

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: P922113

Luminaire Tested: DFN2DIP-PN3F0-050D060US940-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922113
REPORT IS A COMBINATION OF REPORTS P901077 AND P897955
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN3F0-050D060US940-FLLONL
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

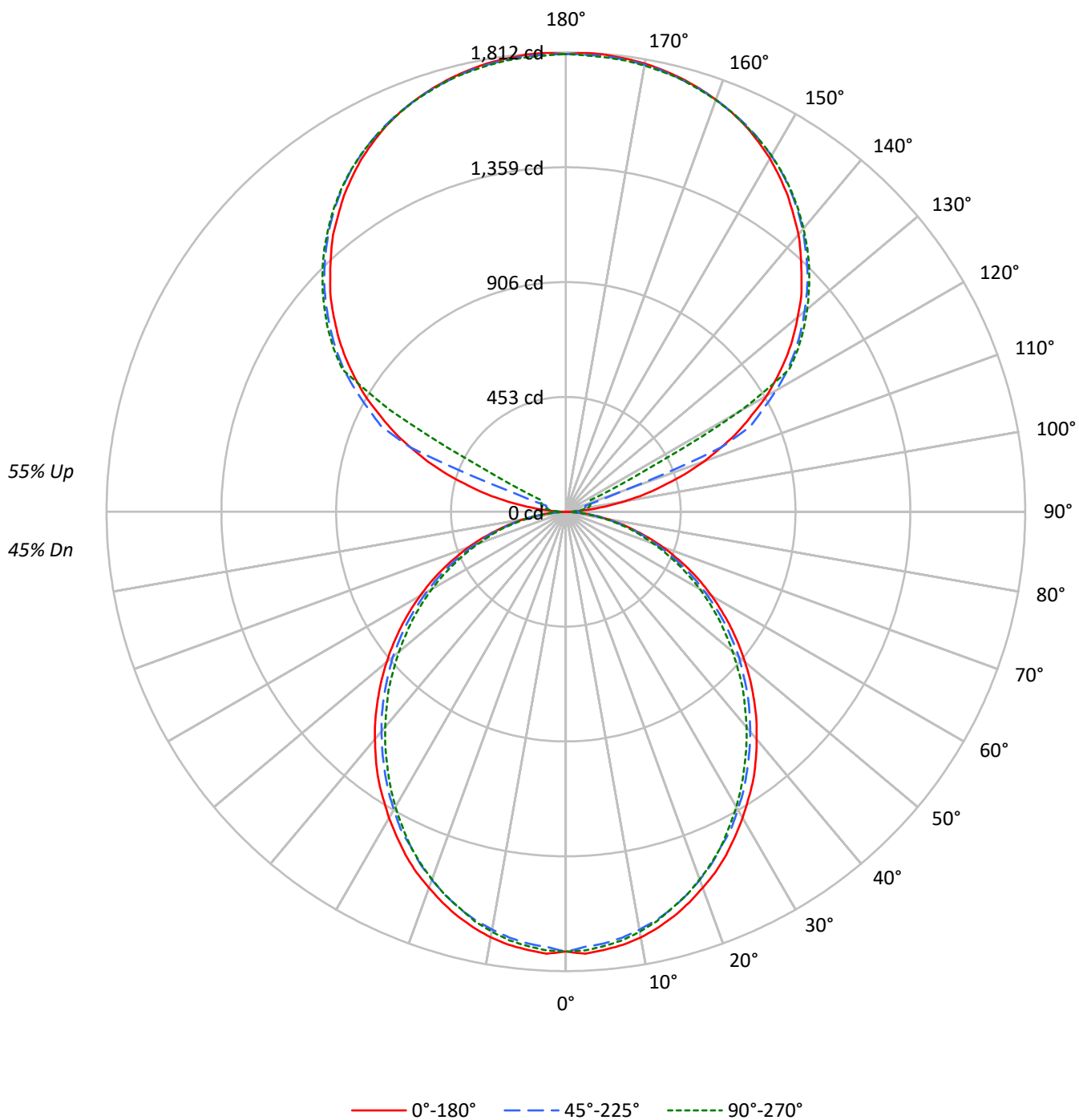
Lumens per Lamp: N/A
Luminaire Lumens: 9710.7 lumens
Efficiency: N/A
Efficacy: 106.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 2.96' x L: 3.11' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 91
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9613
Total Harmonic Distortion (THDi): 0.083
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	30	10
RCR																	
0	106	106	106	106	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	92	89	85	89	85	82	79	71	68	66	58	56	55	46	45	44
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	40	39	37
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	33	31
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27
5	67	56	48	42	62	52	45	39	43	38	34	36	32	29	29	26	24
6	62	50	42	36	57	46	39	34	39	34	30	32	28	25	26	23	21
7	57	45	37	32	53	42	35	30	35	30	26	30	25	22	24	21	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2028	2028	2028
5°	2030	1998	2012
10°	2012	1970	1984
15°	1981	1936	1941
20°	1940	1890	1896
25°	1899	1834	1845
30°	1848	1783	1780
35°	1800	1722	1712
40°	1740	1661	1646
45°	1681	1599	1579
50°	1616	1535	1502
55°	1548	1460	1431
60°	1470	1372	1349
65°	1386	1279	1252
70°	1279	1167	1148
75°	1130	1033	1051
80°	950	861	867
85°	670	570	565

