

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: P916854

Luminaire Tested: DFN2DIP-PN4F0-050D120US930-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P916854
REPORT IS A COMBINATION OF REPORTS P899756 AND P896497
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-050D120US930-RLLFLL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

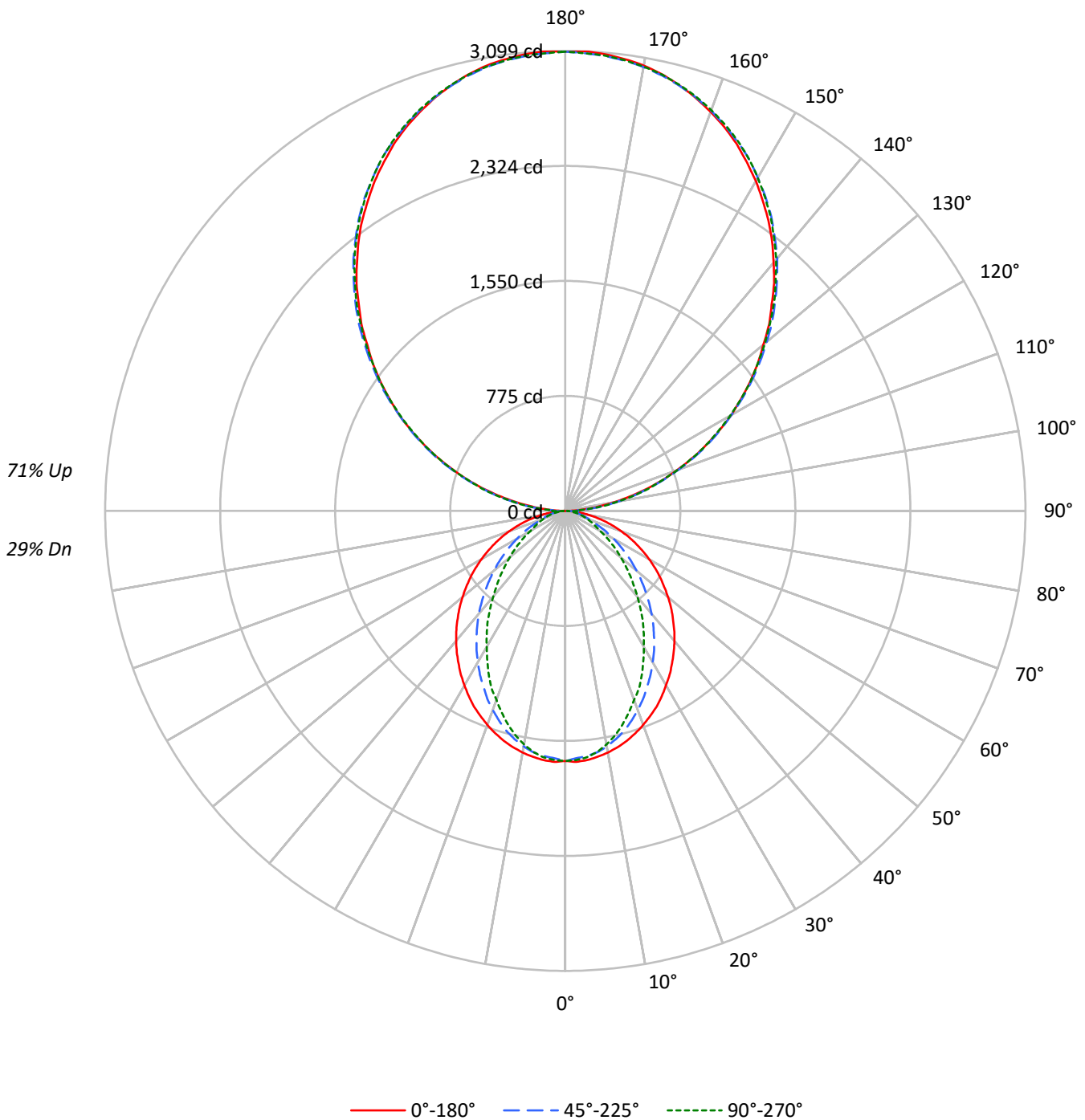
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 12123.4 lumens
Efficiency: N/A
Efficacy: 82.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 147.6
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	102	102	102	102	91	91	91	91	71	71	71	53	53	53	37	37	37	29				29
1	93	89	86	82	83	80	77	74	63	61	59	47	46	45	33	32	31	25				25
2	85	78	72	68	76	70	65	61	55	52	49	42	40	38	29	28	27	21				21
3	78	69	62	56	69	62	56	51	49	45	42	37	34	32	26	24	23	18				18
4	71	61	54	48	64	55	49	44	44	39	36	33	30	28	23	22	20	16				16
5	65	54	47	41	58	49	42	38	39	34	31	30	27	24	21	19	18	14				14
6	60	49	41	36	54	44	37	33	35	30	27	27	24	21	19	17	16	12				12
7	56	44	36	31	50	40	33	29	32	27	24	25	21	19	18	16	14	11				11
8	52	40	32	27	46	36	30	25	29	24	21	22	19	17	16	14	13	10				10
9	48	36	29	24	43	33	27	22	27	22	19	21	17	15	15	13	11	9				9
10	45	33	26	22	40	30	24	20	24	20	17	19	16	14	14	12	10	8				8

