

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: P915072

Luminaire Tested: DFN2DIP-SQ4F0-120D080US927-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915072
REPORT IS A COMBINATION OF REPORTS P900107 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D080US927-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

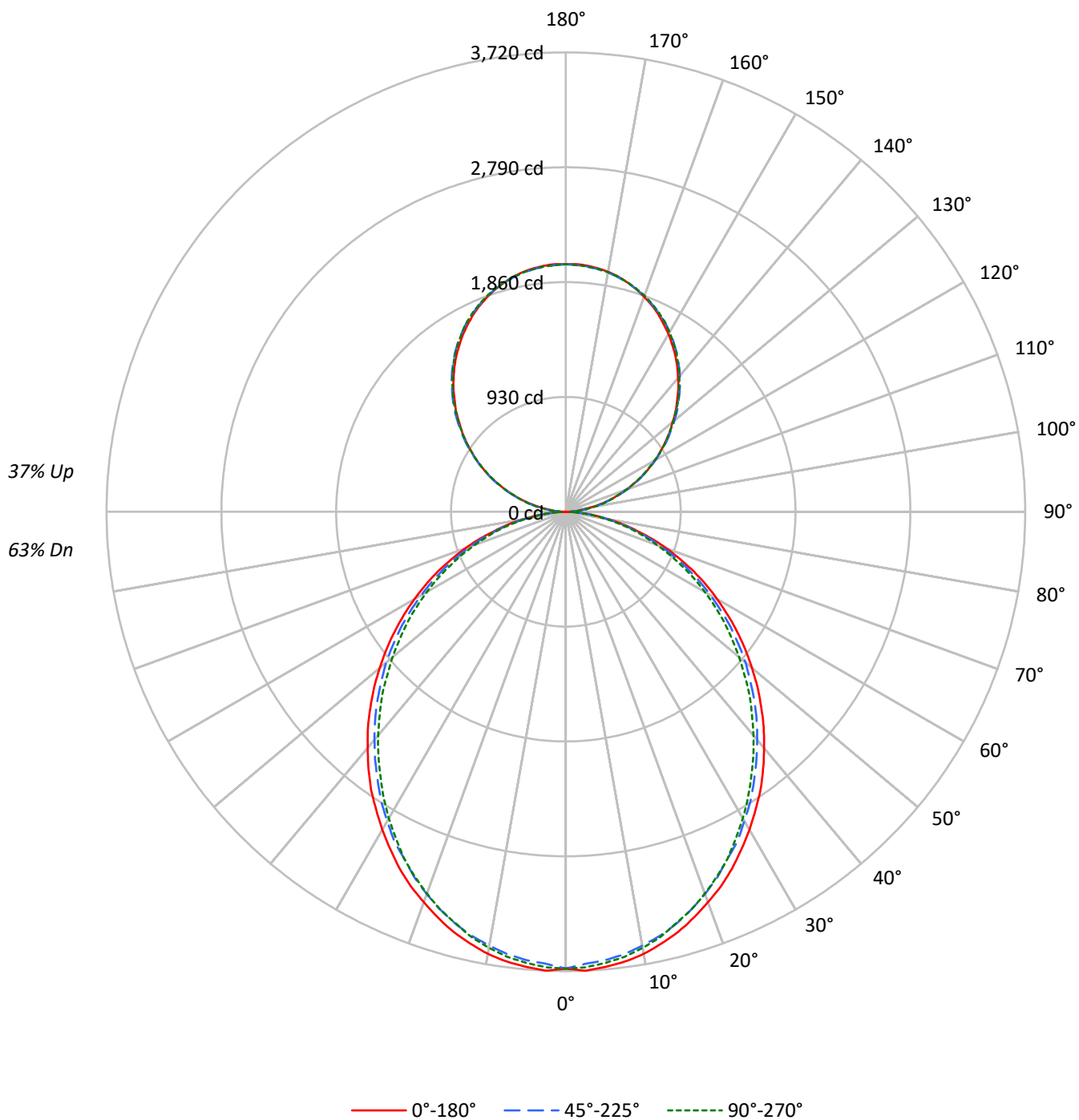
Lumens per Lamp: N/A
Luminaire Lumens: 15019.8 lumens
Efficiency: N/A
Efficacy: 84.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 177.1
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
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	110	110	110	110	103	103	103	103	90	90	90	79	79	79	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	66	60	59	57
2	92	84	78	72	86	79	73	69	70	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	58	61	56	52	54	50	46	47	44	41
4	77	66	57	51	71	62	54	49	55	49	44	48	43	40	42	38	35
5	70	58	50	44	66	55	48	42	49	43	38	43	38	35	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	48	39	34	56	45	38	32	40	34	30	36	31	27	31	27	24
8	56	43	35	30	52	41	34	29	37	31	26	33	28	24	29	25	22
9	52	40	32	27	49	38	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	35	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2595	2595	2595
5°	2600	2560	2577
10°	2578	2526	2543
15°	2541	2485	2489
20°	2489	2428	2434
25°	2438	2359	2370
30°	2374	2295	2289
35°	2314	2220	2203
40°	2239	2144	2121
45°	2165	2068	2038
50°	2084	1988	1940
55°	1998	1895	1852
60°	1902	1785	1750
65°	1797	1672	1629
70°	1664	1533	1501
75°	1479	1368	1382
80°	1256	1157	1155
85°	908	792	776

