

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: P914245

Luminaire Tested: DFN2DIP-PN4F0-090D060US927-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P914245
REPORT IS A COMBINATION OF REPORTS P901175 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-090D060US927-FLLONL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

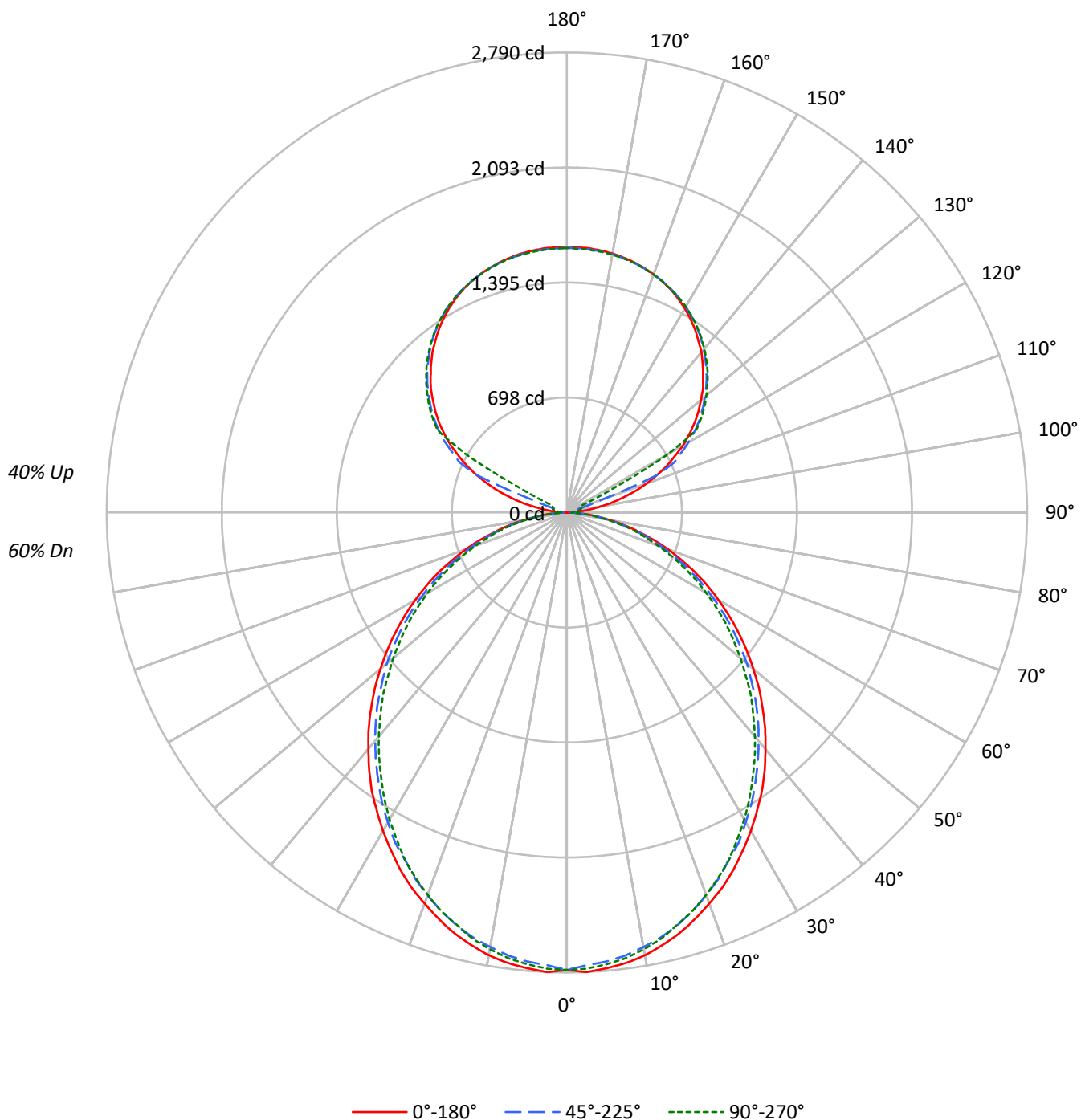
Lumens per Lamp: N/A
Luminaire Lumens: 11763.9 lumens
Efficiency: N/A
Efficacy: 88.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 133.5
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
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
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10		50	30	10		50
RCR																	
0	110	110	110	110	102	102	102	102	89	89	89		77	77	77		65
1	100	96	92	88	93	90	86	83	78	75	73		67	66	64		58
2	91	84	77	72	85	78	73	68	68	64	61		59	56	53		51
3	83	73	66	60	77	69	62	57	60	55	51		52	48	45		45
4	76	65	57	51	71	61	54	48	54	48	44		47	42	39		40
5	70	58	50	44	65	55	47	42	48	42	38		42	37	34		36
6	64	52	44	38	60	49	42	36	43	37	33		38	33	30		33
7	60	47	39	33	56	44	37	32	39	33	29		35	30	26		30
8	55	43	35	30	52	40	33	28	36	30	26		32	27	23		28
9	52	39	32	26	48	37	30	25	33	27	23		29	24	21		26
10	48	36	29	24	45	34	27	23	30	25	21		27	22	19		24

