

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: P924817

Luminaire Tested: DFN2DIP-PN3F0-040D070US950-FLLONL

Issue Date: 11/21/2024

**Test Information**

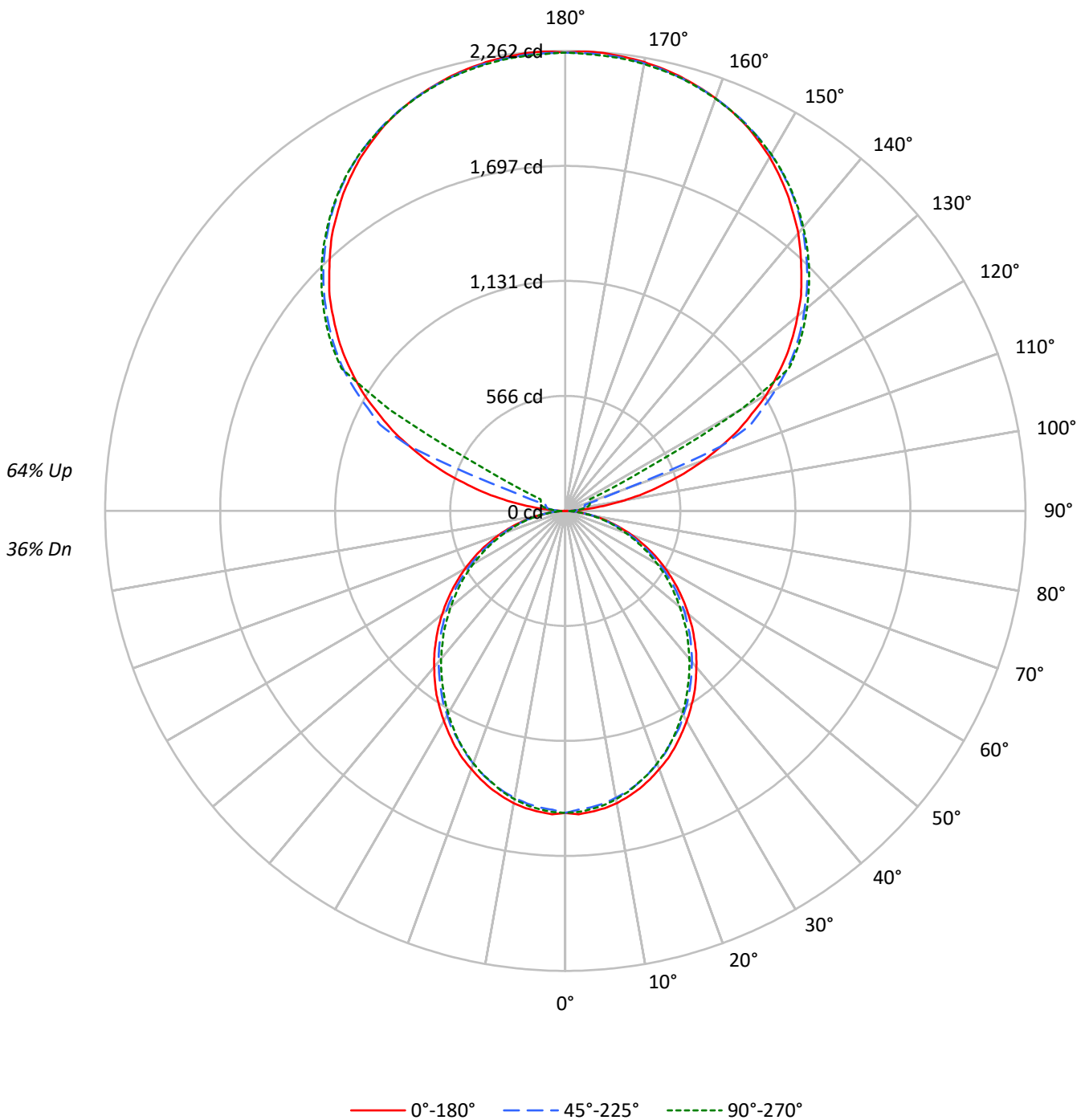
Test Method: LM-79-2019  
Report Number: P924817  
REPORT IS A COMBINATION OF REPORTS P901089 AND P897955  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-040D070US950-FLONL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens  
Light Source: -  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 10389.0 lumens  
Efficiency: N/A  
Efficacy: 116.7 lumens/watt  
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29  
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')  
CIE Type: Semi-Indirect  
  
