

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: P912757

Luminaire Tested: DFN2DIP-TR4F0-040D110US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912757
REPORT IS A COMBINATION OF REPORTS P902016 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-040D110US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

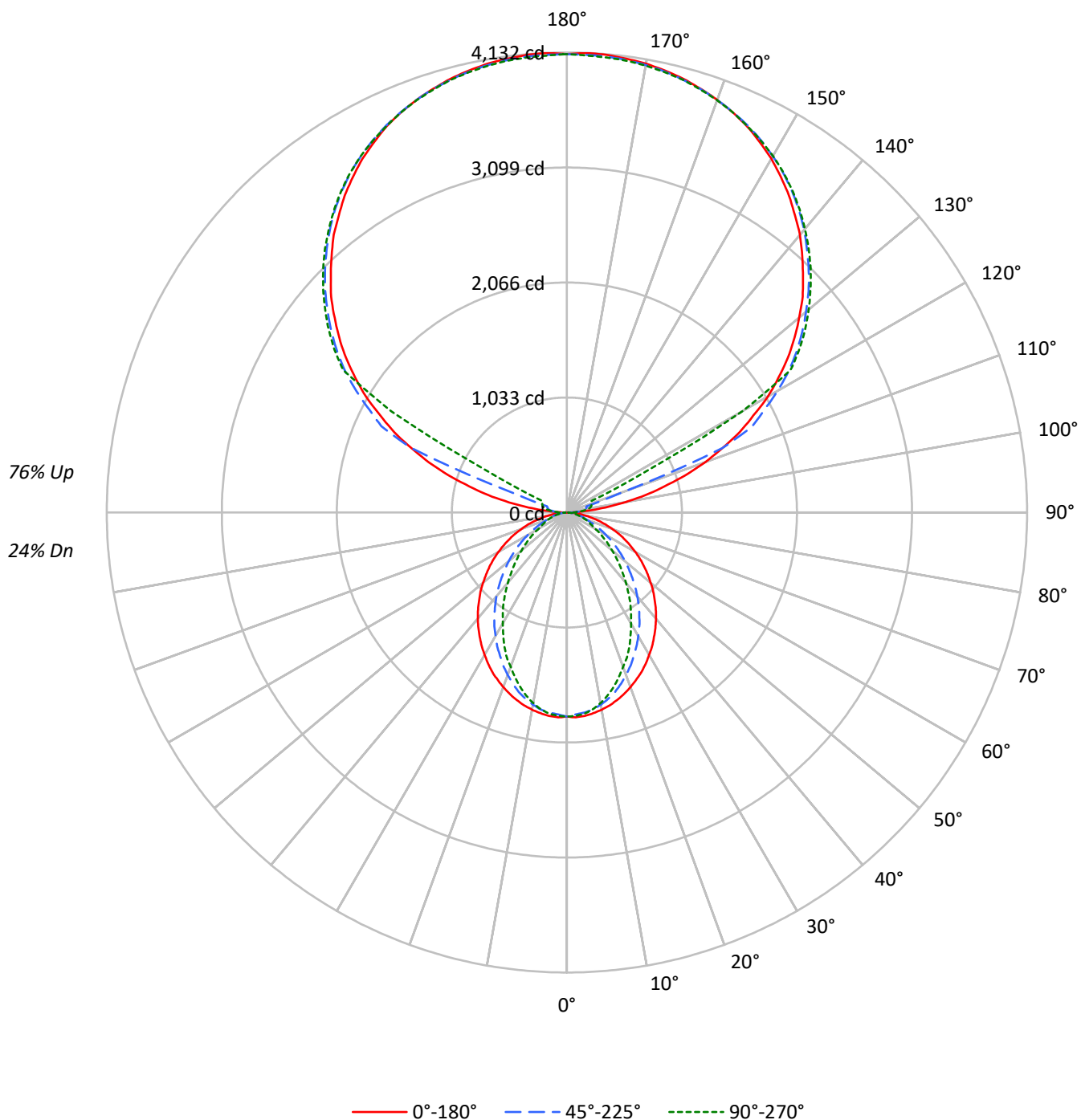
Lumens per Lamp: N/A
Luminaire Lumens: 15847.6 lumens
Efficiency: N/A
Efficacy: 135.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 116.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9952
Total Harmonic Distortion (THDi): 0.069
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	101	101	101	101	90	90	90	90	69	69	69	50	50	50	32	32	32
1	92	88	84	81	82	78	75	73	60	58	57	44	43	42	29	28	27
2	84	77	71	67	75	69	64	60	53	50	47	39	37	35	25	24	23
3	77	68	61	56	68	61	55	50	47	43	40	34	32	30	23	21	20
4	70	60	53	47	62	54	48	43	42	38	34	31	28	26	20	19	18
5	64	53	46	40	57	48	41	37	37	33	29	28	25	22	19	17	15
6	59	48	40	35	53	43	36	32	34	29	26	25	22	20	17	15	14
7	55	43	36	30	49	39	32	28	30	26	22	23	20	17	15	14	12
8	51	39	32	27	45	35	29	24	28	23	20	21	18	15	14	12	11
9	47	36	28	24	42	32	26	22	25	21	18	19	16	14	13	11	10
10	44	32	26	21	39	29	23	19	23	19	16	18	15	12	12	10	9

