

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: P912965

Luminaire Tested: DFN2DIP-TR4F0-100D090US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912965
REPORT IS A COMBINATION OF REPORTS P901992 AND P898849
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-TR4F0-100D090US850-RLLONL
Description: 4 foot, Triangle Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

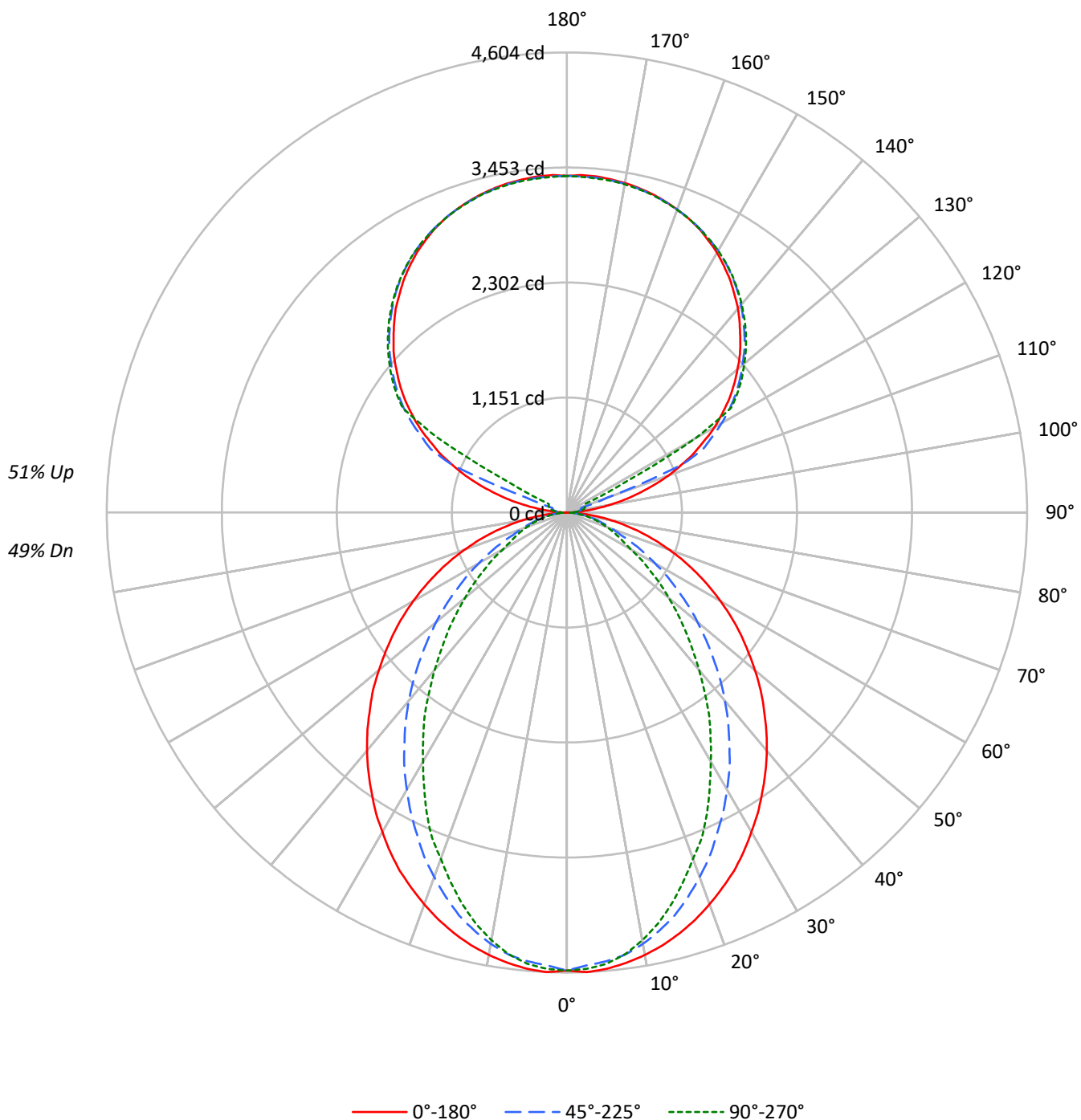
Lumens per Lamp: N/A
Luminaire Lumens: 19307.7 lumens
Efficiency: N/A
Efficacy: 114.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.43' x L: 3.96' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 168.7
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
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	107	107	107	107	98	98	98	98	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	83	81	73	71	69	61	59	58	49	48	47
2	90	83	77	72	82	76	71	67	65	61	58	54	51	49	44	42	41
3	82	73	66	60	75	68	61	56	57	53	49	48	45	42	39	37	35
4	75	65	57	51	69	60	53	48	51	46	42	43	39	36	36	33	31
5	69	58	50	44	64	54	47	42	46	41	37	39	35	32	32	29	27
6	64	52	44	39	59	49	42	37	42	36	32	35	31	28	29	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	35	30	51	40	33	29	35	29	26	30	26	22	25	22	19
9	51	39	32	27	47	37	30	26	32	27	23	27	23	20	23	20	18
10	48	36	29	24	44	34	28	23	30	24	21	25	21	18	21	18	16

