

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: P913301

Luminaire Tested: DFN2DIP-4P4F0-070D070US927-RLONL

Issue Date: 11/21/2024

**Test Information**

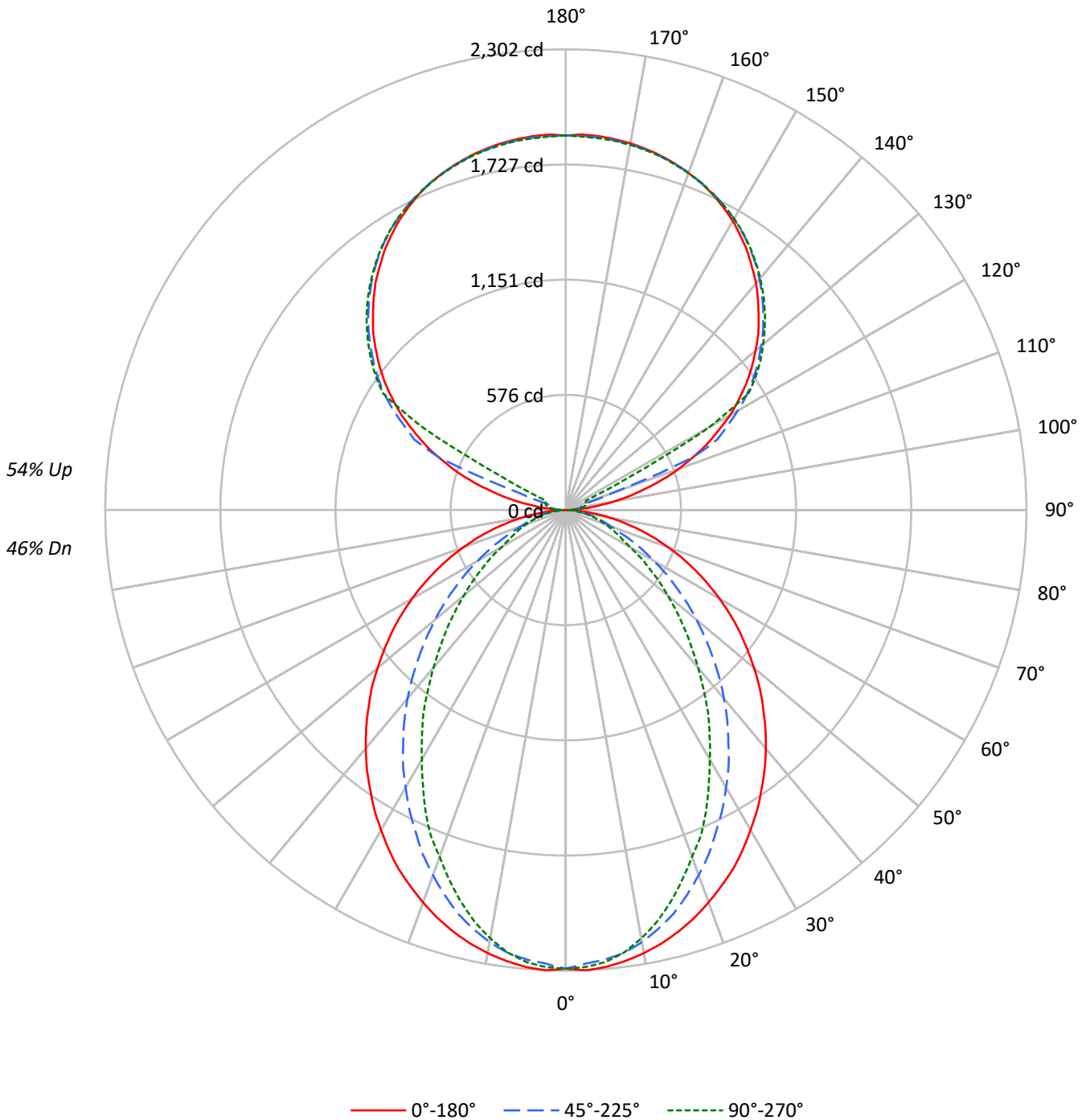
Test Method: LM-79-2019  
Report Number: P913301  
REPORT IS A COMBINATION OF REPORTS P900656 AND P897523  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-4P4F0-070D070US927-RLLONL  
Description: 4 foot, 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: 10203.3 lumens  
Efficiency: N/A  
Efficacy: 75.4 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): 135.4  
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: P913301  
CATALOG NUMBER: DFN2DIP-4P4F0-070D070US927-RLLONL

