

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: P920243

Luminaire Tested: DFN2DIP-SQ3F0-110D060US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920243
REPORT IS A COMBINATION OF REPORTS P901432 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-110D060US935-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

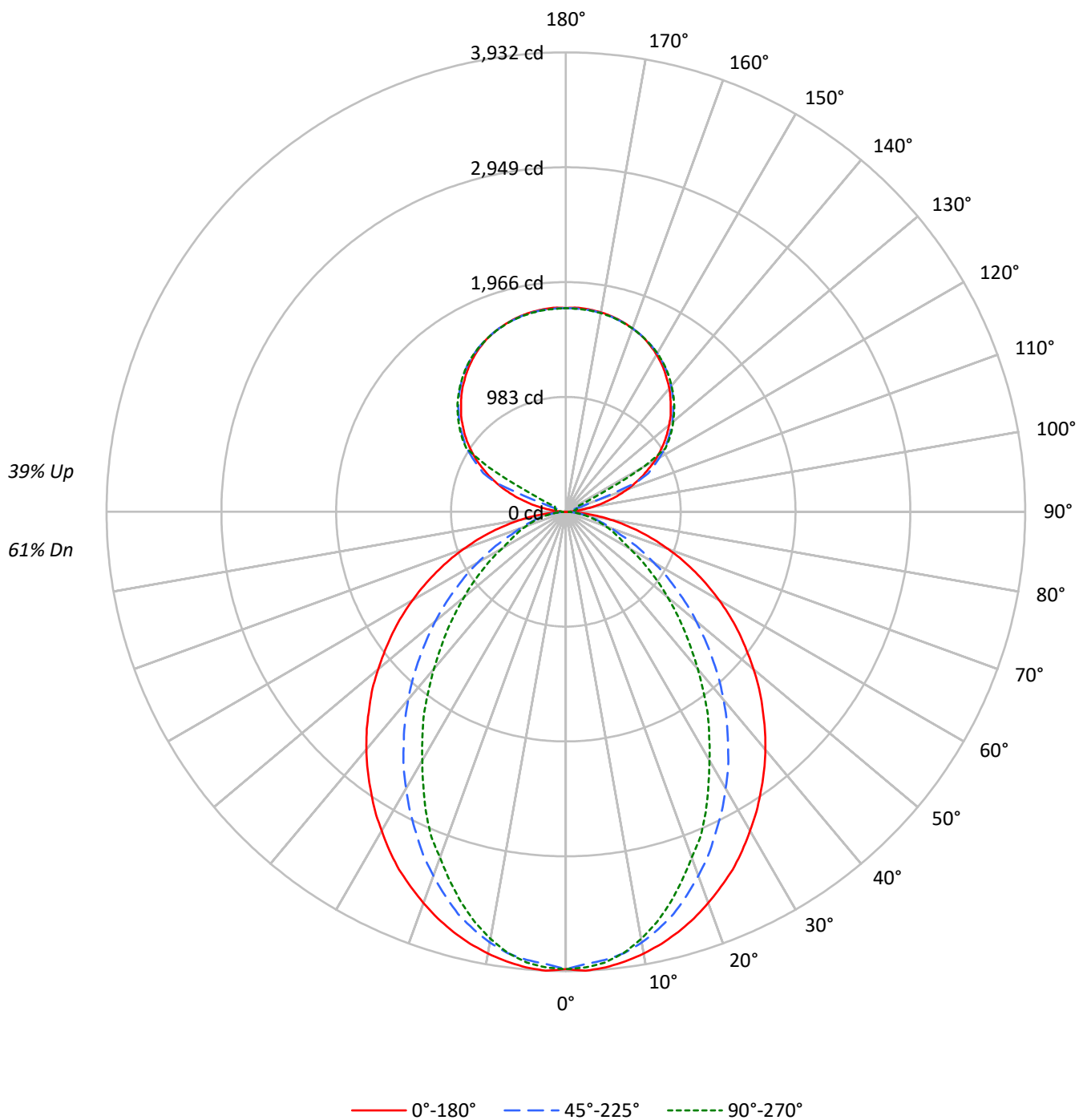
Lumens per Lamp: N/A
Luminaire Lumens: 13164.7 lumens
Efficiency: N/A
Efficacy: 83.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9977
Total Harmonic Distortion (THDi): 0.049
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	77	77	77	66	66	66
1	101	97	93	90	94	91	87	85	79	77	75	69	67	66	60	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	59	54	73	63	56	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	61	49	41	36	58	47	40	35	42	36	32	37	32	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	29	26	30	26	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4485	4485	4485
5°	4489	4411	4441
10°	4442	4321	4295
15°	4378	4176	4070
20°	4294	3976	3795
25°	4209	3753	3529
30°	4094	3524	3192
35°	3982	3279	2897
40°	3868	3025	2558
45°	3736	2744	2251
50°	3598	2460	1951
55°	3455	2158	1664
60°	3288	1841	1368
65°	3097	1521	1229
70°	2865	1221	1111
75°	2572	1070	1007
80°	2149	889	869
85°	1457	578	643

