

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: P923177

Luminaire Tested: DFN2DIP-SQ4F0-100D060US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923177
REPORT IS A COMBINATION OF REPORTS P901587 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D060US940-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

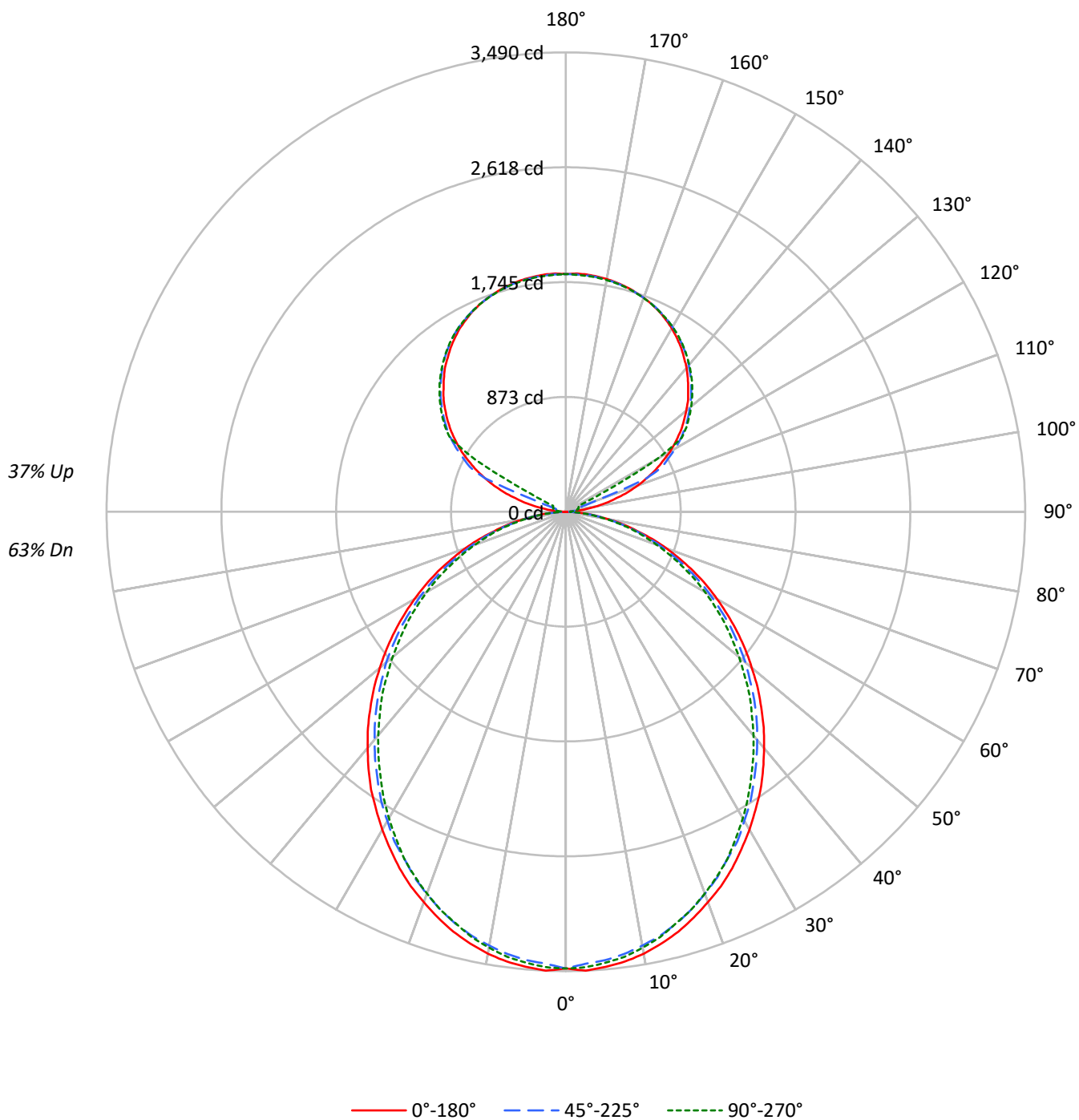
Lumens per Lamp: N/A
Luminaire Lumens: 14124.6 lumens
Efficiency: N/A
Efficacy: 102.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 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

TEST NUMBER: P923177

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US940-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P923177

