

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: P905038

Luminaire Tested: DFN2DIP-4P4F0-040D060US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P905038
REPORT IS A COMBINATION OF REPORTS P899117 AND P895967
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-040D060US835-FLLFLL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

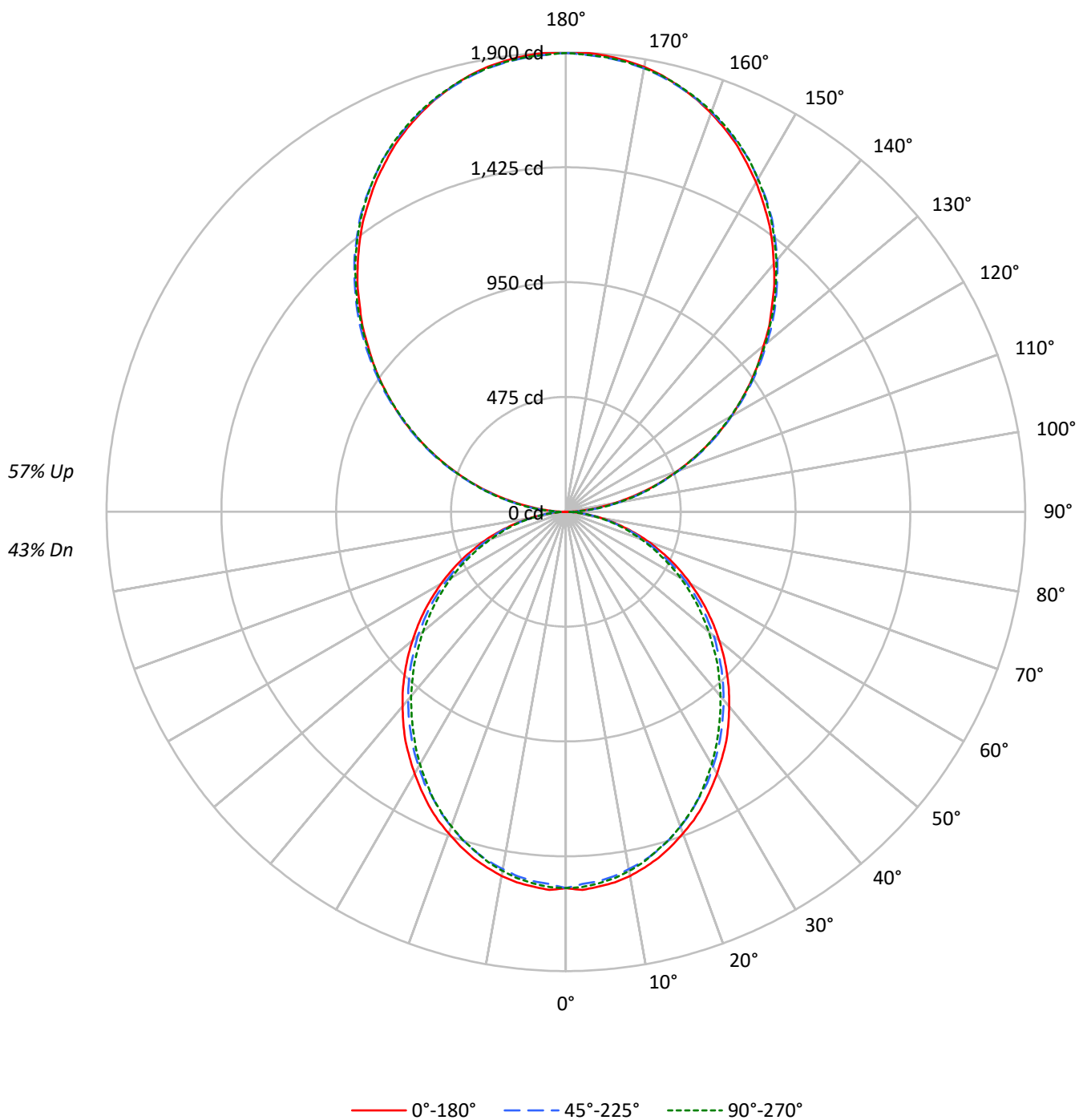
Lumens per Lamp: N/A
Luminaire Lumens: 9270.0 lumens
Efficiency: N/A
Efficacy: 104.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 89.1
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: P905038

CATALOG NUMBER: DFN2DIP-4P4F0-040D060US835-FLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P905038

