

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: P924229

Luminaire Tested: DFN2DIP-4P4F0-080D050US950-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P924229
REPORT IS A COMBINATION OF REPORTS P900634 AND P897523
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P4F0-080D050US950-RLLONL
Description: 4 foot, 90deg - 4way Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open
No Lens
Light Source: -
Ballast/Driver: -

Summary

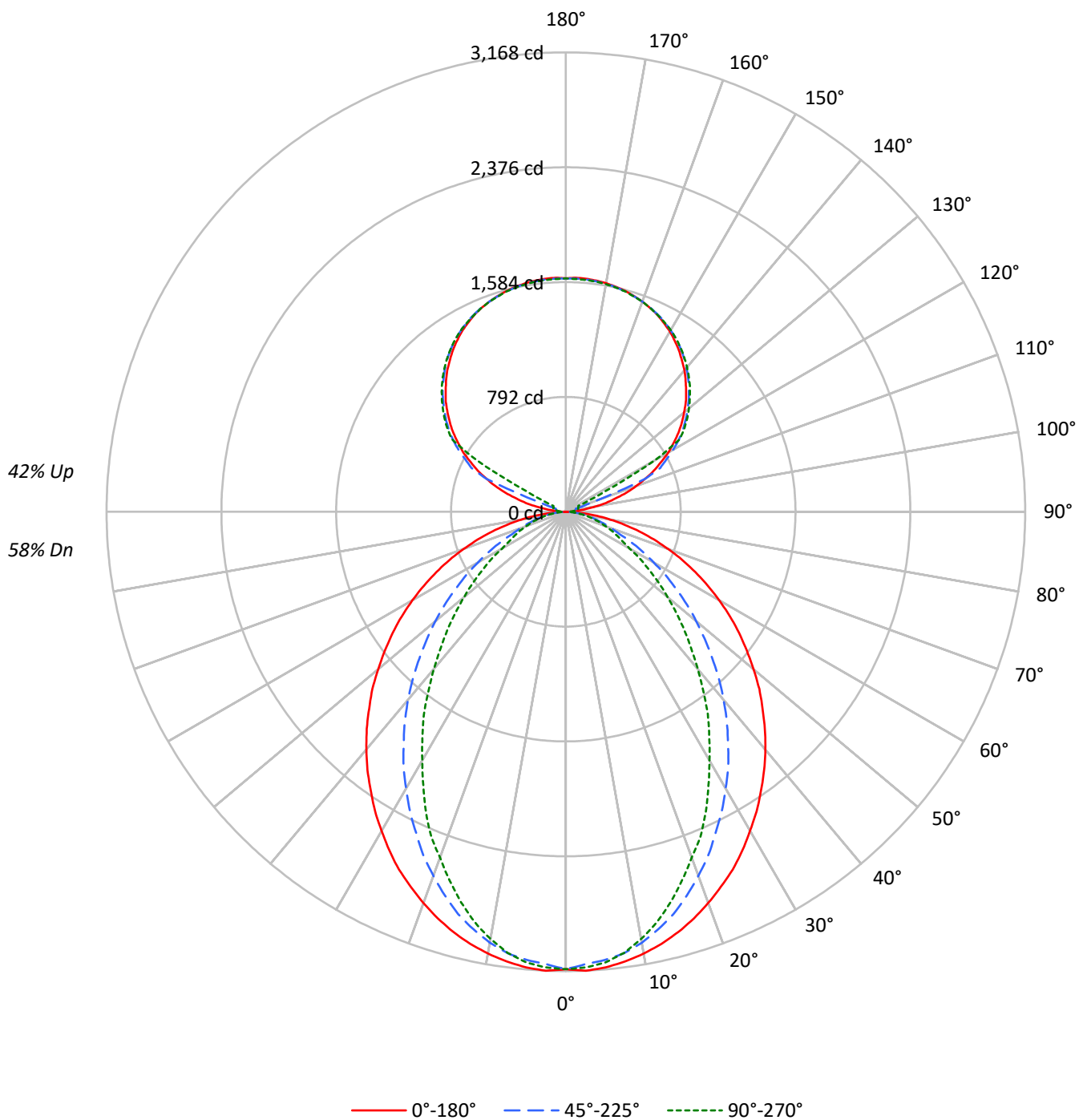
Lumens per Lamp: N/A
Luminaire Lumens: 11209.5 lumens
Efficiency: N/A
Efficacy: 89.0 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 4.07' x L: 4.07' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 126
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: P924229

