

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: P909391

Luminaire Tested: DFN2DIP-SQ3F0-120D120US840-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909391
REPORT IS A COMBINATION OF REPORTS P901542 AND P898289
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D120US840-RLLONL
Description: 3 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

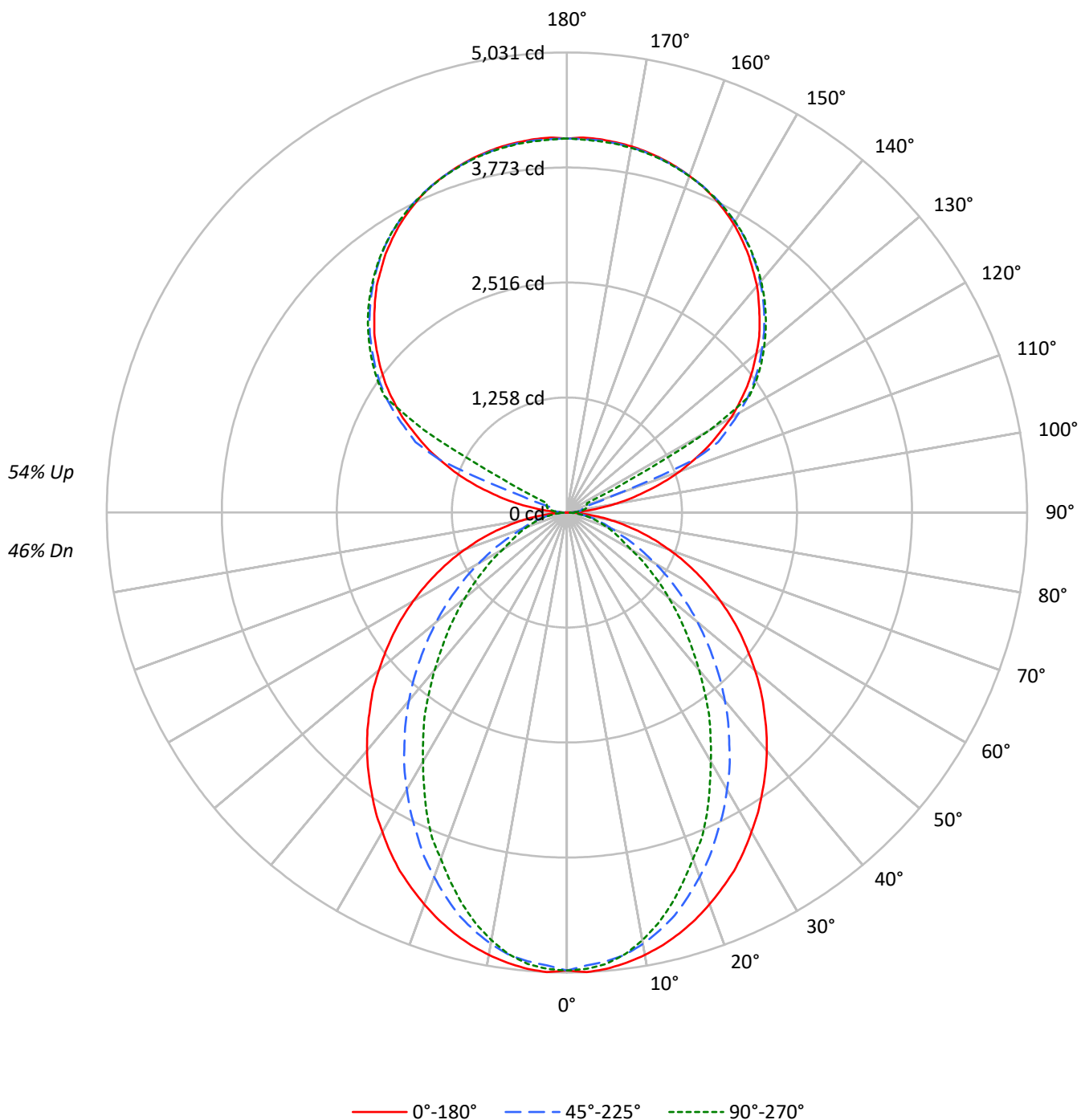
Lumens per Lamp: N/A
Luminaire Lumens: 22297.8 lumens
Efficiency: N/A
Efficacy: 101.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 219.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909391