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3736 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	366.9	2.8
10°-20°	1007.1	7.7
20°-30°	1413.9	10.7
30°-40°	1541.3	11.7
40°-50°	1416.6	10.8
50°-60°	1112.5	8.5
60°-70°	724.2	5.5
70°-80°	372.8	2.8
80°-90°	98.2	0.7
90°-100°	57.5	0.4
100°-110°	214.3	1.6
110°-120°	568.4	4.3
120°-130°	942.7	7.2
130°-140°	1001.4	7.6
140°-150°	930.7	7.1
150°-160°	748.2	5.7
160°-170°	482.1	3.7
170°-180°	165.9	1.3
0°-30°	2787.9	21.2
0°-40°	4329.1	32.9
0°-60°	6858.3	52.1
0°-90°	8053.4	61.2
90°-120°	840.2	6.4
90°-150°	3714.9	28.2
90°-180°	5111.0	38.8
0°-180°	13164.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3914	3914	3914	3914	3914	
5°	3914	3897	3850	3882	3872	371
15°	3723	3684	3564	3496	3461	1049
25°	3380	3266	3032	2887	2834	1554
35°	2912	2731	2420	2196	2118	1823
45°	2381	2143	1771	1520	1435	1838
55°	1810	1534	1151	939	872	1617
65°	1222	935	616	496	485	1212
75°	652	404	283	259	255	689
85°	152	78	67	67	67	175
90°	1	15	25	32	34	12
95°	82	40	49	56	54	97
105°	384	421	77	91	96	410
115°	725	747	778	194	104	714
125°	1026	1042	1066	1075	1079	915
135°	1269	1289	1301	1313	1311	980
145°	1472	1471	1492	1501	1495	921
155°	1621	1610	1625	1632	1622	747
165°	1708	1701	1704	1713	1704	483
175°	1747	1738	1741	1750	1737	166
180°	1743	1743	1743	1743	1743	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3914.4	3914.4	3914.4	3914.4	3914.4
2.5°	3932.0	3914.4	3875.3	3911.0	3903.9
5°	3914.4	3896.7	3850.5	3882.4	3871.9
7.5°	3882.4	3861.3	3811.7	3825.7	3807.9
10°	3840.0	3815.1	3744.5	3733.5	3712.5
12.5°	3786.9	3755.0	3659.2	3638.1	3599.0
15°	3723.0	3684.0	3563.7	3496.4	3461.0
17.5°	3648.7	3591.9	3443.0	3365.2	3308.5
20°	3563.7	3492.6	3315.6	3227.3	3149.1
22.5°	3471.6	3390.0	3184.5	3064.2	3011.2
25°	3379.5	3266.0	3032.3	2887.2	2833.8
27.5°	3269.8	3149.1	2890.5	2724.0	2642.5
30°	3152.9	3018.0	2734.6	2554.2	2458.3
32.5°	3039.4	2876.2	2586.1	2373.4	2284.7
35°	2912.0	2731.2	2419.7	2196.4	2118.2
37.5°	2788.0	2592.9	2263.6	2019.0	1930.7
40°	2656.8	2444.5	2100.6	1849.1	1757.0
42.5°	2522.2	2295.6	1937.8	1675.5	1587.2
45°	2380.6	2143.0	1771.3	1519.5	1434.6
47.5°	2246.0	1994.6	1612.0	1360.1	1282.4
50°	2097.1	1845.7	1456.0	1211.3	1137.3
52.5°	1951.7	1686.0	1307.2	1073.4	1006.1
55°	1810.0	1533.8	1151.2	938.8	871.6
57.5°	1665.0	1381.6	1013.2	814.8	758.0
60°	1516.1	1232.8	867.8	687.4	630.7
62.5°	1371.1	1087.7	743.8	573.9	545.7
65°	1222.2	935.0	616.4	496.1	485.2
67.5°	1080.6	793.4	496.1	435.6	425.1
70°	931.7	655.5	410.8	375.5	361.2
72.5°	790.0	527.7	343.5	315.3	308.2
75°	651.7	403.6	283.4	258.6	255.2
77.5°	513.8	286.8	223.3	209.0	201.8
80°	386.0	205.6	169.9	156.0	156.0
82.5°	269.1	138.3	116.9	109.8	109.8
85°	152.2	77.8	67.2	67.2	67.2
87.5°	56.7	28.2	28.2	24.8	24.8
90°	1.2	15.2	25.1	31.6	34.0
92.5°	31.6	26.5	30.2	32.8	34.0
95°	82.0	40.3	49.2	55.6	54.2
97.5°	147.6	44.2	64.2	68.2	69.4
100°	223.3	50.5	71.9	82.0	84.5
102.5°	306.5	304.1	74.5	88.3	92.1
105°	383.5	421.4	77.0	90.7	95.9
107.5°	473.1	504.5	79.6	93.3	98.4
110°	559.0	585.3	220.8	94.7	99.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	639.6	662.3	640.8	97.0	101.0
115°	725.4	746.8	778.4	194.3	103.5
117.5°	799.8	825.0	846.5	666.1	335.5
120°	883.1	902.0	924.8	939.9	769.6
122.5°	953.6	973.9	999.2	1006.7	1008.1
125°	1025.6	1042.1	1066.0	1074.9	1078.6
127.5°	1091.2	1108.9	1127.9	1140.5	1141.7
130°	1153.0	1173.3	1187.1	1201.0	1199.8
132.5°	1216.2	1232.6	1246.4	1257.7	1256.5
135°	1269.2	1289.4	1300.6	1313.4	1310.8
137.5°	1324.6	1339.7	1352.5	1365.0	1361.3
140°	1378.8	1389.0	1402.8	1414.2	1407.9
142.5°	1424.3	1433.2	1449.6	1459.6	1453.3
145°	1472.3	1470.9	1492.4	1501.2	1495.0
147.5°	1513.8	1510.0	1531.5	1537.7	1532.8
150°	1554.3	1545.4	1565.6	1573.1	1566.8
152.5°	1588.3	1578.2	1597.1	1604.7	1595.9
155°	1621.1	1609.8	1625.0	1632.5	1622.4
157.5°	1647.6	1637.5	1648.9	1657.8	1647.6
160°	1670.3	1662.7	1670.3	1677.8	1669.0
162.5°	1690.4	1682.9	1689.2	1698.1	1686.7
165°	1708.1	1700.6	1704.3	1713.2	1704.3
167.5°	1722.0	1714.4	1718.3	1727.2	1715.7
170°	1733.4	1725.8	1728.4	1737.1	1725.8
172.5°	1740.9	1733.4	1735.9	1744.8	1733.4
175°	1747.2	1738.4	1740.9	1749.7	1737.1
177.5°	1749.7	1740.9	1742.2	1751.1	1739.7
180°	1743.4	1743.4	1743.4	1743.4	1743.4