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2165 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.1	2.3
10°-20°	979.5	6.5
20°-30°	1439.5	9.6
30°-40°	1671.9	11.1
40°-50°	1669.9	11.1
50°-60°	1456.0	9.7
60°-70°	1076.3	7.2
70°-80°	609.0	4.1
80°-90°	166.4	1.1
90°-100°	124.0	0.8
100°-110°	394.1	2.6
110°-120°	674.4	4.5
120°-130°	886.9	5.9
130°-140°	995.5	6.6
140°-150°	976.2	6.5
150°-160°	818.9	5.5
160°-170°	543.1	3.6
170°-180°	189.8	1.3
0°-30°	2767.2	18.4
0°-40°	4439.1	29.6
0°-60°	7565.0	50.4
0°-90°	9416.8	62.7
90°-120°	1192.5	7.9
90°-150°	4051.1	27.0
90°-180°	5603.0	37.3
0°-180°	15019.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3699	3699	3699	3699	3699	
5°	3699	3685	3646	3674	3667	351
15°	3521	3500	3454	3468	3450	992
25°	3187	3158	3098	3105	3098	1466
35°	2749	2714	2657	2636	2618	1717
45°	2237	2212	2159	2120	2106	1727
55°	1693	1672	1629	1586	1569	1514
65°	1142	1120	1085	1053	1035	1129
75°	597	591	572	551	558	638
85°	146	142	139	128	124	162
90°	2	22	59	56	57	14
95°	88	105	108	108	105	98
105°	364	369	372	375	375	384
115°	677	686	683	682	677	669
125°	984	999	995	989	987	880
135°	1273	1292	1296	1294	1289	984
145°	1546	1558	1567	1569	1563	966
155°	1767	1772	1778	1786	1781	813
165°	1923	1921	1921	1933	1924	542
175°	2001	1996	1992	2004	1994	190
180°	2004	2004	2004	2004	2004	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3698.9	3698.9	3698.9	3698.9	3698.9
2.5°	3720.4	3702.7	3663.4	3698.9	3692.1
5°	3698.9	3684.9	3645.7	3674.0	3667.2
7.5°	3674.0	3652.8	3613.6	3642.3	3635.2
10°	3635.2	3610.2	3567.6	3595.9	3585.3
12.5°	3581.5	3560.4	3517.8	3535.5	3528.3
15°	3521.2	3500.0	3453.6	3467.9	3450.2
17.5°	3446.5	3425.3	3378.9	3396.6	3378.9
20°	3364.6	3343.4	3293.7	3304.2	3290.2
22.5°	3283.0	3251.0	3204.5	3204.5	3197.4
25°	3186.8	3158.5	3098.1	3105.0	3098.1
27.5°	3080.0	3055.1	3009.1	2998.5	2980.8
30°	2973.6	2944.9	2891.7	2881.2	2866.8
32.5°	2859.6	2838.5	2781.5	2760.0	2745.7
35°	2749.4	2714.0	2657.0	2635.5	2617.8
37.5°	2624.9	2592.9	2535.9	2511.0	2493.2
40°	2497.0	2468.4	2411.3	2379.6	2365.3
42.5°	2372.5	2343.8	2287.2	2251.4	2230.2
45°	2237.4	2212.5	2158.9	2120.0	2105.7
47.5°	2105.7	2080.7	2023.8	1984.6	1963.4
50°	1966.8	1949.1	1899.3	1849.4	1831.7
52.5°	1831.7	1806.8	1760.8	1721.5	1696.6
55°	1693.2	1671.7	1629.0	1586.4	1568.7
57.5°	1554.3	1536.6	1490.2	1447.6	1433.2
60°	1415.5	1401.5	1351.7	1312.5	1301.9
62.5°	1280.4	1255.4	1220.0	1184.5	1170.2
65°	1141.9	1120.4	1084.9	1052.8	1035.1
67.5°	999.7	981.5	949.8	925.0	910.6
70°	867.9	853.6	821.5	796.6	782.7
72.5°	732.8	718.5	700.8	675.9	665.3
75°	597.4	590.6	572.4	551.4	558.5
77.5°	476.6	462.2	455.1	444.5	434.0
80°	355.8	352.0	344.9	334.4	327.2
82.5°	241.9	241.9	238.5	224.2	224.2
85°	145.7	142.3	138.9	127.9	124.5
87.5°	64.2	57.0	49.8	39.2	35.5
90°	1.8	21.8	59.3	55.6	57.4
92.5°	37.5	50.8	52.6	54.3	54.3
95°	88.2	105.1	108.1	108.1	105.1
97.5°	146.9	162.6	169.2	169.2	169.2
100°	214.5	228.4	233.2	233.2	231.4
102.5°	285.8	296.1	302.7	304.5	302.7
105°	363.8	368.6	372.2	375.3	375.3
107.5°	441.1	448.4	448.4	449.6	441.1
110°	516.0	525.7	525.7	525.7	520.9

