

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: P902235

Luminaire Tested: DFN2DIP-4P3F0-050D020US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P902235
REPORT IS A COMBINATION OF REPORTS P900555 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D020US830-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

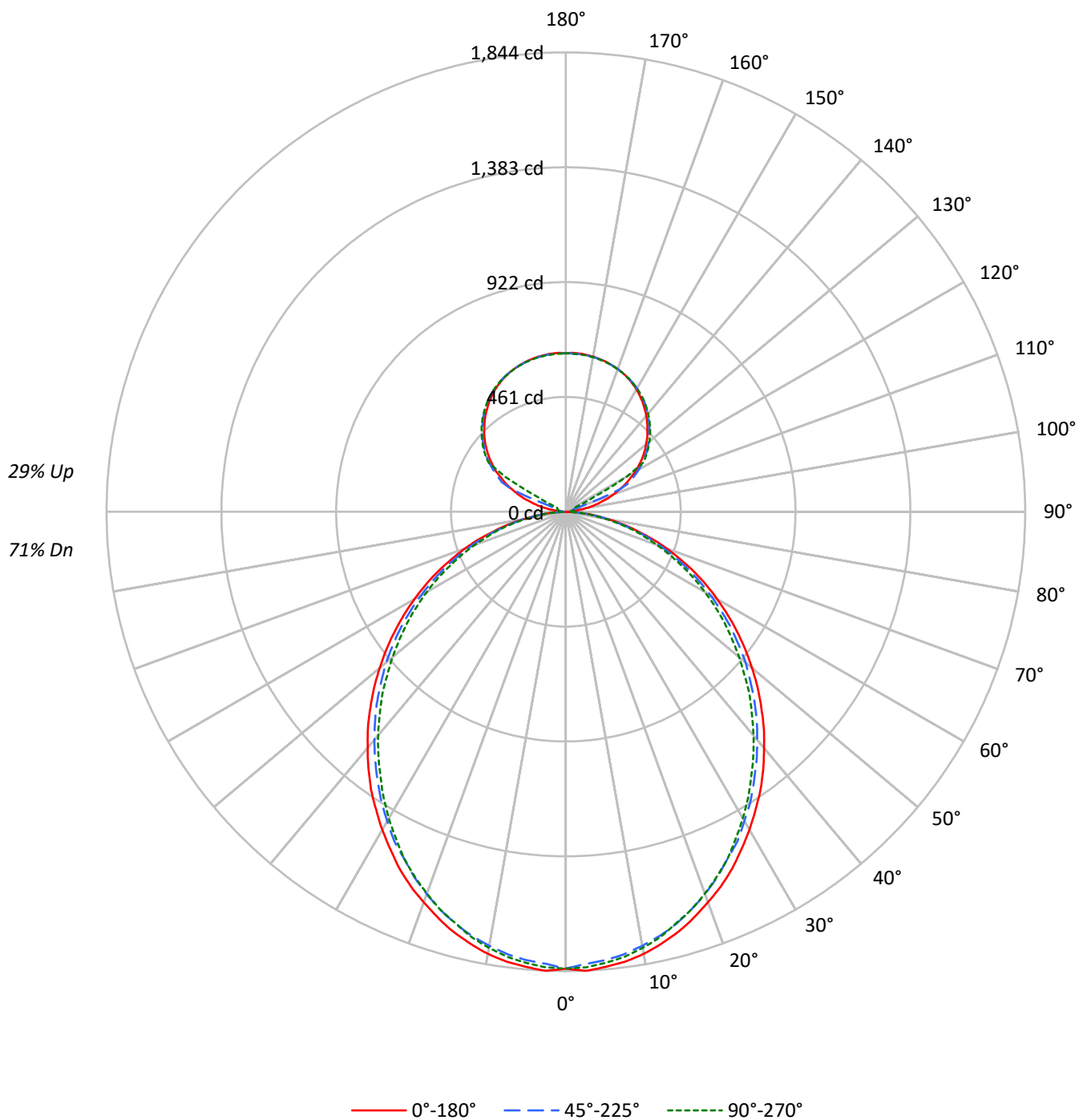
Lumens per Lamp: N/A
Luminaire Lumens: 6531.8 lumens
Efficiency: N/A
Efficacy: 101.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 64.2
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P902235

CATALOG NUMBER: DFN2DIP-4P3F0-050D020US830-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P902235

