

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: P912945

Luminaire Tested: DFN2DIP-TR4F0-100D040US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912945
REPORT IS A COMBINATION OF REPORTS P901902 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D040US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

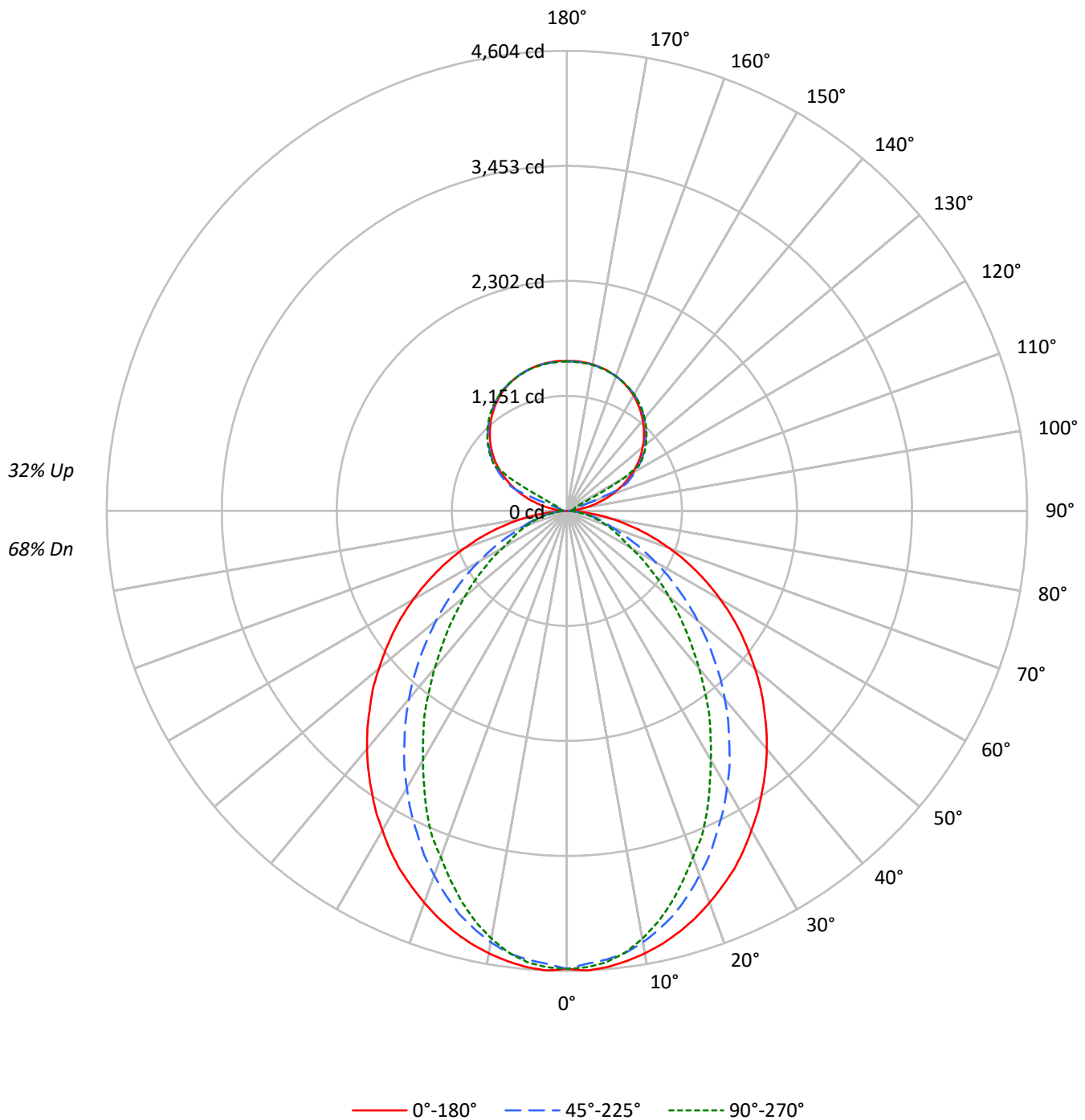
Lumens per Lamp: N/A
Luminaire Lumens: 13818.1 lumens
Efficiency: N/A
Efficacy: 105.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 131.4
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9972
Total Harmonic Distortion (THDi): 0.128
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			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10
RCR																				
0	111	111	111	111	105	105	105	105	93	93	93	83	83	83	73	73	73	65	65	65
1	103	98	95	91	97	93	90	87	83	81	78	74	72	70	65	64	63	59	58	57
2	94	87	81	76	88	82	77	72	74	69	66	66	63	60	58	56	54	50	49	48
3	86	77	70	64	81	73	66	61	66	60	56	59	55	51	52	49	47	43	42	41
4	79	69	61	55	75	65	58	53	59	53	49	53	48	45	47	44	41	38	37	36
5	73	62	53	48	69	59	51	46	53	47	42	48	43	39	43	39	36	33	32	31
6	68	56	47	42	64	53	46	40	48	42	38	43	39	35	39	35	32	30	29	28
7	63	50	43	37	59	48	41	36	44	38	33	40	35	31	36	32	29	26	25	24
8	58	46	38	33	55	44	37	32	40	34	30	37	32	28	33	29	26	24	23	22
9	55	42	35	30	52	41	34	29	37	31	27	34	29	25	31	27	24	22	21	20
10	51	39	32	27	48	37	31	26	34	29	25	31	27	23	29	25	22	20	19	18