Input Watts (W): 89  
Input Voltage (V):  
Input Current (Ain): NR  
Voltage Rise (V): NR  
Power Factor: 0.9972  
Total Harmonic Distortion (THDi): 0.128  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT

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### Luminous Intensity Polar Plot





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**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	104	104	104	104	94	94	94	94	76	76	76	59	59	59	44	44	44	36				36
1	95	90	87	83	86	82	79	76	66	64	62	52	50	49	39	38	37	31				31
2	86	79	73	68	78	72	67	62	58	54	51	46	43	41	34	32	31	26				26
3	79	69	62	57	71	63	57	52	51	47	43	40	37	35	30	28	26	22				22
4	72	61	54	48	65	56	49	44	45	41	37	36	32	30	27	25	23	19				19
5	66	55	47	41	59	50	43	38	41	35	32	32	28	26	24	22	20	16				16
6	61	49	41	35	55	45	38	33	37	31	27	29	25	22	22	19	17	14				14
7	56	44	36	31	51	40	33	29	33	28	24	26	23	20	20	17	15	13				13
8	52	40	32	27	47	37	30	25	30	25	21	24	20	18	18	16	14	11				11
9	48	36	29	24	44	33	27	22	28	23	19	22	18	16	17	14	12	10				10
10	45	33	26	21	41	31	24	20	25	20	17	20	17	14	16	13	11	9				9

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

	0°	45°	90°
0°	1736	1736	1736
5°	1737	1710	1722
10°	1722	1686	1698
15°	1696	1657	1661
20°	1661	1617	1623
25°	1626	1570	1579
30°	1582	1526	1524
35°	1540	1474	1465
40°	1489	1421	1409
45°	1439	1369	1352
50°	1383	1314	1285
55°	1324	1250	1224
60°	1258	1174	1154
65°	1186	1095	1072
70°	1094	999	983
75°	967	884	899
80°	813	737	742
85°	574	487	484

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 90°  
 Vertical Angle: 90°  
 Luminance: 1522 cd/sqm



TEST NUMBER: P924817

CATALOG NUMBER: DFN2DIP-PN3F0-040D070US950-FLLONL

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	139.8	1.3
10°-20°	393.2	3.8
20°-30°	577.9	5.6
30°-40°	671.2	6.5
40°-50°	670.3	6.5
50°-60°	584.5	5.6
60°-70°	432.1	4.2
70°-80°	244.5	2.4
80°-90°	68.5	0.7
90°-100°	74.3	0.7
100°-110°	277.0	2.7
110°-120°	734.8	7.1
120°-130°	1218.6	11.7
130°-140°	1294.5	12.5
140°-150°	1203.1	11.6
150°-160°	967.2	9.3
160°-170°	623.3	6.0
170°-180°	214.5	2.1
0°-30°	1110.8	10.7
0°-40°	1782.0	17.2
0°-60°	3036.8	29.2
0°-90°	3781.8	36.4
90°-120°	1086.1	10.5
90°-150°	4802.2	46.2
90°-180°	6607.0	63.6
0°-180°	10389.0	100.0

