

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: P904082

Luminaire Tested: DFN2DIP-SQ4F0-100D060US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904082
REPORT IS A COMBINATION OF REPORTS P900068 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D060US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

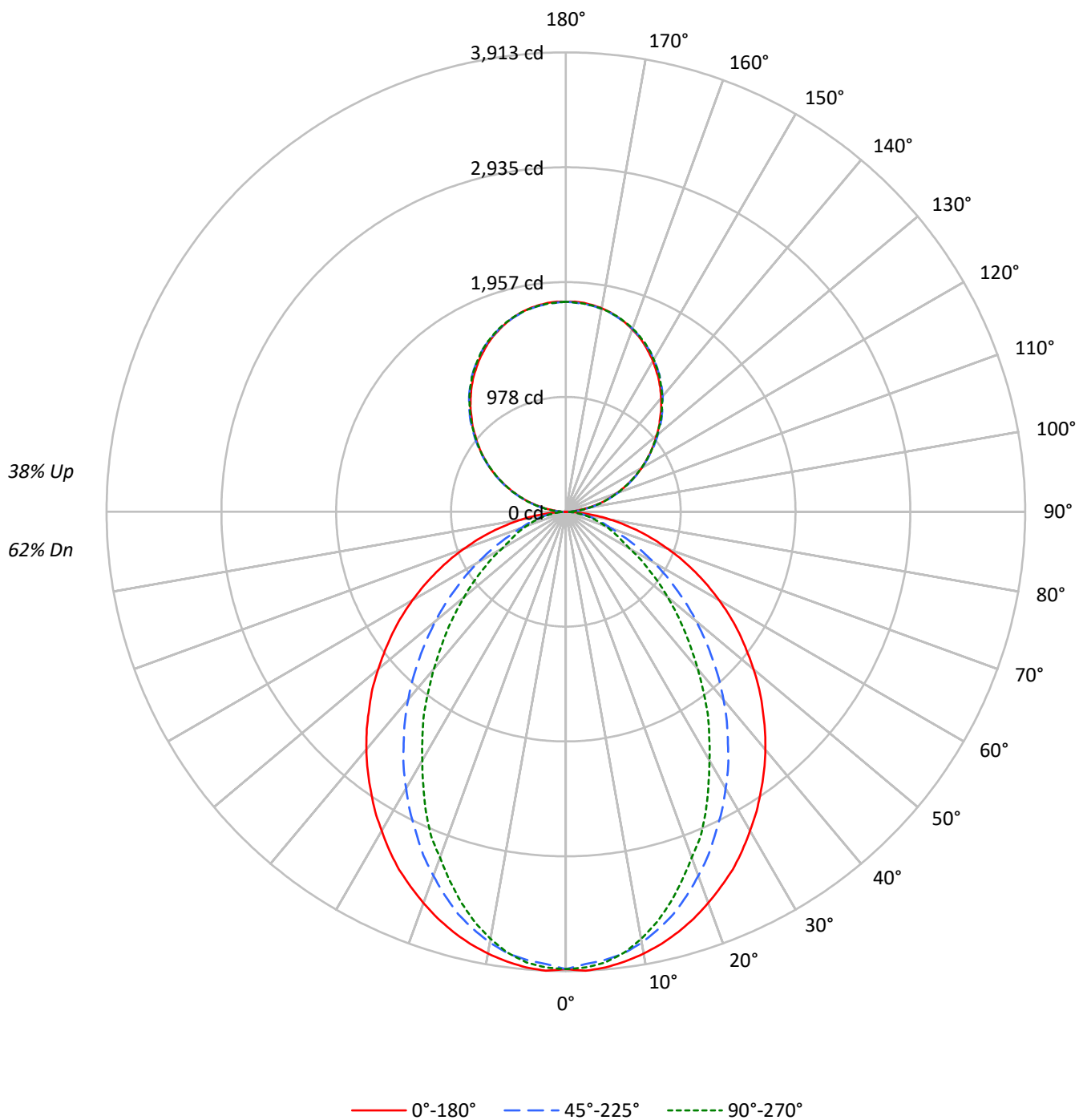
Lumens per Lamp: N/A
Luminaire Lumens: 13016.5 lumens
Efficiency: N/A
Efficacy: 94.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 137.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	78	78	78	67	67	67
1	101	97	93	90	94	91	88	85	80	77	75	69	68	66	60	59	58
2	92	85	79	74	86	80	75	70	71	67	63	62	59	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	60	54	73	63	57	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	41	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	62	49	42	36	58	47	40	35	42	36	32	37	33	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	30	26	30	27	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	22	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2733	2733	2733
5°	2738	2691	2708
10°	2711	2638	2621
15°	2673	2552	2485
20°	2624	2432	2319
25°	2573	2298	2158
30°	2505	2160	1954
35°	2439	2012	1774
40°	2371	1859	1568
45°	2292	1688	1381
50°	2211	1516	1199
55°	2126	1333	1024
60°	2028	1141	843
65°	1915	945	760
70°	1778	763	689
75°	1605	674	628
80°	1356	567	548
85°	944	381	417