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3641	3641	3641
5°	3647	3583	3606
10°	3611	3513	3489
15°	3561	3397	3307
20°	3496	3237	3085
25°	3428	3057	2870
30°	3338	2873	2597
35°	3249	2676	2357
40°	3159	2471	2083
45°	3055	2244	1834
50°	2946	2015	1591
55°	2833	1770	1357
60°	2702	1514	1117
65°	2552	1253	1005
70°	2369	1010	910
75°	2140	890	827
80°	1808	747	717
85°	1260	498	538

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 3055 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	429.6	3.1
10°-20°	1179.3	8.5
20°-30°	1655.6	12.0
30°-40°	1804.7	13.1
40°-50°	1658.8	12.0
50°-60°	1302.7	9.4
60°-70°	847.9	6.1
70°-80°	436.5	3.2
80°-90°	114.1	0.8
90°-100°	49.4	0.4
100°-110°	184.0	1.3
110°-120°	488.1	3.5
120°-130°	809.5	5.9
130°-140°	859.9	6.2
140°-150°	799.2	5.8
150°-160°	642.5	4.6
160°-170°	414.0	3.0
170°-180°	142.5	1.0
0°-30°	3264.5	23.6
0°-40°	5069.2	36.7
0°-60°	8030.6	58.1
0°-90°	9429.1	68.2
90°-120°	721.5	5.2
90°-150°	3190.0	23.1
90°-180°	4389.0	31.8
0°-180°	13818.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4584	4584	4584	4584	4584	
5°	4584	4563	4509	4546	4534	435
15°	4360	4314	4173	4094	4053	1228
25°	3957	3824	3551	3381	3318	1820
35°	3410	3198	2833	2572	2480	2134
45°	2788	2509	2074	1779	1680	2153
55°	2119	1796	1348	1099	1020	1894
65°	1431	1095	722	581	568	1419
75°	763	473	332	303	299	807
85°	178	91	79	79	79	205
90°	1	13	22	27	29	13
95°	70	35	42	48	47	83
105°	329	362	66	78	82	352
115°	623	641	668	167	89	613
125°	881	895	915	923	926	785
135°	1090	1107	1117	1128	1126	842
145°	1264	1263	1281	1289	1284	791
155°	1392	1382	1395	1402	1393	641
165°	1467	1460	1464	1471	1464	414
175°	1500	1493	1495	1502	1492	143
180°	1497	1497	1497	1497	1497	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4583.5	4583.5	4583.5	4583.5	4583.5
2.5°	4604.1	4583.5	4537.7	4579.5	4571.2
5°	4583.5	4562.8	4508.6	4546.1	4533.7
7.5°	4546.1	4521.4	4463.3	4479.6	4459.0
10°	4496.3	4467.3	4384.5	4371.8	4347.2
12.5°	4434.3	4396.9	4284.6	4260.0	4214.2
15°	4359.5	4313.7	4172.8	4094.1	4052.7
17.5°	4272.3	4205.9	4031.7	3940.5	3874.1
20°	4172.8	4089.7	3882.4	3779.0	3687.4
22.5°	4065.0	3969.6	3728.8	3588.1	3526.0
25°	3957.2	3824.4	3550.6	3380.7	3318.2
27.5°	3828.7	3687.4	3384.7	3189.7	3094.2
30°	3691.9	3533.8	3202.0	2990.9	2878.6
32.5°	3559.0	3367.9	3028.2	2779.2	2675.2
35°	3409.7	3198.1	2833.3	2571.9	2480.3
37.5°	3264.6	3036.1	2650.6	2364.2	2260.7
40°	3111.0	2862.3	2459.7	2165.2	2057.4
42.5°	2953.4	2688.0	2269.1	1961.9	1858.5
45°	2787.5	2509.3	2074.2	1779.3	1679.8
47.5°	2630.0	2335.6	1887.5	1592.6	1501.6
50°	2455.7	2161.2	1704.9	1418.4	1331.7
52.5°	2285.3	1974.2	1530.6	1256.8	1178.1
55°	2119.4	1796.0	1348.0	1099.4	1020.5
57.5°	1949.6	1617.7	1186.5	954.1	887.6
60°	1775.3	1443.5	1016.2	804.9	738.5
62.5°	1605.4	1273.6	870.9	672.1	639.0
65°	1431.2	1094.9	721.7	580.9	568.1
67.5°	1265.3	929.0	580.9	510.0	497.7
70°	1090.9	767.5	481.0	439.6	423.0
72.5°	925.0	617.8	402.2	369.2	360.9
75°	763.1	472.7	331.8	302.8	298.8
77.5°	601.6	335.8	261.4	244.6	236.3
80°	451.9	240.8	199.0	182.7	182.7
82.5°	315.1	161.9	136.9	128.5	128.5
85°	178.2	91.0	78.7	78.7	78.7
87.5°	66.4	33.0	33.0	29.1	29.1
90°	1.0	13.0	21.6	27.2	29.2
92.5°	27.2	22.7	26.0	28.2	29.2
95°	70.3	34.6	42.1	47.7	46.6
97.5°	126.8	37.9	55.2	58.6	59.6
100°	191.7	43.4	61.8	70.3	72.5
102.5°	263.2	261.2	63.9	75.7	79.1
105°	329.3	361.9	66.1	78.0	82.3
107.5°	406.2	433.3	68.3	80.2	84.5
110°	480.0	502.6	189.6	81.3	85.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	549.3	568.7	550.3	83.4	86.7
115°	622.8	641.2	668.4	166.8	88.9
117.5°	686.8	708.4	726.9	571.9	288.1
120°	758.3	774.5	794.0	807.1	660.9
122.5°	818.9	836.3	858.0	864.5	865.6
125°	880.7	894.9	915.4	923.0	926.2
127.5°	937.0	952.2	968.5	979.4	980.4
130°	990.1	1007.5	1019.3	1031.3	1030.3
132.5°	1044.2	1058.4	1070.3	1080.1	1079.1
135°	1089.8	1107.2	1116.9	1127.7	1125.6
137.5°	1137.4	1150.4	1161.3	1172.1	1168.9
140°	1184.0	1192.7	1204.6	1214.4	1208.9
142.5°	1223.1	1230.7	1244.7	1253.3	1248.0
145°	1264.3	1263.2	1281.4	1289.1	1283.7
147.5°	1299.9	1296.6	1315.1	1320.5	1316.3
150°	1334.6	1327.0	1344.4	1350.9	1345.4
152.5°	1363.8	1355.2	1371.4	1377.9	1370.4
155°	1392.0	1382.4	1395.3	1401.8	1393.1
157.5°	1414.8	1406.1	1416.0	1423.5	1414.8
160°	1434.3	1427.7	1434.3	1440.7	1433.2
162.5°	1451.6	1445.1	1450.6	1458.1	1448.4
165°	1466.8	1460.3	1463.5	1471.1	1463.5
167.5°	1478.7	1472.1	1475.5	1483.1	1473.3
170°	1488.5	1482.0	1484.1	1491.7	1482.0
172.5°	1494.9	1488.5	1490.7	1498.3	1488.5
175°	1500.3	1492.7	1494.9	1502.5	1491.7
177.5°	1502.5	1494.9	1496.0	1503.7	1493.9
180°	1497.2	1497.2	1497.2	1497.2	1497.2

