

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: P925032

Luminaire Tested: DFN2DIP-PN4F0-050D110US950-FLLFLL

Issue Date: 11/21/2024

**Test Information**

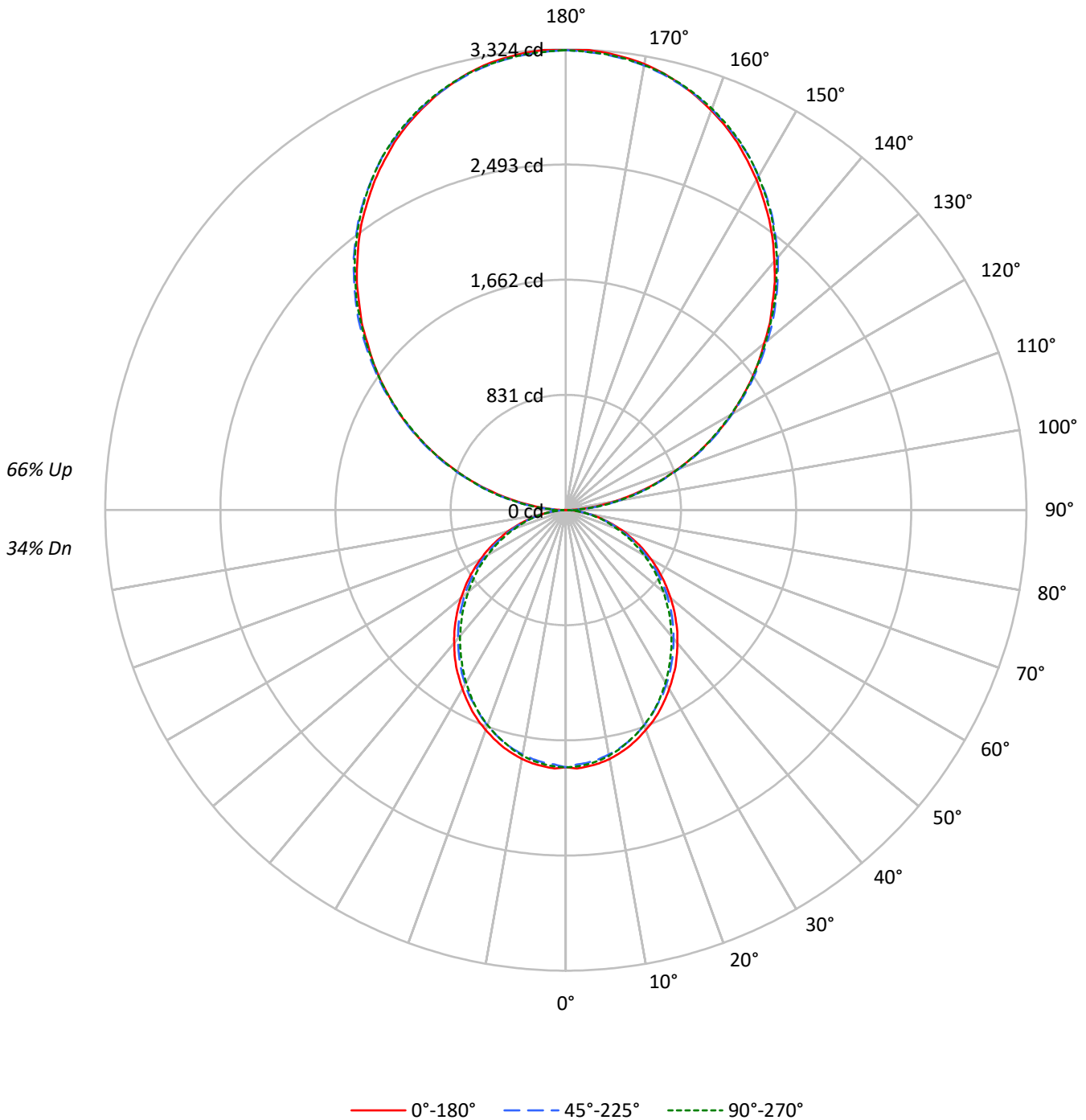
Test Method: LM-79-2019  
Report Number: P925032  
REPORT IS A COMBINATION OF REPORTS P899737 AND P896497  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN4F0-050D110US950-FLLFLL  
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 14009.5 lumens  
Efficiency: N/A  
Efficacy: 103.2 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 135.7  
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: P925032  
CATALOG NUMBER: DFN2DIP-PN4F0-050D110US950-FLLFLL