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	1457	1457	1457
5°	1459	1433	1443
10°	1444	1405	1396
15°	1425	1359	1323
20°	1398	1295	1234
25°	1371	1223	1148
30°	1335	1149	1039
35°	1300	1070	943
40°	1264	988	833
45°	1222	897	733
50°	1178	806	636
55°	1133	708	543
60°	1081	605	447
65°	1021	501	402
70°	948	404	364
75°	856	356	331
80°	723	299	287
85°	504	199	215

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2185 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	171.8	1.1
10°-20°	471.7	3.0
20°-30°	662.3	4.2
30°-40°	721.9	4.6
40°-50°	663.5	4.2
50°-60°	521.1	3.3
60°-70°	339.2	2.1
70°-80°	174.6	1.1
80°-90°	51.8	0.3
90°-100°	135.7	0.9
100°-110°	506.1	3.2
110°-120°	1342.2	8.5
120°-130°	2226.1	14.0
130°-140°	2364.7	14.9
140°-150°	2197.7	13.9
150°-160°	1766.9	11.1
160°-170°	1138.5	7.2
170°-180°	391.9	2.5
0°-30°	1305.8	8.2
0°-40°	2027.7	12.8
0°-60°	3212.2	20.3
0°-90°	3777.8	23.8
90°-120°	1984.0	12.5
90°-150°	8772.5	55.4
90°-180°	12070.0	76.2
0°-180°	15847.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1833	1833	1833	1833	1833	
5°	1833	1825	1804	1818	1814	174
15°	1744	1726	1669	1638	1621	491
25°	1583	1530	1420	1352	1327	728
35°	1364	1279	1133	1029	992	854
45°	1115	1004	830	712	672	861
55°	848	718	539	440	408	758
65°	572	438	289	232	227	568
75°	305	189	133	121	120	323
85°	71	36	32	32	32	82
90°	3	36	59	75	80	15
95°	194	95	116	131	128	229
105°	906	995	182	214	226	968
115°	1713	1763	1838	459	244	1686
125°	2422	2461	2517	2538	2547	2160
135°	2997	3045	3071	3101	3095	2315
145°	3477	3474	3524	3545	3530	2174
155°	3828	3801	3837	3855	3831	1764
165°	4034	4016	4025	4046	4025	1140
175°	4126	4105	4111	4132	4102	393
180°	4117	4117	4117	4117	4117	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1833.4	1833.4	1833.4	1833.4	1833.4
2.5°	1841.7	1833.4	1815.1	1831.8	1828.4
5°	1833.4	1825.1	1803.5	1818.4	1813.5
7.5°	1818.4	1808.6	1785.4	1791.8	1783.6
10°	1798.6	1786.9	1753.8	1748.7	1738.9
12.5°	1773.7	1758.8	1713.8	1704.0	1685.7
15°	1743.8	1725.5	1669.2	1637.7	1621.1
17.5°	1709.0	1682.4	1612.6	1576.2	1549.6
20°	1669.2	1635.9	1552.9	1511.6	1475.0
22.5°	1626.0	1587.9	1491.5	1435.2	1410.4
25°	1582.9	1529.8	1420.2	1352.3	1327.3
27.5°	1531.5	1475.0	1353.9	1275.9	1237.6
30°	1476.7	1413.5	1280.8	1196.3	1151.5
32.5°	1423.6	1347.2	1211.2	1111.7	1070.1
35°	1364.0	1279.2	1133.3	1028.7	992.1
37.5°	1305.8	1214.5	1060.2	945.6	904.3
40°	1244.4	1144.9	983.9	866.1	823.0
42.5°	1181.3	1075.2	907.6	784.7	743.4
45°	1115.0	1003.8	829.6	711.8	671.9
47.5°	1052.0	934.2	755.0	637.1	600.6
50°	982.2	864.5	681.9	567.4	532.7
52.5°	914.1	789.7	612.3	502.7	471.2
55°	847.8	718.4	539.2	439.7	408.2
57.5°	779.8	647.1	474.5	381.6	355.1
60°	710.1	577.3	406.4	321.9	295.4
62.5°	642.2	509.5	348.3	268.8	255.6
65°	572.5	437.9	288.7	232.3	227.2
67.5°	506.1	371.6	232.3	204.1	199.1
70°	436.4	307.0	192.4	175.9	169.1
72.5°	370.1	247.2	160.9	147.7	144.4
75°	305.2	189.1	132.7	121.1	119.6
77.5°	240.7	134.3	104.6	97.9	94.5
80°	180.8	96.3	79.5	73.1	73.1
82.5°	126.1	64.8	54.8	51.3	51.3
85°	71.3	36.5	31.5	31.5	31.5
87.5°	26.6	13.2	13.2	11.6	11.6
90°	2.9	35.7	59.4	74.6	80.3
92.5°	74.6	62.7	71.4	77.5	80.3
95°	193.5	95.2	116.0	131.2	128.1
97.5°	348.4	104.4	151.7	160.9	163.8
100°	527.4	119.2	169.8	193.5	199.5
102.5°	723.7	718.1	175.8	208.4	217.6
105°	905.6	995.1	181.9	214.4	226.5
107.5°	1117.2	1191.4	187.9	220.4	232.4
110°	1319.8	1382.1	521.5	223.6	235.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1510.6	1563.9	1513.3	229.2	238.4
115°	1712.9	1763.4	1838.2	458.8	244.4
117.5°	1888.7	1948.2	1999.1	1572.8	792.4
120°	2085.4	2129.9	2183.7	2219.4	1817.2
122.5°	2252.0	2299.7	2359.5	2377.3	2380.5
125°	2421.8	2460.8	2517.3	2538.2	2547.0
127.5°	2576.8	2618.5	2663.4	2693.1	2696.0
130°	2722.8	2770.6	2803.1	2836.0	2833.3
132.5°	2871.8	2910.7	2943.3	2970.1	2967.4
135°	2997.1	3044.8	3071.3	3101.4	3095.3
137.5°	3127.9	3163.6	3193.7	3223.4	3214.5
140°	3256.0	3280.0	3312.6	3339.4	3324.6
142.5°	3363.5	3384.3	3422.9	3446.7	3431.8
145°	3476.7	3473.5	3524.1	3545.0	3530.2
147.5°	3574.8	3565.9	3616.4	3631.3	3619.7
150°	3670.2	3649.4	3697.1	3714.8	3700.0
152.5°	3750.5	3726.8	3771.4	3789.5	3768.6
155°	3828.0	3801.4	3837.1	3854.9	3831.2
157.5°	3890.6	3866.9	3893.8	3914.7	3890.6
160°	3944.4	3926.3	3944.4	3962.0	3941.2
162.5°	3991.7	3974.1	3989.0	4009.8	3983.0
165°	4033.5	4015.8	4024.7	4045.5	4024.7
167.5°	4066.4	4048.4	4057.6	4078.5	4051.6
170°	4093.3	4075.2	4081.2	4102.2	4075.2
172.5°	4111.0	4093.3	4099.3	4120.2	4093.3
175°	4125.8	4105.0	4111.0	4131.9	4102.2
177.5°	4131.9	4111.0	4114.2	4135.0	4108.2
180°	4117.1	4117.1	4117.1	4117.1	4117.1

