

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: P918445

Luminaire Tested: DFN2DIP-TR4F0-110D060US930-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P918445
REPORT IS A COMBINATION OF REPORTS P901940 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D060US930-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

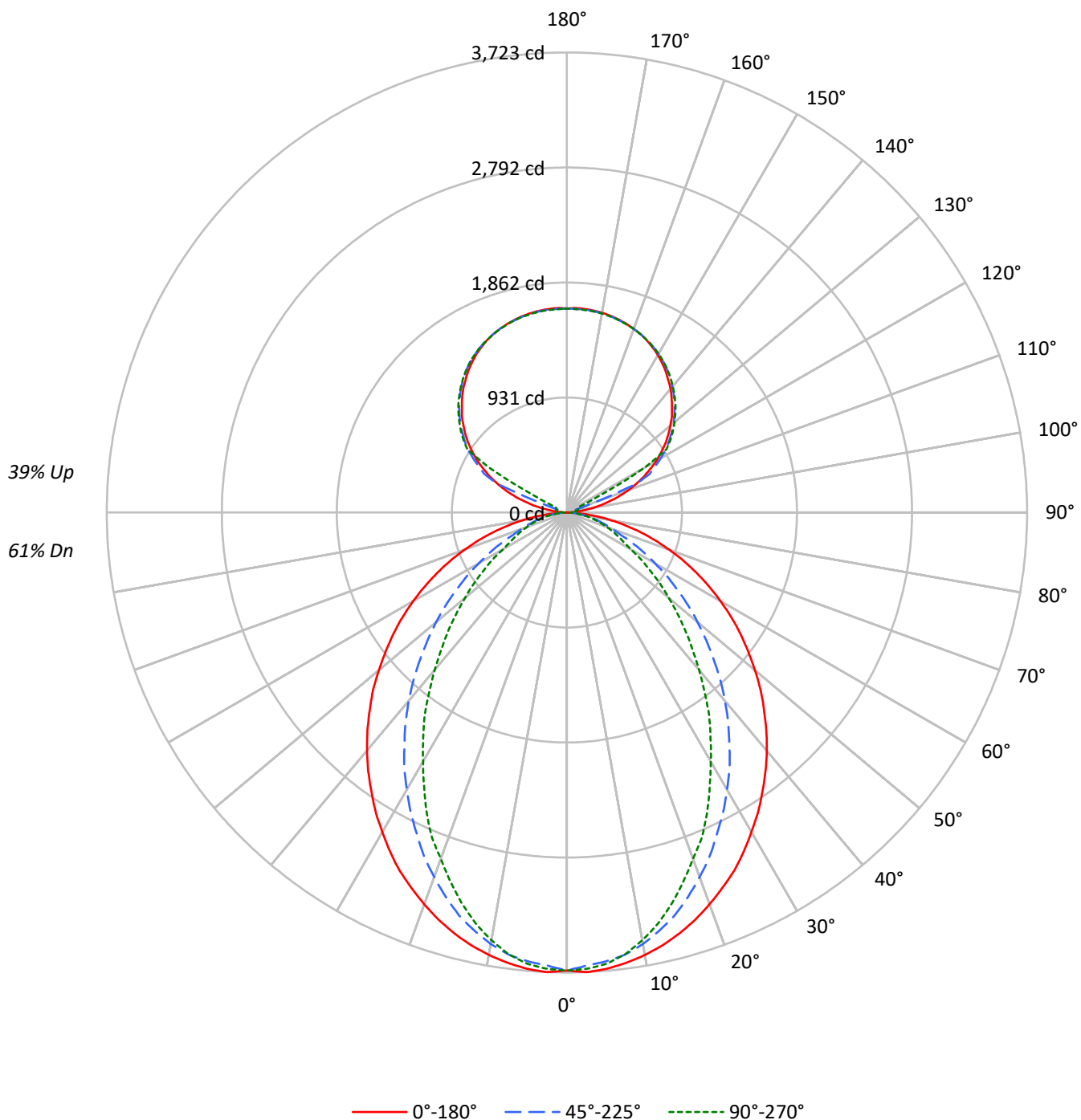
Lumens per Lamp: N/A
Luminaire Lumens: 12465.9 lumens
Efficiency: N/A
Efficacy: 79.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 157.4
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	110	110	110	110	103	103	103	103	90	90	90	77	77	77	66	66	66
1	101	97	93	90	94	91	87	85	79	77	75	69	67	66	60	58	57
2	92	85	79	74	86	80	75	70	70	66	63	61	58	56	53	51	49
3	85	75	68	63	79	71	65	60	63	58	54	55	51	48	48	45	43
4	78	67	59	54	73	63	56	51	56	51	46	49	45	42	43	40	37
5	72	60	52	46	67	57	50	44	51	45	40	45	40	37	39	36	33
6	66	54	46	41	62	51	44	39	46	40	36	41	36	32	36	32	29
7	61	49	41	36	58	47	40	35	42	36	32	37	32	29	33	29	26
8	57	45	37	32	54	43	36	31	38	33	28	34	29	26	30	26	24
9	53	41	34	29	50	39	32	28	35	30	26	32	27	24	28	24	22
10	50	38	31	26	47	36	30	25	33	27	23	29	25	21	26	22	20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2945	2945	2945
5°	2949	2898	2916
10°	2920	2841	2821
15°	2880	2747	2675
20°	2827	2618	2495
25°	2772	2472	2321
30°	2699	2324	2100
35°	2628	2164	1906
40°	2555	1998	1684
45°	2470	1815	1483
50°	2382	1629	1286
55°	2291	1431	1097
60°	2185	1224	903
65°	2064	1014	813
70°	1916	817	735
75°	1731	720	669
80°	1462	604	580
85°	1019	403	435