### Luminous Intensity Polar Plot





TEST NUMBER: P925032

CATALOG NUMBER: DFN2DIP-PN4F0-050D110US950-FLLFLL

**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20				20				20				20				20				20	
RC	80				70				50				30				10				0	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0	
RCR																						
0	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41	34				34
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	36	36	35	28				28
2	86	78	73	67	77	71	66	62	57	53	50	44	42	40	32	31	29	24				24
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25	20				20
4	71	61	53	47	64	55	49	44	45	40	36	35	31	29	25	23	21	17				17
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	19	15				15
6	60	48	41	35	54	44	37	32	36	31	27	28	24	22	21	18	16	13				13
7	56	44	36	31	50	40	33	28	32	27	24	25	22	19	19	16	15	12				12
8	52	40	32	27	46	36	29	25	29	24	21	23	20	17	17	15	13	10				10
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	14	12	9				9
10	45	33	26	21	40	30	24	20	25	20	17	20	16	14	15	12	11	9				9

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°
0°	1355	1355	1355
5°	1357	1336	1345
10°	1346	1318	1327
15°	1326	1297	1299
20°	1299	1267	1270
25°	1273	1231	1237
30°	1239	1198	1194
35°	1208	1158	1149
40°	1169	1118	1106
45°	1130	1079	1062
50°	1088	1037	1012
55°	1043	988	965
60°	993	931	912
65°	939	871	849
70°	869	799	781
75°	772	712	719
80°	656	602	599
85°	474	410	401

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 2597 cd/sqm



TEST NUMBER: P925032

CATALOG NUMBER: DFN2DIP-PN4F0-050D110US950-FLLFLL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	174.7	1.2
10°-20°	491.5	3.5
20°-30°	722.3	5.2
30°-40°	838.9	6.0
40°-50°	837.9	6.0
50°-60°	730.6	5.2
60°-70°	540.1	3.9
70°-80°	305.6	2.2
80°-90°	90.1	0.6
90°-100°	205.4	1.5
100°-110°	652.5	4.7
110°-120°	1116.7	8.0
120°-130°	1468.6	10.5
130°-140°	1648.4	11.8
140°-150°	1616.5	11.5
150°-160°	1356.0	9.7
160°-170°	899.3	6.4
170°-180°	314.3	2.2
0°-30°	1388.5	9.9
0°-40°	2227.5	15.9
0°-60°	3796.0	27.1
0°-90°	4731.7	33.8
90°-120°	1974.6	14.1
90°-150°	6708.2	47.9
90°-180°	9278.0	66.2
0°-180°	14009.5	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1856	1856	1856	1856	1856	
5°	1856	1849	1829	1844	1840	176
15°	1767	1756	1733	1740	1731	498
25°	1599	1585	1554	1558	1554	736
35°	1380	1362	1333	1322	1314	862
45°	1123	1110	1083	1064	1057	866
55°	850	839	817	796	787	760
65°	573	562	544	528	519	567
75°	300	296	287	277	280	320
85°	73	71	70	64	62	82
90°	3	36	98	92	95	14
95°	146	174	179	179	174	163
105°	602	610	616	621	621	636
115°	1121	1137	1132	1129	1121	1108
125°	1630	1655	1647	1638	1635	1457
135°	2108	2139	2145	2142	2134	1630
145°	2559	2579	2596	2598	2587	1599
155°	2927	2935	2944	2958	2949	1347
165°	3184	3181	3181	3201	3187	898
175°	3313	3305	3299	3319	3302	315
180°	3319	3319	3319	3319	3319	