CATALOG NUMBER: DFN2DIP-SQ3F0-120D120US840-RLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P909391

CATALOG NUMBER: DFN2DIP-SQ3F0-120D120US840-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
RCR																	
0	106	106	106	106	98	98	98	98	81	81	81		66	66	66		53
1	97	93	90	86	89	86	83	80	72	70	68		59	58	56		47
2	89	82	76	71	82	76	70	66	63	60	57		52	50	48		42
3	81	72	65	60	75	67	61	56	56	52	48		47	43	41		38
4	75	64	57	51	68	60	53	48	50	45	41		42	38	35		34
5	69	58	50	44	63	53	46	41	45	40	36		38	34	31		31
6	63	52	44	38	58	48	41	36	41	36	32		34	30	27		28
7	59	47	39	34	54	44	37	32	37	32	28		31	27	24		26
8	55	43	35	30	50	40	33	28	34	29	25		29	25	22		24
9	51	39	32	27	47	36	30	25	31	26	22		27	23	20		22
10	48	36	29	24	44	33	27	23	29	24	20		25	21	18		20

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5739	5739	5739
5°	5744	5644	5682
10°	5684	5529	5495
15°	5602	5343	5208
20°	5495	5087	4856
25°	5385	4802	4515
30°	5239	4509	4085
35°	5095	4195	3706
40°	4949	3870	3273
45°	4780	3511	2880
50°	4604	3148	2497
55°	4421	2761	2129
60°	4208	2356	1750
65°	3963	1946	1573
70°	3665	1563	1421
75°	3291	1369	1289
80°	2750	1136	1111
85°	1865	740	824

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 4780 cd/sqm

TEST NUMBER: P909391

CATALOG NUMBER: DFN2DIP-SQ3F0-120D120US840-RLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.1
10°-20°	1288.6	5.8
20°-30°	1809.2	8.1
30°-40°	1972.1	8.8
40°-50°	1812.6	8.1
50°-60°	1423.5	6.4
60°-70°	926.6	4.2
70°-80°	476.9	2.1
80°-90°	128.9	0.6
90°-100°	134.9	0.6
100°-110°	502.7	2.3
110°-120°	1333.3	6.0
120°-130°	2211.4	9.9
130°-140°	2349.0	10.5
140°-150°	2183.2	9.8
150°-160°	1755.2	7.9
160°-170°	1131.0	5.1
170°-180°	389.3	1.7
0°-30°	3567.2	16.0
0°-40°	5539.3	24.8
0°-60°	8775.3	39.4
0°-90°	10307.8	46.2
90°-120°	1970.9	8.8
90°-150°	8714.5	39.1
90°-180°	11990.0	53.8
0°-180°	22297.8	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5008	5008	5008	5008	5008	
5°	5008	4986	4927	4968	4954	475
15°	4764	4714	4560	4474	4429	1342
25°	4324	4179	3880	3694	3626	1989
35°	3726	3495	3096	2810	2710	2332
45°	3046	2742	2266	1944	1836	2352
55°	2316	1963	1473	1201	1115	2070
65°	1564	1196	789	635	621	1550
75°	834	516	363	331	326	882
85°	195	100	86	86	86	224
90°	3	35	59	74	80	21
95°	192	94	115	130	127	228
105°	900	989	181	213	225	961
115°	1702	1752	1826	456	243	1675
125°	2406	2444	2501	2521	2530	2146
135°	2977	3025	3051	3081	3075	2300
145°	3454	3451	3501	3522	3507	2160
155°	3803	3776	3812	3829	3806	1752
165°	4007	3989	3998	4019	3998	1132
175°	4098	4078	4084	4105	4075	390
180°	4090	4090	4090	4090	4090	

