

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: P918615

Luminaire Tested: DFN2DIP-4P3F0-050D050US935-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918615
REPORT IS A COMBINATION OF REPORTS P900585 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-050D050US935-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

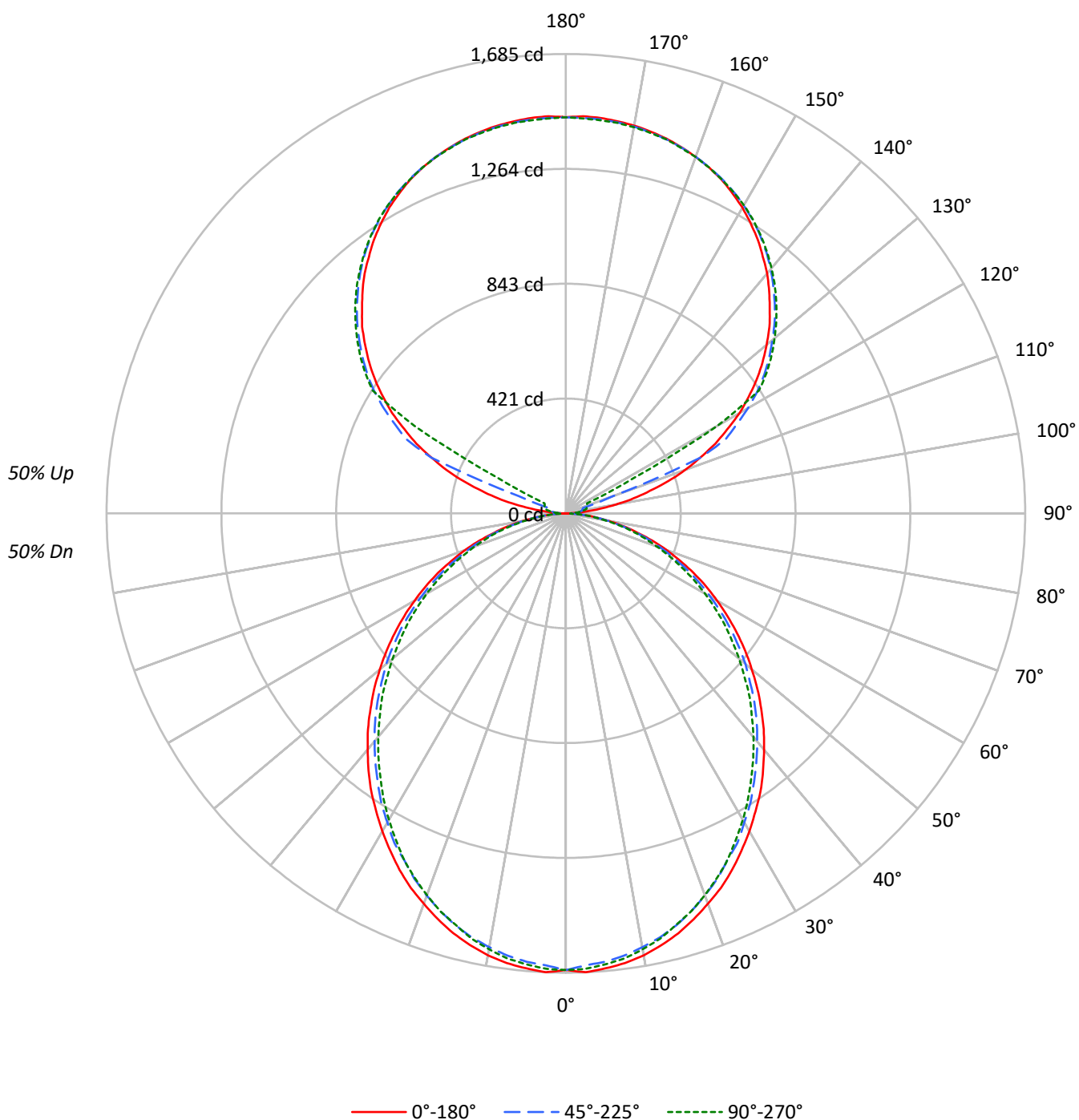
Lumens per Lamp: N/A
Luminaire Lumens: 8523.9 lumens
Efficiency: N/A
Efficacy: 98.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 87
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: P918615

CATALOG NUMBER: DFN2DIP-4P3F0-050D050US935-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P918615