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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	13.19	14.19	13.98	15.00	15.99	9.16	10.17	9.95	10.97	11.96
	3H	14.88	15.78	15.68	16.59	17.61	10.36	11.26	11.17	12.08	13.10
	4H	15.49	16.34	16.31	17.17	18.19	10.82	11.67	11.64	12.49	13.52
	6H	15.92	16.70	16.76	17.54	18.58	11.15	11.93	11.99	12.77	13.81
	8H	16.05	16.80	16.90	17.65	18.69	11.25	11.99	12.09	12.84	13.88
	12H	16.12	16.83	16.97	17.67	18.74	11.30	12.01	12.15	12.85	13.92
4H	2H	13.23	14.07	14.05	14.90	15.93	9.78	10.62	10.60	11.45	12.48
	3H	15.07	15.77	15.91	16.63	17.68	11.14	11.85	11.98	12.71	13.75
	4H	15.77	16.41	16.62	17.27	18.34	11.70	12.34	12.55	13.20	14.27
	6H	16.29	16.85	17.16	17.73	18.80	12.13	12.68	12.99	13.56	14.64
	8H	16.47	16.99	17.34	17.86	18.95	12.26	12.78	13.13	13.65	14.74
	12H	16.58	17.04	17.46	17.93	19.03	12.33	12.80	13.22	13.69	14.79
8H	4H	15.75	16.27	16.62	17.14	18.23	11.99	12.51	12.86	13.38	14.47
	6H	16.32	16.75	17.22	17.67	18.75	12.52	12.94	13.41	13.86	14.95
	8H	16.54	16.92	17.45	17.83	18.93	12.71	13.09	13.62	14.00	15.10
	12H	16.69	17.02	17.59	17.92	19.08	12.84	13.17	13.75	14.07	15.23
12H	4H	15.71	16.17	16.60	17.07	18.16	12.00	12.47	12.89	13.36	14.46
	6H	16.30	16.68	17.21	17.59	18.69	12.57	12.94	13.47	13.86	14.96
	8H	16.53	16.86	17.44	17.76	18.92	12.79	13.12	13.70	14.02	15.18