

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: P922296

Luminaire Tested: DFN2DIP-PN4F0-050D090US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922296
REPORT IS A COMBINATION OF REPORTS P899701 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D090US940-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

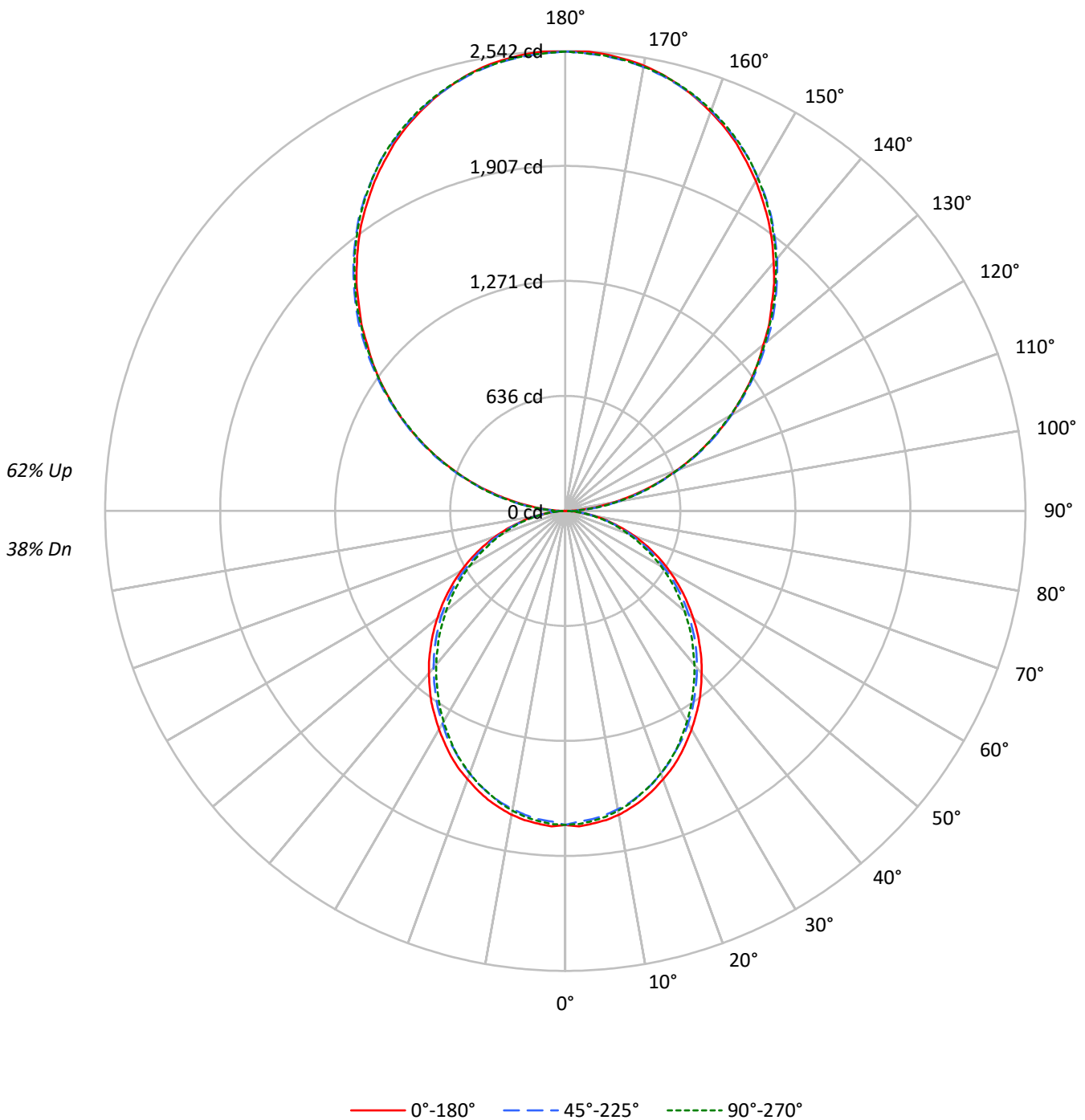
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 11516.5 lumens
Efficiency: N/A
Efficacy: 104.0 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-Indirect