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US940-FLONL

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	68	68	68
1	101	96	92	89	94	90	87	84	79	77	74	69	67	65	60	58	57
2	92	84	78	72	86	79	73	69	69	65	62	61	58	55	53	50	48
3	84	74	66	60	78	70	63	57	61	56	52	54	50	46	47	44	41
4	77	65	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	34	38	34	31
6	65	53	44	38	61	50	42	37	44	38	33	39	34	30	34	30	27
7	60	47	39	34	56	45	38	32	40	34	30	35	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	37	30	26	34	28	24	30	25	22	27	23	20
10	49	36	29	24	46	34	28	23	31	25	21	28	23	20	25	21	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2435	2435	2435
5°	2438	2401	2418
10°	2419	2369	2386
15°	2383	2331	2335
20°	2335	2277	2283
25°	2287	2213	2224
30°	2227	2153	2147
35°	2170	2082	2066
40°	2100	2011	1990
45°	2031	1940	1911
50°	1954	1864	1820
55°	1875	1778	1737
60°	1784	1675	1641
65°	1686	1568	1528
70°	1561	1438	1407
75°	1387	1283	1297
80°	1178	1085	1083
85°	851	743	728

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2031 cd/sqm

TEST NUMBER: P923177

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US940-FLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	326.6	2.3
10°-20°	918.8	6.5
20°-30°	1350.3	9.6
30°-40°	1568.3	11.1
40°-50°	1566.4	11.1
50°-60°	1365.8	9.7
60°-70°	1009.7	7.1
70°-80°	571.3	4.0
80°-90°	153.9	1.1
90°-100°	59.5	0.4
100°-110°	222.0	1.6
110°-120°	588.7	4.2
120°-130°	976.3	6.9
130°-140°	1037.1	7.3
140°-150°	963.9	6.8
150°-160°	774.9	5.5
160°-170°	499.3	3.5
170°-180°	171.9	1.2
0°-30°	2595.7	18.4
0°-40°	4164.0	29.5
0°-60°	7096.2	50.2
0°-90°	8831.1	62.5
90°-120°	870.2	6.2
90°-150°	3847.4	27.2
90°-180°	5294.0	37.5
0°-180°	14124.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3470	3470	3470	3470	3470	
5°	3470	3457	3420	3446	3440	329
15°	3303	3283	3240	3253	3236	930
25°	2989	2963	2906	2912	2906	1376
35°	2579	2546	2492	2472	2456	1611
45°	2099	2075	2025	1989	1975	1620
55°	1588	1568	1528	1488	1472	1420
65°	1071	1051	1018	988	971	1059
75°	560	554	537	517	524	598
85°	137	134	130	120	117	152
90°	1	16	26	33	35	13
95°	85	42	51	58	56	101
105°	397	436	80	94	99	424
115°	751	774	806	201	107	740
125°	1062	1079	1104	1113	1117	947
135°	1314	1335	1347	1360	1358	1015
145°	1525	1523	1546	1555	1548	954
155°	1679	1667	1683	1691	1680	774
165°	1769	1761	1765	1774	1765	500
175°	1810	1800	1803	1812	1799	172
180°	1806	1806	1806	1806	1806	

TEST NUMBER: P923177

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3469.7	3469.7	3469.7	3469.7	3469.7
2.5°	3489.9	3473.2	3436.4	3469.7	3463.3
5°	3469.7	3456.6	3419.8	3446.4	3440.0
7.5°	3446.4	3426.5	3389.7	3416.6	3409.9
10°	3409.9	3386.5	3346.5	3373.1	3363.2
12.5°	3359.6	3339.8	3299.8	3316.4	3309.7
15°	3303.0	3283.2	3239.6	3253.0	3236.5
17.5°	3232.9	3213.1	3169.5	3186.2	3169.5
20°	3156.0	3136.2	3089.5	3099.4	3086.3
22.5°	3079.6	3049.6	3006.0	3006.0	2999.3
25°	2989.4	2962.8	2906.2	2912.5	2906.2
27.5°	2889.1	2865.8	2822.6	2812.7	2796.0
30°	2789.4	2762.4	2712.5	2702.6	2689.1
32.5°	2682.4	2662.6	2609.1	2589.0	2575.5
35°	2579.1	2545.8	2492.3	2472.2	2455.5
37.5°	2462.3	2432.1	2378.7	2355.4	2338.7
40°	2342.3	2315.3	2261.9	2232.2	2218.8
42.5°	2225.4	2198.5	2145.5	2111.8	2092.0
45°	2098.7	2075.4	2025.1	1988.6	1975.2
47.5°	1975.2	1951.9	1898.4	1861.5	1841.7
50°	1844.9	1828.3	1781.5	1734.8	1718.2
52.5°	1718.2	1694.9	1651.6	1614.9	1591.5
55°	1588.3	1568.2	1528.1	1488.1	1471.5
57.5°	1458.0	1441.4	1397.8	1357.9	1344.4
60°	1327.8	1314.6	1267.9	1231.1	1221.2
62.5°	1201.0	1177.7	1144.4	1111.2	1097.7
65°	1071.1	1051.0	1017.7	987.6	971.0
67.5°	937.7	920.7	891.0	867.6	854.2
70°	814.1	800.7	770.6	747.3	734.1
72.5°	687.4	674.0	657.4	634.0	624.0
75°	560.4	554.0	537.0	517.2	523.9
77.5°	447.1	433.6	426.9	417.0	407.1
80°	333.8	330.3	323.5	313.6	306.9
82.5°	226.9	226.9	223.7	210.3	210.3
85°	136.6	133.5	130.3	120.0	116.8
87.5°	60.2	53.4	46.7	36.8	33.3
90°	1.2	15.7	26.0	32.7	35.2
92.5°	32.7	27.5	31.3	34.0	35.2
95°	84.9	41.7	50.9	57.6	56.2
97.5°	152.8	45.7	66.5	70.6	71.9
100°	231.3	52.3	74.5	84.9	87.5
102.5°	317.4	315.0	77.1	91.4	95.4
105°	397.2	436.4	79.7	94.0	99.3
107.5°	490.0	522.5	82.4	96.7	101.9
110°	578.9	606.2	228.7	98.1	103.2