CATALOG NUMBER: DFN2DIP-4P3F0-050D020US830-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	112	112	112	112	106	106	106	106	95	95	95	85	85	85	76	76	76
1	103	98	94	90	97	93	90	86	84	81	78	75	73	71	67	66	64
2	93	86	79	74	88	81	76	71	73	69	65	66	62	59	59	56	54
3	85	75	68	62	80	72	65	59	65	59	55	58	54	50	52	49	46
4	78	67	59	52	74	64	56	50	58	52	47	52	47	43	47	43	40
5	72	60	51	45	68	57	49	44	52	45	40	47	42	38	42	38	35
6	66	54	45	39	63	51	44	38	47	40	35	42	37	33	38	34	31
7	61	49	40	35	58	47	39	34	42	36	31	39	33	29	35	31	27
8	57	44	36	31	54	42	35	30	39	33	28	35	30	26	32	28	24
9	53	41	33	28	50	39	32	27	36	30	25	33	27	24	30	25	22
10	50	37	30	25	47	36	29	24	33	27	23	30	25	21	28	23	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2090	2090	2090
5°	2092	2059	2074
10°	2073	2030	2045
15°	2042	1995	2000
20°	1999	1948	1955
25°	1957	1891	1902
30°	1904	1838	1836
35°	1854	1775	1765
40°	1793	1712	1698
45°	1731	1649	1629
50°	1664	1583	1550
55°	1594	1506	1477
60°	1514	1415	1393
65°	1427	1320	1293
70°	1316	1205	1187
75°	1163	1066	1087
80°	977	890	899
85°	688	590	588

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 1731 cd/sqm

TEST NUMBER: P902235

CATALOG NUMBER: DFN2DIP-4P3F0-050D020US830-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	172.6	2.6
10°-20°	485.6	7.4
20°-30°	713.7	10.9
30°-40°	828.9	12.7
40°-50°	827.8	12.7
50°-60°	721.8	11.1
60°-70°	533.6	8.2
70°-80°	301.9	4.6
80°-90°	80.8	1.2
90°-100°	21.0	0.3
100°-110°	78.2	1.2
110°-120°	207.4	3.2
120°-130°	344.0	5.3
130°-140°	365.4	5.6
140°-150°	339.6	5.2
150°-160°	273.0	4.2
160°-170°	175.9	2.7
170°-180°	60.6	0.9
0°-30°	1371.9	21.0
0°-40°	2200.7	33.7
0°-60°	3750.4	57.4
0°-90°	4666.7	71.4
90°-120°	306.6	4.7
90°-150°	1355.6	20.8
90°-180°	1865.0	28.6
0°-180°	6531.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1834	1834	1834	1834	1834	
5°	1834	1827	1807	1821	1818	174
15°	1746	1735	1712	1719	1710	492
25°	1580	1566	1536	1539	1536	727
35°	1363	1346	1317	1307	1298	851
45°	1109	1097	1070	1051	1044	856
55°	839	829	808	786	778	750
65°	566	555	538	522	513	560
75°	296	293	284	273	277	316
85°	72	70	69	63	62	81
90°	0	6	9	12	12	6
95°	30	15	18	20	20	35
105°	140	154	28	33	35	150
115°	265	272	284	71	38	261
125°	374	380	389	392	394	334
135°	463	470	475	479	478	358
145°	537	537	545	548	546	336
155°	592	587	593	596	592	273
165°	623	621	622	625	622	176
175°	638	634	635	638	634	61
180°	636	636	636	636	636	

TEST NUMBER: P902235

CATALOG NUMBER: DFN2DIP-4P3F0-050D020US830-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.7	1833.7	1833.7	1833.7	1833.7
2.5°	1844.4	1835.6	1816.2	1833.7	1830.4
5°	1833.7	1826.8	1807.3	1821.4	1818.1
7.5°	1821.4	1810.9	1791.5	1805.7	1802.1
10°	1802.1	1789.8	1768.7	1782.6	1777.4
12.5°	1775.6	1765.1	1744.0	1752.8	1749.2
15°	1745.6	1735.1	1712.1	1719.3	1710.4
17.5°	1708.5	1698.1	1675.1	1683.9	1675.1
20°	1668.0	1657.6	1632.9	1638.0	1631.2
22.5°	1627.6	1611.7	1588.7	1588.7	1585.1
25°	1579.9	1565.8	1535.9	1539.3	1535.9
27.5°	1526.9	1514.6	1491.8	1486.5	1477.7
30°	1474.1	1460.0	1433.6	1428.3	1421.3
32.5°	1417.7	1407.2	1378.9	1368.3	1361.2
35°	1363.0	1345.5	1317.2	1306.6	1297.8
37.5°	1301.3	1285.4	1257.2	1244.8	1236.0
40°	1237.9	1223.7	1195.4	1179.7	1172.6
42.5°	1176.2	1162.0	1133.9	1116.1	1105.6
45°	1109.2	1096.8	1070.3	1051.0	1043.9
47.5°	1043.9	1031.5	1003.3	983.8	973.4
50°	975.1	966.3	941.6	916.9	908.0
52.5°	908.0	895.7	872.9	853.5	841.1
55°	839.4	828.8	807.6	786.5	777.7
57.5°	770.5	761.8	738.8	717.7	710.5
60°	701.7	694.8	670.1	650.6	645.5
62.5°	634.8	622.5	604.8	587.2	580.1
65°	566.1	555.4	537.8	522.0	513.1
67.5°	495.6	486.6	470.9	458.5	451.4
70°	430.3	423.2	407.3	394.9	388.0
72.5°	363.4	356.2	347.4	335.1	329.8
75°	296.1	292.8	283.8	273.3	276.9
77.5°	236.3	229.1	225.6	220.4	215.2
80°	176.4	174.6	171.0	165.8	162.2
82.5°	119.9	119.9	118.2	111.1	111.1
85°	72.2	70.5	68.8	63.4	61.7
87.5°	31.8	28.3	24.7	19.4	17.6
90°	0.5	5.6	9.1	11.5	12.4
92.5°	11.5	9.7	11.0	12.0	12.4
95°	29.9	14.7	17.9	20.3	19.8
97.5°	53.8	16.1	23.5	24.9	25.4
100°	81.5	18.4	26.2	29.9	30.8
102.5°	111.9	110.9	27.1	32.2	33.6
105°	140.0	153.7	28.1	33.1	35.0
107.5°	172.7	184.1	29.0	34.0	35.9
110°	204.0	213.6	80.6	34.6	36.4