Input Watts (W): 110.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	95	95	95	95	77	77	77	61	61	61	45	45	45	38				38
1	95	91	87	84	86	83	79	77	67	65	63	53	52	50	40	39	38	32				32
2	87	79	73	68	78	72	67	63	59	55	52	47	44	42	35	34	32	27				27
3	79	70	63	57	71	64	57	52	52	47	44	41	38	35	31	29	27	23				23
4	72	62	54	48	65	56	50	44	46	41	37	37	33	30	28	26	24	20				20
5	66	55	47	41	60	50	43	38	41	36	32	33	29	26	25	23	21	17				17
6	61	49	41	35	55	45	38	33	37	32	28	30	26	23	23	20	18	15				15
7	56	44	36	31	51	41	34	29	34	28	25	27	23	20	21	18	16	13				13
8	52	40	33	27	47	37	30	25	31	25	22	25	21	18	19	16	14	12				12
9	49	37	29	24	44	34	27	23	28	23	19	23	19	16	18	15	13	11				11
10	45	33	26	22	41	31	24	20	26	21	17	21	17	15	16	14	12	10				10

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1266	1266	1266
5°	1268	1249	1257
10°	1258	1232	1241
15°	1240	1212	1214
20°	1215	1184	1187
25°	1190	1151	1156
30°	1158	1119	1116
35°	1129	1083	1074
40°	1093	1045	1034
45°	1056	1008	993
50°	1017	969	946
55°	975	924	902
60°	928	870	852
65°	877	814	793
70°	812	747	730
75°	722	666	672
80°	613	563	560
85°	443	384	375

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 1987 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.4
10°-20°	459.4	4.0
20°-30°	675.2	5.9
30°-40°	784.2	6.8
40°-50°	783.2	6.8
50°-60°	682.9	5.9
60°-70°	504.8	4.4
70°-80°	285.6	2.5
80°-90°	82.6	0.7
90°-100°	157.1	1.4
100°-110°	499.0	4.3
110°-120°	854.0	7.4
120°-130°	1123.1	9.8
130°-140°	1260.7	10.9
140°-150°	1236.2	10.7
150°-160°	1037.0	9.0
160°-170°	687.7	6.0
170°-180°	240.4	2.1
0°-30°	1297.9	11.3
0°-40°	2082.0	18.1
0°-60°	3548.1	30.8
0°-90°	4421.2	38.4
90°-120°	1510.1	13.1
90°-150°	5130.1	44.5
90°-180°	7095.0	61.6
0°-180°	11516.5	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	28	75	70	73	11
95°	112	133	137	137	133	124
105°	461	467	471	475	475	486
115°	857	869	865	863	857	848
125°	1246	1266	1260	1253	1250	1114
135°	1612	1636	1641	1638	1632	1246
145°	1957	1973	1985	1987	1979	1223
155°	2238	2244	2251	2262	2255	1030
165°	2435	2432	2432	2448	2437	687
175°	2534	2527	2523	2538	2525	241
180°	2538	2538	2538	2538	2538	



TEST NUMBER: P922296

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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°	2.3	27.6	75.0	70.4	72.7
92.5°	47.4	64.3	66.6	68.8	68.8
95°	111.7	133.1	137.0	137.0	133.1
97.5°	185.9	205.8	214.3	214.3	214.3
100°	271.6	289.3	295.3	295.3	293.1
102.5°	361.9	375.0	383.3	385.7	383.3
105°	460.7	466.7	471.4	475.2	475.2
107.5°	558.6	567.8	567.8	569.3	558.6
110°	653.4	665.8	665.8	665.8	659.6