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2292 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.1	2.8
10°-20°	1002.2	7.7
20°-30°	1407.1	10.8
30°-40°	1533.9	11.8
40°-50°	1409.8	10.8
50°-60°	1107.2	8.5
60°-70°	720.7	5.5
70°-80°	371.0	2.8
80°-90°	99.8	0.8
90°-100°	110.7	0.9
100°-110°	351.6	2.7
110°-120°	601.8	4.6
120°-130°	791.4	6.1
130°-140°	888.4	6.8
140°-150°	871.1	6.7
150°-160°	730.8	5.6
160°-170°	484.6	3.7
170°-180°	169.4	1.3
0°-30°	2774.5	21.3
0°-40°	4308.3	33.1
0°-60°	6825.3	52.4
0°-90°	8016.7	61.6
90°-120°	1064.1	8.2
90°-150°	3615.0	27.8
90°-180°	5000.0	38.4
0°-180°	13016.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3896	3896	3896	3896	3896	
5°	3896	3878	3832	3864	3853	369
15°	3705	3666	3546	3480	3444	1044
25°	3363	3250	3018	2873	2820	1547
35°	2898	2718	2408	2186	2108	1814
45°	2369	2133	1763	1512	1428	1830
55°	1801	1526	1146	934	867	1610
65°	1216	931	613	494	483	1206
75°	649	402	282	257	254	686
85°	152	77	67	67	67	174
90°	2	19	53	50	51	13
95°	79	94	96	96	94	88
105°	325	329	332	335	335	343
115°	604	613	610	608	604	597
125°	878	892	888	883	881	785
135°	1136	1153	1156	1154	1150	878
145°	1379	1390	1399	1400	1394	862
155°	1577	1582	1586	1594	1589	726
165°	1716	1714	1714	1725	1717	484
175°	1785	1781	1778	1789	1779	170
180°	1789	1789	1789	1789	1789	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3895.5	3895.5	3895.5	3895.5	3895.5
2.5°	3913.1	3895.5	3856.6	3892.1	3885.1
5°	3895.5	3877.9	3831.9	3863.8	3853.2
7.5°	3863.8	3842.7	3793.4	3807.2	3789.7
10°	3821.4	3796.7	3726.4	3715.6	3694.7
12.5°	3768.8	3736.9	3641.5	3620.6	3581.7
15°	3705.1	3666.2	3546.5	3479.6	3444.4
17.5°	3631.0	3574.6	3426.5	3349.0	3292.6
20°	3546.5	3475.8	3299.7	3211.8	3134.0
22.5°	3454.9	3373.7	3169.1	3049.5	2996.7
25°	3363.3	3250.4	3017.6	2873.2	2820.2
27.5°	3254.0	3134.0	2876.6	2710.9	2629.8
30°	3137.7	3003.4	2721.4	2541.9	2446.6
32.5°	3024.8	2862.4	2573.7	2362.0	2273.7
35°	2897.9	2718.1	2408.0	2185.8	2108.0
37.5°	2774.6	2580.4	2252.8	2009.3	1921.4
40°	2644.0	2432.7	2090.5	1840.2	1748.6
42.5°	2510.1	2284.5	1928.5	1667.5	1579.5
45°	2369.1	2132.7	1762.8	1512.2	1427.7
47.5°	2235.2	1985.0	1604.2	1353.6	1276.2
50°	2087.1	1836.8	1449.0	1205.5	1131.8
52.5°	1942.3	1677.9	1300.9	1068.2	1001.3
55°	1801.3	1526.4	1145.7	934.3	867.3
57.5°	1657.0	1374.9	1008.4	810.9	754.4
60°	1508.8	1226.8	863.7	684.1	627.6
62.5°	1364.4	1082.4	740.2	571.2	543.1
65°	1216.4	930.6	613.4	493.7	482.9
67.5°	1075.3	789.6	493.7	433.5	423.0
70°	927.2	652.3	408.8	373.6	359.5
72.5°	786.2	525.1	341.9	313.8	306.7
75°	648.6	401.7	282.0	257.3	253.9
77.5°	511.3	285.4	222.2	207.9	200.9
80°	384.1	204.6	169.1	155.2	155.2
82.5°	267.8	137.6	116.3	109.2	109.2
85°	151.5	77.4	66.9	66.9	66.9
87.5°	56.5	28.1	28.1	24.7	24.7
90°	1.6	19.4	52.9	49.6	51.2
92.5°	33.5	45.3	46.9	48.5	48.5
95°	78.7	93.8	96.5	96.5	93.8
97.5°	131.0	145.1	151.0	151.0	151.0
100°	191.4	203.8	208.1	208.1	206.5
102.5°	255.1	264.2	270.1	271.7	270.1
105°	324.6	328.9	332.2	334.9	334.9
107.5°	393.6	400.1	400.1	401.1	393.6
110°	460.5	469.1	469.1	469.1	464.8