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1681 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.7
10°-20°	459.4	4.7
20°-30°	675.2	7.0
30°-40°	784.2	8.1
40°-50°	783.2	8.1
50°-60°	682.9	7.0
60°-70°	504.8	5.2
70°-80°	285.6	2.9
80°-90°	78.6	0.8
90°-100°	59.5	0.6
100°-110°	222.0	2.3
110°-120°	588.7	6.1
120°-130°	976.3	10.1
130°-140°	1037.1	10.7
140°-150°	963.9	9.9
150°-160°	774.9	8.0
160°-170°	499.3	5.1
170°-180°	171.9	1.8
0°-30°	1297.9	13.4
0°-40°	2082.0	21.4
0°-60°	3548.1	36.5
0°-90°	4417.2	45.5
90°-120°	870.2	9.0
90°-150°	3847.4	39.6
90°-180°	5294.0	54.5
0°-180°	9710.7	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1735	1735	1735	1735	1735	
5°	1735	1728	1710	1723	1720	165
15°	1651	1642	1620	1627	1618	465
25°	1495	1481	1453	1456	1453	688
35°	1290	1273	1246	1236	1228	805
45°	1049	1038	1012	994	988	810
55°	794	784	764	744	736	710
65°	536	526	509	494	485	530
75°	280	277	268	259	262	299
85°	68	67	65	60	58	76
90°	1	16	26	33	35	9
95°	85	42	51	58	56	101
105°	397	436	80	94	99	424
115°	751	774	806	201	107	740
125°	1062	1079	1104	1113	1117	947
135°	1314	1335	1347	1360	1358	1015
145°	1525	1523	1546	1555	1548	954
155°	1679	1667	1683	1691	1680	774
165°	1769	1761	1765	1774	1765	500
175°	1810	1800	1803	1812	1799	172
180°	1806	1806	1806	1806	1806	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1734.8	1734.8	1734.8	1734.8	1734.8
2.5°	1744.9	1736.6	1718.2	1734.8	1731.7
5°	1734.8	1728.3	1709.9	1723.1	1720.0
7.5°	1723.1	1713.2	1694.9	1708.3	1705.0
10°	1705.0	1693.3	1673.3	1686.5	1681.6
12.5°	1679.8	1669.9	1649.9	1658.2	1654.8
15°	1651.4	1641.5	1619.8	1626.6	1618.2
17.5°	1616.4	1606.5	1584.7	1593.0	1584.7
20°	1578.1	1568.2	1544.8	1549.7	1543.2
22.5°	1539.8	1524.7	1503.0	1503.0	1499.6
25°	1494.7	1481.4	1453.0	1456.3	1453.0
27.5°	1444.6	1432.9	1411.3	1406.3	1398.0
30°	1394.6	1381.3	1356.3	1351.3	1344.6
32.5°	1341.2	1331.3	1304.6	1294.5	1287.8
35°	1289.5	1272.9	1246.2	1236.1	1227.8
37.5°	1231.1	1216.1	1189.4	1177.7	1169.4
40°	1171.2	1157.7	1131.0	1116.1	1109.4
42.5°	1112.8	1099.3	1072.7	1055.9	1046.0
45°	1049.4	1037.7	1012.5	994.3	987.6
47.5°	987.6	975.9	949.2	930.8	920.9
50°	922.5	914.2	890.8	867.5	859.1
52.5°	859.1	847.4	825.8	807.4	795.8
55°	794.2	784.1	764.0	744.0	735.8
57.5°	729.0	720.7	698.9	678.9	672.2
60°	663.9	657.4	634.0	615.5	610.6
62.5°	600.6	588.9	572.2	555.5	548.8
65°	535.6	525.5	508.8	493.8	485.4
67.5°	468.9	460.4	445.5	433.8	427.0
70°	407.1	400.4	385.3	373.6	367.1
72.5°	343.8	337.0	328.7	317.0	312.0
75°	280.2	277.0	268.5	258.6	262.0
77.5°	223.6	216.8	213.5	208.5	203.6
80°	166.9	165.1	161.8	156.9	153.5
82.5°	113.4	113.4	111.8	105.1	105.1
85°	68.3	66.7	65.1	60.0	58.4
87.5°	30.1	26.8	23.4	18.4	16.7
90°	1.2	15.7	26.0	32.7	35.2
92.5°	32.7	27.5	31.3	34.0	35.2
95°	84.9	41.7	50.9	57.6	56.2
97.5°	152.8	45.7	66.5	70.6	71.9
100°	231.3	52.3	74.5	84.9	87.5
102.5°	317.4	315.0	77.1	91.4	95.4
105°	397.2	436.4	79.7	94.0	99.3
107.5°	490.0	522.5	82.4	96.7	101.9
110°	578.9	606.2	228.7	98.1	103.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	662.5	685.9	663.7	100.5	104.6
115°	751.3	773.5	806.2	201.3	107.2
117.5°	828.3	854.4	876.7	689.8	347.5
120°	914.6	934.2	957.8	973.4	797.0
122.5°	987.7	1008.6	1034.8	1042.6	1044.0
125°	1062.2	1079.2	1104.0	1113.2	1117.0
127.5°	1130.2	1148.4	1168.1	1181.2	1182.4
130°	1194.2	1215.1	1229.4	1243.8	1242.6
132.5°	1259.5	1276.6	1290.8	1302.6	1301.4
135°	1314.5	1335.4	1347.0	1360.2	1357.5
137.5°	1371.8	1387.5	1400.7	1413.7	1409.9
140°	1428.0	1438.6	1452.9	1464.6	1458.1
142.5°	1475.2	1484.3	1501.3	1511.6	1505.1
145°	1524.8	1523.4	1545.6	1554.8	1548.3
147.5°	1567.8	1563.9	1586.1	1592.6	1587.5
150°	1609.7	1600.5	1621.5	1629.2	1622.7
152.5°	1644.9	1634.5	1654.0	1662.0	1652.8
155°	1678.9	1667.2	1682.9	1690.7	1680.2
157.5°	1706.4	1695.9	1707.7	1716.9	1706.4
160°	1729.9	1722.0	1729.9	1737.7	1728.6
162.5°	1750.7	1742.9	1749.4	1758.6	1746.9
165°	1769.1	1761.3	1765.1	1774.3	1765.1
167.5°	1783.4	1775.6	1779.6	1788.8	1776.9
170°	1795.3	1787.3	1790.0	1799.1	1787.3
172.5°	1803.0	1795.3	1797.9	1807.1	1795.3
175°	1809.5	1800.4	1803.0	1812.1	1799.1
177.5°	1812.1	1803.0	1804.4	1813.6	1801.8
180°	1805.6	1805.6	1805.6	1805.6	1805.6