CATALOG NUMBER: DFN2DIP-4P4F0-080D050US950-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P924229

CATALOG NUMBER: DFN2DIP-4P4F0-080D050US950-RLLONL

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	109	109	109	109	102	102	102	102	88	88	88	75	75	75	63	63	63
1	100	96	92	89	93	90	86	83	78	75	73	67	65	64	57	56	55
2	92	84	79	74	85	79	74	69	69	65	62	59	57	54	51	49	47
3	84	75	68	62	78	70	64	59	61	56	52	53	49	46	45	43	41
4	77	67	59	53	72	62	56	50	55	49	45	48	44	40	41	38	35
5	71	60	52	46	66	56	49	44	49	44	39	43	39	35	37	34	31
6	66	54	46	40	61	51	43	38	45	39	35	39	35	31	34	31	28
7	61	49	41	35	57	46	39	34	41	35	31	36	31	28	31	28	25
8	57	44	37	32	53	42	35	30	37	32	28	33	28	25	29	25	23
9	53	41	33	28	49	39	32	27	34	29	25	30	26	23	27	23	20
10	49	38	30	26	46	36	29	25	32	26	23	28	24	21	25	21	19

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2046	2046	2046
5°	2050	2014	2028
10°	2030	1976	1962
15°	2002	1911	1861
20°	1965	1822	1736
25°	1927	1721	1616
30°	1877	1618	1463
35°	1827	1508	1329
40°	1777	1393	1175
45°	1718	1266	1035
50°	1657	1137	899
55°	1594	1000	767
60°	1520	856	632
65°	1436	710	570
70°	1334	573	517
75°	1206	507	472
80°	1020	427	412
85°	713	289	315

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1718 cd/sqm

TEST NUMBER: P924229

CATALOG NUMBER: DFN2DIP-4P4F0-080D050US950-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	295.6	2.6
10°-20°	811.5	7.2
20°-30°	1139.4	10.2
30°-40°	1242.0	11.1
40°-50°	1141.5	10.2
50°-60°	896.5	8.0
60°-70°	583.5	5.2
70°-80°	300.4	2.7
80°-90°	79.5	0.7
90°-100°	53.1	0.5
100°-110°	197.9	1.8
110°-120°	524.8	4.7
120°-130°	870.4	7.8
130°-140°	924.6	8.2
140°-150°	859.3	7.7
150°-160°	690.9	6.2
160°-170°	445.2	4.0
170°-180°	153.2	1.4
0°-30°	2246.6	20.0
0°-40°	3488.6	31.1
0°-60°	5526.6	49.3
0°-90°	6490.0	57.9
90°-120°	775.8	6.9
90°-150°	3430.2	30.6
90°-180°	4719.0	42.1
0°-180°	11209.5	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3154	3154	3154	3154	3154	
5°	3154	3140	3103	3128	3120	299
15°	3000	2969	2872	2818	2789	845
25°	2723	2632	2444	2327	2284	1252
35°	2347	2201	1950	1770	1707	1469
45°	1918	1727	1427	1224	1156	1481
55°	1459	1236	928	756	702	1303
65°	985	754	497	400	391	976
75°	525	325	228	208	206	555
85°	123	63	54	54	54	141
90°	1	14	23	29	31	11
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: P924229