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2470 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	347.4	2.8
10°-20°	953.6	7.6
20°-30°	1338.9	10.7
30°-40°	1459.5	11.7
40°-50°	1341.4	10.8
50°-60°	1053.5	8.5
60°-70°	685.7	5.5
70°-80°	353.0	2.8
80°-90°	93.0	0.7
90°-100°	54.4	0.4
100°-110°	202.9	1.6
110°-120°	538.2	4.3
120°-130°	892.7	7.2
130°-140°	948.2	7.6
140°-150°	881.3	7.1
150°-160°	708.5	5.7
160°-170°	456.5	3.7
170°-180°	157.1	1.3
0°-30°	2639.9	21.2
0°-40°	4099.4	32.9
0°-60°	6494.2	52.1
0°-90°	7625.9	61.2
90°-120°	795.6	6.4
90°-150°	3517.8	28.2
90°-180°	4840.0	38.8
0°-180°	12465.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3707	3707	3707	3707	3707	
5°	3707	3690	3646	3676	3666	351
15°	3525	3488	3374	3311	3277	993
25°	3200	3093	2871	2734	2683	1472
35°	2757	2586	2291	2080	2006	1726
45°	2254	2029	1677	1439	1358	1741
55°	1714	1452	1090	889	825	1532
65°	1157	885	584	470	459	1147
75°	617	382	268	245	242	653
85°	144	74	64	64	64	165
90°	1	14	24	30	32	12
95°	78	38	47	53	51	92
105°	363	399	73	86	91	388
115°	687	707	737	184	98	676
125°	971	987	1009	1018	1021	866
135°	1202	1221	1232	1244	1241	928
145°	1394	1393	1413	1422	1416	872
155°	1535	1524	1539	1546	1536	707
165°	1618	1610	1614	1622	1614	457
175°	1654	1646	1648	1657	1645	157
180°	1651	1651	1651	1651	1651	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3706.6	3706.6	3706.6	3706.6	3706.6
2.5°	3723.3	3706.6	3669.6	3703.4	3696.6
5°	3706.6	3689.9	3646.1	3676.3	3666.4
7.5°	3676.3	3656.4	3609.4	3622.6	3605.8
10°	3636.1	3612.6	3545.7	3535.4	3515.5
12.5°	3585.9	3555.7	3464.9	3445.0	3407.9
15°	3525.4	3488.4	3374.5	3310.8	3277.3
17.5°	3455.0	3401.3	3260.3	3186.6	3132.9
20°	3374.5	3307.3	3139.6	3056.0	2982.0
22.5°	3287.4	3210.1	3015.5	2901.6	2851.3
25°	3200.1	3092.7	2871.3	2733.9	2683.4
27.5°	3096.3	2982.0	2737.1	2579.4	2502.2
30°	2985.5	2857.8	2589.5	2418.6	2327.8
32.5°	2878.1	2723.6	2448.8	2247.5	2163.5
35°	2757.4	2586.2	2291.2	2079.8	2005.8
37.5°	2640.0	2455.3	2143.5	1911.8	1828.2
40°	2515.8	2314.7	1989.1	1750.9	1663.8
42.5°	2388.3	2173.7	1835.0	1586.6	1502.9
45°	2254.2	2029.3	1677.3	1438.8	1358.4
47.5°	2126.8	1888.7	1526.4	1287.9	1214.3
50°	1985.8	1747.8	1378.8	1147.0	1076.9
52.5°	1848.1	1596.5	1237.8	1016.4	952.7
55°	1713.9	1452.4	1090.1	889.0	825.3
57.5°	1576.6	1308.2	959.4	771.6	717.8
60°	1435.7	1167.3	821.7	650.9	597.2
62.5°	1298.3	1030.0	704.3	543.5	516.7
65°	1157.3	885.4	583.7	469.8	459.4
67.5°	1023.2	751.3	469.8	412.5	402.5
70°	882.2	620.7	389.0	355.6	342.0
72.5°	748.0	499.7	325.3	298.6	291.8
75°	617.1	382.2	268.3	244.8	241.7
77.5°	486.5	271.6	211.4	197.9	191.1
80°	365.5	194.7	160.9	147.7	147.7
82.5°	254.8	130.9	110.7	104.0	104.0
85°	144.1	73.7	63.7	63.7	63.7
87.5°	53.7	26.7	26.7	23.5	23.5
90°	1.1	14.3	23.8	29.9	32.2
92.5°	29.9	25.1	28.6	31.1	32.2
95°	77.6	38.2	46.6	52.7	51.4
97.5°	139.7	41.8	60.8	64.6	65.7
100°	211.5	47.8	68.1	77.6	80.0
102.5°	290.2	288.0	70.5	83.6	87.2
105°	363.1	399.0	72.9	85.9	90.8
107.5°	448.0	477.8	75.3	88.4	93.2
110°	529.3	554.2	209.1	89.7	94.3