TEST NUMBER: P909391

CATALOG NUMBER: DFN2DIP-SQ3F0-120D120US840-RLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5008.5	5008.5	5008.5	5008.5	5008.5
2.5°	5031.2	5008.5	4958.5	5004.2	4995.0
5°	5008.5	4985.9	4926.7	4967.6	4954.2
7.5°	4967.6	4940.7	4877.2	4895.0	4872.4
10°	4913.3	4881.6	4791.1	4777.2	4750.3
12.5°	4845.4	4804.6	4681.9	4655.1	4605.1
15°	4763.7	4713.7	4559.8	4473.7	4428.6
17.5°	4668.5	4595.9	4405.4	4306.0	4233.4
20°	4559.8	4469.0	4242.4	4129.4	4029.4
22.5°	4442.0	4337.7	4074.6	3920.7	3852.9
25°	4324.2	4178.9	3879.8	3694.2	3625.9
27.5°	4183.8	4029.4	3698.5	3485.6	3381.1
30°	4034.2	3861.6	3499.0	3268.1	3145.5
32.5°	3889.0	3680.3	3309.0	3036.9	2923.4
35°	3726.0	3494.6	3095.9	2810.4	2710.3
37.5°	3567.2	3317.7	2896.4	2583.3	2470.3
40°	3399.4	3127.8	2687.8	2366.0	2248.2
42.5°	3227.2	2937.3	2479.5	2143.8	2030.8
45°	3046.0	2742.1	2266.4	1944.3	1835.5
47.5°	2873.8	2552.1	2062.5	1740.4	1640.8
50°	2683.4	2361.7	1863.0	1549.9	1455.2
52.5°	2497.3	2157.3	1672.5	1373.4	1287.4
55°	2316.0	1962.6	1473.0	1201.2	1115.2
57.5°	2130.3	1767.8	1296.5	1042.6	970.0
60°	1940.0	1577.3	1110.3	879.6	807.0
62.5°	1754.3	1391.7	951.7	734.4	698.2
65°	1563.9	1196.5	788.7	634.8	620.9
67.5°	1382.6	1015.1	634.8	557.3	543.9
70°	1192.1	838.7	525.6	480.4	462.1
72.5°	1010.9	675.2	439.5	403.4	394.4
75°	833.8	516.4	362.6	330.8	326.5
77.5°	657.4	366.9	285.7	267.4	258.2
80°	493.9	263.1	217.3	199.5	199.5
82.5°	344.4	176.9	149.6	140.4	140.4
85°	194.8	99.6	86.0	86.0	86.0
87.5°	72.6	36.1	36.1	31.7	31.7
90°	2.8	35.4	59.1	74.1	79.8
92.5°	74.1	62.2	71.0	77.0	79.8
95°	192.2	94.5	115.2	130.4	127.2
97.5°	346.2	103.7	150.8	159.9	162.7
100°	523.9	118.5	168.6	192.2	198.2
102.5°	719.0	713.4	174.6	207.0	216.1
105°	899.6	988.6	180.7	213.0	224.9
107.5°	1109.7	1183.6	186.6	218.9	230.9
110°	1311.1	1373.0	518.0	222.1	233.7



