

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: P922112

Luminaire Tested: DFN2DIP-PN3F0-050D060US940-FLLFLL

Issue Date: 11/21/2024

**Test Information**

Test Method: LM-79-2019  
Report Number: P922112  
REPORT IS A COMBINATION OF REPORTS P899557 AND P896399  
Test Lab: INNOVATION CENTER  
Issue Date: 11/21/2024  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: NEO-RAY  
Catalog Number: DFN2DIP-PN3F0-050D060US940-FLLFLL  
Description: 3 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens  
Light Source: -  
Ballast/Driver: -

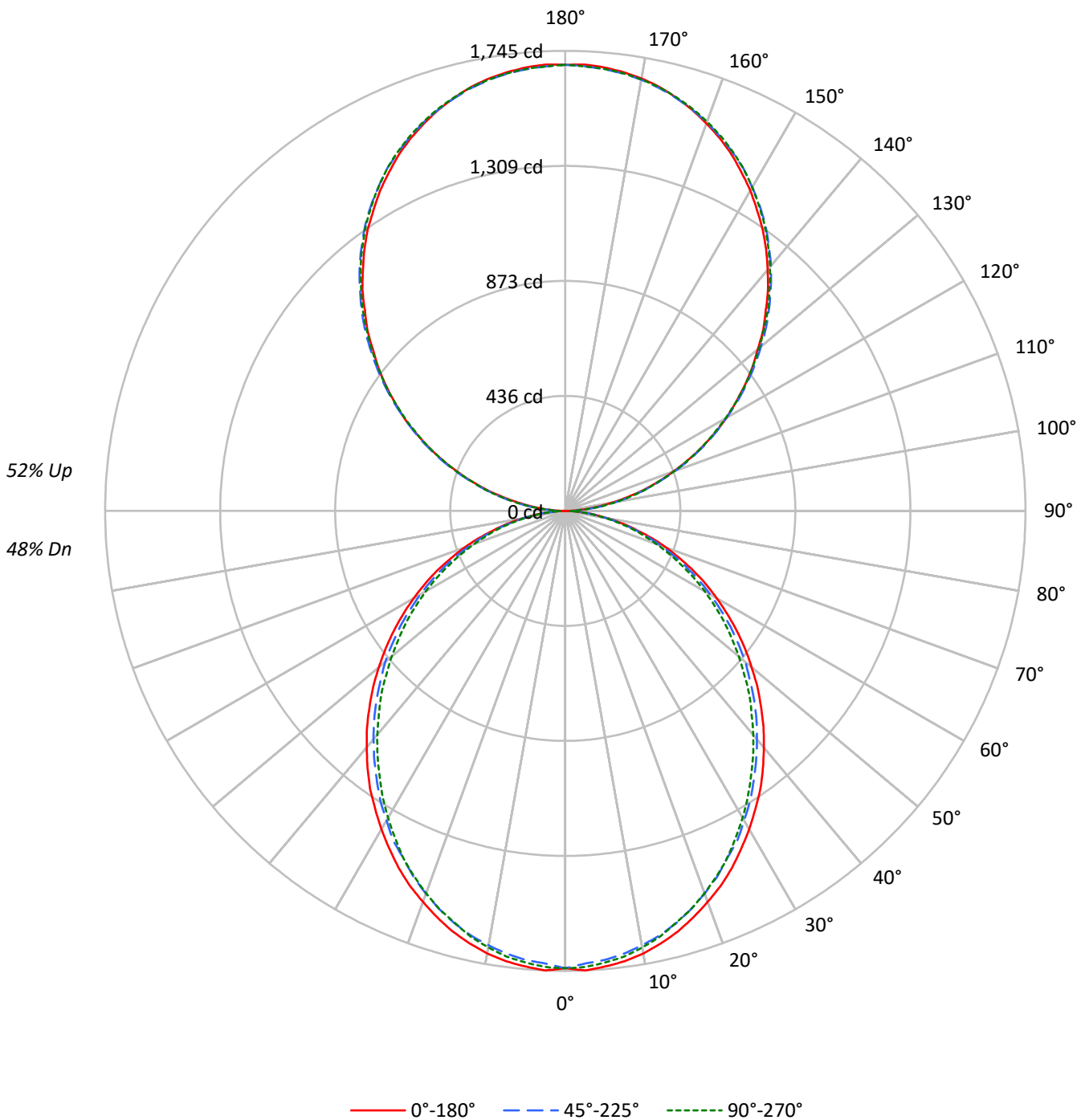
**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 9149.0 lumens  
Efficiency: N/A  
Efficacy: 100.5 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			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	107	107	107	107	98	98	98	98	82	82	82	68	68	68	55	55	55	48	48	48	48
1	97	93	89	86	89	86	82	79	72	70	68	60	58	57	48	47	46	41	41	41	41
2	89	81	75	70	81	75	70	65	63	59	56	52	50	47	42	41	39	34	34	34	34
3	81	71	64	58	74	66	60	54	56	51	47	46	43	40	38	35	33	29	29	29	29
4	74	63	55	49	68	59	52	46	50	44	40	41	37	34	34	31	28	25	25	25	25
5	68	56	48	42	62	52	45	40	44	39	35	37	33	30	30	27	25	22	22	22	22
6	63	51	42	37	57	47	40	34	40	34	30	34	29	26	27	24	22	19	19	19	19
7	58	46	38	32	53	42	35	30	36	31	27	30	26	23	25	22	19	17	17	17	17
8	54	41	34	28	49	39	32	27	33	28	24	28	24	20	23	20	17	15	15	15	15
9	50	38	30	25	46	35	28	24	30	25	21	26	21	18	21	18	16	14	14	14	14
10	47	35	27	23	43	32	26	21	28	23	19	24	20	17	20	17	14	12	12	12	12