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	605.7	627.1	606.8	91.9	95.6
115°	686.9	707.2	737.1	184.0	98.0
117.5°	757.3	781.2	801.6	630.7	317.7
120°	836.3	854.1	875.7	890.0	728.7
122.5°	903.0	922.2	946.2	953.2	954.6
125°	971.2	986.8	1009.4	1017.8	1021.3
127.5°	1033.3	1050.0	1068.0	1079.9	1081.1
130°	1091.8	1111.0	1124.1	1137.3	1136.1
132.5°	1151.6	1167.2	1180.2	1191.0	1189.8
135°	1201.8	1221.0	1231.6	1243.7	1241.2
137.5°	1254.3	1268.6	1280.7	1292.6	1289.1
140°	1305.6	1315.3	1328.4	1339.1	1333.2
142.5°	1348.7	1357.1	1372.6	1382.1	1376.1
145°	1394.2	1392.9	1413.2	1421.6	1415.6
147.5°	1433.5	1429.9	1450.2	1456.1	1451.5
150°	1471.8	1463.4	1482.5	1489.6	1483.7
152.5°	1504.0	1494.4	1512.3	1519.6	1511.2
155°	1535.0	1524.4	1538.7	1545.8	1536.3
157.5°	1560.2	1550.6	1561.4	1569.8	1560.2
160°	1581.7	1574.4	1581.7	1588.8	1580.5
162.5°	1600.7	1593.6	1599.5	1607.9	1597.2
165°	1617.5	1610.4	1613.9	1622.3	1613.9
167.5°	1630.6	1623.4	1627.1	1635.5	1624.6
170°	1641.4	1634.2	1636.6	1644.9	1634.2
172.5°	1648.5	1641.4	1643.8	1652.2	1641.4
175°	1654.5	1646.1	1648.5	1656.8	1644.9
177.5°	1656.8	1648.5	1649.8	1658.2	1647.4
180°	1650.9	1650.9	1650.9	1650.9	1650.9

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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	11.88	12.81	12.74	13.69	14.79	7.85	8.78	8.71	9.66	10.77
	3H	13.56	14.40	14.44	15.28	16.41	9.05	9.88	9.92	10.77	11.90
	4H	14.18	14.96	15.07	15.86	17.00	9.50	10.29	10.40	11.18	12.33
	6H	14.60	15.33	15.50	16.23	17.38	9.83	10.55	10.73	11.46	12.61
	8H	14.73	15.42	15.64	16.34	17.49	9.93	10.61	10.84	11.53	12.69
	12H	14.80	15.45	15.71	16.36	17.54	9.97	10.63	10.89	11.54	12.72
4H	2H	11.91	12.69	12.80	13.59	14.73	8.46	9.24	9.36	10.14	11.28
	3H	13.75	14.40	14.65	15.33	16.48	9.82	10.47	10.73	11.40	12.55
	4H	14.44	15.04	15.36	15.96	17.14	10.37	10.97	11.29	11.89	13.07
	6H	14.96	15.47	15.89	16.42	17.60	10.80	11.31	11.73	12.25	13.44
	8H	15.14	15.62	16.07	16.56	17.75	10.93	11.41	11.86	12.35	13.54
	12H	15.24	15.67	16.19	16.63	17.83	11.00	11.43	11.95	12.39	13.59
8H	4H	14.42	14.90	15.35	15.83	17.03	10.66	11.14	11.59	12.08	13.27
	6H	14.99	15.38	15.95	16.36	17.56	11.18	11.58	12.14	12.56	13.75
	8H	15.20	15.55	16.17	16.52	17.74	11.38	11.72	12.34	12.70	13.91
	12H	15.35	15.65	16.32	16.62	17.88	11.50	11.81	12.47	12.77	14.03
12H	4H	14.37	14.80	15.33	15.76	16.96	10.67	11.10	11.62	12.06	13.26
	6H	14.96	15.31	15.93	16.28	17.50	11.23	11.58	12.20	12.55	13.77
	8H	15.19	15.50	16.16	16.46	17.72	11.45	11.76	12.42	12.72	13.98