

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: P921427

Luminaire Tested: DFN2DIP-4P4F0-050D050US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P921427
REPORT IS A COMBINATION OF REPORTS P900627 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-050D050US940-FLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

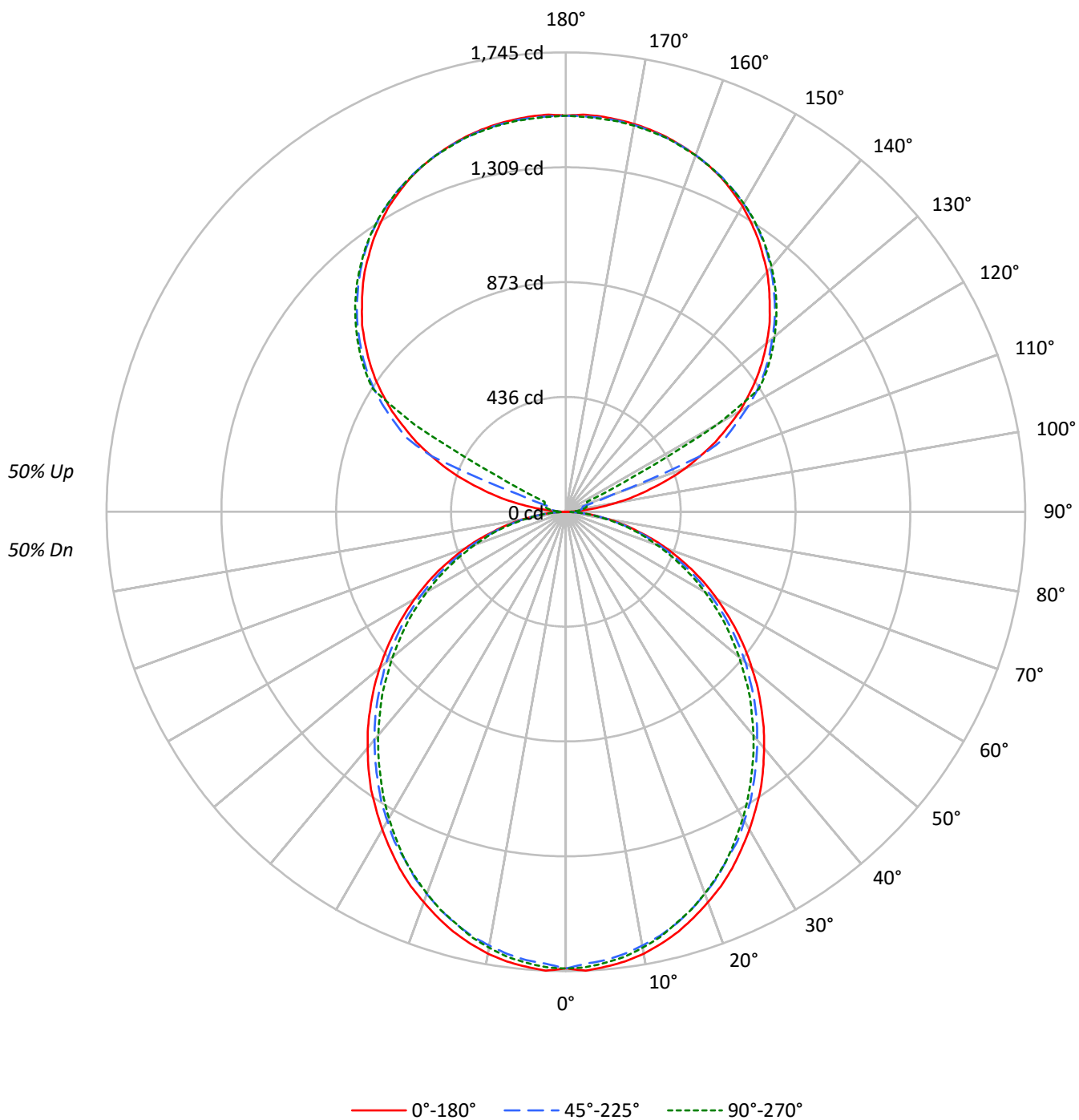
Lumens per Lamp: N/A
Luminaire Lumens: 8828.0 lumens
Efficiency: N/A
Efficacy: 97.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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: P921427

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US940-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P921427

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US940-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	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°	1125	1125	1125
5°	1127	1110	1118
10°	1118	1096	1103
15°	1102	1078	1080
20°	1080	1053	1056
25°	1058	1023	1028
30°	1030	996	993
35°	1004	964	956
40°	972	931	921
45°	940	898	884
50°	905	863	842
55°	868	823	804
60°	826	776	760
65°	781	727	708
70°	723	667	652
75°	643	596	602
80°	547	505	503
85°	397	347	339

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 940 cd/sqm

TEST NUMBER: P921427

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US940-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.8
10°-20°	459.4	5.2
20°-30°	675.2	7.6
30°-40°	784.2	8.9
40°-50°	783.2	8.9
50°-60°	682.9	7.7
60°-70°	504.8	5.7
70°-80°	285.6	3.2
80°-90°	78.0	0.9
90°-100°	49.6	0.6
100°-110°	185.0	2.1
110°-120°	490.6	5.6
120°-130°	813.6	9.2
130°-140°	864.3	9.8
140°-150°	803.2	9.1
150°-160°	645.8	7.3
160°-170°	416.1	4.7
170°-180°	143.2	1.6
0°-30°	1297.9	14.7
0°-40°	2082.0	23.6
0°-60°	3548.1	40.2
0°-90°	4416.6	50.0
90°-120°	725.2	8.2
90°-150°	3206.2	36.3
90°-180°	4411.0	50.0
0°-180°	8828.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
90°	1	13	22	27	29	8
95°	71	35	42	48	47	84
105°	331	364	66	78	83	354
115°	626	644	672	168	89	616
125°	885	899	920	928	931	789
135°	1095	1113	1122	1134	1131	846
145°	1271	1270	1288	1296	1290	795
155°	1399	1389	1402	1409	1400	645
165°	1474	1468	1471	1478	1471	416
175°	1508	1500	1502	1510	1499	144
180°	1505	1505	1505	1505	1505	

