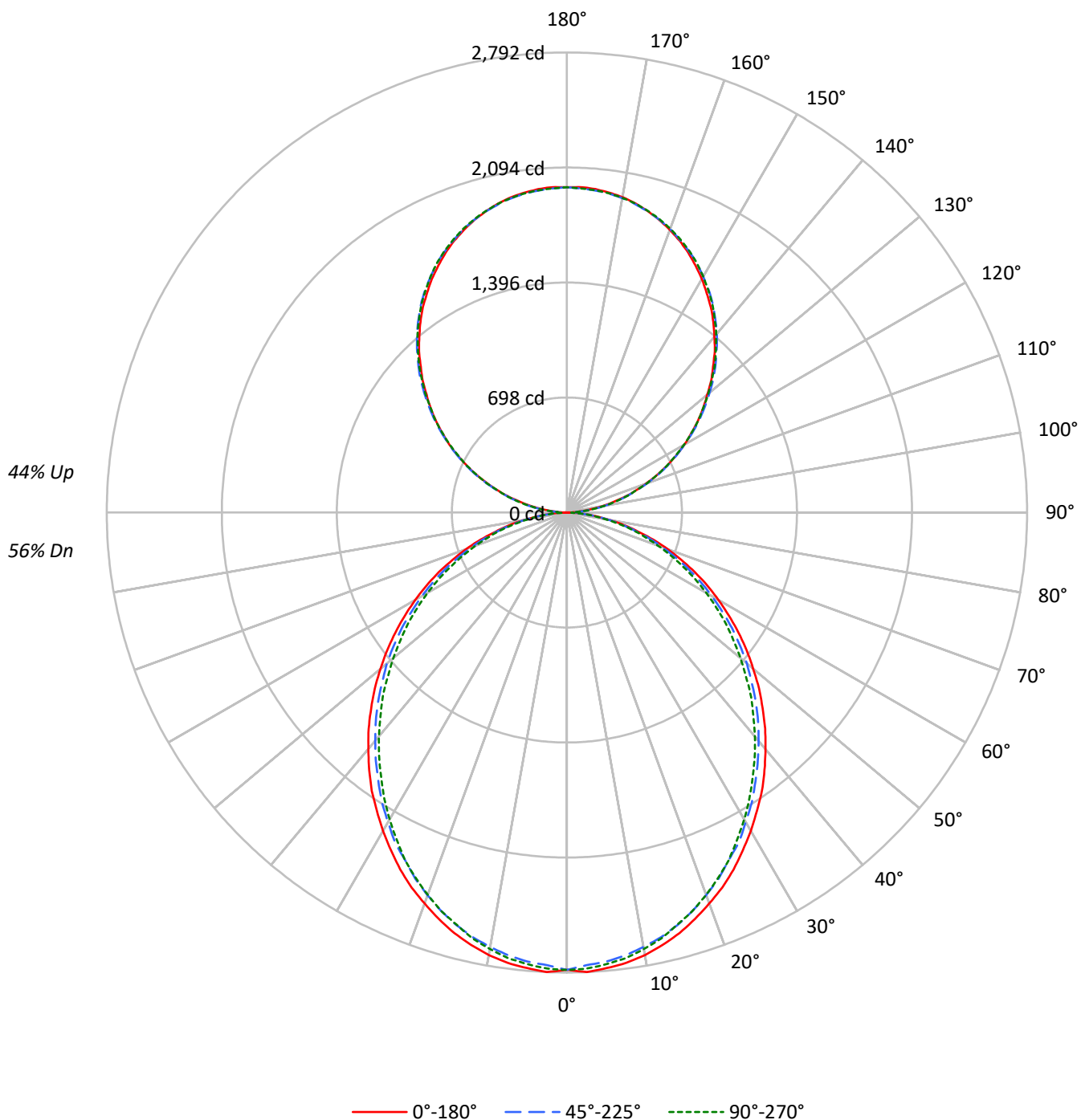
Lumens per Lamp: N/A
Luminaire Lumens: 12586.6 lumens
Efficiency: N/A
Efficacy: 101.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 123.6
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9954
Total Harmonic Distortion (THDi): 0.076
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	61	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	50	47	43	43	40	37
4	75	64	56	50	70	60	53	48	52	47	42	45	41	37	38	35	32
5	69	57	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	32	28	33	29	25	28	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	47	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°	1948	1948	1948
5°	1951	1921	1934
10°	1935	1895	1908
15°	1906	1865	1868
20°	1868	1822	1827
25°	1830	1770	1779
30°	1782	1722	1718
35°	1736	1666	1653
40°	1680	1609	1592
45°	1625	1552	1529
50°	1564	1492	1456
55°	1500	1422	1389
60°	1428	1340	1313
65°	1349	1255	1223
70°	1249	1151	1126
75°	1110	1026	1037
80°	943	868	867
85°	681	594	583

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1625 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.3	2.1
10°-20°	735.1	5.8
20°-30°	1080.3	8.6
30°-40°	1254.7	10.0
40°-50°	1253.1	10.0
50°-60°	1092.7	8.7
60°-70°	807.7	6.4
70°-80°	457.0	3.6
80°-90°	126.2	1.0
90°-100°	122.2	1.0
100°-110°	388.1	3.1
110°-120°	664.2	5.3
120°-130°	873.6	6.9
130°-140°	980.5	7.8
140°-150°	961.5	7.6
150°-160°	806.6	6.4
160°-170°	534.9	4.2
170°-180°	187.0	1.5
0°-30°	2076.6	16.5
0°-40°	3331.3	26.5
0°-60°	5677.0	45.1
0°-90°	7068.0	56.2
90°-120°	1174.5	9.3
90°-150°	3990.1	31.7
90°-180°	5519.0	43.8
0°-180°	12586.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2776	2776	2776	2776	2776	
5°	2776	2765	2736	2757	2752	263
15°	2642	2626	2592	2602	2589	744
25°	2392	2370	2325	2330	2325	1100
35°	2063	2037	1994	1978	1964	1288
45°	1679	1660	1620	1591	1580	1296
55°	1271	1254	1222	1190	1177	1136
65°	857	841	814	790	777	847
75°	448	443	430	414	419	479
85°	109	107	104	96	94	122
90°	2	21	58	55	56	12
95°	87	104	107	107	104	97
105°	358	363	367	370	370	378
115°	667	676	673	671	667	659
125°	970	984	980	974	972	866
135°	1254	1272	1276	1274	1269	969
145°	1522	1534	1544	1546	1539	951