CATALOG NUMBER: DFN2DIP-4P3F0-050D050US935-FLLONL

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	107	107	107	107	99	99	99	99	83	83	83	69	69	69	56	56	56
1	98	93	90	86	90	86	83	80	73	71	68	61	59	58	50	48	47
2	89	82	75	70	82	76	70	66	64	60	57	53	51	48	44	42	40
3	81	72	64	59	75	66	60	55	56	52	48	47	44	41	39	36	34
4	74	64	56	50	68	59	52	47	50	45	41	42	38	35	35	32	29
5	68	57	48	42	63	53	45	40	45	39	35	38	34	30	31	28	26
6	63	51	43	37	58	47	40	35	40	35	31	34	30	27	28	25	23
7	58	46	38	32	53	43	36	30	37	31	27	31	27	23	26	23	20
8	54	42	34	29	50	39	32	27	33	28	24	28	24	21	24	20	18
9	50	38	30	25	46	35	29	24	31	25	21	26	22	19	22	19	16
10	47	35	28	23	43	33	26	22	28	23	19	24	20	17	20	17	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1909	1909	1909
5°	1911	1881	1894
10°	1894	1855	1868
15°	1865	1823	1827
20°	1826	1779	1786
25°	1788	1727	1738
30°	1739	1679	1677
35°	1694	1622	1613
40°	1638	1564	1551
45°	1581	1506	1488
50°	1520	1446	1416
55°	1456	1375	1349
60°	1383	1292	1272
65°	1303	1206	1181
70°	1202	1100	1084
75°	1062	974	993
80°	893	813	821
85°	629	539	538

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1581 cd/sqm

TEST NUMBER: P918615

CATALOG NUMBER: DFN2DIP-4P3F0-050D050US935-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.7	1.8
10°-20°	443.6	5.2
20°-30°	651.9	7.6
30°-40°	757.2	8.9
40°-50°	756.2	8.9
50°-60°	659.4	7.7
60°-70°	487.4	5.7
70°-80°	275.8	3.2
80°-90°	75.3	0.9
90°-100°	47.9	0.6
100°-110°	178.6	2.1
110°-120°	473.7	5.6
120°-130°	785.6	9.2
130°-140°	834.5	9.8
140°-150°	775.6	9.1
150°-160°	623.5	7.3
160°-170°	401.8	4.7
170°-180°	138.3	1.6
0°-30°	1253.2	14.7
0°-40°	2010.3	23.6
0°-60°	3425.9	40.2
0°-90°	4264.5	50.0
90°-120°	700.2	8.2
90°-150°	3095.8	36.3
90°-180°	4259.0	50.0
0°-180°	8523.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1675	1675	1675	1675	1675	
5°	1675	1669	1651	1664	1661	159
15°	1595	1585	1564	1570	1562	449
25°	1443	1430	1403	1406	1403	664
35°	1245	1229	1203	1194	1186	778
45°	1013	1002	978	960	954	782
55°	767	757	738	718	710	686
65°	517	507	491	477	469	511
75°	270	267	259	250	253	289
85°	66	64	63	58	56	74
90°	1	13	21	26	28	8
95°	68	34	41	46	45	81
105°	320	351	64	76	80	342
115°	604	622	649	162	86	595
125°	855	868	888	896	899	762
135°	1058	1074	1084	1094	1092	817
145°	1227	1226	1244	1251	1246	767
155°	1351	1342	1354	1360	1352	622
165°	1423	1417	1420	1428	1420	402
175°	1456	1449	1451	1458	1448	139
180°	1453	1453	1453	1453	1453	

TEST NUMBER: P918615

CATALOG NUMBER: DFN2DIP-4P3F0-050D050US935-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1675.1	1675.1	1675.1	1675.1	1675.1
2.5°	1684.8	1676.8	1659.1	1675.1	1672.1
5°	1675.1	1668.8	1651.0	1663.8	1660.8
7.5°	1663.8	1654.2	1636.5	1649.5	1646.2
10°	1646.2	1634.9	1615.7	1628.4	1623.7
12.5°	1621.9	1612.4	1593.1	1601.1	1597.8
15°	1594.6	1585.0	1564.0	1570.5	1562.5
17.5°	1560.7	1551.2	1530.2	1538.2	1530.2
20°	1523.7	1514.2	1491.6	1496.3	1490.0
22.5°	1486.8	1472.2	1451.2	1451.2	1447.9
25°	1443.2	1430.4	1403.0	1406.1	1403.0
27.5°	1394.8	1383.5	1362.7	1357.9	1349.9
30°	1346.6	1333.7	1309.6	1304.8	1298.3
32.5°	1295.0	1285.5	1259.6	1249.9	1243.5
35°	1245.1	1229.1	1203.2	1193.5	1185.5
37.5°	1188.7	1174.2	1148.4	1137.1	1129.1
40°	1130.8	1117.8	1092.0	1077.6	1071.2
42.5°	1074.4	1061.4	1035.8	1019.5	1010.0
45°	1013.2	1001.9	977.7	960.1	953.6
47.5°	953.6	942.3	916.5	898.7	889.2
50°	890.7	882.7	860.1	837.6	829.5
52.5°	829.5	818.2	797.4	779.6	768.4
55°	766.8	757.1	737.7	718.4	710.4
57.5°	703.9	695.9	674.9	655.6	649.0
60°	641.0	634.7	612.2	594.3	589.6
62.5°	579.9	568.6	552.5	536.4	529.9
65°	517.1	507.4	491.3	476.8	468.7
67.5°	452.7	444.5	430.2	418.9	412.3
70°	393.0	386.6	372.0	360.8	354.5
72.5°	331.9	325.4	317.4	306.1	301.3
75°	270.5	267.4	259.2	249.7	253.0
77.5°	215.9	209.3	206.1	201.3	196.6
80°	161.2	159.5	156.2	151.4	148.2
82.5°	109.5	109.5	108.0	101.5	101.5
85°	66.0	64.4	62.9	57.9	56.4
87.5°	29.0	25.8	22.6	17.7	16.1
90°	1.0	12.6	21.0	26.3	28.3
92.5°	26.3	22.1	25.2	27.4	28.3
95°	68.3	33.6	41.0	46.3	45.2
97.5°	123.0	36.9	53.6	56.8	57.8
100°	186.1	42.1	59.9	68.3	70.4
102.5°	255.5	253.4	62.1	73.5	76.8
105°	319.6	351.2	64.1	75.7	79.9
107.5°	394.3	420.4	66.3	77.7	82.1
110°	465.8	487.8	184.0	78.9	83.0



