

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: P922304

Luminaire Tested: DFN2DIP-PN4F0-050D110US940-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P922304
REPORT IS A COMBINATION OF REPORTS P899737 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D110US940-FLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

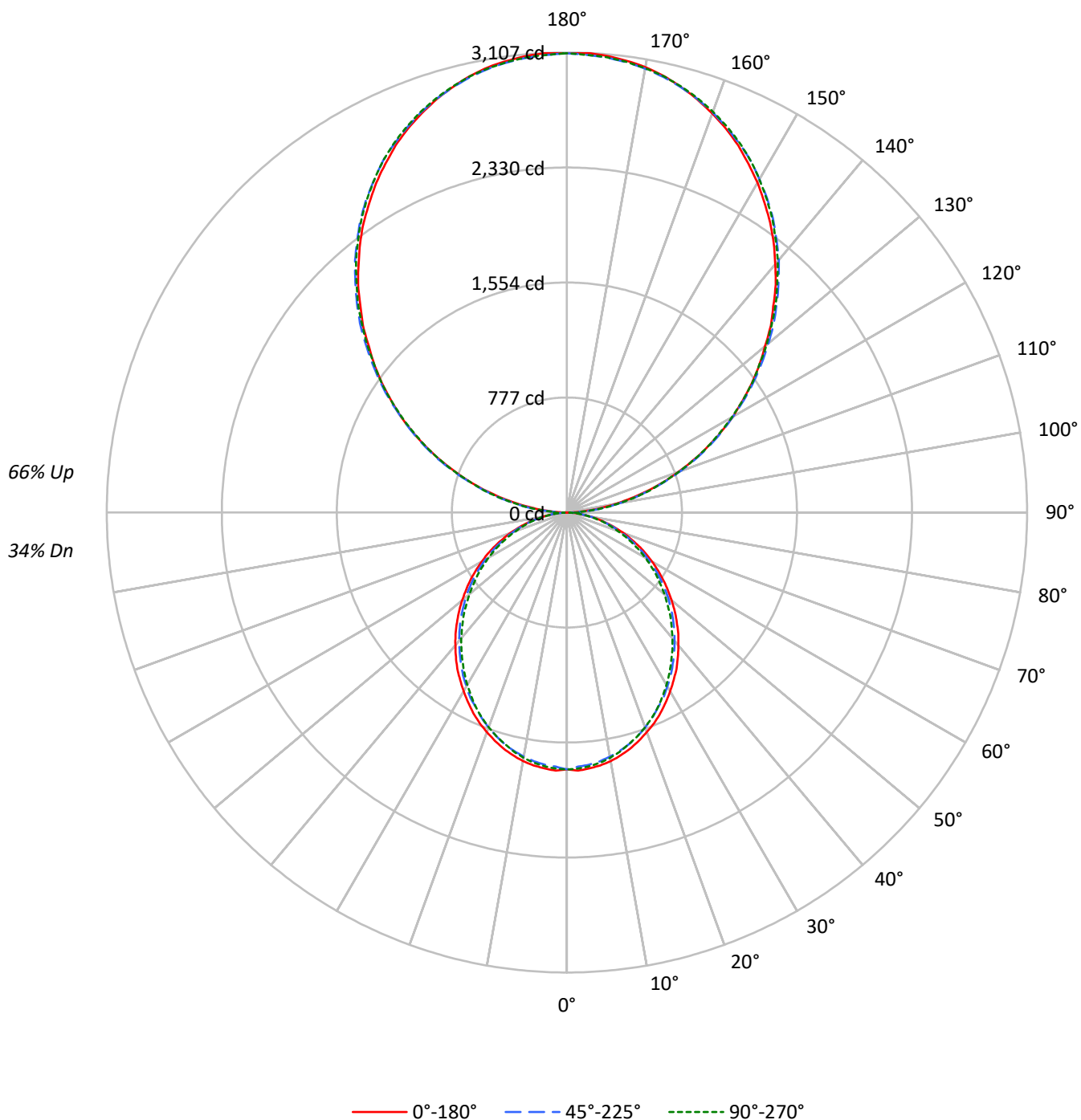
Lumens per Lamp: N/A
Luminaire Lumens: 13094.8 lumens
Efficiency: N/A
Efficacy: 96.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 135.7
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
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	103	103	103	103	93	93	93	93	74	74	74	57	57	57	41	41	41
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	36	36	35
2	86	78	73	67	77	71	66	62	57	53	50	44	42	40	32	31	29
3	78	69	62	56	70	62	56	51	50	46	42	39	36	33	28	26	25
4	71	61	53	47	64	55	49	44	45	40	36	35	31	29	25	23	21
5	65	54	46	40	59	49	42	37	40	35	31	31	27	25	23	20	19
6	60	48	41	35	54	44	37	32	36	31	27	28	24	22	21	18	16
7	56	44	36	31	50	40	33	28	32	27	24	25	22	19	19	16	15
8	52	40	32	27	46	36	29	25	29	24	21	23	20	17	17	15	13
9	48	36	29	24	43	33	26	22	27	22	19	21	18	15	16	14	12
10	45	33	26	21	40	30	24	20	25	20	17	20	16	14	15	12	11

