

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: P907687

Luminaire Tested: DFN2DIP-4P3F0-040D060US840-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P907687
REPORT IS A COMBINATION OF REPORTS P900593 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-040D060US840-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

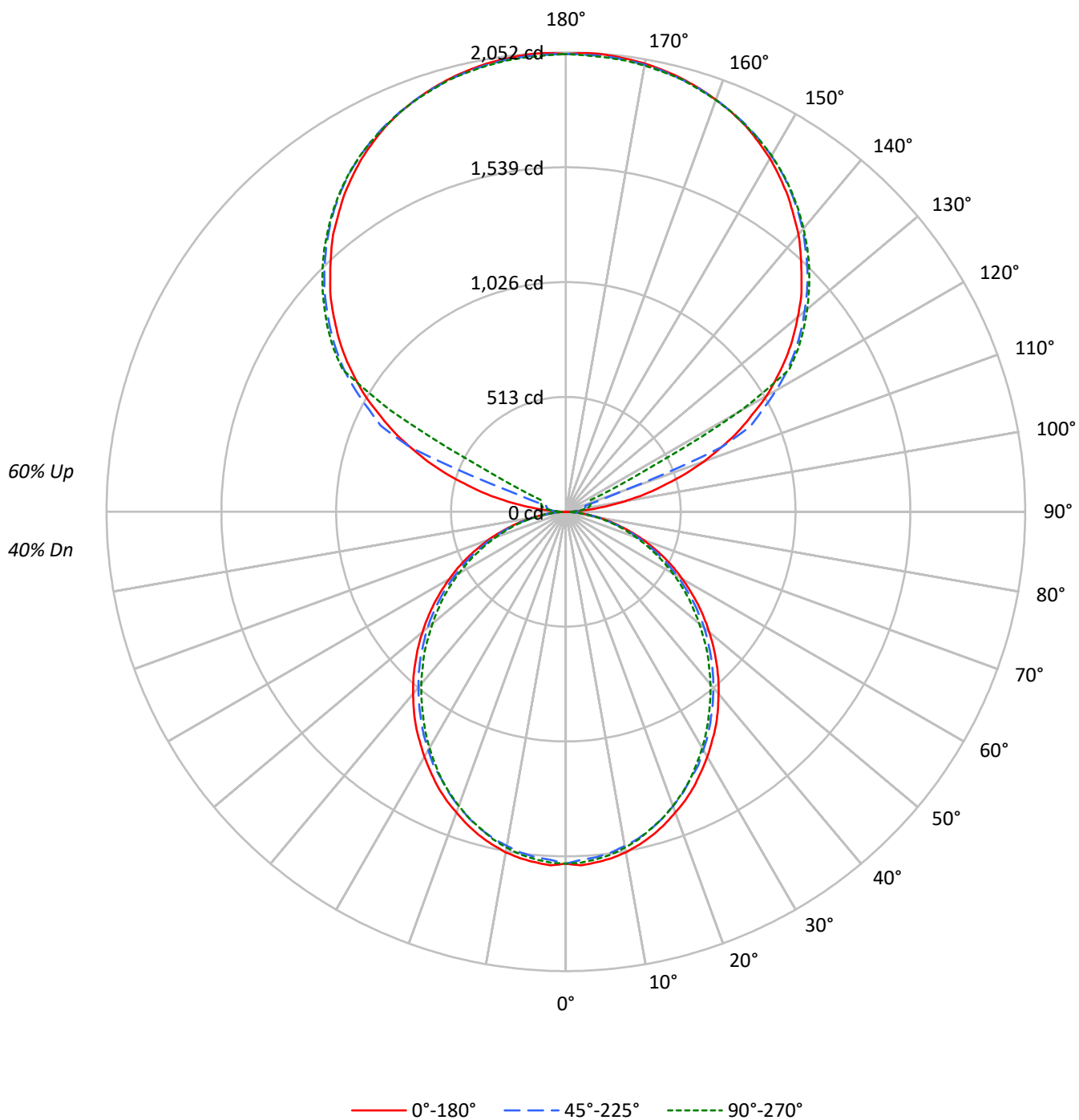
Lumens per Lamp: N/A
Luminaire Lumens: 9997.6 lumens
Efficiency: N/A
Efficacy: 117.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 84.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P907687

CATALOG NUMBER: DFN2DIP-4P3F0-040D060US840-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P907687