CATALOG NUMBER: DFN2DIP-4P4F0-040D060US835-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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	49	49	49
1	96	92	88	85	88	84	81	78	69	67	65	56	54	53	44	43	42
2	88	80	74	69	80	73	68	64	61	57	54	49	47	44	38	37	35
3	80	70	63	57	73	65	58	53	54	49	45	44	40	37	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	30	28	26
5	67	56	47	42	61	51	44	39	43	37	33	35	31	28	27	25	22
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	31	52	41	34	29	35	29	25	29	24	21	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	15	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1010	1010	1010
5°	1011	996	1003
10°	1003	983	990
15°	989	967	969
20°	969	945	947
25°	949	918	923
30°	924	894	891
35°	901	864	858
40°	872	835	826
45°	843	805	793
50°	812	775	756
55°	779	739	721
60°	741	696	682
65°	701	652	635
70°	649	599	585
75°	577	535	540
80°	491	453	452
85°	356	311	305

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 1435 cd/sqm

TEST NUMBER: P905038

CATALOG NUMBER: DFN2DIP-4P4F0-040D060US835-FLLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	146.5	1.6
10°-20°	412.2	4.4
20°-30°	605.7	6.5
30°-40°	703.5	7.6
40°-50°	702.6	7.6
50°-60°	612.7	6.6
60°-70°	452.9	4.9
70°-80°	256.2	2.8
80°-90°	73.0	0.8
90°-100°	117.4	1.3
100°-110°	373.1	4.0
110°-120°	638.5	6.9
120°-130°	839.7	9.1
130°-140°	942.5	10.2
140°-150°	924.2	10.0
150°-160°	775.3	8.4
160°-170°	514.2	5.5
170°-180°	179.7	1.9
0°-30°	1164.4	12.6
0°-40°	1867.9	20.1
0°-60°	3183.2	34.3
0°-90°	3965.4	42.8
90°-120°	1129.0	12.2
90°-150°	3835.4	41.4
90°-180°	5305.0	57.2
0°-180°	9270.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1556	1556	1556	1556	1556	
5°	1556	1550	1534	1546	1543	148
15°	1482	1473	1453	1459	1452	417
25°	1341	1329	1304	1306	1304	617
35°	1157	1142	1118	1109	1102	722
45°	941	931	908	892	886	727
55°	712	703	686	668	660	637
65°	480	471	456	443	436	475
75°	251	248	241	232	235	268
85°	61	60	58	54	52	68
90°	2	21	56	53	54	9
95°	84	100	102	102	100	93
105°	344	349	352	355	355	363
115°	641	650	647	645	641	634
125°	932	946	942	936	935	833
135°	1205	1223	1226	1225	1220	932
145°	1463	1475	1484	1486	1479	914
155°	1673	1678	1683	1691	1686	770
165°	1820	1819	1819	1830	1822	514
175°	1894	1890	1886	1898	1888	180
180°	1898	1898	1898	1898	1898	

TEST NUMBER: P905038

CATALOG NUMBER: DFN2DIP-4P4F0-040D060US835-FLLFLL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1556.4	1556.4	1556.4	1556.4	1556.4
2.5°	1565.5	1558.0	1541.5	1556.4	1553.6
5°	1556.4	1550.5	1534.0	1545.9	1543.1
7.5°	1545.9	1537.0	1520.5	1532.6	1529.6
10°	1529.6	1519.1	1501.2	1513.1	1508.6
12.5°	1507.0	1498.1	1480.2	1487.7	1484.6
15°	1481.6	1472.7	1453.2	1459.2	1451.8
17.5°	1450.2	1441.3	1421.8	1429.2	1421.8
20°	1415.7	1406.8	1385.9	1390.3	1384.5
22.5°	1381.4	1367.9	1348.4	1348.4	1345.4
25°	1340.9	1329.0	1303.6	1306.5	1303.6
27.5°	1296.0	1285.5	1266.2	1261.7	1254.3
30°	1251.2	1239.2	1216.8	1212.3	1206.3
32.5°	1203.3	1194.4	1170.4	1161.4	1155.3
35°	1156.9	1142.0	1118.0	1109.0	1101.5
37.5°	1104.5	1091.0	1067.0	1056.6	1049.1
40°	1050.7	1038.6	1014.6	1001.3	995.3
42.5°	998.3	986.2	962.4	947.3	938.4
45°	941.4	931.0	908.4	892.1	886.0
47.5°	886.0	875.5	851.6	835.1	826.2
50°	827.6	820.1	799.2	778.2	770.7
52.5°	770.7	760.3	740.9	724.4	713.9
55°	712.5	703.4	685.5	667.5	660.1
57.5°	654.0	646.6	627.0	609.1	603.1
60°	595.6	589.7	568.8	552.3	547.8
62.5°	538.8	528.3	513.4	498.4	492.4
65°	480.5	471.4	456.5	443.0	435.6
67.5°	420.6	413.0	399.7	389.2	383.2
70°	365.2	359.2	345.7	335.2	329.3
72.5°	308.4	302.3	294.9	284.4	279.9
75°	251.4	248.5	240.9	232.0	235.0
77.5°	200.5	194.5	191.5	187.0	182.6
80°	149.7	148.1	145.1	140.7	137.7
82.5°	101.8	101.8	100.4	94.3	94.3
85°	61.3	59.9	58.4	53.8	52.4
87.5°	27.0	24.0	21.0	16.5	14.9
90°	1.7	20.6	56.1	52.6	54.3
92.5°	35.5	48.1	49.8	51.5	51.5
95°	83.5	99.5	102.4	102.4	99.5
97.5°	139.0	153.9	160.2	160.2	160.2
100°	203.1	216.2	220.8	220.8	219.1
102.5°	270.6	280.3	286.6	288.3	286.6
105°	344.4	349.0	352.4	355.3	355.3
107.5°	417.6	424.5	424.5	425.6	417.6
110°	488.6	497.7	497.7	497.7	493.1