TEST NUMBER: P925032

CATALOG NUMBER: DFN2DIP-PN4F0-050D110US950-FLLFLL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1856.0	1856.0	1856.0	1856.0	1856.0
2.5°	1866.8	1857.9	1838.3	1856.0	1852.7
5°	1856.0	1849.0	1829.3	1843.5	1840.2
7.5°	1843.5	1832.9	1813.3	1827.7	1824.0
10°	1824.0	1811.6	1790.2	1804.3	1799.1
12.5°	1797.1	1786.6	1765.2	1774.1	1770.4
15°	1766.8	1756.2	1732.9	1740.2	1731.2
17.5°	1729.3	1718.7	1695.4	1704.3	1695.4
20°	1688.3	1677.7	1652.7	1658.0	1651.0
22.5°	1647.4	1631.2	1608.0	1608.0	1604.3
25°	1599.1	1584.9	1554.5	1558.0	1554.5
27.5°	1545.5	1533.0	1509.9	1504.6	1495.7
30°	1492.1	1477.7	1451.0	1445.7	1438.5
32.5°	1434.9	1424.3	1395.7	1384.9	1377.8
35°	1379.6	1361.8	1333.2	1322.4	1313.6
37.5°	1317.1	1301.1	1272.4	1259.9	1251.1
40°	1253.0	1238.6	1210.0	1194.0	1186.9
42.5°	1190.5	1176.1	1147.7	1129.6	1119.0
45°	1122.7	1110.2	1083.3	1063.8	1056.6
47.5°	1056.6	1044.1	1015.5	995.8	985.2
50°	986.9	978.0	953.0	928.1	919.1
52.5°	919.1	906.6	883.5	863.8	851.3
55°	849.6	838.9	817.4	796.0	787.1
57.5°	779.9	771.0	747.7	726.4	719.1
60°	710.3	703.3	678.3	658.5	653.3
62.5°	642.5	630.0	612.2	594.3	587.2
65°	573.0	562.2	544.4	528.3	519.4
67.5°	501.6	492.6	476.6	464.1	456.9
70°	435.5	428.3	412.2	399.7	392.8
72.5°	367.8	360.5	351.6	339.1	333.8
75°	299.7	296.3	287.2	276.7	280.3
77.5°	239.2	231.9	228.4	223.0	217.8
80°	178.6	176.7	173.1	167.8	164.2
82.5°	121.3	121.3	119.6	112.5	112.5
85°	73.1	71.4	69.6	64.2	62.5
87.5°	32.1	28.6	25.0	19.7	17.8
90°	3.0	36.1	98.1	92.1	95.0
92.5°	62.0	84.0	87.0	90.1	90.1
95°	146.1	174.1	179.1	179.1	174.1
97.5°	243.2	269.1	280.2	280.2	280.2
100°	355.2	378.2	386.2	386.2	383.2
102.5°	473.3	490.3	501.3	504.3	501.3
105°	602.4	610.4	616.4	621.3	621.3
107.5°	730.4	742.4	742.4	744.4	730.4
110°	854.5	870.5	870.5	870.5	862.5