CATALOG NUMBER: DFN2DIP-4P3F0-040D060US840-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	105	105	105	105	95	95	95	95	78	78	78	62	62	62	47	47	47
1	96	91	87	84	87	83	80	77	68	66	64	54	53	51	41	41	40
2	87	80	74	69	79	73	68	63	60	56	53	48	45	43	37	35	33
3	79	70	63	57	72	64	58	53	53	48	44	42	39	36	32	30	28
4	73	62	54	48	66	57	50	45	47	42	38	37	34	31	29	26	24
5	67	55	47	41	60	50	44	38	42	37	33	34	30	27	26	23	21
6	61	49	41	36	56	45	38	33	38	32	28	30	26	23	24	21	19
7	57	45	37	31	51	41	34	29	34	29	25	28	24	21	22	19	17
8	52	40	33	27	48	37	30	26	31	26	22	25	21	18	20	17	15
9	49	37	29	24	44	34	27	23	28	23	20	23	19	17	18	15	13
10	46	34	27	22	41	31	25	20	26	21	18	21	18	15	17	14	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1791	1791	1791
5°	1793	1765	1778
10°	1777	1740	1753
15°	1750	1710	1715
20°	1714	1669	1676
25°	1677	1621	1631
30°	1632	1575	1573
35°	1589	1522	1513
40°	1537	1468	1455
45°	1484	1413	1396
50°	1426	1357	1328
55°	1366	1291	1266
60°	1298	1213	1194
65°	1223	1131	1109
70°	1128	1033	1017
75°	997	914	932
80°	838	762	771
85°	590	506	504

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1484 cd/sqm

TEST NUMBER: P907687

CATALOG NUMBER: DFN2DIP-4P3F0-040D060US840-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	147.9	1.5
10°-20°	416.2	4.2
20°-30°	611.7	6.1
30°-40°	710.5	7.1
40°-50°	709.6	7.1
50°-60°	618.7	6.2
60°-70°	457.4	4.6
70°-80°	258.8	2.6
80°-90°	71.9	0.7
90°-100°	67.4	0.7
100°-110°	251.4	2.5
110°-120°	666.7	6.7
120°-130°	1105.7	11.1
130°-140°	1174.5	11.7
140°-150°	1091.6	10.9
150°-160°	877.6	8.8
160°-170°	565.5	5.7
170°-180°	194.6	1.9
0°-30°	1175.9	11.8
0°-40°	1886.3	18.9
0°-60°	3214.6	32.2
0°-90°	4002.6	40.0
90°-120°	985.5	9.9
90°-150°	4357.2	43.6
90°-180°	5995.0	60.0
0°-180°	9997.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1572	1572	1572	1572	1572	
5°	1572	1566	1549	1561	1558	149
15°	1496	1487	1468	1474	1466	421
25°	1354	1342	1316	1319	1316	623
35°	1168	1153	1129	1120	1112	730
45°	951	940	917	901	895	734
55°	720	710	692	674	667	643
65°	485	476	461	447	440	480
75°	254	251	243	234	237	271
85°	62	60	59	54	53	69
90°	1	18	30	37	40	9
95°	96	47	58	65	64	114
105°	450	494	90	106	112	481
115°	851	876	913	228	121	838
125°	1203	1222	1250	1261	1265	1073
135°	1489	1512	1526	1540	1537	1150
145°	1727	1725	1750	1761	1753	1080
155°	1901	1888	1906	1915	1903	876
165°	2004	1995	1999	2009	1999	566
175°	2049	2039	2042	2052	2038	195
180°	2045	2045	2045	2045	2045	

TEST NUMBER: P907687

CATALOG NUMBER: DFN2DIP-4P3F0-040D060US840-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1571.8	1571.8	1571.8	1571.8	1571.8
2.5°	1580.9	1573.4	1556.7	1571.8	1568.9
5°	1571.8	1565.8	1549.1	1561.2	1558.3
7.5°	1561.2	1552.2	1535.5	1547.7	1544.7
10°	1544.7	1534.1	1516.0	1528.0	1523.5
12.5°	1521.9	1512.9	1494.8	1502.4	1499.2
15°	1496.2	1487.2	1467.5	1473.6	1466.1
17.5°	1464.5	1455.5	1435.8	1443.3	1435.8
20°	1429.7	1420.7	1399.6	1404.0	1398.2
22.5°	1395.0	1381.4	1361.7	1361.7	1358.7
25°	1354.1	1342.1	1316.5	1319.4	1316.5
27.5°	1308.8	1298.2	1278.7	1274.1	1266.7
30°	1263.5	1251.4	1228.8	1224.3	1218.2
32.5°	1215.2	1206.2	1181.9	1172.9	1166.7
35°	1168.3	1153.3	1129.0	1119.9	1112.4
37.5°	1115.4	1101.8	1077.5	1067.0	1059.4
40°	1061.1	1048.8	1024.6	1011.2	1005.1
42.5°	1008.1	995.9	971.9	956.6	947.7
45°	950.7	940.2	917.4	900.9	894.7
47.5°	894.7	884.1	860.0	843.3	834.4
50°	835.8	828.2	807.1	785.9	778.3
52.5°	778.3	767.8	748.2	731.5	720.9
55°	719.5	710.3	692.3	674.1	666.6
57.5°	660.5	653.0	633.2	615.1	609.0
60°	601.5	595.5	574.4	557.7	553.2
62.5°	544.1	533.5	518.5	503.3	497.3
65°	485.2	476.1	461.0	447.4	439.9
67.5°	424.7	417.1	403.6	393.0	387.0
70°	368.8	362.7	349.1	338.5	332.5
72.5°	311.4	305.3	297.8	287.2	282.7
75°	253.9	251.0	243.3	234.3	237.3
77.5°	202.5	196.4	193.4	188.8	184.4
80°	151.2	149.6	146.5	142.1	139.1
82.5°	102.8	102.8	101.4	95.2	95.2
85°	61.9	60.5	59.0	54.3	52.9
87.5°	27.3	24.2	21.2	16.7	15.0
90°	1.4	17.8	29.5	37.1	39.9
92.5°	37.1	31.1	35.4	38.5	39.9
95°	96.1	47.3	57.7	65.2	63.6
97.5°	173.1	51.8	75.3	80.0	81.4
100°	262.0	59.2	84.3	96.1	99.1
102.5°	359.5	356.7	87.4	103.5	108.1
105°	449.8	494.2	90.3	106.4	112.5
107.5°	554.9	591.8	93.3	109.5	115.4
110°	655.6	686.5	259.0	111.1	116.8