TEST NUMBER: P905038

CATALOG NUMBER: DFN2DIP-4P4F0-040D060US835-FLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	565.2	574.9	573.2	568.6	565.2
115°	640.7	649.9	647.0	645.3	640.7
117.5°	715.7	728.3	720.2	715.7	711.1
120°	791.2	803.8	791.2	791.2	786.0
122.5°	859.8	875.8	867.8	863.3	859.8
125°	931.9	946.2	941.6	936.5	934.8
127.5°	1002.3	1020.0	1013.7	1006.9	1002.3
130°	1068.1	1088.7	1085.8	1082.4	1076.1
132.5°	1141.9	1157.9	1159.0	1151.0	1146.4
135°	1205.4	1223.1	1226.5	1224.8	1220.2
137.5°	1276.3	1290.6	1293.5	1292.3	1285.5
140°	1338.7	1353.0	1361.0	1361.0	1354.7
142.5°	1402.7	1417.0	1421.6	1423.3	1417.0
145°	1463.4	1474.8	1484.0	1485.7	1479.4
147.5°	1517.7	1532.0	1538.9	1541.7	1535.4
150°	1573.8	1583.5	1589.8	1594.9	1589.8
152.5°	1623.5	1633.3	1641.3	1647.6	1641.3
155°	1673.3	1677.9	1683.0	1691.1	1685.9
157.5°	1716.2	1719.7	1722.5	1734.0	1726.0
160°	1754.6	1758.0	1759.7	1769.4	1762.6
162.5°	1790.0	1790.0	1791.7	1802.6	1794.6
165°	1820.3	1818.6	1818.6	1830.1	1822.1
167.5°	1847.8	1842.7	1842.7	1854.1	1846.1
170°	1868.4	1863.8	1862.1	1873.5	1863.8
172.5°	1882.7	1878.1	1876.4	1887.8	1878.1
175°	1894.1	1889.6	1886.1	1897.6	1887.8
177.5°	1900.4	1895.9	1892.4	1902.1	1892.4
180°	1897.6	1897.6	1897.6	1897.6	1897.6

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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	6.62	7.42	7.63	8.44	9.81	6.17	6.97	7.19	8.00	9.37
	3H	8.28	8.99	9.30	10.03	11.42	7.79	8.50	8.81	9.54	10.93
	4H	8.87	9.55	9.90	10.58	11.98	8.37	9.05	9.41	10.09	11.49
	6H	9.27	9.89	10.32	10.93	12.34	8.77	9.39	9.82	10.43	11.84
	8H	9.37	9.97	10.43	11.03	12.43	8.87	9.47	9.92	10.52	11.93
	12H	9.42	9.99	10.48	11.04	12.47	8.91	9.48	9.97	10.53	11.96
4H	2H	7.07	7.75	8.12	8.79	10.19	6.72	7.40	7.76	8.43	9.83
	3H	8.94	9.50	9.99	10.57	11.98	8.53	9.10	9.58	10.16	11.57
	4H	9.65	10.17	10.71	11.23	12.66	9.23	9.75	10.29	10.81	12.24
	6H	10.17	10.62	11.24	11.70	13.12	9.74	10.18	10.81	11.26	12.69
	8H	10.32	10.74	11.39	11.81	13.25	9.88	10.30	10.95	11.37	12.82
	12H	10.39	10.77	11.48	11.86	13.31	9.94	10.32	11.03	11.41	12.86
8H	4H	9.85	10.26	10.92	11.34	12.78	9.47	9.89	10.54	10.96	12.40
	6H	10.48	10.83	11.57	11.94	13.38	10.10	10.44	11.19	11.56	13.00
	8H	10.70	11.01	11.80	12.10	13.56	10.31	10.62	11.41	11.71	13.17
	12H	10.84	11.10	11.94	12.20	13.70	10.43	10.69	11.53	11.79	13.28
12H	4H	9.83	10.21	10.92	11.29	12.74	9.46	9.84	10.55	10.92	12.37
	6H	10.51	10.81	11.61	11.91	13.37	10.14	10.44	11.24	11.54	13.00
	8H	10.75	11.02	11.86	12.11	13.61	10.37	10.64	11.48	11.73	13.23

END OF REPORT