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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	5.29	5.94	6.45	7.08	8.69	1.26	1.91	2.42	3.06	4.66
	3H	6.95	7.54	8.12	8.69	10.30	2.44	3.02	3.60	4.17	5.79
	4H	7.55	8.11	8.72	9.26	10.88	2.88	3.44	4.05	4.59	6.21
	6H	7.96	8.47	9.14	9.63	11.26	3.19	3.70	4.37	4.86	6.49
	8H	8.08	8.57	9.27	9.74	11.36	3.28	3.76	4.46	4.93	6.56
	12H	8.14	8.60	9.33	9.76	11.41	3.32	3.78	4.50	4.94	6.58
4H	2H	5.28	5.84	6.46	6.99	8.61	1.83	2.39	3.01	3.54	5.16
	3H	7.10	7.56	8.28	8.73	10.37	3.17	3.63	4.35	4.81	6.44
	4H	7.78	8.21	8.97	9.37	11.02	3.71	4.14	4.90	5.30	6.95
	6H	8.29	8.65	9.48	9.84	11.48	4.12	4.49	5.31	5.67	7.31
	8H	8.46	8.80	9.65	9.98	11.63	4.25	4.59	5.44	5.76	7.42
	12H	8.55	8.85	9.75	10.04	11.71	4.30	4.61	5.51	5.80	7.46
8H	4H	7.74	8.08	8.93	9.25	10.91	3.98	4.32	5.17	5.49	7.15
	6H	8.30	8.58	9.50	9.80	11.45	4.49	4.77	5.70	5.99	7.65
	8H	8.51	8.76	9.73	9.95	11.63	4.68	4.92	5.89	6.12	7.80
	12H	8.64	8.86	9.86	10.05	11.76	4.79	5.01	6.01	6.20	7.91
12H	4H	7.68	7.99	8.89	9.18	10.84	3.97	4.28	5.18	5.47	7.13
	6H	8.27	8.51	9.48	9.71	11.39	4.54	4.78	5.75	5.98	7.66
	8H	8.48	8.70	9.70	9.89	11.60	4.74	4.96	5.96	6.15	7.86

END OF REPORT