TEST NUMBER: P907687

CATALOG NUMBER: DFN2DIP-4P3F0-040D060US840-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	750.2	776.8	751.6	113.8	118.5
115°	850.8	876.0	913.0	227.9	121.4
117.5°	938.1	967.7	992.9	781.2	393.5
120°	1035.8	1057.9	1084.7	1102.4	902.6
122.5°	1118.5	1142.3	1171.9	1180.7	1182.4
125°	1203.0	1222.2	1250.3	1260.7	1265.1
127.5°	1279.9	1300.6	1322.9	1337.7	1339.1
130°	1352.4	1376.1	1392.3	1408.7	1407.2
132.5°	1426.4	1445.7	1461.9	1475.2	1473.8
135°	1488.6	1512.4	1525.5	1540.4	1537.4
137.5°	1553.6	1571.4	1586.3	1601.0	1596.7
140°	1617.2	1629.2	1645.4	1658.7	1651.3
142.5°	1670.6	1681.0	1700.2	1711.9	1704.6
145°	1726.9	1725.3	1750.4	1760.8	1753.4
147.5°	1775.5	1771.1	1796.2	1803.6	1797.9
150°	1823.0	1812.6	1836.3	1845.1	1837.8
152.5°	1862.9	1851.1	1873.2	1882.2	1871.8
155°	1901.4	1888.1	1905.9	1914.7	1902.9
157.5°	1932.5	1920.7	1934.0	1944.4	1932.5
160°	1959.1	1950.2	1959.1	1967.9	1957.6
162.5°	1982.7	1973.9	1981.3	1991.7	1978.3
165°	2003.5	1994.7	1999.0	2009.4	1999.0
167.5°	2019.7	2010.8	2015.4	2025.8	2012.4
170°	2033.2	2024.2	2027.2	2037.5	2024.2
172.5°	2041.9	2033.2	2036.1	2046.5	2033.2
175°	2049.3	2038.9	2041.9	2052.2	2037.5
177.5°	2052.2	2041.9	2043.5	2053.9	2040.5
180°	2044.9	2044.9	2044.9	2044.9	2044.9

TEST NUMBER: P907687

CATALOG NUMBER: DFN2DIP-4P3F0-040D060US840-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	8.27	9.05	9.30	10.09	11.50	7.82	8.60	8.86	9.64	11.05
	3H	9.92	10.61	10.96	11.67	13.09	9.43	10.12	10.47	11.18	12.60
	4H	10.50	11.16	11.56	12.21	13.65	10.00	10.66	11.06	11.72	13.15
	6H	10.89	11.50	11.96	12.56	14.00	10.39	11.00	11.46	12.06	13.50
	8H	10.99	11.57	12.06	12.64	14.08	10.49	11.07	11.56	12.14	13.58
	12H	11.03	11.58	12.11	12.65	14.12	10.52	11.07	11.60	12.14	13.61
4H	2H	8.71	9.38	9.78	10.43	11.86	8.36	9.02	9.43	10.08	11.51
	3H	10.57	11.12	11.64	12.20	13.65	10.16	10.71	11.23	11.79	13.24
	4H	11.27	11.78	12.35	12.85	14.32	10.85	11.36	11.93	12.43	13.90
	6H	11.78	12.21	12.87	13.31	14.77	11.35	11.78	12.44	12.88	14.34
	8H	11.93	12.33	13.01	13.42	14.90	11.49	11.89	12.58	12.98	14.46
	12H	11.99	12.36	13.10	13.46	14.94	11.54	11.91	12.65	13.01	14.49
8H	4H	11.46	11.87	12.55	12.95	14.43	11.08	11.49	12.17	12.58	14.05
	6H	12.08	12.42	13.19	13.55	15.02	11.70	12.03	12.81	13.16	14.64
	8H	12.30	12.59	13.42	13.70	15.20	11.90	12.20	13.02	13.31	14.81
	12H	12.42	12.68	13.54	13.79	15.32	12.01	12.27	13.13	13.38	14.91
12H	4H	11.44	11.81	12.55	12.91	14.39	11.07	11.44	12.18	12.54	14.02
	6H	12.11	12.40	13.23	13.52	15.01	11.74	12.03	12.85	13.14	14.64
	8H	12.34	12.60	13.46	13.71	15.24	11.96	12.22	13.08	13.33	14.86