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2025	2025	2025
5°	2028	1997	2011
10°	2012	1970	1984
15°	1982	1938	1942
20°	1942	1893	1898
25°	1903	1840	1848
30°	1853	1790	1785
35°	1805	1731	1717
40°	1747	1672	1653
45°	1689	1612	1588
50°	1626	1550	1512
55°	1560	1477	1442
60°	1485	1391	1362
65°	1403	1302	1268
70°	1299	1194	1167
75°	1154	1065	1074
80°	981	899	896
85°	709	614	599

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1689 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	261.1	2.2
10°-20°	734.7	6.2
20°-30°	1079.6	9.2
30°-40°	1253.9	10.7
40°-50°	1252.4	10.6
50°-60°	1092.1	9.3
60°-70°	807.3	6.9
70°-80°	456.7	3.9
80°-90°	123.4	1.0
90°-100°	52.9	0.4
100°-110°	197.2	1.7
110°-120°	523.0	4.4
120°-130°	867.4	7.4
130°-140°	921.3	7.8
140°-150°	856.3	7.3
150°-160°	688.4	5.9
160°-170°	443.6	3.8
170°-180°	152.7	1.3
0°-30°	2075.4	17.6
0°-40°	3329.4	28.3
0°-60°	5673.8	48.2
0°-90°	7061.2	60.0
90°-120°	773.0	6.6
90°-150°	3418.0	29.1
90°-180°	4703.0	40.0
0°-180°	11763.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	2774	2774	2774	2774	2774	
5°	2774	2764	2734	2756	2750	263
15°	2641	2625	2590	2601	2588	744
25°	2390	2369	2324	2329	2324	1100
35°	2062	2036	1993	1977	1963	1288
45°	1678	1659	1619	1590	1579	1295
55°	1270	1254	1222	1190	1176	1135
65°	856	840	814	790	776	847
75°	448	443	429	414	419	478
85°	109	107	104	96	93	122
90°	1	14	23	29	31	11
95°	75	37	45	51	50	89
105°	353	388	71	84	88	377
115°	667	687	716	179	95	657
125°	944	959	981	989	992	842
135°	1168	1186	1197	1208	1206	902
145°	1355	1353	1373	1381	1376	847
155°	1492	1481	1495	1502	1493	687
165°	1572	1565	1568	1576	1568	444
175°	1608	1599	1602	1610	1598	153
180°	1604	1604	1604	1604	1604	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	2774.1	2774.1	2774.1	2774.1	2774.1
2.5°	2790.3	2777.0	2747.6	2774.1	2769.1
5°	2774.1	2763.7	2734.3	2755.5	2750.4
7.5°	2755.5	2739.7	2710.2	2731.8	2726.4
10°	2726.4	2707.7	2675.7	2696.9	2689.0
12.5°	2686.1	2670.3	2638.4	2651.6	2646.3
15°	2640.9	2625.1	2590.2	2601.0	2587.7
17.5°	2584.8	2569.0	2534.2	2547.5	2534.2
20°	2523.4	2507.6	2470.2	2478.1	2467.6
22.5°	2462.3	2438.3	2403.4	2403.4	2398.0
25°	2390.1	2368.9	2323.6	2328.7	2323.6
27.5°	2310.0	2291.3	2256.8	2248.9	2235.6
30°	2230.2	2208.7	2168.8	2160.8	2150.1
32.5°	2144.8	2128.9	2086.1	2070.0	2059.3
35°	2062.1	2035.5	1992.7	1976.7	1963.3
37.5°	1968.7	1944.6	1901.9	1883.3	1869.9
40°	1872.7	1851.2	1808.5	1784.7	1774.0
42.5°	1779.3	1757.8	1715.4	1688.5	1672.7
45°	1678.0	1659.4	1619.1	1590.0	1579.3
47.5°	1579.3	1560.6	1517.8	1488.4	1472.6
50°	1475.1	1461.8	1424.4	1387.1	1373.8
52.5°	1373.8	1355.1	1320.6	1291.2	1272.5
55°	1269.9	1253.8	1221.8	1189.9	1176.5
57.5°	1165.8	1152.5	1117.7	1085.7	1074.9
60°	1061.6	1051.1	1013.8	984.4	976.4
62.5°	960.3	941.6	915.0	888.4	877.7
65°	856.4	840.3	813.6	789.6	776.3
67.5°	749.7	736.2	712.3	693.7	682.9
70°	650.9	640.2	616.2	597.5	587.0
72.5°	549.6	538.8	525.5	506.9	499.0
75°	448.1	442.9	429.4	413.5	418.9
77.5°	357.4	346.7	341.4	333.4	325.5
80°	266.9	264.0	258.6	250.7	245.4
82.5°	181.4	181.4	178.9	168.1	168.1
85°	109.2	106.7	104.2	95.9	93.4
87.5°	48.1	42.7	37.4	29.5	26.6
90°	1.1	13.9	23.1	29.1	31.3
92.5°	29.1	24.4	27.8	30.2	31.3
95°	75.4	37.1	45.2	51.2	49.9
97.5°	135.8	40.6	59.1	62.7	63.8
100°	205.5	46.4	66.1	75.4	77.7
102.5°	282.0	279.8	68.5	81.2	84.8
105°	352.8	387.7	70.8	83.5	88.2
107.5°	435.3	464.2	73.2	85.9	90.5
110°	514.3	538.5	203.2	87.1	91.7