CATALOG NUMBER: DFN2DIP-4P4F0-080D050US950-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3154.3	3154.3	3154.3	3154.3	3154.3
2.5°	3168.5	3154.3	3122.8	3151.5	3145.8
5°	3154.3	3140.1	3102.8	3128.5	3120.1
7.5°	3128.5	3111.6	3071.6	3082.9	3068.5
10°	3094.3	3074.4	3017.4	3008.6	2991.6
12.5°	3051.7	3025.9	2948.6	2931.6	2900.2
15°	3000.1	2968.7	2871.7	2817.5	2789.0
17.5°	2940.1	2894.4	2774.5	2711.8	2666.0
20°	2871.7	2814.5	2671.9	2600.7	2537.6
22.5°	2797.5	2731.8	2566.2	2469.2	2426.5
25°	2723.3	2631.9	2443.5	2326.6	2283.6
27.5°	2634.9	2537.6	2329.3	2195.2	2129.4
30°	2540.7	2431.9	2203.6	2058.3	1981.0
32.5°	2449.2	2317.8	2084.0	1912.6	1841.1
35°	2346.6	2200.9	1949.8	1770.0	1706.9
37.5°	2246.6	2089.5	1824.1	1627.0	1555.8
40°	2141.0	1969.8	1692.7	1490.1	1415.8
42.5°	2032.5	1849.9	1561.5	1350.2	1278.9
45°	1918.3	1726.9	1427.4	1224.5	1156.1
47.5°	1809.9	1607.3	1299.0	1096.1	1033.4
50°	1689.9	1487.4	1173.3	976.1	916.4
52.5°	1572.8	1358.6	1053.3	865.0	810.8
55°	1458.6	1236.0	927.7	756.5	702.3
57.5°	1341.7	1113.3	816.5	656.6	610.8
60°	1221.7	993.4	699.3	553.9	508.2
62.5°	1104.8	876.4	599.4	462.5	439.8
65°	984.9	753.5	496.7	399.8	390.9
67.5°	870.7	639.4	399.8	351.0	342.6
70°	750.8	528.2	331.0	302.5	291.1
72.5°	636.6	425.2	276.9	254.1	248.3
75°	525.2	325.3	228.4	208.4	205.7
77.5°	414.0	231.1	179.9	168.4	162.7
80°	311.0	165.7	136.9	125.6	125.6
82.5°	216.8	111.4	94.2	88.4	88.4
85°	122.7	62.7	54.2	54.2	54.2
87.5°	45.7	22.7	22.7	20.0	20.0
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: P924229

CATALOG NUMBER: DFN2DIP-4P4F0-080D050US950-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

TEST NUMBER: P924229

CATALOG NUMBER: DFN2DIP-4P4F0-080D050US950-RLLONL

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	10.36	11.26	11.25	12.17	13.33	6.32	7.22	7.22	8.13	9.29
	3H	12.05	12.85	12.96	13.77	14.95	7.52	8.32	8.42	9.24	10.42
	4H	12.67	13.42	13.59	14.35	15.54	7.97	8.73	8.89	9.65	10.85
	6H	13.10	13.79	14.03	14.72	15.93	8.30	9.00	9.23	9.93	11.13
	8H	13.23	13.89	14.17	14.84	16.04	8.39	9.06	9.33	10.00	11.21
	12H	13.29	13.93	14.24	14.87	16.09	8.44	9.07	9.38	10.01	11.24
4H	2H	10.39	11.15	11.31	12.07	13.26	6.93	7.69	7.85	8.61	9.80
	3H	12.23	12.86	13.17	13.81	15.02	8.29	8.92	9.22	9.87	11.08
	4H	12.93	13.50	13.88	14.45	15.68	8.84	9.41	9.79	10.36	11.59
	6H	13.45	13.95	14.41	14.92	16.15	9.26	9.76	10.22	10.73	11.96
	8H	13.63	14.10	14.59	15.06	16.31	9.40	9.86	10.36	10.82	12.07
	12H	13.73	14.15	14.71	15.13	16.38	9.47	9.88	10.44	10.86	12.11
8H	4H	12.90	13.36	13.86	14.33	15.58	9.13	9.59	10.09	10.56	11.80
	6H	13.48	13.86	14.46	14.87	16.11	9.65	10.03	10.64	11.04	12.28
	8H	13.70	14.03	14.69	15.03	16.29	9.84	10.18	10.84	11.18	12.44
	12H	13.84	14.14	14.84	15.13	16.44	9.97	10.26	10.97	11.25	12.56
12H	4H	12.86	13.27	13.84	14.26	15.51	9.14	9.55	10.12	10.54	11.79
	6H	13.45	13.79	14.45	14.79	16.05	9.70	10.04	10.70	11.04	12.30
	8H	13.68	13.98	14.68	14.97	16.28	9.92	10.21	10.92	11.20	12.51

END OF REPORT