

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: P912035

Luminaire Tested: DFN2DIP-SQ3F0-100D090US850-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P912035
REPORT IS A COMBINATION OF REPORTS P901484 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-100D090US850-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

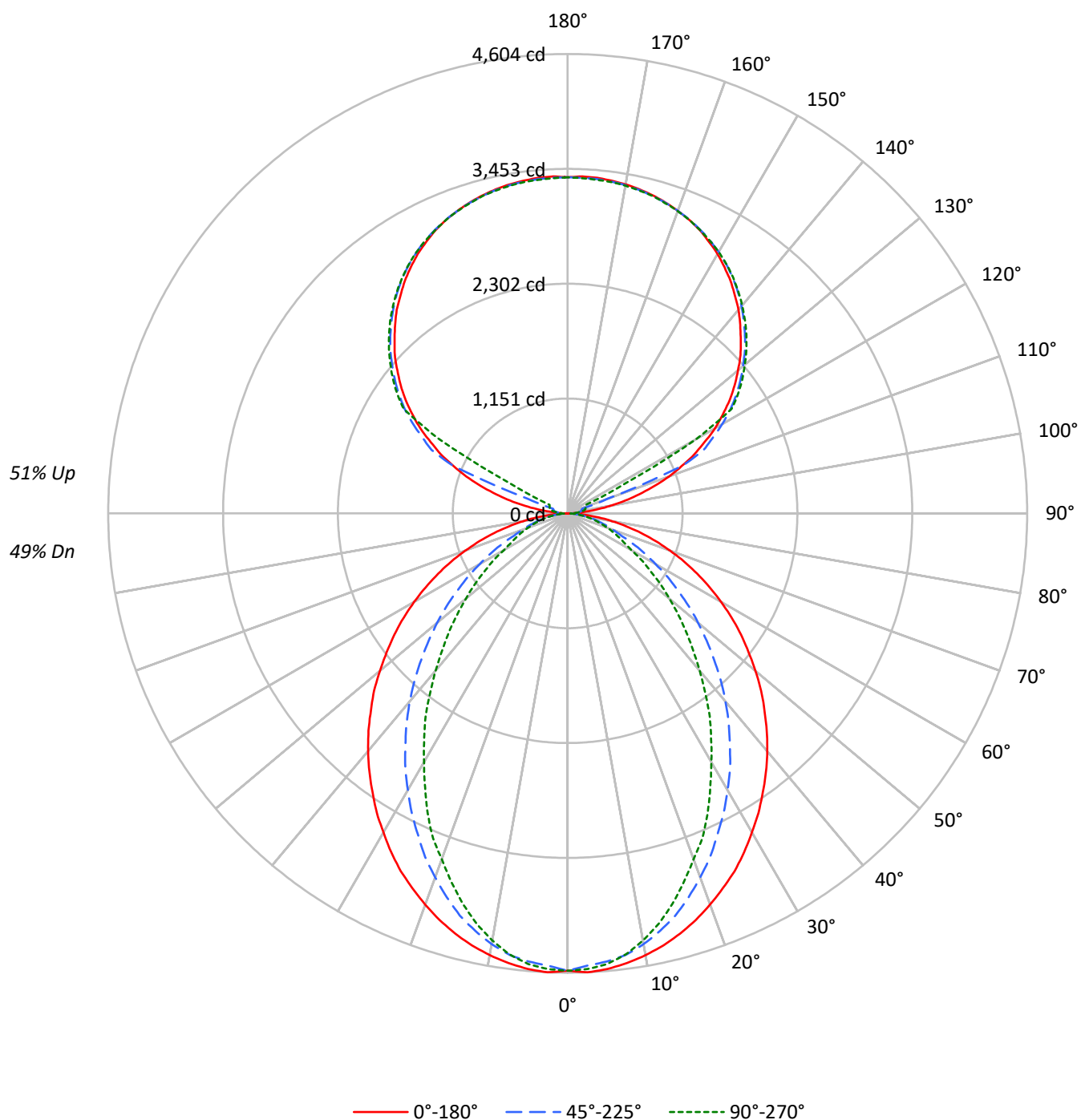
Lumens per Lamp: N/A
Luminaire Lumens: 19307.7 lumens
Efficiency: N/A
Efficacy: 115.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 167
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9781
Total Harmonic Distortion (THDi): 0.075
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P912035

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US850-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P912035

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US850-RLLONL

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°	5252	5252	5252
5°	5257	5165	5200
10°	5201	5060	5029
15°	5127	4889	4766
20°	5028	4656	4443
25°	4928	4394	4132
30°	4794	4127	3738
35°	4663	3839	3392
40°	4529	3542	2995
45°	4374	3213	2636
50°	4214	2881	2285
55°	4045	2526	1948
60°	3851	2156	1602
65°	3627	1780	1440
70°	3354	1430	1301
75°	3012	1253	1179
80°	2516	1041	1017
85°	1706	677	754

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4374 cd/sqm

TEST NUMBER: P912035

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US850-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: P912035

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US850-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: P912035

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US850-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

TEST NUMBER: P912035

CATALOG NUMBER: DFN2DIP-SQ3F0-100D090US850-RLONL

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	12.77	13.59	13.74	14.57	15.86	8.73	9.55	9.70	10.53	11.82
	3H	14.44	15.17	15.42	16.17	17.48	9.91	10.64	10.89	11.64	12.95
	4H	15.04	15.74	16.04	16.73	18.05	10.35	11.05	11.35	12.04	13.36
	6H	15.46	16.10	16.47	17.10	18.43	10.67	11.31	11.68	12.31	13.64
	8H	15.59	16.19	16.60	17.21	18.54	10.76	11.36	11.77	12.38	13.71
	12H	15.65	16.22	16.66	17.23	18.59	10.80	11.37	11.82	12.38	13.74
4H	2H	12.78	13.48	13.79	14.47	15.79	9.32	10.01	10.32	11.01	12.33
	3H	14.61	15.18	15.62	16.21	17.54	10.66	11.24	11.67	12.26	13.60
	4H	15.29	15.82	16.31	16.84	18.19	11.20	11.73	12.22	12.75	14.11
	6H	15.80	16.26	16.83	17.30	18.65	11.62	12.07	12.65	13.11	14.46
	8H	15.98	16.40	17.01	17.43	18.80	11.74	12.16	12.77	13.20	14.56
	12H	16.07	16.45	17.12	17.50	18.87	11.80	12.18	12.85	13.23	14.60
8H	4H	15.26	15.68	16.29	16.71	18.08	11.48	11.90	12.51	12.94	14.30
	6H	15.82	16.17	16.88	17.24	18.61	11.99	12.34	13.05	13.41	14.78
	8H	16.03	16.34	17.10	17.40	18.78	12.18	12.48	13.24	13.54	14.93
	12H	16.17	16.44	17.23	17.49	18.92	12.29	12.56	13.36	13.61	15.04
12H	4H	15.21	15.59	16.26	16.64	18.01	11.48	11.87	12.53	12.91	14.29
	6H	15.79	16.10	16.86	17.16	18.55	12.04	12.34	13.10	13.40	14.79
	8H	16.01	16.28	17.08	17.34	18.76	12.24	12.51	13.31	13.57	14.99