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: 2428 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	163.3	1.2
10°-20°	459.4	3.5
20°-30°	675.2	5.2
30°-40°	784.2	6.0
40°-50°	783.2	6.0
50°-60°	682.9	5.2
60°-70°	504.8	3.9
70°-80°	285.6	2.2
80°-90°	84.2	0.6
90°-100°	192.0	1.5
100°-110°	609.9	4.7
110°-120°	1043.8	8.0
120°-130°	1372.7	10.5
130°-140°	1540.8	11.8
140°-150°	1511.0	11.5
150°-160°	1267.5	9.7
160°-170°	840.6	6.4
170°-180°	293.8	2.2
0°-30°	1297.9	9.9
0°-40°	2082.0	15.9
0°-60°	3548.1	27.1
0°-90°	4422.8	33.8
90°-120°	1845.7	14.1
90°-150°	6270.1	47.9
90°-180°	8672.0	66.2
0°-180°	13094.8	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°	3	34	92	86	89	13
95°	136	163	167	167	163	152
105°	563	570	576	581	581	594
115°	1048	1062	1058	1055	1048	1036
125°	1524	1547	1539	1531	1528	1361
135°	1970	2000	2005	2002	1995	1523
145°	2392	2411	2426	2429	2418	1495
155°	2736	2743	2752	2765	2756	1259
165°	2976	2973	2973	2992	2979	840
175°	3097	3089	3083	3102	3086	294
180°	3102	3102	3102	3102	3102	

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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°	2.8	33.7	91.7	86.1	88.8
92.5°	58.0	78.6	81.3	84.2	84.2
95°	136.5	162.7	167.4	167.4	162.7
97.5°	227.3	251.6	261.9	261.9	261.9
100°	332.0	353.5	361.0	361.0	358.2
102.5°	442.4	458.2	468.6	471.4	468.6
105°	563.0	570.5	576.1	580.8	580.8
107.5°	682.7	693.9	693.9	695.8	682.7
110°	798.7	813.7	813.7	813.7	806.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	924.0	939.9	937.1	929.6	924.0
115°	1047.5	1062.4	1057.7	1055.0	1047.5
117.5°	1170.0	1190.5	1177.4	1170.0	1162.5
120°	1293.4	1314.0	1293.4	1293.4	1285.0
122.5°	1405.7	1431.8	1418.7	1411.2	1405.7
125°	1523.5	1546.8	1539.4	1531.0	1528.1
127.5°	1638.5	1667.5	1657.2	1646.0	1638.5
130°	1746.1	1779.8	1775.0	1769.4	1759.2
132.5°	1866.7	1892.9	1894.8	1881.7	1874.2
135°	1970.5	1999.5	2005.1	2002.3	1994.8
137.5°	2086.5	2109.9	2114.5	2112.6	2101.5
140°	2188.4	2211.8	2224.9	2224.9	2214.7
142.5°	2293.2	2316.6	2324.1	2326.8	2316.6
145°	2392.3	2411.0	2426.0	2428.8	2418.5
147.5°	2481.2	2504.5	2515.8	2520.4	2510.2
150°	2572.9	2588.7	2599.0	2607.5	2599.0
152.5°	2654.2	2670.0	2683.2	2693.5	2683.2
155°	2735.6	2743.0	2751.5	2764.6	2756.1
157.5°	2805.7	2811.3	2815.9	2834.7	2821.5
160°	2868.4	2874.0	2876.7	2892.7	2881.5
162.5°	2926.3	2926.3	2929.2	2946.9	2933.8
165°	2975.9	2973.1	2973.1	2991.8	2978.7
167.5°	3020.8	3012.4	3012.4	3031.1	3018.0
170°	3054.5	3047.0	3044.2	3062.8	3047.0
172.5°	3077.8	3070.3	3067.6	3086.3	3070.3
175°	3096.6	3089.1	3083.4	3102.2	3086.3
177.5°	3106.8	3099.3	3093.7	3109.7	3093.7
180°	3102.2	3102.2	3102.2	3102.2	3102.2

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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	6.37	7.11	7.46	8.19	9.68	5.93	6.67	7.02	7.75	9.24
	3H	8.03	8.68	9.12	9.78	11.28	7.54	8.20	8.64	9.29	10.79
	4H	8.61	9.23	9.72	10.33	11.84	8.12	8.75	9.23	9.84	11.35
	6H	9.01	9.58	10.12	10.68	12.20	8.51	9.09	9.63	10.18	11.71
	8H	9.11	9.65	10.23	10.77	12.28	8.62	9.16	9.73	10.27	11.79
	12H	9.15	9.67	10.27	10.78	12.32	8.65	9.17	9.77	10.28	11.82
4H	2H	6.82	7.44	7.93	8.54	10.04	6.47	7.09	7.58	8.18	9.69
	3H	8.68	9.20	9.79	10.32	11.84	8.27	8.79	9.39	9.91	11.44
	4H	9.39	9.87	10.51	10.98	12.52	8.97	9.45	10.09	10.56	12.10
	6H	9.90	10.31	11.03	11.44	12.97	9.47	9.88	10.60	11.02	12.55
	8H	10.05	10.43	11.18	11.55	13.10	9.62	10.00	10.75	11.13	12.68
	12H	10.11	10.46	11.26	11.60	13.15	9.67	10.02	10.82	11.16	12.71
8H	4H	9.57	9.96	10.70	11.08	12.63	9.20	9.59	10.33	10.71	12.26
	6H	10.20	10.52	11.35	11.69	13.23	9.83	10.14	10.98	11.31	12.86
	8H	10.42	10.70	11.58	11.85	13.41	10.04	10.32	11.20	11.46	13.03
	12H	10.55	10.79	11.71	11.94	13.54	10.15	10.39	11.31	11.54	13.14
12H	4H	9.55	9.90	10.70	11.04	12.59	9.19	9.54	10.34	10.67	12.23
	6H	10.23	10.51	11.39	11.66	13.22	9.87	10.14	11.02	11.29	12.86
	8H	10.47	10.71	11.63	11.86	13.46	10.10	10.34	11.26	11.48	13.09

END OF REPORT