**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	1.8
10°-20°	459.4	5.0
20°-30°	675.2	7.4
30°-40°	784.2	8.6
40°-50°	783.2	8.6
50°-60°	682.9	7.5
60°-70°	504.8	5.5
70°-80°	285.6	3.1
80°-90°	80.2	0.9
90°-100°	104.7	1.1
100°-110°	332.7	3.6
110°-120°	569.3	6.2
120°-130°	748.8	8.2
130°-140°	840.5	9.2
140°-150°	824.2	9.0
150°-160°	691.4	7.6
160°-170°	458.5	5.0
170°-180°	160.3	1.8
0°-30°	1297.9	14.2
0°-40°	2082.0	22.8
0°-60°	3548.1	38.8
0°-90°	4418.8	48.3
90°-120°	1006.7	11.0
90°-150°	3420.1	37.4
90°-180°	4730.0	51.7
0°-180°	9149.0	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°	2	18	50	47	48	9
95°	74	89	91	91	89	83
105°	307	311	314	317	317	324
115°	571	580	577	575	571	565
125°	831	844	840	835	834	743
135°	1075	1091	1094	1092	1088	831
145°	1305	1315	1323	1325	1319	815
155°	1492	1496	1501	1508	1503	687
165°	1623	1622	1622	1632	1625	458
175°	1689	1685	1682	1692	1683	160
180°	1692	1692	1692	1692	1692	



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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°	1.5	18.4	50.0	46.9	48.4
92.5°	31.7	42.9	44.4	45.9	45.9
95°	74.5	88.7	91.3	91.3	88.7
97.5°	123.9	137.2	142.9	142.9	142.9
100°	181.1	192.8	196.9	196.9	195.4
102.5°	241.3	249.9	255.6	257.1	255.6
105°	307.1	311.2	314.2	316.8	316.8
107.5°	372.4	378.5	378.5	379.5	372.4
110°	435.7	443.8	443.8	443.8	439.7



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**CANDELA DISTRIBUTION (continued):**

