

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: P904044

Luminaire Tested: DFN2DIP-SQ4F0-090D060US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904044
REPORT IS A COMBINATION OF REPORTS P900065 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D060US830-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

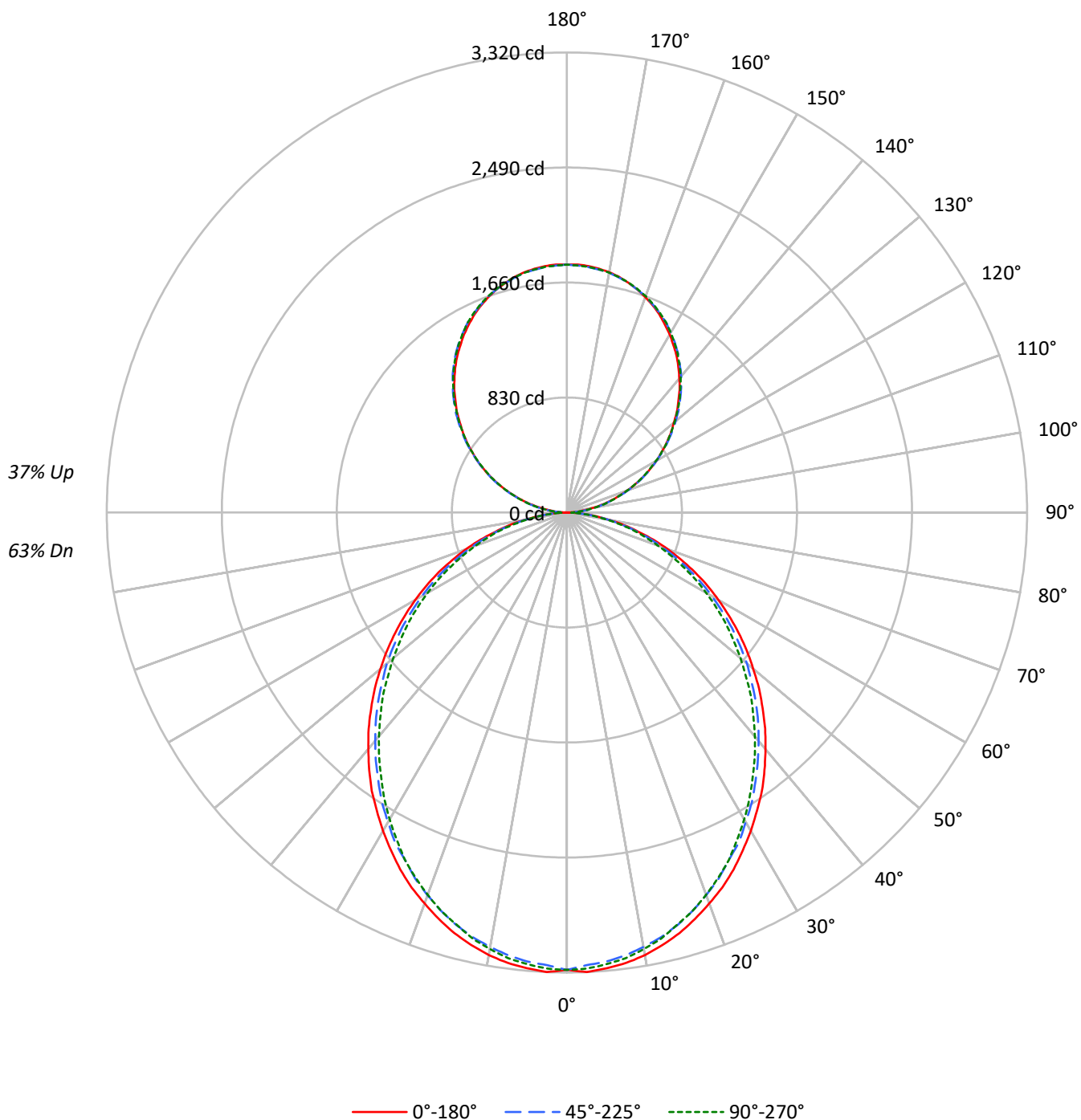
Lumens per Lamp: N/A
Luminaire Lumens: 13403.0 lumens
Efficiency: N/A
Efficacy: 104.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 127.9
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

TEST NUMBER: P904044

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US830-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P904044

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US830-FLLFL

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°	2316	2316	2316
5°	2320	2284	2300
10°	2301	2254	2269
15°	2267	2217	2221
20°	2221	2166	2172
25°	2176	2105	2115
30°	2119	2048	2043
35°	2065	1981	1966
40°	1998	1913	1893
45°	1932	1845	1818
50°	1859	1774	1732
55°	1783	1691	1652
60°	1698	1593	1561
65°	1604	1492	1454
70°	1485	1368	1339
75°	1320	1221	1234
80°	1121	1032	1031
85°	810	706	692

