

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: P920591

Luminaire Tested: DFN2DIP-SQ4F0-140D160US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920591
REPORT IS A COMBINATION OF REPORTS P901738 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-140D160US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

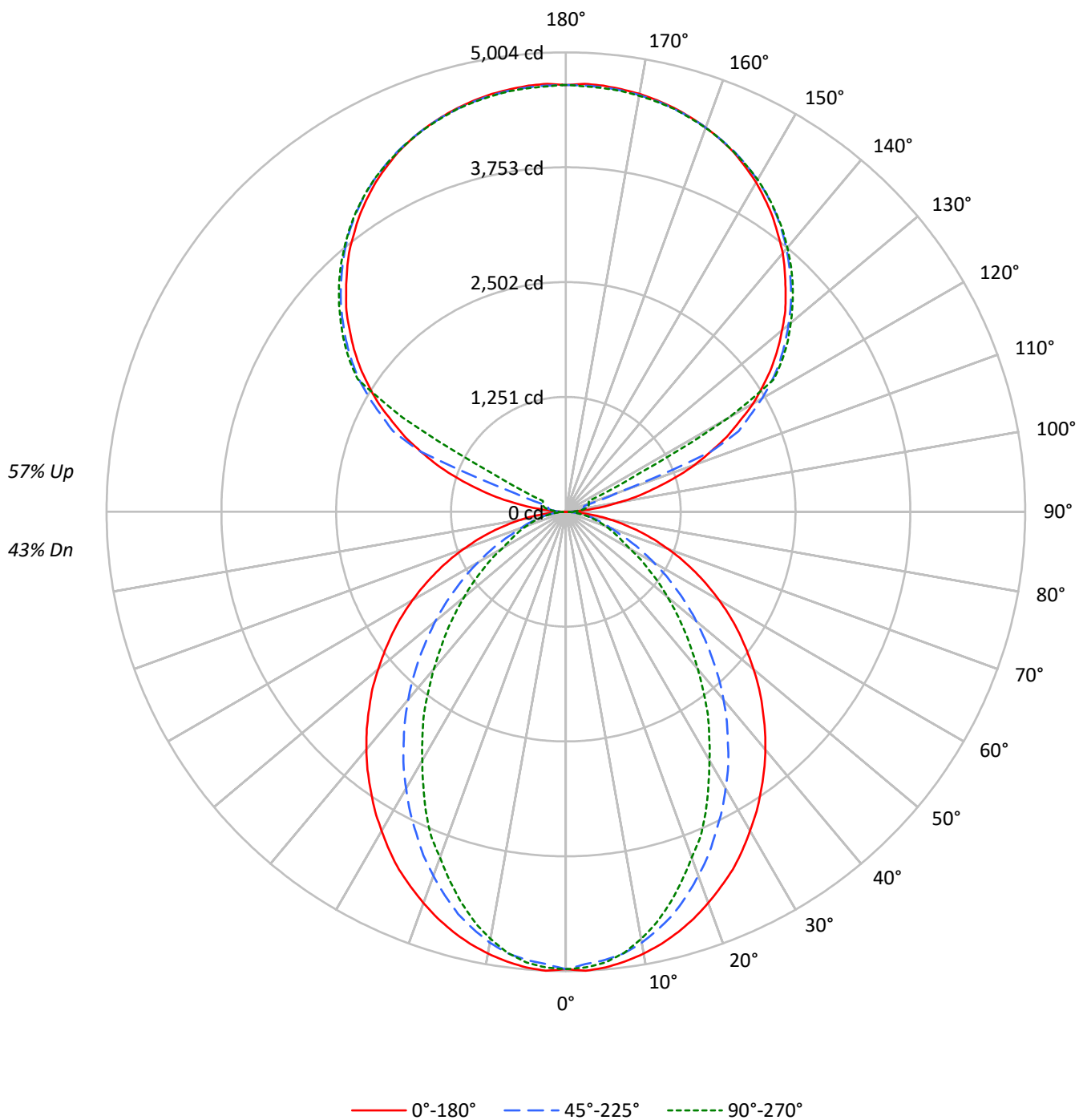
Lumens per Lamp: N/A
Luminaire Lumens: 23884.1 lumens
Efficiency: N/A
Efficacy: 89.8 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 265.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9789
Total Harmonic Distortion (THDi): 0.074
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P920591