TEST NUMBER: P918615

CATALOG NUMBER: DFN2DIP-4P3F0-050D050US935-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	533.0	551.9	534.1	80.9	84.1
115°	604.5	622.3	648.7	162.0	86.3
117.5°	666.5	687.5	705.5	555.0	279.7
120°	735.9	751.7	770.6	783.2	641.3
122.5°	794.7	811.6	832.7	839.0	840.1
125°	854.6	868.4	888.4	895.7	898.9
127.5°	909.3	924.0	940.0	950.4	951.4
130°	960.9	977.7	989.2	1000.8	999.9
132.5°	1013.5	1027.2	1038.6	1048.2	1047.1
135°	1057.6	1074.5	1083.8	1094.5	1092.3
137.5°	1103.8	1116.5	1127.0	1137.6	1134.5
140°	1149.0	1157.5	1169.0	1178.4	1173.3
142.5°	1187.0	1194.4	1208.0	1216.3	1211.1
145°	1226.9	1225.8	1243.6	1251.0	1245.8
147.5°	1261.5	1258.3	1276.3	1281.5	1277.4
150°	1295.2	1287.9	1304.7	1311.0	1305.7
152.5°	1323.5	1315.2	1330.9	1337.3	1329.9
155°	1350.9	1341.5	1354.1	1360.4	1352.0
157.5°	1372.9	1364.6	1374.1	1381.5	1372.9
160°	1392.0	1385.6	1392.0	1398.2	1390.9
162.5°	1408.7	1402.5	1407.6	1415.0	1405.6
165°	1423.4	1417.2	1420.3	1427.6	1420.3
167.5°	1435.0	1428.7	1431.9	1439.2	1429.8
170°	1444.5	1438.1	1440.3	1447.6	1438.1
172.5°	1450.8	1444.5	1446.6	1454.0	1444.5
175°	1456.0	1448.6	1450.8	1458.1	1447.6
177.5°	1458.1	1450.8	1451.9	1459.2	1449.7
180°	1452.8	1452.8	1452.8	1452.8	1452.8

TEST NUMBER: P918615

CATALOG NUMBER: DFN2DIP-4P3F0-050D050US935-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	9.49	10.35	10.44	11.32	12.59	9.04	9.91	10.00	10.88	12.15
	3H	11.14	11.92	12.11	12.90	14.19	10.65	11.43	11.62	12.41	13.70
	4H	11.73	12.46	12.71	13.45	14.75	11.23	11.97	12.22	12.95	14.25
	6H	12.13	12.80	13.12	13.79	15.10	11.63	12.30	12.62	13.29	14.60
	8H	12.23	12.87	13.23	13.88	15.19	11.73	12.37	12.73	13.38	14.69
	12H	12.27	12.89	13.28	13.89	15.22	11.77	12.38	12.77	13.38	14.71
4H	2H	9.95	10.68	10.93	11.66	12.96	9.59	10.32	10.58	11.31	12.61
	3H	11.81	12.42	12.80	13.43	14.75	11.40	12.01	12.40	13.02	14.34
	4H	12.52	13.07	13.52	14.08	15.42	12.09	12.65	13.10	13.66	15.00
	6H	13.03	13.51	14.04	14.54	15.87	12.60	13.08	13.61	14.11	15.44
	8H	13.17	13.62	14.19	14.65	16.00	12.74	13.19	13.76	14.21	15.56
	12H	13.25	13.65	14.28	14.69	16.05	12.80	13.20	13.83	14.24	15.60
8H	4H	12.71	13.16	13.73	14.18	15.53	12.33	12.78	13.35	13.80	15.16
	6H	13.33	13.71	14.38	14.77	16.12	12.95	13.32	13.99	14.39	15.74
	8H	13.55	13.88	14.60	14.93	16.30	13.16	13.49	14.21	14.54	15.90
	12H	13.68	13.97	14.73	15.01	16.42	13.27	13.56	14.32	14.60	16.01
12H	4H	12.69	13.10	13.73	14.14	15.49	12.33	12.73	13.36	13.77	15.13
	6H	13.36	13.69	14.41	14.74	16.11	12.99	13.32	14.04	14.37	15.74
	8H	13.60	13.89	14.65	14.93	16.34	13.22	13.51	14.27	14.55	15.96