

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: P920451

Luminaire Tested: DFN2DIP-SQ4F0-100D060US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920451
REPORT IS A COMBINATION OF REPORTS P901588 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D060US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

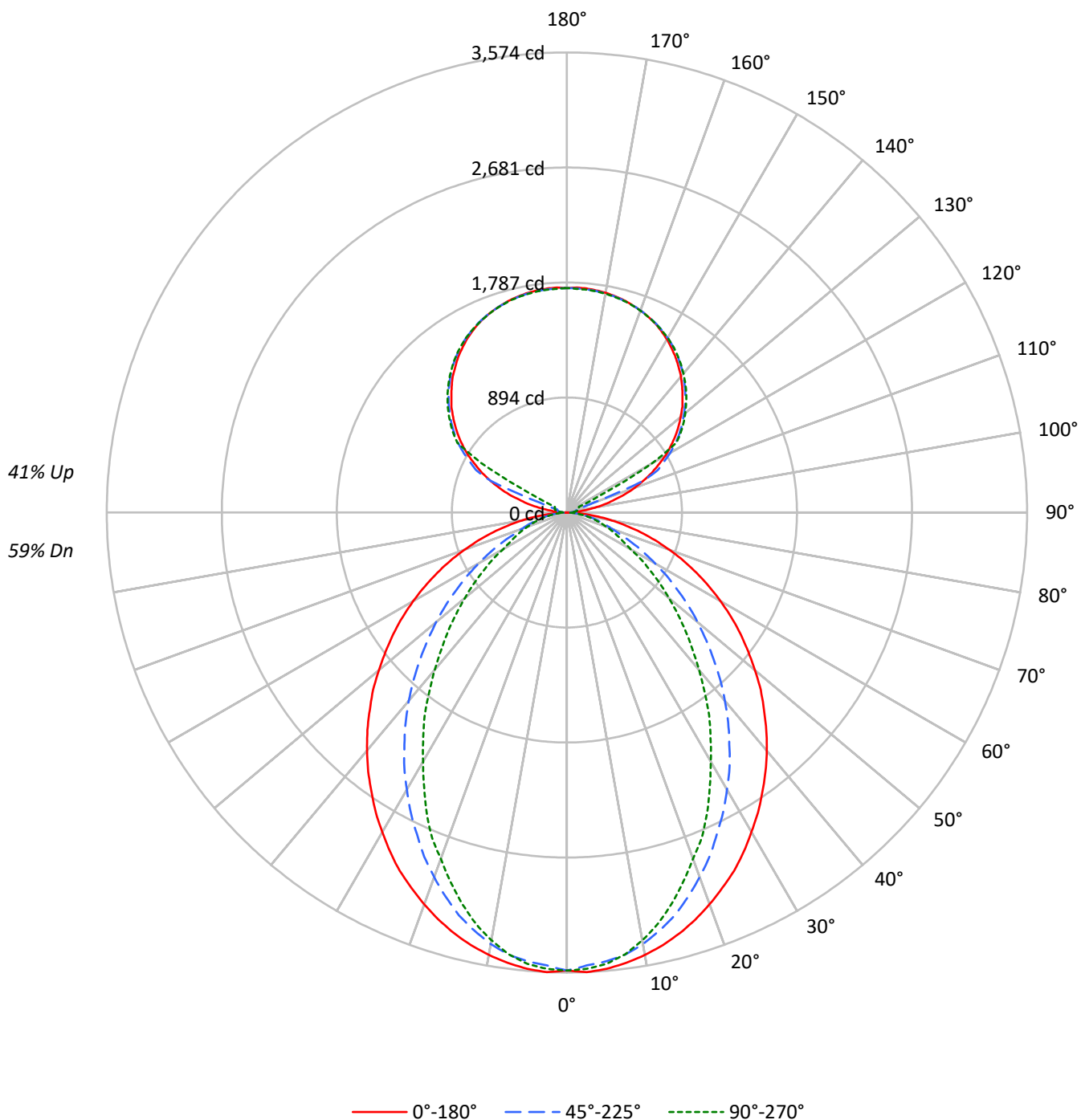
Lumens per Lamp: N/A
Luminaire Lumens: 12432.8 lumens
Efficiency: N/A
Efficacy: 90.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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: P920451