	0°	22.5°	45°	67.5°	90°
112.5°	504.0	512.6	511.1	507.0	504.0
115°	571.3	579.5	576.9	575.4	571.3
117.5°	638.2	649.4	642.2	638.2	634.1
120°	705.5	716.8	705.5	705.5	700.9
122.5°	766.7	781.0	773.8	769.8	766.7
125°	831.0	843.7	839.6	835.1	833.6
127.5°	893.8	909.5	903.9	897.9	893.8
130°	952.4	970.8	968.2	965.2	959.6
132.5°	1018.2	1032.5	1033.5	1026.4	1022.3
135°	1074.9	1090.7	1093.7	1092.2	1088.1
137.5°	1138.1	1150.8	1153.4	1152.4	1146.3
140°	1193.7	1206.5	1213.6	1213.6	1208.0
142.5°	1250.8	1263.6	1267.7	1269.2	1263.6
145°	1304.9	1315.1	1323.3	1324.8	1319.2
147.5°	1353.3	1366.1	1372.3	1374.7	1369.1
150°	1403.4	1412.0	1417.6	1422.2	1417.6
152.5°	1447.7	1456.4	1463.6	1469.2	1463.6
155°	1492.1	1496.2	1500.7	1508.0	1503.3
157.5°	1530.4	1533.5	1536.0	1546.2	1539.1
160°	1564.6	1567.6	1569.1	1577.8	1571.7
162.5°	1596.2	1596.2	1597.7	1607.4	1600.3
165°	1623.2	1621.7	1621.7	1631.9	1624.8
167.5°	1647.7	1643.2	1643.2	1653.3	1646.2
170°	1666.1	1662.0	1660.5	1670.6	1662.0
172.5°	1678.8	1674.7	1673.2	1683.4	1674.7
175°	1689.0	1685.0	1681.9	1692.1	1683.4
177.5°	1694.6	1690.6	1687.5	1696.1	1687.5
180°	1692.1	1692.1	1692.1	1692.1	1692.1



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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	9.53	10.37	10.50	11.36	12.66	9.09	9.94	10.06	10.92	12.22
	3H	11.18	11.94	12.16	12.94	14.25	10.70	11.46	11.68	12.45	13.77
	4H	11.76	12.48	12.76	13.48	14.81	11.28	12.00	12.27	13.00	14.32
	6H	12.16	12.82	13.17	13.82	15.16	11.67	12.33	12.68	13.33	14.67
	8H	12.26	12.89	13.27	13.91	15.25	11.77	12.40	12.78	13.42	14.75
	12H	12.31	12.91	13.32	13.92	15.28	11.81	12.41	12.83	13.42	14.78
4H	2H	9.98	10.70	10.99	11.70	13.03	9.63	10.35	10.63	11.35	12.68
	3H	11.84	12.44	12.85	13.47	14.81	11.44	12.04	12.45	13.07	14.41
	4H	12.55	13.10	13.57	14.12	15.48	12.13	12.68	13.15	13.70	15.06
	6H	13.06	13.53	14.09	14.57	15.93	12.64	13.11	13.67	14.15	15.51
	8H	13.21	13.65	14.24	14.68	16.06	12.78	13.22	13.81	14.26	15.63
	12H	13.27	13.67	14.32	14.72	16.10	12.84	13.24	13.89	14.29	15.67
8H	4H	12.74	13.18	13.77	14.22	15.59	12.37	12.81	13.40	13.85	15.22
	6H	13.37	13.73	14.42	14.81	16.18	12.99	13.35	14.04	14.43	15.80
	8H	13.58	13.90	14.64	14.96	16.36	13.20	13.52	14.26	14.58	15.97
	12H	13.71	13.99	14.77	15.05	16.48	13.31	13.59	14.37	14.65	16.08
12H	4H	12.73	13.12	13.78	14.18	15.55	12.36	12.76	13.41	13.81	15.19
	6H	13.39	13.71	14.46	14.78	16.17	13.03	13.35	14.09	14.41	15.80
	8H	13.63	13.91	14.70	14.97	16.40	13.26	13.54	14.32	14.60	16.03