**CANDELA DISTRIBUTION:**

	0°	22.5°	45°	67.5°	90°	Flux
0°	1485	1485	1485	1485	1485	
5°	1485	1479	1463	1475	1472	141
15°	1413	1405	1386	1392	1385	398
25°	1279	1268	1244	1246	1244	589
35°	1104	1090	1067	1058	1051	689
45°	898	888	867	851	845	693
55°	680	671	654	637	630	608
65°	458	450	436	423	416	453
75°	240	237	230	221	224	256
85°	58	57	56	51	50	65
90°	2	20	32	41	44	10
95°	106	52	64	72	70	125
105°	496	545	100	117	124	530
115°	938	965	1006	251	134	923
125°	1326	1347	1378	1390	1394	1182
135°	1641	1667	1681	1698	1694	1267
145°	1903	1902	1929	1941	1932	1190
155°	2096	2081	2100	2110	2097	966
165°	2208	2198	2203	2215	2203	624
175°	2259	2247	2250	2262	2246	215
180°	2254	2254	2254	2254	2254	



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CATALOG NUMBER: DFN2DIP-PN3F0-040D070US950-FLLONL

**CANDELA DISTRIBUTION (FULL):**

	0°	22.5°	45°	67.5°	90°
0°	1484.8	1484.8	1484.8	1484.8	1484.8
2.5°	1493.5	1486.3	1470.6	1484.8	1482.1
5°	1484.8	1479.2	1463.4	1474.8	1472.1
7.5°	1474.8	1466.3	1450.6	1462.1	1459.2
10°	1459.2	1449.2	1432.1	1443.5	1439.2
12.5°	1437.7	1429.2	1412.1	1419.3	1416.3
15°	1413.4	1405.0	1386.4	1392.1	1385.0
17.5°	1383.5	1375.0	1356.4	1363.5	1356.4
20°	1350.6	1342.1	1322.1	1326.3	1320.8
22.5°	1317.9	1305.0	1286.4	1286.4	1283.5
25°	1279.2	1267.9	1243.6	1246.4	1243.6
27.5°	1236.4	1226.4	1208.0	1203.7	1196.6
30°	1193.6	1182.2	1160.8	1156.5	1150.8
32.5°	1147.9	1139.5	1116.6	1108.0	1102.2
35°	1103.7	1089.5	1066.6	1058.0	1050.8
37.5°	1053.7	1040.8	1017.9	1008.0	1000.8
40°	1002.4	990.8	967.9	955.2	949.5
42.5°	952.4	940.8	918.1	903.7	895.2
45°	898.1	888.2	866.6	851.1	845.2
47.5°	845.2	835.2	812.4	796.7	788.2
50°	789.5	782.4	762.4	742.4	735.2
52.5°	735.2	725.3	706.8	691.1	681.1
55°	679.7	671.0	654.0	636.8	629.7
57.5°	623.9	616.9	598.2	581.1	575.4
60°	568.2	562.6	542.6	526.9	522.6
62.5°	514.0	504.0	489.8	475.5	469.7
65°	458.4	449.7	435.5	422.6	415.6
67.5°	401.3	394.0	381.3	371.3	365.6
70°	348.4	342.7	329.8	319.8	314.2
72.5°	294.2	288.4	281.3	271.3	267.0
75°	239.8	237.1	229.8	221.3	224.2
77.5°	191.3	185.6	182.7	178.4	174.2
80°	142.8	141.3	138.4	134.2	131.4
82.5°	97.1	97.1	95.8	90.0	90.0
85°	58.5	57.1	55.7	51.3	50.0
87.5°	25.8	22.9	20.0	15.7	14.2
90°	1.5	19.6	32.5	40.8	44.0
92.5°	40.8	34.2	39.1	42.5	44.0
95°	105.9	52.1	63.5	71.8	70.1
97.5°	190.7	57.1	83.1	88.1	89.7
100°	288.8	65.3	92.9	105.9	109.2
102.5°	396.2	393.1	96.3	114.1	119.1
105°	495.8	544.7	99.5	117.3	123.9
107.5°	611.5	652.2	102.8	120.7	127.3
110°	722.6	756.6	285.4	122.4	128.8