155°	1741	1746	1751	1759	1754	801
165°	1894	1892	1892	1904	1896	534
175°	1970	1966	1962	1974	1964	187
180°	1974	1974	1974	1974	1974	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2775.7	2775.7	2775.7	2775.7	2775.7
2.5°	2791.9	2778.6	2749.1	2775.7	2770.6
5°	2775.7	2765.3	2735.9	2757.1	2752.0
7.5°	2757.1	2741.2	2711.8	2733.3	2727.9
10°	2727.9	2709.2	2677.2	2698.4	2690.6
12.5°	2687.7	2671.8	2639.8	2653.1	2647.8
15°	2642.4	2626.5	2591.7	2602.5	2589.2
17.5°	2586.3	2570.4	2535.6	2549.0	2535.6
20°	2524.9	2509.0	2471.6	2479.6	2469.1
22.5°	2463.7	2439.6	2404.8	2404.8	2399.4
25°	2391.5	2370.3	2325.0	2330.0	2325.0
27.5°	2311.3	2292.7	2258.1	2250.1	2236.9
30°	2231.5	2209.9	2170.1	2162.1	2151.3
32.5°	2146.0	2130.1	2087.3	2071.2	2060.5
35°	2063.2	2036.7	1993.9	1977.7	1964.4
37.5°	1969.8	1945.7	1903.0	1884.3	1871.0
40°	1873.8	1852.3	1809.5	1785.7	1774.9
42.5°	1780.4	1758.8	1716.4	1689.4	1673.7
45°	1679.0	1660.3	1620.1	1590.9	1580.2
47.5°	1580.2	1561.5	1518.7	1489.2	1473.4
50°	1476.0	1462.7	1425.2	1387.9	1374.6
52.5°	1374.6	1355.8	1321.3	1291.9	1273.2
55°	1270.6	1254.5	1222.5	1190.5	1177.1
57.5°	1166.4	1153.2	1118.3	1086.3	1075.5
60°	1062.2	1051.8	1014.3	984.9	977.0
62.5°	960.8	942.2	915.5	888.9	878.2
65°	856.9	840.8	814.1	790.1	776.8
67.5°	750.1	736.6	712.7	694.1	683.3
70°	651.3	640.5	616.5	597.8	587.3
72.5°	549.9	539.2	525.8	507.2	499.3
75°	448.3	443.2	429.6	413.8	419.1
77.5°	357.7	346.9	341.5	333.6	325.7
80°	267.1	264.2	258.9	250.9	245.5
82.5°	181.6	181.6	179.0	168.2	168.2
85°	109.3	106.7	104.2	96.0	93.5
87.5°	48.2	42.8	37.4	29.4	26.7
90°	1.8	21.4	58.3	54.8	56.5
92.5°	36.9	50.0	51.8	53.6	53.6
95°	86.9	103.5	106.6	106.6	103.5
97.5°	144.6	160.1	166.7	166.7	166.7
100°	211.2	225.0	229.7	229.7	227.9
102.5°	281.5	291.6	298.2	300.0	298.2
105°	358.3	363.0	366.6	369.6	369.6
107.5°	434.4	441.6	441.6	442.8	434.4
110°	508.3	517.8	517.8	517.8	513.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.0	598.2	596.4	591.6	588.0
115°	666.6	676.1	673.2	671.4	666.6
117.5°	744.5	757.6	749.3	744.5	739.8
120°	823.0	836.2	823.0	823.0	817.7
122.5°	894.5	911.1	902.9	898.0	894.5
125°	969.5	984.4	979.6	974.3	972.5
127.5°	1042.7	1061.1	1054.6	1047.5	1042.7
130°	1111.2	1132.6	1129.6	1126.1	1119.5