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1230	1230	1230
5°	1232	1210	1218
10°	1220	1187	1179
15°	1203	1148	1118
20°	1181	1094	1043
25°	1158	1033	970
30°	1127	971	878
35°	1097	905	798
40°	1067	836	705
45°	1032	759	621
50°	995	682	539
55°	957	599	460
60°	913	513	379
65°	862	425	341
70°	800	343	309
75°	723	302	282
80°	611	254	245
85°	425	170	185

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°
 Vertical Angle: 90°
 Luminance: 2422 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	157.9	1.3
10°-20°	433.5	3.6
20°-30°	608.6	5.0
30°-40°	663.4	5.5
40°-50°	609.7	5.0
50°-60°	478.8	3.9
60°-70°	311.7	2.6
70°-80°	160.4	1.3
80°-90°	49.7	0.4
90°-100°	191.5	1.6
100°-110°	608.3	5.0
110°-120°	1041.1	8.6
120°-130°	1369.2	11.3
130°-140°	1536.9	12.7
140°-150°	1507.1	12.4
150°-160°	1264.2	10.4
160°-170°	838.4	6.9
170°-180°	293.0	2.4
0°-30°	1200.0	9.9
0°-40°	1863.4	15.4
0°-60°	2951.9	24.3
0°-90°	3473.8	28.7
90°-120°	1840.9	15.2
90°-150°	6254.0	51.6
90°-180°	8650.0	71.3
0°-180°	12123.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1685	1685	1685	1685	1685	
5°	1685	1677	1657	1671	1667	160
15°	1602	1586	1534	1505	1490	452
25°	1455	1406	1305	1243	1220	669
35°	1253	1176	1042	945	912	784
45°	1025	922	762	654	617	791
55°	779	660	496	404	375	696
65°	526	402	265	214	209	521
75°	280	174	122	111	110	297
85°	66	34	29	29	29	75
90°	3	34	91	86	89	12
95°	136	162	167	167	162	152
105°	562	569	575	579	579	593
115°	1045	1060	1055	1052	1045	1033
125°	1520	1543	1536	1527	1524	1358
135°	1965	1994	2000	1997	1990	1519
145°	2386	2405	2420	2423	2412	1491
155°	2728	2736	2744	2757	2749	1256
165°	2968	2966	2966	2984	2971	837
175°	3089	3081	3076	3094	3078	293
180°	3094	3094	3094	3094	3094	



TEST NUMBER: P916854

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1684.8	1684.8	1684.8	1684.8	1684.8
2.5°	1692.4	1684.8	1668.0	1683.3	1680.2
5°	1684.8	1677.2	1657.3	1671.0	1666.6
7.5°	1671.0	1662.0	1640.6	1646.7	1639.0
10°	1652.8	1642.1	1611.7	1607.0	1597.9
12.5°	1629.9	1616.2	1575.0	1565.9	1549.1
15°	1602.5	1585.7	1533.9	1505.0	1489.7
17.5°	1570.4	1546.1	1482.0	1448.5	1424.0
20°	1533.9	1503.3	1427.1	1389.1	1355.4
22.5°	1494.3	1459.1	1370.7	1318.9	1296.1
25°	1454.6	1405.7	1305.1	1242.7	1219.7
27.5°	1407.4	1355.4	1244.1	1172.5	1137.4
30°	1357.1	1299.0	1177.0	1099.3	1058.1
32.5°	1308.2	1238.0	1113.1	1021.6	983.4
35°	1253.4	1175.6	1041.5	945.3	911.7
37.5°	1200.0	1116.1	974.4	869.0	831.0
40°	1143.5	1052.1	904.1	795.9	756.3
42.5°	1085.7	988.1	834.1	721.1	683.1
45°	1024.7	922.4	762.4	654.0	617.4
47.5°	966.7	858.5	693.8	585.5	552.0
50°	902.7	794.4	626.7	521.4	489.5
52.5°	840.1	725.7	562.6	462.0	433.1
55°	779.1	660.1	495.5	404.1	375.1
57.5°	716.6	594.7	436.1	350.7	326.3
60°	652.6	530.6	373.5	295.9	271.4
62.5°	590.1	468.1	320.2	247.0	234.9
65°	526.0	402.5	265.3	213.5	208.9
67.5°	465.0	341.5	213.5	187.5	183.0
70°	401.0	282.1	176.8	161.6	155.5
72.5°	340.1	227.1	147.9	135.7	132.6
75°	280.5	173.7	122.0	111.3	109.8
77.5°	221.1	123.4	96.1	89.9	86.8
80°	166.2	88.5	73.1	67.1	67.1
82.5°	115.9	59.5	50.3	47.2	47.2
85°	65.5	33.5	28.9	28.9	28.9
87.5°	24.5	12.1	12.1	10.7	10.7
90°	2.8	33.6	91.4	85.9	88.6
92.5°	57.8	78.4	81.1	84.0	84.0
95°	136.2	162.3	167.0	167.0	162.3
97.5°	226.7	250.9	261.2	261.2	261.2
100°	331.2	352.6	360.0	360.0	357.3
102.5°	441.2	457.1	467.3	470.2	467.3
105°	561.6	569.0	574.6	579.3	579.3
107.5°	680.9	692.2	692.2	694.0	680.9
110°	796.6	811.5	811.5	811.5	804.1