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	597.0	607.3	605.5	600.6	597.0
115°	676.8	686.4	683.4	681.6	676.8
117.5°	755.9	769.2	760.7	755.9	751.1
120°	835.7	849.0	835.7	835.7	830.2
122.5°	908.2	925.1	916.6	911.8	908.2
125°	984.3	999.4	994.6	989.1	987.4
127.5°	1058.7	1077.4	1070.7	1063.5	1058.7
130°	1128.1	1149.9	1146.8	1143.3	1136.6
132.5°	1206.1	1223.0	1224.2	1215.8	1210.9
135°	1273.1	1291.9	1295.5	1293.7	1288.9
137.5°	1348.1	1363.2	1366.2	1365.0	1357.7
140°	1414.0	1429.0	1437.5	1437.5	1430.8
142.5°	1481.6	1496.7	1501.6	1503.4	1496.7
145°	1545.7	1557.7	1567.4	1569.2	1562.6
147.5°	1603.1	1618.2	1625.4	1628.5	1621.8
150°	1662.3	1672.5	1679.2	1684.7	1679.2
152.5°	1714.8	1725.1	1733.6	1740.3	1733.6
155°	1767.4	1772.3	1777.7	1786.1	1780.7
157.5°	1812.7	1816.4	1819.4	1831.4	1823.0
160°	1853.2	1856.9	1858.7	1868.9	1861.7
162.5°	1890.7	1890.7	1892.5	1904.0	1895.5
165°	1922.7	1920.9	1920.9	1933.0	1924.5
167.5°	1951.7	1946.3	1946.3	1958.4	1949.9
170°	1973.5	1968.6	1966.8	1978.9	1968.6
172.5°	1988.6	1983.8	1982.0	1994.0	1983.8
175°	2000.7	1995.8	1992.2	2004.3	1994.0
177.5°	2007.3	2002.5	1998.8	2009.1	1998.8
180°	2004.3	2004.3	2004.3	2004.3	2004.3

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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	11.69	12.68	12.53	13.54	14.62	11.25	12.24	12.09	13.10	14.18
	3H	13.37	14.25	14.22	15.13	16.23	12.88	13.76	13.73	14.64	15.74
	4H	13.96	14.80	14.83	15.68	16.79	13.47	14.31	14.34	15.19	16.30
	6H	14.37	15.15	15.25	16.03	17.16	13.87	14.65	14.75	15.53	16.66
	8H	14.48	15.22	15.37	16.12	17.25	13.98	14.72	14.87	15.62	16.75
	12H	14.54	15.24	15.43	16.14	17.29	14.03	14.73	14.92	15.63	16.78
4H	2H	12.17	13.01	13.04	13.89	15.00	11.81	12.65	12.69	13.53	14.65
	3H	14.05	14.75	14.94	15.66	16.79	13.64	14.34	14.53	15.25	16.38
	4H	14.77	15.41	15.67	16.32	17.48	14.35	14.99	15.25	15.90	17.05
	6H	15.30	15.85	16.21	16.78	17.94	14.87	15.42	15.78	16.35	17.51
	8H	15.46	15.97	16.37	16.90	18.07	15.02	15.53	15.93	16.46	17.63
	12H	15.54	16.00	16.47	16.95	18.12	15.09	15.55	16.02	16.50	17.67
8H	4H	14.98	15.50	15.90	16.42	17.59	14.60	15.12	15.52	16.05	17.22
	6H	15.62	16.05	16.56	17.02	18.19	15.24	15.67	16.18	16.63	17.80
	8H	15.85	16.23	16.80	17.18	18.37	15.46	15.83	16.41	16.79	17.98
	12H	15.99	16.32	16.94	17.27	18.51	15.58	15.91	16.53	16.86	18.10
12H	4H	14.97	15.44	15.91	16.38	17.56	14.61	15.07	15.54	16.01	17.19
	6H	15.65	16.03	16.60	16.99	18.18	15.28	15.66	16.23	16.62	17.81
	8H	15.91	16.24	16.86	17.19	18.43	15.53	15.86	16.48	16.81	18.05