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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	9.26	10.08	10.25	11.09	12.42	8.82	9.64	9.81	10.65	11.98
	3H	10.91	11.65	11.91	12.66	14.02	10.43	11.16	11.43	12.18	13.53
	4H	11.49	12.19	12.51	13.21	14.57	11.01	11.70	12.02	12.72	14.08
	6H	11.88	12.53	12.91	13.55	14.93	11.39	12.04	12.42	13.06	14.44
	8H	11.99	12.60	13.02	13.64	15.01	11.49	12.11	12.53	13.15	14.52
	12H	12.03	12.61	13.07	13.65	15.04	11.53	12.11	12.57	13.15	14.54
4H	2H	9.71	10.41	10.73	11.43	12.79	9.36	10.06	10.38	11.08	12.44
	3H	11.57	12.15	12.60	13.20	14.57	11.16	11.75	12.20	12.79	14.17
	4H	12.27	12.81	13.31	13.85	15.24	11.86	12.39	12.90	13.43	14.83
	6H	12.78	13.24	13.83	14.30	15.70	12.36	12.82	13.41	13.88	15.27
	8H	12.93	13.36	13.98	14.41	15.82	12.50	12.93	13.55	13.98	15.39
	12H	12.99	13.38	14.06	14.45	15.87	12.56	12.94	13.63	14.01	15.43
8H	4H	12.46	12.89	13.51	13.95	15.36	12.09	12.52	13.14	13.58	14.99
	6H	13.09	13.44	14.16	14.54	15.94	12.71	13.06	13.78	14.16	15.57
	8H	13.30	13.61	14.38	14.69	16.12	12.92	13.23	14.00	14.31	15.74
	12H	13.43	13.70	14.51	14.78	16.24	13.03	13.30	14.11	14.38	15.84
12H	4H	12.45	12.83	13.52	13.90	15.32	12.08	12.47	13.15	13.54	14.96
	6H	13.11	13.42	14.19	14.50	15.93	12.75	13.06	13.83	14.14	15.57
	8H	13.35	13.62	14.43	14.70	16.16	12.98	13.25	14.06	14.33	15.79