TEST NUMBER: P921427

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US940-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	1.1	13.0	21.8	27.3	29.3
92.5°	27.3	22.9	26.1	28.4	29.3
95°	70.7	34.8	42.4	48.0	46.8
97.5°	127.3	38.2	55.5	58.9	59.8
100°	192.8	43.6	62.1	70.7	72.9
102.5°	264.6	262.4	64.3	76.2	79.5
105°	331.0	363.7	66.4	78.4	82.8
107.5°	408.3	435.4	68.7	80.5	85.0
110°	482.4	505.2	190.6	81.7	86.0

TEST NUMBER: P921427

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US940-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	552.1	571.6	553.1	83.8	87.1
115°	626.1	644.5	671.8	167.7	89.3
117.5°	690.3	712.0	730.7	574.8	289.6
120°	762.1	778.5	798.1	811.2	664.1
122.5°	823.0	840.5	862.4	868.9	870.0
125°	885.1	899.4	920.1	927.6	930.9
127.5°	941.7	957.0	973.5	984.3	985.3
130°	995.1	1012.6	1024.5	1036.5	1035.5
132.5°	1049.6	1063.8	1075.7	1085.6	1084.5
135°	1095.4	1112.9	1122.5	1133.5	1131.3
137.5°	1143.2	1156.3	1167.2	1178.1	1174.9
140°	1190.0	1198.8	1210.7	1220.5	1215.1
142.5°	1229.3	1237.0	1251.1	1259.7	1254.3
145°	1270.7	1269.5	1288.0	1295.7	1290.2
147.5°	1306.5	1303.2	1321.8	1327.2	1322.9
150°	1341.4	1333.8	1351.2	1357.7	1352.3
152.5°	1370.7	1362.1	1378.4	1385.0	1377.3
155°	1399.1	1389.4	1402.4	1408.9	1400.3
157.5°	1421.9	1413.3	1423.1	1430.7	1421.9
160°	1441.6	1435.0	1441.6	1448.0	1440.5
162.5°	1458.9	1452.5	1457.9	1465.5	1455.7
165°	1474.2	1467.8	1471.0	1478.5	1471.0
167.5°	1486.2	1479.6	1483.0	1490.6	1480.8
170°	1496.0	1489.4	1491.7	1499.2	1489.4
172.5°	1502.5	1496.0	1498.3	1505.8	1496.0
175°	1508.0	1500.3	1502.5	1510.1	1499.2
177.5°	1510.1	1502.5	1503.7	1511.3	1501.5
180°	1504.7	1504.7	1504.7	1504.7	1504.7

TEST NUMBER: P921427

CATALOG NUMBER: DFN2DIP-4P4F0-050D050US940-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	7.70	8.57	8.66	9.54	10.81	7.26	8.12	8.22	9.09	10.36
	3H	9.37	10.14	10.34	11.12	12.42	8.88	9.65	9.85	10.63	11.93
	4H	9.96	10.69	10.94	11.68	12.98	9.47	10.20	10.45	11.18	12.49
	6H	10.37	11.04	11.36	12.03	13.35	9.87	10.54	10.86	11.53	12.84
	8H	10.47	11.12	11.47	12.12	13.43	9.97	10.61	10.97	11.62	12.93
	12H	10.52	11.13	11.53	12.14	13.47	10.01	10.62	11.02	11.63	12.96
4H	2H	8.17	8.90	9.15	9.88	11.18	7.81	8.54	8.80	9.53	10.83
	3H	10.04	10.65	11.04	11.66	12.98	9.63	10.24	10.63	11.26	12.57
	4H	10.76	11.32	11.76	12.32	13.66	10.33	10.89	11.34	11.90	13.24
	6H	11.28	11.76	12.30	12.79	14.13	10.85	11.33	11.86	12.36	13.69
	8H	11.43	11.88	12.45	12.90	14.25	10.99	11.44	12.01	12.47	13.82
	12H	11.51	11.91	12.54	12.95	14.31	11.06	11.46	12.09	12.50	13.86
8H	4H	10.96	11.40	11.97	12.43	13.78	10.58	11.03	11.60	12.05	13.40
	6H	11.59	11.96	12.64	13.03	14.38	11.21	11.58	12.25	12.65	14.00
	8H	11.82	12.14	12.87	13.20	14.56	11.43	11.75	12.48	12.80	14.17
	12H	11.95	12.24	13.01	13.29	14.70	11.54	11.83	12.60	12.88	14.29
12H	4H	10.94	11.35	11.98	12.39	13.74	10.57	10.98	11.61	12.02	13.37
	6H	11.62	11.95	12.67	13.00	14.37	11.25	11.58	12.30	12.63	14.00
	8H	11.87	12.16	12.92	13.20	14.61	11.49	11.78	12.54	12.82	14.23

END OF REPORT