TEST NUMBER: P902235

CATALOG NUMBER: DFN2DIP-4P3F0-050D020US830-FLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	233.4	241.7	233.8	35.4	36.9
115°	264.7	272.5	284.1	70.9	37.8
117.5°	291.8	301.0	308.9	243.1	122.4
120°	322.3	329.1	337.4	343.0	280.8
122.5°	348.0	355.3	364.6	367.3	367.9
125°	374.3	380.2	389.0	392.2	393.6
127.5°	398.2	404.6	411.6	416.1	416.6
130°	420.8	428.1	433.2	438.3	437.8
132.5°	443.7	449.8	454.8	458.9	458.5
135°	463.2	470.5	474.6	479.3	478.3
137.5°	483.3	488.9	493.5	498.1	496.7
140°	503.1	506.9	511.9	516.0	513.8
142.5°	519.7	523.0	529.0	532.6	530.3
145°	537.2	536.8	544.6	547.8	545.5
147.5°	552.4	551.0	558.8	561.1	559.3
150°	567.1	563.9	571.3	574.0	571.7
152.5°	579.6	575.9	582.8	585.6	582.3
155°	591.5	587.4	593.0	595.7	592.0
157.5°	601.2	597.6	601.7	604.9	601.2
160°	609.5	606.7	609.5	612.3	609.1
162.5°	616.8	614.1	616.4	619.6	615.5
165°	623.3	620.6	621.9	625.2	621.9
167.5°	628.4	625.6	627.0	630.3	626.0
170°	632.5	629.7	630.7	633.9	629.7
172.5°	635.3	632.5	633.5	636.7	632.5
175°	637.5	634.3	635.3	638.5	633.9
177.5°	638.5	635.3	635.7	638.9	634.8
180°	636.2	636.2	636.2	636.2	636.2

TEST NUMBER: P902235

CATALOG NUMBER: DFN2DIP-4P3F0-050D020US830-FLONL

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	11.58	12.67	12.33	13.44	14.37	11.13	12.23	11.88	13.00	13.93
	3H	13.25	14.23	14.01	15.01	15.97	12.76	13.74	13.52	14.52	15.48
	4H	13.85	14.77	14.63	15.56	16.53	13.35	14.28	14.13	15.07	16.04
	6H	14.26	15.11	15.05	15.91	16.89	13.75	14.61	14.55	15.41	16.39
	8H	14.36	15.18	15.17	16.00	16.98	13.86	14.68	14.67	15.50	16.48
	12H	14.42	15.20	15.23	16.01	17.02	13.91	14.69	14.72	15.50	16.51
4H	2H	12.06	12.99	12.85	13.78	14.75	11.71	12.64	12.49	13.43	14.40
	3H	13.94	14.72	14.74	15.54	16.53	13.54	14.31	14.33	15.14	16.12
	4H	14.66	15.37	15.47	16.19	17.21	14.24	14.95	15.05	15.77	16.78
	6H	15.19	15.80	16.02	16.65	17.67	14.76	15.37	15.58	16.21	17.23
	8H	15.34	15.91	16.17	16.75	17.79	14.90	15.48	15.73	16.32	17.35
	12H	15.42	15.94	16.27	16.80	17.84	14.97	15.49	15.83	16.35	17.39
8H	4H	14.88	15.45	15.71	16.29	17.32	14.50	15.07	15.33	15.91	16.94
	6H	15.51	15.98	16.37	16.87	17.90	15.13	15.60	15.99	16.48	17.52
	8H	15.73	16.15	16.60	17.03	18.08	15.34	15.76	16.21	16.64	17.69
	12H	15.87	16.24	16.74	17.11	18.22	15.46	15.83	16.33	16.70	17.81
12H	4H	14.87	15.39	15.72	16.25	17.29	14.50	15.02	15.35	15.88	16.92
	6H	15.54	15.96	16.41	16.84	17.89	15.17	15.59	16.04	16.47	17.52
	8H	15.79	16.16	16.66	17.03	18.14	15.41	15.78	16.28	16.65	17.76