TEST NUMBER: P925032

CATALOG NUMBER: DFN2DIP-PN4F0-050D110US950-FLLFLL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	988.5	1005.5	1002.6	994.5	988.5
115°	1120.7	1136.6	1131.6	1128.7	1120.7
117.5°	1251.7	1273.7	1259.7	1251.7	1243.7
120°	1383.8	1405.8	1383.8	1383.8	1374.8
122.5°	1503.9	1531.8	1517.8	1509.8	1503.9
125°	1629.9	1654.9	1646.9	1637.9	1634.9
127.5°	1753.0	1784.0	1773.0	1761.0	1753.0
130°	1868.0	1904.1	1899.0	1893.0	1882.1
132.5°	1997.1	2025.2	2027.2	2013.1	2005.1
135°	2108.1	2139.2	2145.2	2142.2	2134.2
137.5°	2232.3	2257.3	2262.2	2260.2	2248.3
140°	2341.3	2366.3	2380.3	2380.3	2369.4
142.5°	2453.4	2478.4	2486.4	2489.4	2478.4
145°	2559.4	2579.4	2595.5	2598.4	2587.4
147.5°	2654.5	2679.5	2691.5	2696.5	2685.5
150°	2752.6	2769.6	2780.5	2789.6	2780.5
152.5°	2839.6	2856.6	2870.6	2881.7	2870.6
155°	2926.7	2934.6	2943.7	2957.7	2948.6
157.5°	3001.7	3007.7	3012.6	3032.7	3018.6
160°	3068.7	3074.7	3077.7	3094.8	3082.8
162.5°	3130.7	3130.7	3133.8	3152.8	3138.8
165°	3183.8	3180.7	3180.7	3200.8	3186.7
167.5°	3231.8	3222.8	3222.8	3242.8	3228.8
170°	3267.8	3259.8	3256.9	3276.8	3259.8
172.5°	3292.8	3284.8	3281.9	3301.9	3284.8
175°	3312.9	3304.8	3298.8	3318.9	3301.9
177.5°	3323.8	3315.8	3309.8	3326.9	3309.8
180°	3318.9	3318.9	3318.9	3318.9	3318.9



TEST NUMBER: P925032  
 CATALOG NUMBER: DFN2DIP-PN4F0-050D110US950-FLLFLL

**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	6.61	7.34	7.69	8.42	9.91	6.17	6.90	7.25	7.98	9.47
	3H	8.26	8.92	9.36	10.01	11.51	7.78	8.43	8.87	9.53	11.03
	4H	8.84	9.47	9.95	10.56	12.07	8.36	8.98	9.46	10.07	11.58
	6H	9.24	9.81	10.35	10.91	12.43	8.75	9.32	9.86	10.42	11.94
	8H	9.34	9.89	10.46	11.00	12.52	8.85	9.40	9.97	10.51	12.02
	12H	9.39	9.91	10.51	11.01	12.55	8.89	9.41	10.01	10.51	12.05
4H	2H	7.05	7.68	8.17	8.77	10.28	6.70	7.33	7.81	8.42	9.93
	3H	8.91	9.43	10.03	10.55	12.07	8.51	9.03	9.63	10.15	11.67
	4H	9.62	10.10	10.74	11.21	12.75	9.20	9.68	10.33	10.79	12.33
	6H	10.13	10.54	11.26	11.68	13.21	9.71	10.12	10.84	11.25	12.78
	8H	10.28	10.66	11.41	11.79	13.34	9.85	10.23	10.98	11.36	12.91
	12H	10.35	10.70	11.49	11.83	13.39	9.91	10.26	11.06	11.39	12.95
8H	4H	9.81	10.19	10.94	11.32	12.87	9.44	9.82	10.57	10.95	12.50
	6H	10.44	10.75	11.59	11.92	13.47	10.06	10.38	11.21	11.54	13.09
	8H	10.66	10.93	11.81	12.08	13.65	10.27	10.55	11.43	11.70	13.26
	12H	10.79	11.03	11.95	12.17	13.77	10.39	10.63	11.54	11.77	13.37
12H	4H	9.79	10.13	10.93	11.27	12.83	9.43	9.77	10.57	10.91	12.46
	6H	10.47	10.74	11.62	11.89	13.46	10.10	10.38	11.26	11.53	13.09
	8H	10.70	10.95	11.86	12.09	13.69	10.33	10.58	11.49	11.72	13.32