CATALOG NUMBER: DFN2DIP-SQ4F0-140D160US935-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P920591

CATALOG NUMBER: DFN2DIP-SQ4F0-140D160US935-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	105	105	105	105	96	96	96	96	79	79	79	64	64	64	50	50	50
1	97	92	89	85	88	85	82	79	70	68	66	57	55	54	44	44	43
2	88	81	75	70	81	75	70	65	62	58	55	50	48	46	40	38	37
3	81	72	65	59	74	66	60	55	55	51	47	45	42	39	36	33	32
4	74	64	56	50	68	59	52	47	49	44	40	40	37	34	32	30	28
5	68	57	49	43	62	53	46	41	44	39	35	36	33	30	29	26	24
6	63	51	43	38	57	47	40	35	40	35	31	33	29	26	26	24	22
7	58	46	39	33	53	43	36	31	36	31	27	30	26	23	24	21	19
8	54	42	35	29	49	39	32	28	33	28	24	28	24	21	22	20	17
9	50	38	31	26	46	36	29	25	30	25	22	25	22	19	21	18	16
10	47	35	28	24	43	33	27	22	28	23	20	24	20	17	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3496	3496	3496
5°	3501	3441	3463
10°	3467	3374	3351
15°	3419	3263	3178
20°	3356	3110	2965
25°	3291	2938	2759
30°	3204	2762	2498
35°	3119	2573	2269
40°	3032	2377	2005
45°	2932	2159	1767
50°	2828	1939	1533
55°	2719	1705	1309
60°	2593	1459	1079
65°	2449	1209	972
70°	2273	976	881
75°	2053	862	804
80°	1734	725	701
85°	1207	488	533

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2932 cd/sqm

TEST NUMBER: P920591

CATALOG NUMBER: DFN2DIP-SQ4F0-140D160US935-RLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	466.9	2.0
10°-20°	1281.8	5.4
20°-30°	1799.5	7.5
30°-40°	1961.6	8.2
40°-50°	1802.9	7.5
50°-60°	1415.9	5.9
60°-70°	921.6	3.9
70°-80°	474.4	2.0
80°-90°	129.3	0.5
90°-100°	153.3	0.6
100°-110°	571.5	2.4
110°-120°	1515.7	6.3
120°-130°	2513.9	10.5
130°-140°	2670.3	11.2
140°-150°	2481.8	10.4
150°-160°	1995.3	8.4
160°-170°	1285.7	5.4
170°-180°	442.5	1.9
0°-30°	3548.2	14.9
0°-40°	5509.8	23.1
0°-60°	8728.7	36.5
0°-90°	10254.1	42.9
90°-120°	2240.5	9.4
90°-150°	9906.5	41.5
90°-180°	13630.0	57.1
0°-180°	23884.1	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4982	4982	4982	4982	4982	
5°	4982	4959	4900	4941	4928	472
15°	4738	4689	4536	4450	4405	1335
25°	4301	4157	3859	3675	3607	1978
35°	3706	3476	3080	2795	2696	2320
45°	3030	2728	2254	1934	1826	2340
55°	2304	1952	1465	1195	1109	2059
65°	1556	1190	784	631	618	1542
75°	829	514	361	329	325	877
85°	194	99	86	86	86	222
90°	3	40	67	84	91	22
95°	218	108	131	148	145	259
105°	1023	1124	205	242	256	1093
115°	1934	1991	2076	518	276	1904
125°	2735	2779	2843	2866	2876	2439
135°	3384	3438	3468	3502	3496	2614
145°	3926	3922	3980	4003	3986	2456
155°	4323	4293	4333	4353	4326	1992
165°	4555	4535	4545	4568	4545	1287
175°	4659	4636	4642	4666	4632	443
180°	4649	4649	4649	4649	4649	