### Luminous Intensity Polar Plot





TEST NUMBER: P913301  
 CATALOG NUMBER: DFN2DIP-4P4F0-070D070US927-RLLONL

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

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

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

	0°	45°	90°
0°	1487	1487	1487
5°	1489	1464	1473
10°	1475	1435	1426
15°	1454	1388	1352
20°	1428	1323	1262
25°	1400	1251	1174
30°	1364	1176	1063
35°	1327	1095	966
40°	1291	1012	854
45°	1248	920	752
50°	1204	826	653
55°	1158	726	558
60°	1105	622	459
65°	1044	516	414
70°	969	416	376
75°	876	368	343
80°	741	311	299
85°	518	210	229

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 1248 cd/sqm



TEST NUMBER: P913301

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US927-RLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	214.8	2.1
10°-20°	589.7	5.8
20°-30°	827.9	8.1
30°-40°	902.4	8.8
40°-50°	829.4	8.1
50°-60°	651.4	6.4
60°-70°	424.0	4.2
70°-80°	218.2	2.1
80°-90°	59.0	0.6
90°-100°	61.7	0.6
100°-110°	230.0	2.3
110°-120°	610.1	6.0
120°-130°	1011.9	9.9
130°-140°	1074.9	10.5
140°-150°	999.0	9.8
150°-160°	803.2	7.9
160°-170°	517.5	5.1
170°-180°	178.1	1.7
0°-30°	1632.3	16.0
0°-40°	2534.7	24.8
0°-60°	4015.5	39.4
0°-90°	4716.7	46.2
90°-120°	901.9	8.8
90°-150°	3987.7	39.1
90°-180°	5487.0	53.8
0°-180°	10203.3	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	2292	2292	2292	2292	2292	
5°	2292	2282	2254	2273	2267	217
15°	2180	2157	2086	2047	2026	614
25°	1979	1912	1775	1690	1659	910
35°	1705	1599	1417	1286	1240	1067
45°	1394	1255	1037	890	840	1076
55°	1060	898	674	550	510	947
65°	716	548	361	290	284	709
75°	382	236	166	151	149	404
85°	89	46	39	39	39	102
90°	1	16	27	34	36	10
95°	88	43	53	60	58	104
105°	412	452	83	97	103	440
115°	779	802	836	209	111	767
125°	1101	1119	1144	1154	1158	982
135°	1362	1384	1396	1410	1407	1052
145°	1580	1579	1602	1612	1605	988
155°	1740	1728	1744	1752	1742	802
165°	1834	1826	1830	1839	1830	518
175°	1876	1866	1869	1878	1865	178
180°	1871	1871	1871	1871	1871	



TEST NUMBER: P913301

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US927-RLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	2291.9	2291.9	2291.9	2291.9	2291.9
2.5°	2302.2	2291.9	2269.0	2289.9	2285.7
5°	2291.9	2281.5	2254.5	2273.2	2267.0
7.5°	2273.2	2260.8	2231.8	2239.9	2229.6
10°	2248.3	2233.8	2192.4	2186.0	2173.7
12.5°	2217.2	2198.5	2142.5	2130.1	2107.2
15°	2179.8	2157.0	2086.5	2047.2	2026.5
17.5°	2136.3	2103.1	2015.9	1970.3	1937.1
20°	2086.5	2044.9	1941.3	1889.6	1843.8
22.5°	2032.7	1984.9	1864.5	1794.1	1763.1
25°	1978.7	1912.2	1775.4	1690.4	1659.2
27.5°	1914.5	1843.8	1692.4	1595.0	1547.2
30°	1846.0	1767.0	1601.1	1495.5	1439.4
32.5°	1779.6	1684.1	1514.2	1389.6	1337.7
35°	1704.9	1599.1	1416.7	1286.0	1240.2
37.5°	1632.4	1518.1	1325.4	1182.1	1130.4
40°	1555.5	1431.2	1229.9	1082.7	1028.7
42.5°	1476.8	1344.1	1134.6	981.0	929.3
45°	1393.8	1254.7	1037.1	889.7	839.9
47.5°	1315.0	1167.8	943.8	796.4	750.8
50°	1227.9	1080.7	852.5	709.2	665.9
52.5°	1142.7	987.1	765.3	628.4	589.1
55°	1059.8	898.0	674.0	549.7	510.3
57.5°	974.9	808.9	593.3	477.1	443.9
60°	887.7	721.8	508.1	402.5	369.2
62.5°	802.7	636.8	435.5	336.0	319.5
65°	715.6	547.5	360.9	290.5	284.1
67.5°	632.6	464.5	290.5	255.0	248.9
70°	545.5	383.7	240.5	219.8	211.4
72.5°	462.6	309.0	201.1	184.7	180.5
75°	381.6	236.3	165.9	151.4	149.4
77.5°	300.8	167.9	130.7	122.3	118.2
80°	226.0	120.3	99.5	91.3	91.3
82.5°	157.6	81.0	68.4	64.2	64.2
85°	89.1	45.6	39.4	39.4	39.4
87.5°	33.2	16.5	16.5	14.5	14.5
90°	1.3	16.2	27.0	33.9	36.5
92.5°	33.9	28.4	32.5	35.3	36.5
95°	87.9	43.3	52.8	59.7	58.2
97.5°	158.4	47.5	69.0	73.2	74.5
100°	239.8	54.2	77.2	87.9	90.7
102.5°	329.0	326.5	79.9	94.7	98.9
105°	411.7	452.3	82.6	97.4	102.9
107.5°	507.8	541.6	85.4	100.2	105.7
110°	600.0	628.3	237.0	101.6	106.9