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US935-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P920451

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US935-RLLONL

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	109	109	109	109	102	102	102	102	88	88	88	76	76	76	64	64	64
1	100	96	92	89	94	90	87	84	78	76	74	68	66	64	58	57	55
2	92	85	79	74	86	79	74	70	69	65	62	60	57	55	51	49	48
3	84	75	68	62	78	70	64	59	62	57	53	54	50	47	46	43	41
4	77	67	59	53	72	63	56	51	55	50	46	48	44	41	42	39	36
5	71	60	52	46	66	56	49	44	50	44	40	44	39	36	38	34	32
6	66	54	46	40	61	51	44	38	45	39	35	40	35	32	35	31	28
7	61	49	41	36	57	46	39	34	41	35	31	36	32	28	32	28	25
8	57	45	37	32	53	42	35	30	38	32	28	33	29	25	29	26	23
9	53	41	34	29	50	39	32	27	35	29	25	31	26	23	27	23	21
10	50	38	31	26	46	36	29	25	32	27	23	29	24	21	25	22	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2497	2497	2497
5°	2501	2458	2474
10°	2476	2410	2394
15°	2442	2331	2270
20°	2397	2222	2118
25°	2351	2099	1971
30°	2289	1973	1784
35°	2228	1838	1620
40°	2166	1698	1432
45°	2094	1542	1262
50°	2020	1385	1095
55°	1942	1217	935
60°	1852	1042	770
65°	1749	863	694
70°	1624	697	630
75°	1467	615	574
80°	1239	518	501
85°	863	348	381

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2094 cd/sqm

TEST NUMBER: P920451

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US935-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	333.5	2.7
10°-20°	915.5	7.4
20°-30°	1285.4	10.3
30°-40°	1401.2	11.3
40°-50°	1287.8	10.4
50°-60°	1011.4	8.1
60°-70°	658.3	5.3
70°-80°	338.9	2.7
80°-90°	89.6	0.7
90°-100°	57.5	0.5
100°-110°	214.3	1.7
110°-120°	568.4	4.6
120°-130°	942.7	7.6
130°-140°	1001.4	8.1
140°-150°	930.7	7.5
150°-160°	748.2	6.0
160°-170°	482.1	3.9
170°-180°	165.9	1.3
0°-30°	2534.4	20.4
0°-40°	3935.6	31.7
0°-60°	6234.8	50.1
0°-90°	7321.5	58.9
90°-120°	840.2	6.8
90°-150°	3714.9	29.9
90°-180°	5111.0	41.1
0°-180°	12432.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3558	3558	3558	3558	3558	
5°	3558	3542	3500	3530	3520	337
15°	3385	3349	3240	3178	3146	954
25°	3072	2969	2757	2625	2576	1413
35°	2647	2483	2200	1997	1926	1657
45°	2164	1948	1610	1381	1304	1671
55°	1646	1394	1046	854	792	1470
65°	1111	850	560	451	441	1102
75°	592	367	258	235	232	627
85°	138	71	61	61	61	159
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	

