

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: P924157

Luminaire Tested: DFN2DIP-4P4F0-050D050US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924157
REPORT IS A COMBINATION OF REPORTS P900628 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D050US950-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

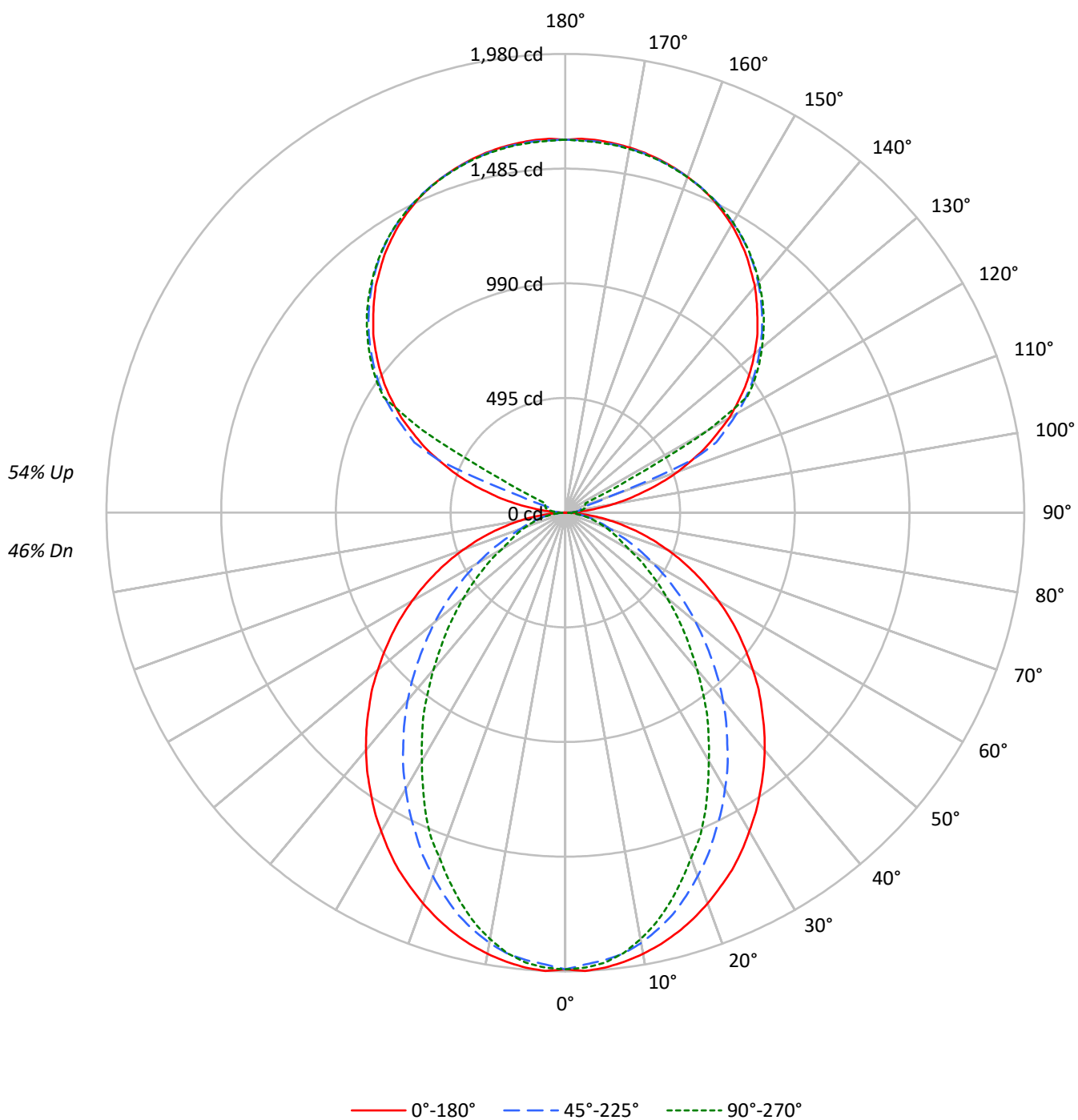
Lumens per Lamp: N/A
Luminaire Lumens: 8776.9 lumens
Efficiency: N/A
Efficacy: 97.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 90.3
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P924157

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US950-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P924157

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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20					20					20					20
RC	80				70					50					30					0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46		
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40		
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34		
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29		
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26		
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23		
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20		
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18		
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16		
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15		
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1279	1279	1279
5°	1281	1259	1267
10°	1268	1235	1226
15°	1251	1194	1163
20°	1228	1138	1085
25°	1205	1076	1010
30°	1173	1011	914
35°	1142	942	831
40°	1110	871	734
45°	1074	791	647
50°	1036	711	562
55°	996	625	480
60°	950	535	395
65°	898	443	356
70°	834	358	323
75°	754	317	295
80°	638	267	257
85°	446	181	197