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	588.5	609.3	589.6	89.3	92.9
115°	667.4	687.1	716.2	178.8	95.2
117.5°	735.9	759.1	778.9	612.8	308.7
120°	812.5	829.9	850.9	864.7	708.1
122.5°	877.4	896.0	919.3	926.2	927.5
125°	943.6	958.8	980.8	989.0	992.4
127.5°	1004.0	1020.3	1037.8	1049.3	1050.4
130°	1060.9	1079.5	1092.2	1105.0	1103.9
132.5°	1119.0	1134.1	1146.8	1157.2	1156.1
135°	1167.8	1186.4	1196.7	1208.4	1206.0
137.5°	1218.7	1232.6	1244.4	1255.9	1252.5
140°	1268.6	1278.0	1290.7	1301.2	1295.4
142.5°	1310.5	1318.7	1333.7	1342.9	1337.1
145°	1354.6	1353.4	1373.1	1381.2	1375.5
147.5°	1392.8	1389.3	1409.1	1414.8	1410.3
150°	1430.0	1421.9	1440.5	1447.4	1441.6
152.5°	1461.3	1452.1	1469.4	1476.5	1468.3
155°	1491.5	1481.1	1495.1	1502.0	1492.7
157.5°	1515.9	1506.6	1517.1	1525.3	1515.9
160°	1536.8	1529.8	1536.8	1543.7	1535.6
162.5°	1555.3	1548.4	1554.2	1562.3	1551.9
165°	1571.6	1564.7	1568.1	1576.3	1568.1
167.5°	1584.4	1577.4	1581.0	1589.1	1578.6
170°	1594.9	1587.8	1590.2	1598.3	1587.8
172.5°	1601.8	1594.9	1597.2	1605.4	1594.9
175°	1607.6	1599.4	1601.8	1609.9	1598.3
177.5°	1609.9	1601.8	1603.0	1611.1	1600.7
180°	1604.1	1604.1	1604.1	1604.1	1604.1

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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	10.61	11.57	11.47	12.45	13.57	10.17	11.13	11.03	12.01	13.13
	3H	12.28	13.14	13.16	14.04	15.18	11.79	12.65	12.67	13.55	14.70
	4H	12.87	13.69	13.77	14.59	15.74	12.38	13.20	13.28	14.10	15.26
	6H	13.28	14.03	14.18	14.94	16.11	12.79	13.54	13.69	14.45	15.62
	8H	13.39	14.10	14.30	15.03	16.20	12.90	13.61	13.81	14.54	15.71
	12H	13.44	14.12	14.36	15.04	16.24	12.94	13.62	13.86	14.54	15.74
4H	2H	11.08	11.89	11.98	12.80	13.95	10.73	11.54	11.63	12.45	13.60
	3H	12.96	13.64	13.87	14.57	15.74	12.56	13.24	13.47	14.17	15.34
	4H	13.68	14.30	14.60	15.23	16.43	13.26	13.88	14.18	14.81	16.01
	6H	14.20	14.74	15.14	15.69	16.89	13.78	14.31	14.71	15.27	16.46
	8H	14.36	14.86	15.29	15.80	17.02	13.93	14.43	14.86	15.37	16.59
	12H	14.44	14.89	15.39	15.85	17.07	14.00	14.45	14.95	15.41	16.63
8H	4H	13.88	14.38	14.82	15.33	16.54	13.51	14.01	14.45	14.96	16.17
	6H	14.52	14.94	15.49	15.93	17.14	14.15	14.56	15.11	15.55	16.76
	8H	14.75	15.11	15.72	16.09	17.32	14.36	14.73	15.33	15.71	16.93
	12H	14.88	15.21	15.86	16.18	17.45	14.48	14.80	15.46	15.78	17.05
12H	4H	13.87	14.33	14.83	15.29	16.51	13.51	13.96	14.47	14.93	16.15
	6H	14.55	14.92	15.53	15.90	17.13	14.19	14.56	15.16	15.53	16.76
	8H	14.80	15.12	15.78	16.10	17.37	14.43	14.75	15.41	15.72	17.00