TEST NUMBER: P913301

CATALOG NUMBER: DFN2DIP-4P4F0-070D070US927-RLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	686.7	710.9	687.9	104.2	108.4
115°	778.6	801.6	835.5	208.6	111.1
117.5°	858.6	885.6	908.7	714.9	360.2
120°	947.9	968.2	992.7	1008.9	826.1
122.5°	1023.7	1045.4	1072.6	1080.6	1082.0
125°	1100.9	1118.6	1144.3	1153.8	1157.8
127.5°	1171.3	1190.3	1210.7	1224.2	1225.5
130°	1237.7	1259.4	1274.2	1289.2	1287.9
132.5°	1305.4	1323.1	1337.9	1350.1	1348.8
135°	1362.3	1384.0	1396.1	1409.8	1407.1
137.5°	1421.8	1438.1	1451.8	1465.3	1461.3
140°	1480.0	1491.0	1505.8	1518.0	1511.2
142.5°	1528.9	1538.4	1555.9	1566.7	1560.0
145°	1580.4	1579.0	1601.9	1611.5	1604.7
147.5°	1624.9	1621.0	1643.9	1650.7	1645.4
150°	1668.3	1658.9	1680.6	1688.6	1681.9
152.5°	1704.9	1694.1	1714.4	1722.5	1713.1
155°	1740.1	1728.0	1744.2	1752.3	1741.5
157.5°	1768.5	1757.8	1770.0	1779.5	1768.5
160°	1793.0	1784.8	1793.0	1801.0	1791.5
162.5°	1814.6	1806.5	1813.2	1822.7	1810.5
165°	1833.5	1825.5	1829.5	1839.0	1829.5
167.5°	1848.5	1840.2	1844.4	1853.9	1841.7
170°	1860.7	1852.5	1855.2	1864.7	1852.5
172.5°	1868.8	1860.7	1863.4	1872.9	1860.7
175°	1875.5	1866.0	1868.8	1878.2	1864.7
177.5°	1878.2	1868.8	1870.2	1879.7	1867.4
180°	1871.4	1871.4	1871.4	1871.4	1871.4



TEST NUMBER: P913301  
 CATALOG NUMBER: DFN2DIP-4P4F0-070D070US927-RLONL

**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	8.18	8.98	9.18	9.98	11.31	4.14	4.94	5.14	5.94	7.27
	3H	9.86	10.58	10.87	11.59	12.94	5.33	6.05	6.34	7.06	8.40
	4H	10.47	11.15	11.49	12.16	13.52	5.78	6.46	6.80	7.47	8.83
	6H	10.90	11.52	11.93	12.54	13.91	6.10	6.72	7.13	7.74	9.11
	8H	11.03	11.62	12.06	12.65	14.02	6.19	6.78	7.23	7.82	9.18
	12H	11.09	11.65	12.13	12.68	14.07	6.23	6.80	7.27	7.83	9.21
4H	2H	8.20	8.87	9.22	9.89	11.24	4.74	5.41	5.76	6.43	7.78
	3H	10.03	10.59	11.06	11.63	13.00	6.09	6.65	7.12	7.69	9.06
	4H	10.72	11.24	11.76	12.27	13.67	6.63	7.15	7.67	8.18	9.58
	6H	11.24	11.68	12.29	12.74	14.13	7.05	7.50	8.10	8.55	9.94
	8H	11.42	11.83	12.47	12.88	14.29	7.18	7.60	8.23	8.65	10.05
	12H	11.52	11.89	12.59	12.96	14.36	7.25	7.62	8.32	8.69	10.09
8H	4H	10.69	11.10	11.74	12.15	13.56	6.92	7.33	7.97	8.38	9.78
	6H	11.26	11.60	12.33	12.69	14.09	7.44	7.78	8.51	8.87	10.27
	8H	11.48	11.78	12.56	12.86	14.28	7.63	7.93	8.71	9.00	10.42
	12H	11.62	11.89	12.71	12.96	14.42	7.75	8.01	8.83	9.08	10.54
12H	4H	10.64	11.01	11.71	12.08	13.49	6.92	7.29	7.99	8.36	9.77
	6H	11.24	11.54	12.32	12.61	14.03	7.49	7.79	8.57	8.86	10.28
	8H	11.46	11.72	12.54	12.79	14.25	7.70	7.96	8.78	9.03	10.49