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1074 cd/sqm

TEST NUMBER: P924157

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	184.8	2.1
10°-20°	507.2	5.8
20°-30°	712.1	8.1
30°-40°	776.3	8.8
40°-50°	713.5	8.1
50°-60°	560.3	6.4
60°-70°	364.7	4.2
70°-80°	187.7	2.1
80°-90°	50.8	0.6
90°-100°	53.1	0.6
100°-110°	197.9	2.3
110°-120°	524.8	6.0
120°-130°	870.4	9.9
130°-140°	924.6	10.5
140°-150°	859.3	9.8
150°-160°	690.9	7.9
160°-170°	445.2	5.1
170°-180°	153.2	1.7
0°-30°	1404.1	16.0
0°-40°	2180.4	24.8
0°-60°	3454.1	39.4
0°-90°	4057.4	46.2
90°-120°	775.8	8.8
90°-150°	3430.2	39.1
90°-180°	4719.0	53.8
0°-180°	8776.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1971	1971	1971	1971	1971	
5°	1971	1963	1939	1955	1950	187
15°	1875	1855	1795	1761	1743	528
25°	1702	1645	1527	1454	1427	783
35°	1467	1376	1219	1106	1067	918
45°	1199	1079	892	765	722	926
55°	912	772	580	473	439	815
65°	616	471	310	250	244	610
75°	328	203	143	130	128	347
85°	77	39	34	34	34	88
90°	1	14	23	29	31	8
95°	76	37	45	51	50	90
105°	354	389	71	84	88	378
115°	670	690	719	179	96	659
125°	947	962	984	992	996	845
135°	1172	1191	1201	1213	1210	905
145°	1359	1358	1378	1386	1380	850
155°	1497	1486	1500	1507	1498	690
165°	1577	1570	1574	1582	1574	446
175°	1613	1605	1608	1616	1604	154
180°	1610	1610	1610	1610	1610	

TEST NUMBER: P924157

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1971.4	1971.4	1971.4	1971.4	1971.4
2.5°	1980.3	1971.4	1951.8	1969.7	1966.1
5°	1971.4	1962.6	1939.3	1955.3	1950.1
7.5°	1955.3	1944.7	1919.7	1926.8	1917.8
10°	1933.9	1921.5	1885.9	1880.4	1869.7
12.5°	1907.2	1891.2	1842.9	1832.3	1812.6
15°	1875.1	1855.4	1794.9	1761.0	1743.1
17.5°	1837.6	1809.1	1734.1	1694.9	1666.3
20°	1794.9	1759.1	1669.9	1625.4	1586.0
22.5°	1748.5	1707.4	1603.9	1543.3	1516.6
25°	1702.0	1644.9	1527.2	1454.1	1427.2
27.5°	1646.8	1586.0	1455.8	1371.9	1330.9
30°	1587.9	1520.0	1377.3	1286.4	1238.1
32.5°	1530.8	1448.6	1302.5	1195.4	1150.7
35°	1466.6	1375.6	1218.6	1106.2	1066.9
37.5°	1404.1	1305.9	1140.1	1016.9	972.4
40°	1338.1	1231.1	1057.9	931.3	884.9
42.5°	1270.3	1156.2	975.9	843.8	799.4
45°	1199.0	1079.4	892.1	765.3	722.5
47.5°	1131.2	1004.6	811.9	685.1	645.9
50°	1056.3	929.6	733.3	610.1	572.8
52.5°	983.0	849.2	658.4	540.6	506.8
55°	911.6	772.5	579.7	472.8	438.9
57.5°	838.6	695.8	510.3	410.4	381.8
60°	763.6	620.9	437.0	346.2	317.6
62.5°	690.5	547.8	374.6	289.1	274.8
65°	615.5	471.0	310.4	249.9	244.4
67.5°	544.2	399.6	249.9	219.4	214.1
70°	469.3	330.1	206.9	189.1	181.9
72.5°	397.9	265.8	173.1	158.8	155.2
75°	328.3	203.3	142.7	130.2	128.5
77.5°	258.7	144.4	112.5	105.2	101.6
80°	194.4	103.5	85.6	78.5	78.5
82.5°	135.6	69.6	58.9	55.2	55.2
85°	76.7	39.2	33.9	33.9	33.9
87.5°	28.6	14.2	14.2	12.5	12.5
90°	1.1	13.9	23.3	29.2	31.4
92.5°	29.2	24.5	28.0	30.3	31.4
95°	75.7	37.2	45.4	51.3	50.1
97.5°	136.2	40.8	59.3	63.0	64.0
100°	206.3	46.7	66.4	75.7	78.0
102.5°	283.1	280.8	68.8	81.5	85.1
105°	354.1	389.1	71.1	83.9	88.5
107.5°	436.8	465.8	73.5	86.1	90.9
110°	516.1	540.4	203.9	87.4	92.0