TEST NUMBER: P920591

CATALOG NUMBER: DFN2DIP-SQ4F0-140D160US935-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4981.9	4981.9	4981.9	4981.9	4981.9
2.5°	5004.4	4981.9	4932.1	4977.6	4968.5
5°	4981.9	4959.4	4900.5	4941.3	4927.8
7.5°	4941.3	4914.4	4851.3	4869.0	4846.6
10°	4887.2	4855.6	4765.7	4751.8	4725.0
12.5°	4819.7	4779.1	4657.1	4630.3	4580.6
15°	4738.4	4688.6	4535.6	4450.0	4405.0
17.5°	4643.7	4571.5	4382.0	4283.0	4210.8
20°	4535.6	4445.2	4219.9	4107.5	4008.0
22.5°	4418.4	4314.6	4053.0	3899.9	3832.5
25°	4301.2	4156.7	3859.3	3674.6	3606.6
27.5°	4161.5	4008.0	3678.9	3467.0	3363.2
30°	4012.8	3841.1	3480.4	3250.8	3128.8
32.5°	3868.3	3660.7	3291.4	3020.7	2907.8
35°	3706.2	3476.1	3079.5	2795.4	2695.9
37.5°	3548.3	3300.0	2881.0	2569.6	2457.2
40°	3381.4	3111.1	2673.4	2353.5	2236.3
42.5°	3210.1	2921.7	2466.3	2132.4	2020.0
45°	3029.8	2727.5	2254.4	1933.9	1825.8
47.5°	2858.5	2538.6	2051.6	1731.1	1632.1
50°	2669.1	2349.1	1853.0	1541.7	1447.4
52.5°	2484.0	2145.8	1663.6	1366.1	1280.5
55°	2303.7	1952.1	1465.2	1194.9	1109.2
57.5°	2119.0	1758.3	1289.6	1037.1	964.8
60°	1929.6	1568.9	1104.5	874.9	802.6
62.5°	1745.0	1384.3	946.7	730.4	694.6
65°	1555.6	1190.1	784.5	631.4	617.5
67.5°	1375.2	1009.8	631.4	554.4	541.0
70°	1185.8	834.2	522.8	477.9	459.7
72.5°	1005.5	671.6	437.2	401.3	392.3
75°	829.4	513.8	360.7	329.1	324.8
77.5°	653.9	365.0	284.1	266.0	256.8
80°	491.3	261.7	216.2	198.5	198.5
82.5°	342.5	176.0	148.8	139.7	139.7
85°	193.7	99.0	85.6	85.6	85.6
87.5°	72.2	35.9	35.9	31.6	31.6
90°	3.2	40.4	67.1	84.3	90.7
92.5°	84.3	70.7	80.7	87.5	90.7
95°	218.5	107.5	131.0	148.2	144.6
97.5°	393.5	117.9	171.3	181.8	184.9
100°	595.6	134.7	191.7	218.5	225.3
102.5°	817.3	811.0	198.5	235.3	245.6
105°	1022.7	1123.8	205.3	242.1	255.6
107.5°	1261.5	1345.5	212.1	248.9	262.4
110°	1490.5	1560.8	588.8	252.4	265.6