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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	13.31	14.24	14.17	15.12	16.23	9.27	10.20	10.13	11.08	12.19
	3H	14.99	15.82	15.87	16.71	17.84	10.46	11.29	11.34	12.18	13.31
	4H	15.60	16.39	16.49	17.28	18.42	10.91	11.70	11.80	12.59	13.73
	6H	16.03	16.75	16.93	17.65	18.80	11.23	11.96	12.13	12.86	14.01
	8H	16.15	16.84	17.06	17.76	18.91	11.32	12.01	12.23	12.93	14.08
	12H	16.22	16.87	17.13	17.78	18.96	11.37	12.02	12.28	12.93	14.11
4H	2H	13.34	14.13	14.24	15.02	16.16	9.88	10.66	10.77	11.56	12.70
	3H	15.17	15.83	16.08	16.75	17.91	11.23	11.88	12.14	12.81	13.96
	4H	15.87	16.46	16.78	17.38	18.56	11.78	12.37	12.69	13.29	14.47
	6H	16.38	16.89	17.31	17.84	19.02	12.19	12.70	13.12	13.65	14.83
	8H	16.56	17.03	17.49	17.97	19.17	12.32	12.80	13.25	13.74	14.93
	12H	16.65	17.08	17.60	18.04	19.24	12.39	12.82	13.34	13.77	14.98
8H	4H	15.84	16.32	16.77	17.26	18.45	12.06	12.54	12.99	13.48	14.67
	6H	16.40	16.80	17.36	17.78	18.97	12.57	12.97	13.53	13.95	15.15
	8H	16.62	16.97	17.59	17.94	19.15	12.76	13.11	13.73	14.08	15.29
	12H	16.76	17.06	17.73	18.03	19.29	12.88	13.19	13.85	14.15	15.41
12H	4H	15.79	16.22	16.75	17.18	18.38	12.07	12.50	13.02	13.46	14.66
	6H	16.38	16.73	17.35	17.70	18.91	12.62	12.97	13.59	13.94	15.16
	8H	16.60	16.91	17.57	17.87	19.13	12.83	13.14	13.80	14.10	15.37