

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: P911567

Luminaire Tested: DFN2DIP-PN4F0-100D090US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P911567
REPORT IS A COMBINATION OF REPORTS P901232 AND P898053
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-PN4F0-100D090US850-RLLONL
Description: 4 foot, Pentagon Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

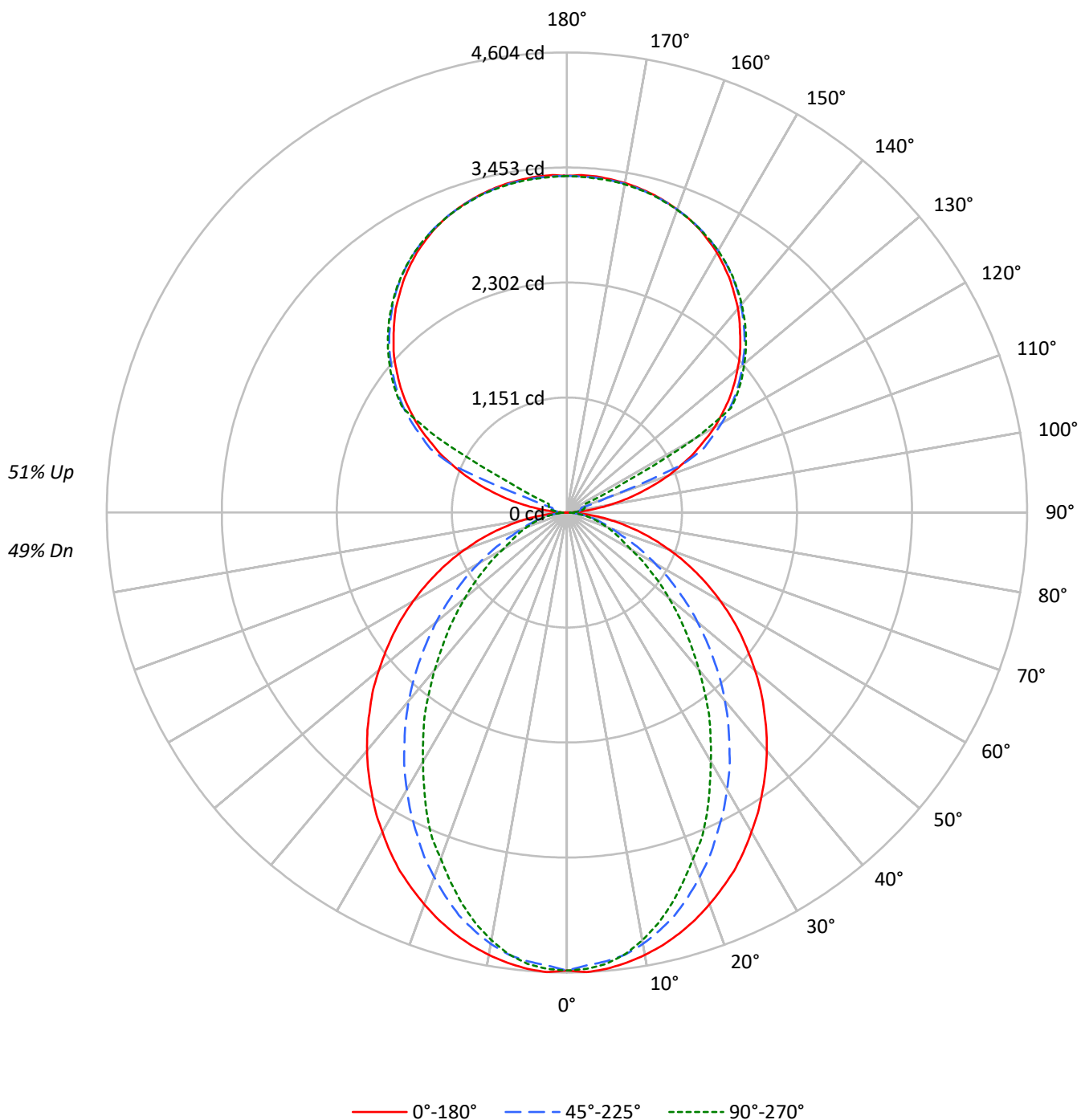
Lumens per Lamp: N/A
Luminaire Lumens: 19307.7 lumens
Efficiency: N/A
Efficacy: 115.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.74' x L: 3.94' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 167.6
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

TEST NUMBER: P911567

CATALOG NUMBER: DFN2DIP-PN4F0-100D090US850-RLLONL

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°	3346	3346	3346
5°	3351	3293	3314
10°	3318	3229	3207
15°	3272	3123	3041
20°	3212	2976	2837
25°	3150	2811	2640
30°	3067	2643	2389
35°	2985	2461	2170
40°	2903	2274	1918
45°	2806	2065	1689
50°	2707	1855	1466
55°	2603	1630	1251
60°	2483	1395	1030
65°	2344	1155	928
70°	2176	932	841
75°	1966	823	766
80°	1660	692	667
85°	1157	464	505

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2806 cd/sqm

TEST NUMBER: P911567

CATALOG NUMBER: DFN2DIP-PN4F0-100D090US850-RLLONL

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	

TEST NUMBER: P911567

CATALOG NUMBER: DFN2DIP-PN4F0-100D090US850-RLLONL

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



TEST NUMBER: P911567

CATALOG NUMBER: DFN2DIP-PN4F0-100D090US850-RLLONL

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	11.24	12.06	12.22	13.05	14.34	7.21	8.03	8.18	9.01	10.30
	3H	12.92	13.66	13.91	14.65	15.96	8.40	9.13	9.38	10.12	11.43
	4H	13.53	14.23	14.53	15.22	16.54	8.85	9.54	9.84	10.54	11.86
	6H	13.96	14.59	14.96	15.59	16.93	9.17	9.81	10.18	10.81	12.14
	8H	14.08	14.69	15.10	15.71	17.04	9.26	9.87	10.27	10.88	12.21
	12H	14.15	14.72	15.16	15.73	17.09	9.30	9.88	10.32	10.89	12.24
4H	2H	11.26	11.95	12.26	12.95	14.27	7.80	8.50	8.81	9.49	10.81
	3H	13.09	13.67	14.10	14.69	16.03	9.15	9.73	10.17	10.75	12.09
	4H	13.78	14.31	14.80	15.33	16.69	9.70	10.23	10.72	11.25	12.60
	6H	14.30	14.75	15.33	15.79	17.15	10.12	10.57	11.15	11.61	12.97
	8H	14.48	14.90	15.51	15.93	17.30	10.25	10.67	11.28	11.71	13.07
	12H	14.57	14.96	15.62	16.00	17.38	10.32	10.70	11.37	11.74	13.12
8H	4H	13.75	14.17	14.78	15.21	16.58	9.98	10.40	11.01	11.44	12.81
	6H	14.32	14.67	15.38	15.74	17.11	10.50	10.85	11.56	11.93	13.29
	8H	14.54	14.85	15.60	15.91	17.29	10.69	11.00	11.76	12.06	13.45
	12H	14.68	14.95	15.75	16.00	17.43	10.81	11.08	11.88	12.14	13.57
12H	4H	13.70	14.08	14.75	15.13	16.51	9.99	10.37	11.04	11.42	12.79
	6H	14.30	14.60	15.36	15.66	17.05	10.55	10.86	11.61	11.92	13.30
	8H	14.52	14.79	15.58	15.84	17.27	10.76	11.03	11.83	12.09	13.52