TEST NUMBER: P923177

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	662.5	685.9	663.7	100.5	104.6
115°	751.3	773.5	806.2	201.3	107.2
117.5°	828.3	854.4	876.7	689.8	347.5
120°	914.6	934.2	957.8	973.4	797.0
122.5°	987.7	1008.6	1034.8	1042.6	1044.0
125°	1062.2	1079.2	1104.0	1113.2	1117.0
127.5°	1130.2	1148.4	1168.1	1181.2	1182.4
130°	1194.2	1215.1	1229.4	1243.8	1242.6
132.5°	1259.5	1276.6	1290.8	1302.6	1301.4
135°	1314.5	1335.4	1347.0	1360.2	1357.5
137.5°	1371.8	1387.5	1400.7	1413.7	1409.9
140°	1428.0	1438.6	1452.9	1464.6	1458.1
142.5°	1475.2	1484.3	1501.3	1511.6	1505.1
145°	1524.8	1523.4	1545.6	1554.8	1548.3
147.5°	1567.8	1563.9	1586.1	1592.6	1587.5
150°	1609.7	1600.5	1621.5	1629.2	1622.7
152.5°	1644.9	1634.5	1654.0	1662.0	1652.8
155°	1678.9	1667.2	1682.9	1690.7	1680.2
157.5°	1706.4	1695.9	1707.7	1716.9	1706.4
160°	1729.9	1722.0	1729.9	1737.7	1728.6
162.5°	1750.7	1742.9	1749.4	1758.6	1746.9
165°	1769.1	1761.3	1765.1	1774.3	1765.1
167.5°	1783.4	1775.6	1779.6	1788.8	1776.9
170°	1795.3	1787.3	1790.0	1799.1	1787.3
172.5°	1803.0	1795.3	1797.9	1807.1	1795.3
175°	1809.5	1800.4	1803.0	1812.1	1799.1
177.5°	1812.1	1803.0	1804.4	1813.6	1801.8
180°	1805.6	1805.6	1805.6	1805.6	1805.6

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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	11.46	12.44	12.30	13.31	14.39	11.01	12.00	11.85	12.86	13.94
	3H	13.13	14.02	13.99	14.89	16.00	12.64	13.53	13.50	14.40	15.51
	4H	13.73	14.56	14.60	15.44	16.56	13.23	14.07	14.10	14.95	16.07
	6H	14.14	14.91	15.02	15.80	16.93	13.64	14.41	14.52	15.30	16.43
	8H	14.25	14.98	15.14	15.89	17.02	13.75	14.48	14.64	15.39	16.52
	12H	14.30	15.00	15.20	15.90	17.06	13.79	14.49	14.69	15.39	16.55
4H	2H	11.93	12.77	12.81	13.65	14.77	11.58	12.42	12.45	13.30	14.41
	3H	13.82	14.51	14.70	15.43	16.56	13.41	14.11	14.29	15.02	16.15
	4H	14.54	15.18	15.44	16.08	17.24	14.11	14.75	15.01	15.66	16.82
	6H	15.07	15.62	15.98	16.55	17.71	14.63	15.18	15.55	16.12	17.28
	8H	15.22	15.73	16.14	16.66	17.84	14.78	15.30	15.70	16.22	17.40
	12H	15.30	15.76	16.24	16.71	17.89	14.85	15.32	15.79	16.26	17.44
8H	4H	14.75	15.26	15.66	16.19	17.36	14.37	14.88	15.28	15.81	16.98
	6H	15.39	15.81	16.33	16.78	17.95	15.00	15.43	15.95	16.40	17.57
	8H	15.61	15.99	16.56	16.95	18.14	15.22	15.60	16.17	16.56	17.75
	12H	15.75	16.08	16.71	17.04	18.28	15.34	15.67	16.30	16.63	17.87
12H	4H	14.74	15.20	15.67	16.15	17.33	14.37	14.83	15.30	15.78	16.96
	6H	15.42	15.80	16.37	16.75	17.95	15.05	15.42	16.00	16.38	17.57
	8H	15.67	16.00	16.62	16.95	18.19	15.29	15.62	16.24	16.57	17.81