

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: P915713

Luminaire Tested: DFN2DIP-TR4F0-110D050US927-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915713
REPORT IS A COMBINATION OF REPORTS P901922 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-110D050US927-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

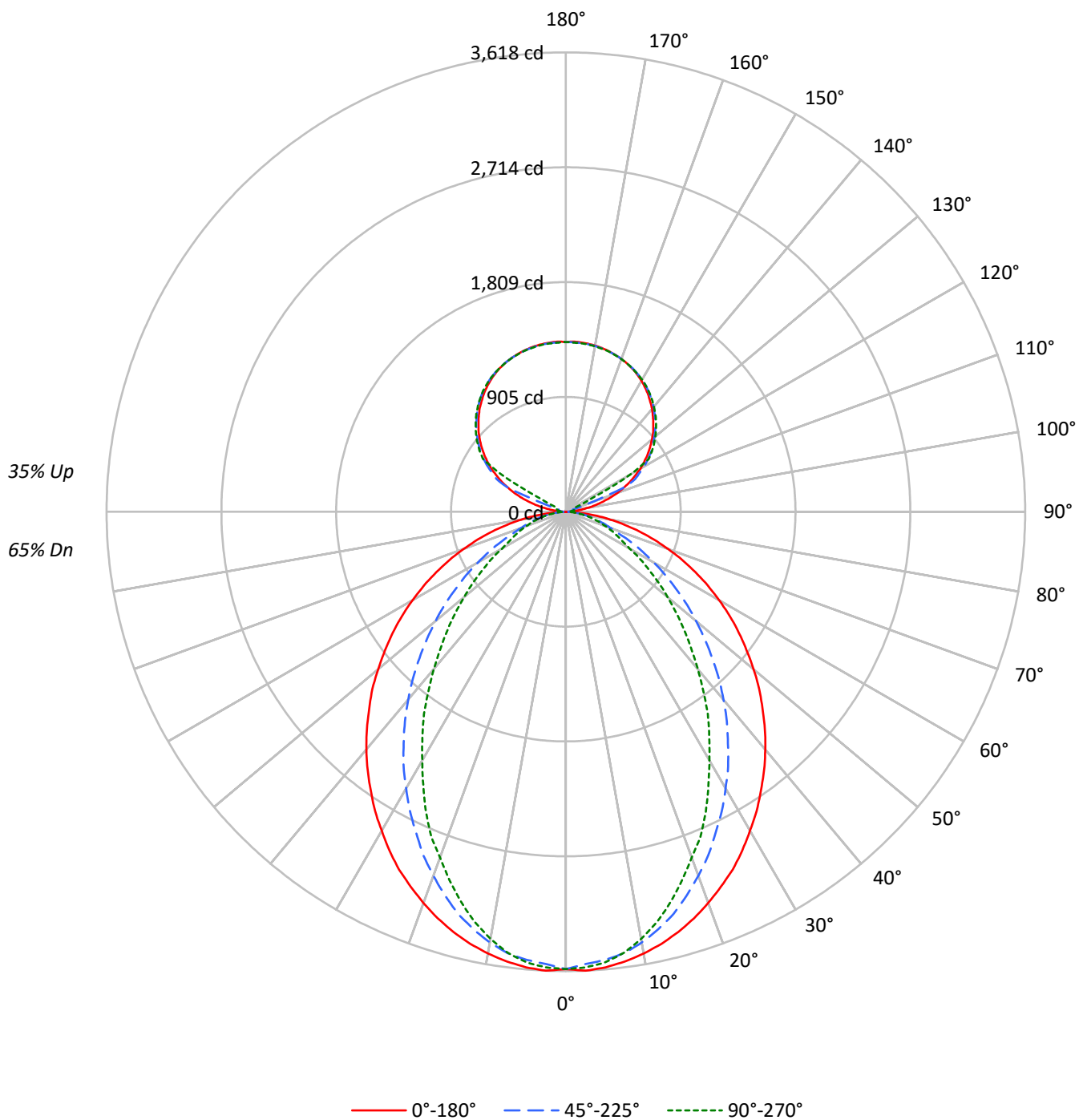
Lumens per Lamp: N/A
Luminaire Lumens: 11328.2 lumens
Efficiency: N/A
Efficacy: 75.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 150.5
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	111	111	111	111	104	104	104	104	92	92	92	81	81	81	70	70	70
1	102	98	94	91	96	92	89	86	82	79	77	72	70	69	63	62	61
2	93	86	80	75	88	81	76	72	72	68	65	64	61	58	56	54	52
3	86	76	69	63	80	72	66	61	64	59	55	57	53	50	50	48	45
4	79	68	60	54	74	64	57	52	58	52	48	51	47	43	46	42	39
5	72	61	53	47	68	58	51	45	52	46	42	46	42	38	41	38	35
6	67	55	47	41	63	52	45	40	47	41	37	42	37	34	38	34	31
7	62	50	42	37	59	48	40	35	43	37	33	39	34	30	35	31	28
8	58	46	38	33	55	44	36	32	39	34	29	36	31	27	32	28	25
9	54	42	34	29	51	40	33	28	36	31	27	33	28	25	30	26	23
10	51	39	31	27	48	37	30	26	34	28	24	31	26	23	28	24	21