TEST NUMBER: P909391

CATALOG NUMBER: DFN2DIP-SQ3F0-120D120US840-RLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1500.6	1553.6	1503.4	227.7	236.8
115°	1701.5	1751.8	1825.9	455.8	242.9
117.5°	1876.2	1935.3	1985.9	1562.4	787.2
120°	2071.6	2115.9	2169.3	2204.8	1805.2
122.5°	2237.2	2284.6	2344.0	2361.6	2364.7
125°	2405.8	2444.5	2500.7	2521.4	2530.2
127.5°	2559.7	2601.2	2645.8	2675.3	2678.2
130°	2704.8	2752.3	2784.6	2817.3	2814.5
132.5°	2852.8	2891.4	2923.8	2950.5	2947.7
135°	2977.2	3024.6	3051.0	3080.9	3074.9
137.5°	3107.3	3142.7	3172.6	3202.1	3193.3
140°	3234.5	3258.3	3290.6	3317.4	3302.7
142.5°	3341.2	3362.0	3400.3	3423.8	3409.1
145°	3453.7	3450.6	3500.8	3521.6	3506.8
147.5°	3551.1	3542.3	3592.6	3607.3	3595.7
150°	3645.9	3625.2	3672.7	3690.3	3675.5
152.5°	3725.7	3702.2	3746.5	3764.4	3743.7
155°	3802.6	3776.3	3811.8	3829.4	3805.9
157.5°	3864.9	3841.3	3868.1	3888.8	3864.9
160°	3918.3	3900.4	3918.3	3935.8	3915.1
162.5°	3965.4	3947.9	3962.6	3983.3	3956.7
165°	4006.8	3989.3	3998.1	4018.9	3998.1
167.5°	4039.6	4021.6	4030.8	4051.5	4024.8
170°	4066.2	4048.3	4054.3	4075.0	4048.3
172.5°	4083.8	4066.2	4072.3	4093.0	4066.2
175°	4098.5	4077.8	4083.8	4104.6	4075.0
177.5°	4104.6	4083.8	4087.0	4107.7	4081.1
180°	4089.9	4089.9	4089.9	4089.9	4089.9

TEST NUMBER: P909391

CATALOG NUMBER: DFN2DIP-SQ3F0-120D120US840-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	12.82	13.62	13.82	14.62	15.95	8.78	9.58	9.78	10.58	11.91
	3H	14.49	15.21	15.50	16.22	17.57	9.96	10.68	10.97	11.69	13.04
	4H	15.10	15.77	16.11	16.79	18.14	10.41	11.08	11.42	12.10	13.45
	6H	15.51	16.13	16.54	17.15	18.52	10.72	11.34	11.75	12.36	13.73
	8H	15.64	16.23	16.67	17.26	18.63	10.81	11.40	11.84	12.43	13.80
	12H	15.69	16.26	16.73	17.29	18.67	10.85	11.41	11.88	12.44	13.82
4H	2H	12.83	13.51	13.86	14.52	15.88	9.37	10.05	10.40	11.06	12.42
	3H	14.65	15.22	15.69	16.26	17.63	10.71	11.27	11.74	12.32	13.69
	4H	15.34	15.86	16.38	16.89	18.28	11.25	11.77	12.29	12.80	14.19
	6H	15.85	16.29	16.90	17.35	18.74	11.66	12.10	12.71	13.16	14.55
	8H	16.02	16.44	17.07	17.49	18.89	11.79	12.20	12.84	13.25	14.65
	12H	16.11	16.49	17.18	17.55	18.96	11.85	12.22	12.92	13.28	14.69
8H	4H	15.31	15.72	16.36	16.77	18.17	11.53	11.94	12.58	12.99	14.39
	6H	15.87	16.21	16.94	17.30	18.70	12.04	12.38	13.11	13.47	14.87
	8H	16.08	16.38	17.16	17.45	18.87	12.22	12.52	13.30	13.60	15.02
	12H	16.21	16.48	17.30	17.55	19.01	12.33	12.60	13.42	13.67	15.13
12H	4H	15.26	15.63	16.32	16.69	18.10	11.53	11.90	12.60	12.97	14.37
	6H	15.84	16.14	16.92	17.22	18.64	12.08	12.38	13.16	13.46	14.88
	8H	16.06	16.32	17.14	17.39	18.85	12.29	12.55	13.37	13.62	15.08