TEST NUMBER: P920591

CATALOG NUMBER: DFN2DIP-SQ4F0-140D160US935-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1705.8	1766.2	1709.0	258.9	269.2
115°	1934.3	1991.4	2075.7	518.1	276.0
117.5°	2132.9	2199.9	2257.5	1776.2	894.8
120°	2355.0	2405.3	2466.0	2506.4	2052.2
122.5°	2543.1	2597.0	2664.5	2684.5	2688.1
125°	2734.9	2778.8	2842.8	2866.3	2876.3
127.5°	2909.8	2957.0	3007.7	3041.3	3044.5
130°	3074.9	3128.8	3165.5	3202.7	3199.5
132.5°	3243.0	3286.9	3323.7	3354.1	3350.9
135°	3384.4	3438.4	3468.4	3502.3	3495.5
137.5°	3532.2	3572.6	3606.5	3640.1	3630.1
140°	3676.9	3704.0	3740.8	3771.2	3754.4
142.5°	3798.3	3821.9	3865.4	3892.2	3875.4
145°	3926.2	3922.5	3979.7	4003.2	3986.5
147.5°	4036.8	4026.8	4084.0	4100.8	4087.5
150°	4144.7	4121.1	4175.1	4195.0	4178.3
152.5°	4235.3	4208.6	4258.9	4279.3	4255.7
155°	4322.8	4292.8	4333.2	4353.2	4326.4
157.5°	4393.6	4366.8	4397.1	4420.7	4393.6
160°	4454.3	4433.9	4454.3	4474.3	4450.7
162.5°	4507.8	4487.9	4504.6	4528.2	4497.9
165°	4554.9	4535.0	4544.9	4568.5	4544.9
167.5°	4592.1	4571.7	4582.1	4605.6	4575.3
170°	4622.4	4602.1	4608.8	4632.4	4602.1
172.5°	4642.4	4622.4	4629.2	4652.8	4622.4
175°	4659.2	4635.6	4642.4	4666.0	4632.4
177.5°	4666.0	4642.4	4646.0	4669.6	4639.2
180°	4649.2	4649.2	4649.2	4649.2	4649.2

TEST NUMBER: P920591

CATALOG NUMBER: DFN2DIP-SQ4F0-140D160US935-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	10.81	11.59	11.83	12.61	13.98	6.77	7.55	7.79	8.57	9.94
	3H	12.49	13.18	13.52	14.22	15.61	7.96	8.65	8.99	9.68	11.08
	4H	13.10	13.75	14.14	14.79	16.19	8.40	9.06	9.45	10.10	11.50
	6H	13.52	14.12	14.57	15.17	16.58	8.72	9.33	9.78	10.37	11.78
	8H	13.65	14.22	14.71	15.28	16.68	8.81	9.39	9.87	10.44	11.85
	12H	13.71	14.25	14.77	15.31	16.73	8.85	9.40	9.92	10.45	11.88
4H	2H	10.82	11.48	11.87	12.52	13.91	7.36	8.02	8.41	9.06	10.45
	3H	12.65	13.20	13.71	14.26	15.67	8.71	9.25	9.77	10.32	11.73
	4H	13.34	13.84	14.41	14.90	16.33	9.26	9.75	10.32	10.81	12.25
	6H	13.86	14.29	14.93	15.37	16.80	9.67	10.10	10.75	11.18	12.61
	8H	14.04	14.44	15.11	15.51	16.95	9.80	10.20	10.87	11.27	12.72
	12H	14.13	14.49	15.22	15.58	17.03	9.86	10.23	10.95	11.31	12.76
8H	4H	13.31	13.71	14.38	14.78	16.22	9.53	9.93	10.61	11.01	12.45
	6H	13.88	14.21	14.97	15.32	16.76	10.05	10.38	11.15	11.50	12.94
	8H	14.10	14.39	15.20	15.48	16.94	10.24	10.53	11.35	11.63	13.09
	12H	14.24	14.49	15.34	15.58	17.08	10.36	10.62	11.47	11.71	13.21
12H	4H	13.26	13.62	14.35	14.71	16.15	9.54	9.90	10.63	10.98	12.43
	6H	13.85	14.14	14.96	15.24	16.70	10.10	10.39	11.20	11.49	12.95
	8H	14.07	14.33	15.18	15.42	16.92	10.31	10.57	11.42	11.66	13.16

END OF REPORT