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	756.0	769.0	766.7	760.6	756.0
115°	857.0	869.2	865.4	863.2	857.0
117.5°	957.3	974.1	963.4	957.3	951.1
120°	1058.3	1075.0	1058.3	1058.3	1051.3
122.5°	1150.0	1171.5	1160.8	1154.7	1150.0
125°	1246.5	1265.6	1259.5	1252.6	1250.4
127.5°	1340.6	1364.3	1355.9	1346.8	1340.6
130°	1428.6	1456.2	1452.3	1447.7	1439.3
132.5°	1527.3	1548.7	1550.2	1539.5	1533.5
135°	1612.2	1635.9	1640.6	1638.3	1632.2
137.5°	1707.1	1726.3	1730.1	1728.6	1719.4
140°	1790.6	1809.6	1820.3	1820.3	1812.0
142.5°	1876.2	1895.3	1901.5	1903.8	1895.3
145°	1957.4	1972.6	1984.9	1987.2	1978.8
147.5°	2030.1	2049.2	2058.3	2062.2	2053.8
150°	2105.1	2118.1	2126.5	2133.3	2126.5
152.5°	2171.6	2184.6	2195.3	2203.8	2195.3
155°	2238.2	2244.3	2251.2	2261.9	2255.0
157.5°	2295.5	2300.2	2304.0	2319.2	2308.5
160°	2346.8	2351.4	2353.8	2366.7	2357.5
162.5°	2394.2	2394.2	2396.6	2411.1	2400.4
165°	2434.8	2432.5	2432.5	2447.8	2437.1
167.5°	2471.6	2464.7	2464.7	2479.9	2469.2
170°	2499.1	2493.0	2490.7	2506.0	2493.0
172.5°	2518.2	2512.1	2509.8	2525.1	2512.1
175°	2533.5	2527.4	2522.8	2538.2	2525.1
177.5°	2541.9	2535.8	2531.2	2544.2	2531.2
180°	2538.2	2538.2	2538.2	2538.2	2538.2



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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	6.92	7.68	7.97	8.74	10.17	6.48	7.24	7.53	8.30	9.73
	3H	8.57	9.26	9.63	10.32	11.77	8.09	8.78	9.15	9.84	11.29
	4H	9.16	9.81	10.23	10.88	12.33	8.67	9.32	9.74	10.39	11.84
	6H	9.56	10.16	10.64	11.23	12.69	9.06	9.66	10.15	10.73	12.20
	8H	9.66	10.23	10.75	11.32	12.78	9.17	9.74	10.25	10.82	12.28
	12H	9.71	10.25	10.80	11.33	12.81	9.21	9.75	10.30	10.83	12.31
4H	2H	7.37	8.02	8.45	9.08	10.54	7.02	7.67	8.09	8.73	10.19
	3H	9.23	9.77	10.31	10.86	12.33	8.83	9.37	9.91	10.46	11.93
	4H	9.94	10.44	11.03	11.52	13.01	9.52	10.02	10.61	11.10	12.59
	6H	10.45	10.88	11.55	11.99	13.47	10.03	10.46	11.13	11.56	13.04
	8H	10.60	11.00	11.70	12.10	13.60	10.17	10.57	11.27	11.67	13.17
	12H	10.67	11.03	11.79	12.15	13.65	10.23	10.59	11.35	11.71	13.21
8H	4H	10.13	10.53	11.23	11.63	13.13	9.76	10.16	10.86	11.26	12.75
	6H	10.76	11.09	11.88	12.23	13.73	10.38	10.71	11.51	11.86	13.35
	8H	10.98	11.27	12.11	12.39	13.91	10.60	10.89	11.73	12.01	13.52
	12H	11.11	11.37	12.24	12.48	14.03	10.71	10.96	11.84	12.08	13.63
12H	4H	10.11	10.47	11.23	11.58	13.09	9.75	10.11	10.87	11.22	12.72
	6H	10.79	11.08	11.92	12.20	13.71	10.43	10.71	11.55	11.84	13.35
	8H	11.03	11.28	12.16	12.40	13.95	10.66	10.91	11.79	12.03	13.58