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2861	2861	2861
5°	2866	2816	2834
10°	2837	2760	2741
15°	2798	2669	2599
20°	2747	2543	2424
25°	2694	2402	2255
30°	2623	2258	2040
35°	2553	2102	1852
40°	2482	1942	1636
45°	2400	1763	1441
50°	2315	1583	1250
55°	2226	1390	1066
60°	2123	1189	878
65°	2005	985	790
70°	1862	794	715
75°	1682	700	650
80°	1421	587	563
85°	991	392	423

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2400 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	337.5	3.0
10°-20°	926.6	8.2
20°-30°	1300.9	11.5
30°-40°	1418.1	12.5
40°-50°	1303.4	11.5
50°-60°	1023.6	9.0
60°-70°	666.3	5.9
70°-80°	343.0	3.0
80°-90°	89.9	0.8
90°-100°	44.1	0.4
100°-110°	164.3	1.5
110°-120°	435.8	3.8
120°-130°	722.8	6.4
130°-140°	767.8	6.8
140°-150°	713.6	6.3
150°-160°	573.7	5.1
160°-170°	369.7	3.3
170°-180°	127.2	1.1
0°-30°	2565.1	22.6
0°-40°	3983.1	35.2
0°-60°	6310.1	55.7
0°-90°	7409.3	65.4
90°-120°	644.2	5.7
90°-150°	2848.4	25.1
90°-180°	3919.0	34.6
0°-180°	11328.2	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3602	3602	3602	3602	3602	
5°	3602	3585	3543	3572	3562	341
15°	3426	3390	3279	3217	3184	965
25°	3109	3005	2790	2656	2607	1430
35°	2679	2513	2226	2021	1949	1677
45°	2190	1972	1630	1398	1320	1691
55°	1665	1411	1059	864	802	1488
65°	1124	860	567	456	446	1115
75°	600	371	261	238	235	634
85°	140	72	62	62	62	161
90°	1	12	19	24	26	11
95°	63	31	38	43	42	74
105°	294	323	59	70	74	314
115°	556	573	597	149	79	548
125°	786	799	817	824	827	701
135°	973	989	997	1007	1005	752
145°	1129	1128	1144	1151	1146	706
155°	1243	1234	1246	1252	1244	573
165°	1310	1304	1307	1314	1307	370
175°	1340	1333	1335	1342	1332	127
180°	1337	1337	1337	1337	1337	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3601.5	3601.5	3601.5	3601.5	3601.5
2.5°	3617.7	3601.5	3565.5	3598.4	3591.8
5°	3601.5	3585.3	3542.7	3572.1	3562.4
7.5°	3572.1	3552.7	3507.1	3519.9	3503.6
10°	3533.0	3510.2	3445.2	3435.1	3415.8
12.5°	3484.3	3454.9	3366.7	3347.3	3311.3
15°	3425.5	3389.5	3278.8	3217.0	3184.4
17.5°	3357.0	3304.8	3167.9	3096.2	3044.0
20°	3278.8	3213.5	3050.6	2969.3	2897.4
22.5°	3194.2	3119.1	2930.0	2819.3	2770.5
25°	3109.4	3005.0	2789.9	2656.4	2607.3
27.5°	3008.5	2897.4	2659.5	2506.3	2431.3
30°	2900.9	2776.8	2516.0	2350.0	2261.8
32.5°	2796.5	2646.4	2379.4	2183.7	2102.1
35°	2679.2	2512.9	2226.3	2020.9	1948.9
37.5°	2565.2	2385.7	2082.7	1857.6	1776.4
40°	2444.4	2249.1	1932.7	1701.3	1616.6
42.5°	2320.6	2112.1	1783.0	1541.6	1460.3
45°	2190.3	1971.7	1629.8	1398.0	1319.9
47.5°	2066.5	1835.2	1483.1	1251.4	1179.9
50°	1929.5	1698.2	1339.7	1114.5	1046.4
52.5°	1795.7	1551.2	1202.7	987.6	925.7
55°	1665.3	1411.2	1059.1	863.8	801.9
57.5°	1531.9	1271.1	932.2	749.7	697.4
60°	1395.0	1134.2	798.4	632.5	580.3
62.5°	1261.5	1000.8	684.4	528.1	502.1
65°	1124.5	860.3	567.1	456.5	446.4
67.5°	994.2	730.0	456.5	400.8	391.1
70°	857.2	603.1	377.9	345.5	332.3
72.5°	726.8	485.5	316.1	290.1	283.5
75°	599.6	371.4	260.7	237.9	234.8
77.5°	472.7	263.9	205.4	192.3	185.7
80°	355.1	189.2	156.3	143.5	143.5
82.5°	247.6	127.2	107.6	101.0	101.0
85°	140.1	71.6	61.9	61.9	61.9
87.5°	52.2	25.9	25.9	22.8	22.8
90°	1.0	11.6	19.3	24.2	26.1
92.5°	24.2	20.4	23.2	25.2	26.1
95°	62.8	30.9	37.7	42.6	41.6
97.5°	113.1	33.9	49.3	52.3	53.2
100°	171.3	38.7	55.1	62.8	64.8
102.5°	235.0	233.1	57.1	67.7	70.7
105°	294.1	323.1	59.0	69.6	73.5
107.5°	362.7	386.8	61.0	71.5	75.5
110°	428.6	448.8	169.3	72.6	76.4