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	532.7	541.9	540.3	535.9	532.7
115°	603.9	612.6	609.8	608.2	603.9
117.5°	674.6	686.5	678.8	674.6	670.2
120°	745.7	757.6	745.7	745.7	740.8
122.5°	810.4	825.5	817.9	813.7	810.4
125°	878.4	891.8	887.5	882.7	881.1
127.5°	944.7	961.4	955.5	949.0	944.7
130°	1006.7	1026.1	1023.4	1020.2	1014.3
132.5°	1076.3	1091.4	1092.4	1084.9	1080.5
135°	1136.1	1152.8	1156.0	1154.4	1150.1
137.5°	1203.0	1216.4	1219.2	1218.0	1211.6
140°	1261.8	1275.3	1282.8	1282.8	1276.9
142.5°	1322.1	1335.6	1339.9	1341.5	1335.6
145°	1379.3	1390.1	1398.7	1400.3	1394.4
147.5°	1430.5	1444.0	1450.5	1453.1	1447.2
150°	1483.4	1492.5	1498.5	1503.3	1498.5
152.5°	1530.2	1539.5	1547.0	1552.9	1547.0
155°	1577.2	1581.5	1586.3	1593.9	1589.0
157.5°	1617.6	1620.9	1623.5	1634.4	1626.8
160°	1653.8	1657.0	1658.6	1667.7	1661.3
162.5°	1687.2	1687.2	1688.8	1699.0	1691.5
165°	1715.7	1714.1	1714.1	1724.9	1717.4
167.5°	1741.6	1736.8	1736.8	1747.6	1740.0
170°	1761.0	1756.7	1755.1	1765.9	1756.7
172.5°	1774.5	1770.2	1768.6	1779.3	1770.2
175°	1785.3	1781.0	1777.7	1788.6	1779.3
177.5°	1791.2	1787.0	1783.7	1792.8	1783.7
180°	1788.6	1788.6	1788.6	1788.6	1788.6

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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	11.67	12.61	12.53	13.48	14.58	7.63	8.57	8.49	9.44	10.54
	3H	13.36	14.20	14.23	15.08	16.21	8.83	9.66	9.70	10.55	11.67
	4H	13.98	14.77	14.86	15.66	16.79	9.28	10.07	10.17	10.96	12.10
	6H	14.41	15.13	15.31	16.03	17.18	9.61	10.34	10.51	11.23	12.38
	8H	14.54	15.23	15.45	16.14	17.29	9.70	10.40	10.61	11.31	12.46
	12H	14.61	15.26	15.52	16.17	17.34	9.75	10.41	10.66	11.32	12.49
4H	2H	11.70	12.49	12.59	13.38	14.52	8.24	9.03	9.13	9.92	11.06
	3H	13.54	14.20	14.45	15.12	16.27	9.60	10.26	10.50	11.18	12.33
	4H	14.24	14.84	15.16	15.76	16.94	10.15	10.75	11.07	11.67	12.85
	6H	14.77	15.28	15.70	16.22	17.40	10.58	11.09	11.51	12.04	13.21
	8H	14.95	15.43	15.88	16.36	17.56	10.71	11.19	11.64	12.13	13.32
	12H	15.05	15.48	16.00	16.44	17.63	10.78	11.21	11.73	12.17	13.36
8H	4H	14.22	14.70	15.15	15.64	16.83	10.45	10.92	11.38	11.86	13.05
	6H	14.79	15.19	15.75	16.17	17.36	10.97	11.36	11.92	12.34	13.53
	8H	15.01	15.36	15.98	16.33	17.54	11.16	11.51	12.13	12.48	13.69
	12H	15.16	15.47	16.13	16.43	17.69	11.29	11.59	12.25	12.55	13.81
12H	4H	14.18	14.61	15.13	15.56	16.76	10.46	10.89	11.40	11.84	13.04
	6H	14.77	15.12	15.74	16.09	17.30	11.02	11.37	11.98	12.34	13.55
	8H	15.00	15.31	15.97	16.27	17.52	11.24	11.54	12.20	12.50	13.76

END OF REPORT