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	921.6	937.5	934.7	927.2	921.6
115°	1044.7	1059.7	1055.0	1052.2	1044.7
117.5°	1166.9	1187.5	1174.4	1166.9	1159.5
120°	1290.1	1310.6	1290.1	1290.1	1281.7
122.5°	1402.1	1428.2	1415.1	1407.6	1402.1
125°	1519.6	1542.9	1535.5	1527.1	1524.2
127.5°	1634.3	1663.2	1652.9	1641.8	1634.3
130°	1741.6	1775.1	1770.5	1764.9	1754.6
132.5°	1861.9	1888.1	1889.9	1876.8	1869.4
135°	1965.4	1994.4	2000.0	1997.2	1989.7
137.5°	2081.1	2104.4	2109.1	2107.2	2096.1
140°	2182.8	2206.1	2219.2	2219.2	2208.9
142.5°	2287.3	2310.6	2318.1	2320.8	2310.6
145°	2386.1	2404.8	2419.7	2422.6	2412.3
147.5°	2474.8	2498.1	2509.3	2514.0	2503.7
150°	2566.2	2582.0	2592.3	2600.7	2592.3
152.5°	2647.4	2663.2	2676.3	2686.6	2676.3
155°	2728.5	2736.0	2744.4	2757.4	2749.0
157.5°	2798.5	2804.1	2808.7	2827.4	2814.3
160°	2861.0	2866.6	2869.4	2885.3	2874.0
162.5°	2918.8	2918.8	2921.6	2939.3	2926.3
165°	2968.3	2965.5	2965.5	2984.1	2971.0
167.5°	3013.0	3004.6	3004.6	3023.3	3010.2
170°	3046.6	3039.1	3036.3	3055.0	3039.1
172.5°	3069.9	3062.4	3059.7	3078.3	3062.4
175°	3088.6	3081.1	3075.5	3094.1	3078.3
177.5°	3098.9	3091.4	3085.7	3101.6	3085.7
180°	3094.1	3094.1	3094.1	3094.1	3094.1



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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	5.45	6.13	6.58	7.25	8.79	1.41	2.10	2.54	3.21	4.76
	3H	7.12	7.73	8.25	8.85	10.42	2.59	3.20	3.73	4.33	5.89
	4H	7.72	8.30	8.86	9.42	10.99	3.04	3.61	4.18	4.74	6.31
	6H	8.14	8.67	9.29	9.80	11.38	3.35	3.88	4.50	5.01	6.59
	8H	8.26	8.77	9.42	9.91	11.48	3.44	3.94	4.59	5.08	6.66
	12H	8.32	8.80	9.48	9.94	11.53	3.47	3.95	4.63	5.09	6.69
4H	2H	5.45	6.03	6.60	7.15	8.72	1.99	2.57	3.14	3.70	5.26
	3H	7.27	7.75	8.42	8.90	10.48	3.33	3.81	4.49	4.96	6.54
	4H	7.96	8.40	9.11	9.54	11.14	3.87	4.32	5.03	5.45	7.06
	6H	8.47	8.84	9.63	10.01	11.60	4.28	4.66	5.45	5.82	7.42
	8H	8.64	8.99	9.80	10.15	11.75	4.41	4.76	5.57	5.92	7.53
	12H	8.73	9.05	9.91	10.21	11.83	4.47	4.79	5.65	5.95	7.57
8H	4H	7.91	8.27	9.08	9.42	11.03	4.14	4.50	5.31	5.65	7.26
	6H	8.48	8.77	9.66	9.96	11.57	4.66	4.95	5.84	6.14	7.75
	8H	8.69	8.95	9.88	10.12	11.75	4.85	5.10	6.04	6.28	7.90
	12H	8.83	9.05	10.02	10.22	11.88	4.96	5.18	6.15	6.36	8.01
12H	4H	7.86	8.18	9.04	9.34	10.96	4.14	4.46	5.32	5.63	7.24
	6H	8.45	8.71	9.64	9.88	11.50	4.71	4.96	5.89	6.13	7.76
	8H	8.67	8.89	9.86	10.06	11.72	4.91	5.13	6.10	6.31	7.96