TEST NUMBER: P920451

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3558.5	3558.5	3558.5	3558.5	3558.5
2.5°	3574.5	3558.5	3522.9	3555.4	3548.9
5°	3558.5	3542.4	3500.4	3529.5	3519.8
7.5°	3529.5	3510.3	3465.2	3477.8	3461.8
10°	3490.8	3468.3	3404.0	3394.1	3375.0
12.5°	3442.7	3413.6	3326.5	3307.4	3271.8
15°	3384.6	3349.0	3239.7	3178.5	3146.4
17.5°	3316.9	3265.3	3130.1	3059.3	3007.7
20°	3239.7	3175.1	3014.2	2933.9	2862.8
22.5°	3156.0	3081.9	2894.9	2785.7	2737.5
25°	3072.3	2969.2	2756.6	2624.7	2576.2
27.5°	2972.5	2862.8	2627.8	2476.4	2402.3
30°	2866.3	2743.6	2486.0	2322.0	2234.9
32.5°	2763.1	2614.8	2351.0	2157.7	2077.0
35°	2647.2	2482.9	2199.7	1996.7	1925.6
37.5°	2534.5	2357.2	2057.9	1835.5	1755.1
40°	2415.3	2222.2	1909.6	1681.0	1597.3
42.5°	2292.9	2086.9	1761.7	1523.2	1442.9
45°	2164.1	1948.2	1610.3	1381.4	1304.2
47.5°	2041.9	1813.3	1465.4	1236.5	1165.8
50°	1906.5	1677.9	1323.6	1101.2	1033.9
52.5°	1774.3	1532.7	1188.3	975.8	914.6
55°	1645.5	1394.4	1046.5	853.5	792.3
57.5°	1513.6	1255.9	921.2	740.7	689.1
60°	1378.3	1120.7	788.9	624.9	573.3
62.5°	1246.4	988.8	676.1	521.8	496.1
65°	1111.1	850.1	560.3	451.0	441.1
67.5°	982.3	721.3	451.0	396.0	386.4
70°	847.0	595.9	373.4	341.3	328.4
72.5°	718.2	479.7	312.3	286.6	280.2
75°	592.5	367.0	257.6	235.1	232.0
77.5°	467.1	260.7	202.9	189.9	183.5
80°	350.9	186.9	154.5	141.8	141.8
82.5°	244.6	125.7	106.2	99.8	99.8
85°	138.4	70.7	61.1	61.1	61.1
87.5°	51.6	25.7	25.7	22.6	22.6
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

TEST NUMBER: P920451

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US935-RLLONL

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

TEST NUMBER: P920451

CATALOG NUMBER: DFN2DIP-SQ4F0-100D060US935-RLONL

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	11.13	12.04	12.01	12.94	14.08	7.09	8.00	7.98	8.90	10.04
	3H	12.82	13.63	13.72	14.54	15.71	8.29	9.10	9.18	10.01	11.17
	4H	13.43	14.20	14.35	15.12	16.29	8.74	9.51	9.65	10.42	11.60
	6H	13.86	14.57	14.79	15.49	16.68	9.07	9.77	9.99	10.69	11.88
	8H	13.99	14.67	14.92	15.60	16.79	9.16	9.83	10.09	10.77	11.96
	12H	14.06	14.70	15.00	15.63	16.84	9.21	9.84	10.14	10.78	11.99
4H	2H	11.16	11.93	12.08	12.84	14.02	7.70	8.47	8.62	9.38	10.56
	3H	13.00	13.64	13.93	14.58	15.77	9.06	9.69	9.98	10.64	11.83
	4H	13.70	14.28	14.64	15.22	16.44	9.61	10.19	10.55	11.13	12.35
	6H	14.22	14.72	15.17	15.69	16.90	10.03	10.53	10.98	11.50	12.71
	8H	14.40	14.87	15.35	15.83	17.06	10.16	10.63	11.12	11.59	12.82
	12H	14.50	14.92	15.47	15.90	17.13	10.23	10.65	11.20	11.63	12.86
8H	4H	13.67	14.14	14.63	15.10	16.33	9.90	10.36	10.85	11.32	12.55
	6H	14.25	14.63	15.22	15.63	16.86	10.42	10.80	11.40	11.80	13.03
	8H	14.47	14.81	15.45	15.79	17.04	10.61	10.95	11.60	11.94	13.19
	12H	14.61	14.91	15.60	15.89	17.19	10.74	11.03	11.73	12.02	13.31
12H	4H	13.63	14.05	14.60	15.02	16.26	9.91	10.33	10.88	11.30	12.54
	6H	14.22	14.56	15.21	15.55	16.80	10.47	10.81	11.46	11.80	13.05
	8H	14.45	14.75	15.44	15.73	17.03	10.69	10.98	11.68	11.97	13.26