TEST NUMBER: P924817

CATALOG NUMBER: DFN2DIP-PN3F0-040D070US950-FLLONL

**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	826.9	856.1	828.5	125.5	130.5
115°	937.7	965.4	1006.2	251.2	133.8
117.5°	1033.9	1066.5	1094.3	861.0	433.8
120°	1141.6	1166.0	1195.5	1215.0	994.8
122.5°	1232.8	1258.9	1291.7	1301.4	1303.1
125°	1325.8	1347.0	1378.1	1389.5	1394.3
127.5°	1410.6	1433.4	1458.0	1474.3	1475.8
130°	1490.5	1516.7	1534.5	1552.5	1551.0
132.5°	1572.1	1593.4	1611.2	1625.9	1624.4
135°	1640.6	1666.7	1681.3	1697.7	1694.5
137.5°	1712.2	1731.9	1748.3	1764.6	1759.7
140°	1782.4	1795.5	1813.4	1828.1	1819.9
142.5°	1841.2	1852.7	1873.8	1886.7	1878.6
145°	1903.2	1901.5	1929.2	1940.6	1932.5
147.5°	1956.8	1952.1	1979.7	1987.8	1981.5
150°	2009.1	1997.8	2023.9	2033.5	2025.4
152.5°	2053.1	2040.1	2064.6	2074.4	2063.0
155°	2095.6	2081.0	2100.5	2110.2	2097.3
157.5°	2129.8	2116.8	2131.5	2143.0	2129.8
160°	2159.3	2149.4	2159.3	2168.9	2157.5
162.5°	2185.2	2175.5	2183.6	2195.1	2180.4
165°	2208.0	2198.4	2203.2	2214.6	2203.2
167.5°	2226.1	2216.1	2221.2	2232.6	2218.0
170°	2240.8	2230.9	2234.2	2245.6	2230.9
172.5°	2250.5	2240.8	2244.1	2255.4	2240.8
175°	2258.6	2247.1	2250.5	2261.8	2245.6
177.5°	2261.8	2250.5	2252.2	2263.7	2248.9
180°	2253.7	2253.7	2253.7	2253.7	2253.7



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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	7.74	8.49	8.81	9.56	11.01	7.30	8.05	8.37	9.12	10.58
	3H	9.39	10.06	10.46	11.14	12.61	8.91	9.58	9.98	10.66	12.13
	4H	9.97	10.61	11.05	11.68	13.16	9.48	10.12	10.57	11.20	12.68
	6H	10.36	10.94	11.45	12.03	13.52	9.87	10.45	10.96	11.54	13.03
	8H	10.46	11.01	11.55	12.11	13.60	9.97	10.52	11.06	11.62	13.11
	12H	10.50	11.03	11.60	12.12	13.63	10.00	10.53	11.10	11.62	13.13
4H	2H	8.19	8.83	9.28	9.90	11.38	7.84	8.47	8.93	9.55	11.03
	3H	10.04	10.57	11.14	11.67	13.16	9.63	10.17	10.73	11.27	12.76
	4H	10.74	11.23	11.85	12.32	13.84	10.32	10.81	11.43	11.91	13.42
	6H	11.24	11.66	12.36	12.78	14.28	10.82	11.24	11.93	12.36	13.86
	8H	11.39	11.78	12.50	12.89	14.41	10.96	11.35	12.07	12.46	13.98
	12H	11.45	11.81	12.58	12.93	14.46	11.01	11.37	12.14	12.49	14.02
8H	4H	10.92	11.32	12.04	12.43	13.95	10.55	10.95	11.67	12.06	13.58
	6H	11.54	11.87	12.68	13.02	14.54	11.17	11.49	12.30	12.64	14.16
	8H	11.76	12.04	12.90	13.17	14.71	11.38	11.66	12.52	12.79	14.33
	12H	11.88	12.13	13.02	13.26	14.83	11.48	11.73	12.62	12.86	14.43
12H	4H	10.90	11.26	12.03	12.38	13.91	10.54	10.90	11.67	12.02	13.54
	6H	11.57	11.85	12.71	12.99	14.52	11.21	11.49	12.35	12.62	14.16
	8H	11.80	12.05	12.95	13.18	14.75	11.43	11.68	12.57	12.81	14.38