132.5°	1187.9	1204.6	1205.8	1197.5	1192.7
135°	1254.0	1272.4	1276.0	1274.2	1269.4
137.5°	1327.8	1342.6	1345.6	1344.4	1337.3
140°	1392.7	1407.6	1415.9	1415.9	1409.3
142.5°	1459.3	1474.2	1478.9	1480.7	1474.2
145°	1522.4	1534.3	1543.8	1545.6	1539.1
147.5°	1579.0	1593.8	1601.0	1603.9	1597.4
150°	1637.3	1647.3	1653.9	1659.3	1653.9
152.5°	1689.0	1699.2	1707.4	1714.0	1707.4
155°	1740.8	1745.5	1751.0	1759.3	1753.9
157.5°	1785.5	1789.0	1792.0	1803.9	1795.5
160°	1825.3	1828.9	1830.7	1840.8	1833.6
162.5°	1862.2	1862.2	1864.0	1875.3	1867.0
165°	1893.7	1891.9	1891.9	1903.9	1895.5
167.5°	1922.3	1917.0	1917.0	1928.9	1920.6
170°	1943.8	1939.0	1937.2	1949.1	1939.0
172.5°	1958.6	1953.8	1952.0	1964.0	1953.8
175°	1970.5	1965.8	1962.2	1974.1	1964.0
177.5°	1977.1	1972.3	1968.7	1978.9	1968.7
180°	1974.1	1974.1	1974.1	1974.1	1974.1

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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	10.15	11.07	11.05	11.99	13.17	9.70	10.62	10.61	11.55	12.73
	3H	11.82	12.64	12.73	13.57	14.78	11.33	12.15	12.24	13.08	14.29
	4H	12.41	13.19	13.34	14.13	15.34	11.92	12.70	12.85	13.63	14.85
	6H	12.82	13.54	13.76	14.48	15.71	12.32	13.04	13.26	13.98	15.21
	8H	12.93	13.61	13.87	14.57	15.80	12.42	13.11	13.37	14.07	15.29
	12H	12.98	13.63	13.93	14.58	15.84	12.47	13.12	13.42	14.07	15.33
4H	2H	10.62	11.40	11.55	12.33	13.55	10.26	11.04	11.20	11.98	13.19
	3H	12.49	13.15	13.44	14.11	15.34	12.09	12.74	13.03	13.70	14.93
	4H	13.21	13.81	14.17	14.77	16.02	12.79	13.39	13.75	14.35	15.60
	6H	13.74	14.25	14.70	15.23	16.49	13.30	13.82	14.27	14.80	16.06
	8H	13.89	14.37	14.86	15.35	16.62	13.45	13.93	14.42	14.91	16.18
	12H	13.97	14.40	14.96	15.40	16.67	13.52	13.95	14.51	14.95	16.22
8H	4H	13.42	13.89	14.39	14.87	16.14	13.04	13.52	14.01	14.50	15.76
	6H	14.05	14.45	15.05	15.47	16.74	13.67	14.07	14.67	15.09	16.35
	8H	14.28	14.63	15.28	15.64	16.92	13.89	14.24	14.89	15.24	16.53
	12H	14.42	14.72	15.42	15.73	17.06	14.00	14.31	15.01	15.32	16.65
12H	4H	13.40	13.84	14.39	14.83	16.10	13.04	13.47	14.03	14.46	15.74
	6H	14.08	14.44	15.09	15.44	16.73	13.71	14.06	14.72	15.07	16.36
	8H	14.33	14.64	15.34	15.64	16.97	13.95	14.26	14.96	15.26	16.59