TEST NUMBER: P924157

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US950-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	590.6	611.5	591.8	89.7	93.2
115°	669.8	689.6	718.7	179.4	95.6
117.5°	738.5	761.8	781.7	614.9	309.9
120°	815.4	832.8	853.8	867.9	710.5
122.5°	880.5	899.2	922.6	929.6	930.8
125°	946.9	962.2	984.3	992.4	996.0
127.5°	1007.5	1023.8	1041.5	1053.0	1054.2
130°	1064.7	1083.4	1096.1	1108.9	1107.9
132.5°	1123.0	1138.1	1150.8	1161.4	1160.3
135°	1171.9	1190.6	1200.9	1212.7	1210.3
137.5°	1223.0	1237.1	1248.8	1260.4	1257.0
140°	1273.1	1282.6	1295.2	1305.7	1300.0
142.5°	1315.2	1323.4	1338.5	1347.7	1341.9
145°	1359.4	1358.2	1378.0	1386.2	1380.3
147.5°	1397.8	1394.3	1414.1	1419.9	1415.4
150°	1435.1	1427.0	1445.6	1452.6	1446.7
152.5°	1466.5	1457.2	1474.7	1481.8	1473.5
155°	1496.8	1486.4	1500.4	1507.3	1498.1
157.5°	1521.2	1512.0	1522.5	1530.7	1521.2
160°	1542.3	1535.3	1542.3	1549.2	1541.1
162.5°	1560.8	1554.0	1559.7	1567.9	1557.4
165°	1577.2	1570.3	1573.7	1581.8	1573.7
167.5°	1590.0	1583.0	1586.6	1594.7	1584.2
170°	1600.5	1593.5	1595.9	1604.0	1593.5
172.5°	1607.5	1600.5	1602.9	1611.0	1600.5
175°	1613.3	1605.1	1607.5	1615.6	1604.0
177.5°	1615.6	1607.5	1608.7	1616.8	1606.3
180°	1609.8	1609.8	1609.8	1609.8	1609.8

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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	7.66	8.46	8.65	9.46	10.79	3.62	4.42	4.61	5.42	6.75
	3H	9.34	10.05	10.34	11.07	12.41	4.81	5.52	5.81	6.53	7.88
	4H	9.95	10.63	10.97	11.64	13.00	5.26	5.93	6.28	6.95	8.30
	6H	10.37	11.00	11.40	12.02	13.38	5.58	6.20	6.61	7.22	8.59
	8H	10.50	11.10	11.54	12.13	13.49	5.67	6.26	6.70	7.30	8.66
	12H	10.57	11.13	11.61	12.16	13.55	5.71	6.27	6.75	7.30	8.69
4H	2H	7.67	8.35	8.70	9.36	10.72	4.21	4.89	5.24	5.90	7.26
	3H	9.51	10.07	10.54	11.11	12.48	5.56	6.13	6.60	7.17	8.54
	4H	10.20	10.72	11.24	11.75	13.14	6.11	6.63	7.15	7.66	9.05
	6H	10.72	11.16	11.77	12.22	13.61	6.53	6.97	7.58	8.03	9.42
	8H	10.90	11.31	11.95	12.36	13.76	6.66	7.07	7.71	8.12	9.52
	12H	10.99	11.37	12.06	12.43	13.84	6.72	7.10	7.79	8.16	9.57
8H	4H	10.17	10.58	11.22	11.63	13.03	6.39	6.81	7.44	7.86	9.26
	6H	10.74	11.08	11.81	12.17	13.57	6.91	7.25	7.99	8.35	9.75
	8H	10.96	11.26	12.04	12.33	13.75	7.10	7.40	8.19	8.48	9.90
	12H	11.10	11.36	12.18	12.43	13.89	7.22	7.49	8.31	8.56	10.02
12H	4H	10.12	10.49	11.19	11.56	12.96	6.40	6.77	7.47	7.83	9.24
	6H	10.71	11.01	11.79	12.09	13.51	6.96	7.26	8.04	8.34	9.76
	8H	10.94	11.20	12.02	12.27	13.73	7.17	7.44	8.26	8.51	9.97

END OF REPORT

FIELD PERFORMANCE MAY DIFFER FROM LABORATORY PERFORMANCE

8 of 8