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	490.4	507.8	491.4	74.5	77.4
115°	556.2	572.6	596.8	149.0	79.4
117.5°	613.2	632.6	649.1	510.6	257.3
120°	677.1	691.6	709.0	720.6	590.0
122.5°	731.2	746.7	766.1	771.9	772.9
125°	786.3	799.0	817.4	824.1	827.0
127.5°	836.6	850.2	864.8	874.4	875.4
130°	884.1	899.6	910.1	920.8	920.0
132.5°	932.5	945.1	955.6	964.4	963.5
135°	973.1	988.6	997.2	1007.0	1005.0
137.5°	1015.6	1027.2	1037.0	1046.6	1043.8
140°	1057.2	1065.0	1075.5	1084.3	1079.5
142.5°	1092.1	1098.9	1111.4	1119.1	1114.3
145°	1128.9	1127.8	1144.2	1151.0	1146.2
147.5°	1160.7	1157.8	1174.3	1179.1	1175.3
150°	1191.7	1184.9	1200.4	1206.2	1201.3
152.5°	1217.7	1210.1	1224.6	1230.4	1223.6
155°	1242.9	1234.3	1245.9	1251.6	1244.0
157.5°	1263.2	1255.5	1264.2	1271.1	1263.2
160°	1280.7	1274.9	1280.7	1286.4	1279.7
162.5°	1296.1	1290.4	1295.1	1301.9	1293.2
165°	1309.6	1303.9	1306.8	1313.5	1306.8
167.5°	1320.3	1314.5	1317.5	1324.2	1315.5
170°	1329.0	1323.2	1325.2	1331.9	1323.2
172.5°	1334.8	1329.0	1331.0	1337.8	1329.0
175°	1339.7	1332.8	1334.8	1341.6	1331.9
177.5°	1341.6	1334.8	1335.9	1342.6	1333.9
180°	1336.7	1336.7	1336.7	1336.7	1336.7

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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	12.12	13.10	12.94	13.93	14.97	8.10	9.07	8.92	9.91	10.94
	3H	13.81	14.68	14.65	15.53	16.59	9.30	10.17	10.13	11.02	12.08
	4H	14.43	15.25	15.28	16.10	17.18	9.76	10.58	10.61	11.43	12.51
	6H	14.86	15.61	15.72	16.47	17.56	10.08	10.84	10.95	11.70	12.79
	8H	14.99	15.71	15.86	16.58	17.67	10.18	10.90	11.05	11.78	12.87
	12H	15.05	15.74	15.93	16.61	17.72	10.23	10.91	11.10	11.79	12.90
4H	2H	12.16	12.98	13.01	13.83	14.91	8.71	9.53	9.56	10.39	11.46
	3H	14.00	14.68	14.87	15.57	16.66	10.07	10.76	10.94	11.64	12.73
	4H	14.70	15.32	15.58	16.20	17.32	10.63	11.25	11.51	12.13	13.25
	6H	15.22	15.76	16.11	16.66	17.78	11.06	11.59	11.95	12.50	13.62
	8H	15.40	15.90	16.30	16.80	17.93	11.19	11.69	12.08	12.59	13.72
	12H	15.50	15.95	16.42	16.87	18.01	11.26	11.71	12.18	12.63	13.77
8H	4H	14.68	15.18	15.57	16.08	17.21	10.92	11.42	11.81	12.32	13.45
	6H	15.25	15.66	16.17	16.61	17.74	11.44	11.86	12.37	12.80	13.93
	8H	15.47	15.83	16.40	16.77	17.92	11.64	12.00	12.57	12.94	14.09
	12H	15.61	15.93	16.55	16.86	18.06	11.76	12.08	12.70	13.01	14.21
12H	4H	14.64	15.09	15.55	16.01	17.14	10.93	11.38	11.85	12.30	13.44
	6H	15.22	15.59	16.16	16.53	17.68	11.49	11.86	12.43	12.80	13.95
	8H	15.45	15.77	16.39	16.70	17.90	11.71	12.03	12.65	12.96	14.16