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	2.2
10°-20°	1179.3	6.1
20°-30°	1655.6	8.6
30°-40°	1804.7	9.3
40°-50°	1658.8	8.6
50°-60°	1302.7	6.7
60°-70°	847.9	4.4
70°-80°	436.5	2.3
80°-90°	117.4	0.6
90°-100°	111.1	0.6
100°-110°	414.0	2.1
110°-120°	1098.2	5.7
120°-130°	1821.4	9.4
130°-140°	1934.7	10.0
140°-150°	1798.1	9.3
150°-160°	1445.6	7.5
160°-170°	931.5	4.8
170°-180°	320.6	1.7
0°-30°	3264.5	16.9
0°-40°	5069.2	26.3
0°-60°	8030.6	41.6
0°-90°	9432.4	48.9
90°-120°	1623.3	8.4
90°-150°	7177.5	37.2
90°-180°	9875.0	51.1
0°-180°	19307.7	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°	2	29	49	61	66	18
95°	158	78	95	107	105	188
105°	741	814	149	175	185	792
115°	1401	1443	1504	375	200	1380
125°	1982	2013	2060	2077	2084	1767
135°	2452	2491	2513	2538	2533	1894
145°	2845	2842	2883	2900	2888	1779
155°	3132	3110	3140	3154	3135	1443
165°	3300	3286	3293	3310	3293	932
175°	3376	3359	3364	3381	3356	321
180°	3368	3368	3368	3368	3368	

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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°	2.3	29.3	48.6	61.1	65.7
92.5°	61.1	51.2	58.4	63.4	65.7
95°	158.4	77.9	94.9	107.4	104.8
97.5°	285.1	85.4	124.2	131.6	134.0
100°	431.5	97.6	139.0	158.4	163.2
102.5°	592.2	587.5	143.8	170.5	178.0
105°	740.9	814.2	148.7	175.4	185.2
107.5°	914.0	974.8	153.7	180.3	190.2
110°	1079.8	1130.8	426.6	182.9	192.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1235.9	1279.6	1238.2	187.5	195.1
115°	1401.4	1442.8	1503.9	375.4	200.0
117.5°	1545.3	1594.0	1635.6	1286.9	648.3
120°	1706.2	1742.7	1786.7	1815.9	1486.8
122.5°	1842.6	1881.6	1930.5	1945.0	1947.6
125°	1981.5	2013.3	2059.6	2076.7	2083.9
127.5°	2108.2	2142.4	2179.2	2203.5	2205.8
130°	2227.8	2266.9	2293.5	2320.4	2318.1
132.5°	2349.6	2381.5	2408.1	2430.2	2427.8
135°	2452.1	2491.1	2512.9	2537.5	2532.6
137.5°	2559.2	2588.4	2613.0	2637.3	2630.1
140°	2663.9	2683.7	2710.3	2732.2	2720.2
142.5°	2752.0	2769.1	2800.6	2820.0	2807.9
145°	2844.6	2841.9	2883.4	2900.5	2888.3
147.5°	2924.8	2917.6	2958.9	2971.1	2961.5
150°	3003.0	2985.9	3024.9	3039.3	3027.2
152.5°	3068.6	3049.2	3085.7	3100.4	3083.4
155°	3132.0	3110.3	3139.5	3154.0	3134.6
157.5°	3183.3	3163.9	3185.8	3202.9	3183.3
160°	3227.2	3212.4	3227.2	3241.7	3224.6
162.5°	3266.0	3251.5	3263.7	3280.8	3258.8
165°	3300.2	3285.6	3293.0	3310.0	3293.0
167.5°	3327.1	3312.4	3319.8	3336.9	3314.9
170°	3349.1	3334.3	3339.2	3356.3	3334.3
172.5°	3363.6	3349.1	3353.9	3371.0	3349.1
175°	3375.7	3358.6	3363.6	3380.6	3356.3
177.5°	3380.6	3363.6	3366.1	3383.2	3361.3
180°	3368.5	3368.5	3368.5	3368.5	3368.5

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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	11.52	12.34	12.50	13.33	14.62	7.50	8.32	8.47	9.30	10.59
	3H	13.20	13.93	14.18	14.93	16.24	8.69	9.42	9.67	10.41	11.72
	4H	13.81	14.50	14.81	15.50	16.82	9.14	9.83	10.13	10.83	12.15
	6H	14.23	14.87	15.24	15.87	17.20	9.46	10.10	10.47	11.10	12.43
	8H	14.36	14.96	15.37	15.98	17.31	9.55	10.16	10.56	11.17	12.50
	12H	14.42	14.99	15.44	16.00	17.36	9.59	10.17	10.61	11.18	12.53
4H	2H	11.54	12.23	12.54	13.23	14.55	8.09	8.79	9.10	9.78	11.10
	3H	13.37	13.95	14.38	14.97	16.30	9.44	10.02	10.45	11.04	12.38
	4H	14.06	14.59	15.08	15.60	16.96	9.99	10.52	11.01	11.53	12.89
	6H	14.58	15.03	15.61	16.07	17.42	10.41	10.86	11.44	11.90	13.26
	8H	14.75	15.17	15.78	16.21	17.57	10.54	10.96	11.57	11.99	13.36
	12H	14.84	15.23	15.89	16.27	17.65	10.60	10.99	11.65	12.03	13.41
8H	4H	14.03	14.45	15.06	15.48	16.85	10.27	10.69	11.30	11.72	13.09
	6H	14.59	14.94	15.65	16.02	17.38	10.79	11.14	11.84	12.21	13.58
	8H	14.81	15.12	15.87	16.18	17.56	10.98	11.29	12.04	12.35	13.73
	12H	14.95	15.22	16.01	16.27	17.70	11.10	11.37	12.17	12.42	13.85
12H	4H	13.98	14.36	15.03	15.41	16.78	10.27	10.65	11.32	11.70	13.08
	6H	14.57	14.88	15.63	15.94	17.32	10.84	11.14	11.90	12.20	13.59
	8H	14.79	15.06	15.86	16.11	17.54	11.05	11.32	12.11	12.37	13.80