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1932 cd/sqm

TEST NUMBER: P904044

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US830-FLLFLL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	310.7	2.3
10°-20°	874.1	6.5
20°-30°	1284.6	9.6
30°-40°	1492.0	11.1
40°-50°	1490.1	11.1
50°-60°	1299.3	9.7
60°-70°	960.5	7.2
70°-80°	543.4	4.1
80°-90°	148.5	1.1
90°-100°	110.7	0.8
100°-110°	351.6	2.6
110°-120°	601.8	4.5
120°-130°	791.4	5.9
130°-140°	888.4	6.6
140°-150°	871.1	6.5
150°-160°	730.8	5.5
160°-170°	484.6	3.6
170°-180°	169.4	1.3
0°-30°	2469.3	18.4
0°-40°	3961.3	29.6
0°-60°	6750.7	50.4
0°-90°	8403.1	62.7
90°-120°	1064.1	7.9
90°-150°	3615.0	27.0
90°-180°	5000.0	37.3
0°-180°	13403.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3301	3301	3301	3301	3301	
5°	3301	3288	3253	3278	3272	313
15°	3142	3123	3082	3095	3079	885
25°	2844	2818	2765	2771	2765	1309
35°	2454	2422	2371	2352	2336	1532
45°	1996	1974	1926	1892	1879	1541
55°	1511	1492	1454	1416	1400	1351
65°	1019	1000	968	940	924	1007
75°	533	527	511	492	498	569
85°	130	127	124	114	111	145
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	

TEST NUMBER: P904044

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US830-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3300.7	3300.7	3300.7	3300.7	3300.7
2.5°	3319.9	3304.1	3269.1	3300.7	3294.7
5°	3300.7	3288.2	3253.3	3278.5	3272.4
7.5°	3278.5	3259.7	3224.6	3250.3	3243.9
10°	3243.9	3221.6	3183.5	3208.8	3199.4
12.5°	3196.0	3177.1	3139.1	3154.9	3148.6
15°	3142.2	3123.3	3081.8	3094.6	3078.8
17.5°	3075.4	3056.6	3015.2	3031.0	3015.2
20°	3002.4	2983.5	2939.0	2948.5	2936.0
22.5°	2929.6	2901.1	2859.6	2859.6	2853.2
25°	2843.7	2818.5	2764.7	2770.7	2764.7
27.5°	2748.5	2726.2	2685.2	2675.8	2659.9
30°	2653.5	2627.9	2580.4	2571.0	2558.2
32.5°	2551.8	2533.0	2482.1	2463.0	2450.1
35°	2453.5	2421.9	2371.0	2351.8	2336.0
37.5°	2342.4	2313.8	2262.9	2240.7	2224.9
40°	2228.2	2202.6	2151.7	2123.5	2110.7
42.5°	2117.0	2091.5	2041.0	2009.0	1990.2
45°	1996.5	1974.3	1926.5	1891.8	1879.1
47.5°	1879.1	1856.8	1805.9	1770.9	1752.1
50°	1755.1	1739.3	1694.8	1650.4	1634.6
52.5°	1634.6	1612.3	1571.2	1536.2	1514.0
55°	1511.0	1491.8	1453.7	1415.7	1399.9
57.5°	1387.0	1371.2	1329.8	1291.8	1278.9
60°	1263.1	1250.7	1206.2	1171.2	1161.8
62.5°	1142.5	1120.3	1088.6	1057.1	1044.2
65°	1019.0	999.8	968.1	939.5	923.7
67.5°	892.0	875.9	847.5	825.4	812.6
70°	774.5	761.7	733.1	710.9	698.4
72.5°	653.9	641.1	625.3	603.1	593.7
75°	533.1	527.0	510.9	492.0	498.4
77.5°	425.3	412.6	406.1	396.7	387.3
80°	317.5	314.1	307.7	298.3	292.0
82.5°	215.8	215.8	212.8	200.0	200.0
85°	130.0	127.0	123.9	114.1	111.1
87.5°	57.2	50.8	44.5	35.1	31.7
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



TEST NUMBER: P904044

CATALOG NUMBER: DFN2DIP-SQ4F0-090D060US830-FLLFL

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	11.30	12.29	12.14	13.15	14.23	10.85	11.84	11.69	12.70	13.78
	3H	12.97	13.86	13.82	14.73	15.83	12.48	13.37	13.33	14.24	15.34
	4H	13.57	14.41	14.44	15.28	16.40	13.07	13.91	13.94	14.79	15.91
	6H	13.98	14.75	14.86	15.64	16.76	13.48	14.25	14.36	15.14	16.26
	8H	14.09	14.82	14.98	15.73	16.86	13.59	14.32	14.48	15.23	16.35
	12H	14.14	14.84	15.04	15.74	16.89	13.63	14.33	14.53	15.23	16.39
4H	2H	11.77	12.61	12.65	13.49	14.61	11.42	12.26	12.29	13.14	14.25
	3H	13.66	14.36	14.54	15.27	16.40	13.25	13.95	14.13	14.86	15.99
	4H	14.38	15.02	15.28	15.92	17.08	13.95	14.59	14.85	15.50	16.66
	6H	14.91	15.46	15.82	16.39	17.55	14.47	15.02	15.38	15.96	17.11
	8H	15.06	15.58	15.97	16.50	17.67	14.62	15.14	15.54	16.06	17.24
	12H	15.14	15.61	16.08	16.55	17.73	14.69	15.16	15.63	16.10	17.28
8H	4H	14.59	15.10	15.50	16.03	17.20	14.21	14.72	15.12	15.65	16.82
	6H	15.23	15.65	16.17	16.62	17.79	14.84	15.27	15.78	16.24	17.41
	8H	15.45	15.83	16.40	16.79	17.98	15.06	15.44	16.01	16.39	17.58
	12H	15.59	15.93	16.55	16.88	18.11	15.18	15.51	16.14	16.46	17.70
12H	4H	14.58	15.04	15.51	15.99	17.16	14.21	14.67	15.14	15.62	16.80
	6H	15.26	15.64	16.21	16.59	17.78	14.89	15.27	15.84	16.22	17.41
	8H	15.51	15.84	16.46	16.79	18.03	15.13	15.46	16.08	16.41	17.65

END OF REPORT