

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: P909634

Luminaire Tested: DFN2DIP-SQ4F0-120D120US840-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P909634
REPORT IS A COMBINATION OF REPORTS P900180 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D120US840-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

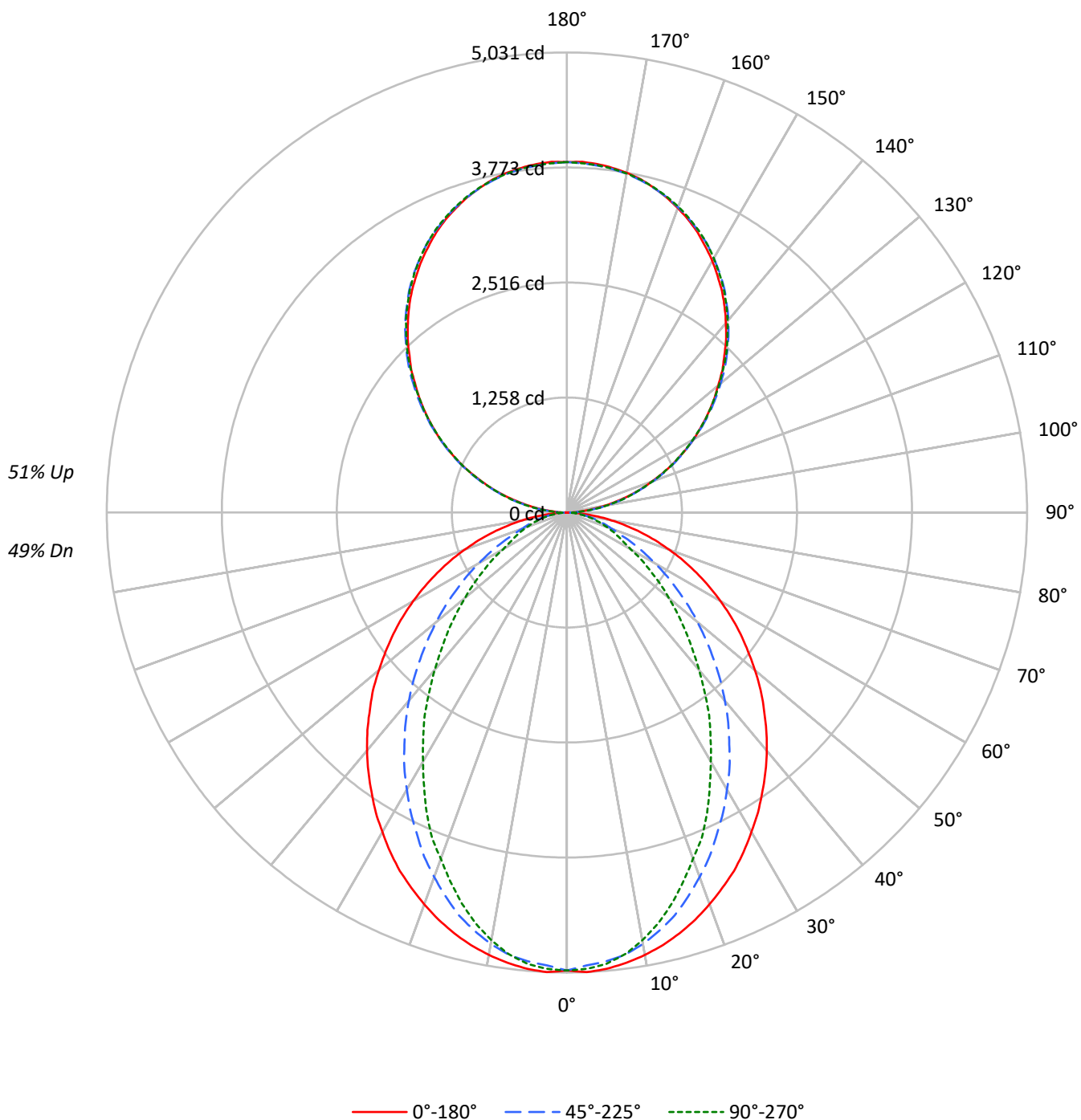
Lumens per Lamp: N/A
Luminaire Lumens: 21025.4 lumens
Efficiency: N/A
Efficacy: 101.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 207.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9933
Total Harmonic Distortion (THDi): 0.066
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P909634

CATALOG NUMBER: DFN2DIP-SQ4F0-120D120US840-RLLFLL

Luminous Intensity Polar Plot



TEST NUMBER: P909634

CATALOG NUMBER: DFN2DIP-SQ4F0-120D120US840-RLFL

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	99	99	99	99	83	83	83	68	68	68	55	55	55
1	98	94	90	87	90	87	84	81	73	71	69	61	59	58	50	49	48
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	57	58	53	49	48	45	42	40	37	35
4	75	65	57	51	69	60	54	48	51	46	42	43	40	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	30	26	24
7	59	47	40	34	55	44	37	32	38	33	29	32	28	25	27	24	22
8	55	43	36	30	51	40	33	29	35	29	26	30	26	23	25	22	20
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	19	22	18	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3514	3514	3514
5°	3520	3459	3482
10°	3485	3392	3369
15°	3437	3281	3195
20°	3373	3127	2981
25°	3308	2954	2774
30°	3221	2777	2512
35°	3136	2587	2281
40°	3048	2390	2016
45°	2947	2171	1776
50°	2843	1950	1542
55°	2734	1714	1316
60°	2607	1466	1085
65°	2462	1215	977
70°	2285	981	886
75°	2064	866	808
80°	1743	729	704
85°	1214	490	536

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3018 cd/sqm

TEST NUMBER: P909634

CATALOG NUMBER: DFN2DIP-SQ4F0-120D120US840-RLFL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	469.4	2.2
10°-20°	1288.6	6.1
20°-30°	1809.2	8.6
30°-40°	1972.1	9.4
40°-50°	1812.6	8.6
50°-60°	1423.5	6.8
60°-70°	926.6	4.4
70°-80°	476.9	2.3
80°-90°	132.6	0.6
90°-100°	237.2	1.1
100°-110°	753.5	3.6
110°-120°	1289.5	6.1
120°-130°	1696.0	8.1
130°-140°	1903.6	9.1
140°-150°	1866.7	8.9
150°-160°	1565.9	7.4
160°-170°	1038.5	4.9
170°-180°	363.0	1.7
0°-30°	3567.2	17.0
0°-40°	5539.3	26.3
0°-60°	8775.3	41.7
0°-90°	10311.5	49.0
90°-120°	2280.2	10.8
90°-150°	7746.5	36.8
90°-180°	10714.0	51.0
0°-180°	21025.4	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	42	113	106	110	21
95°	169	201	207	207	201	188
105°	696	705	712	718	718	734
115°	1294	1313	1307	1303	1294	1280
125°	1882	1911	1902	1892	1888	1682
135°	2434	2470	2477	2474	2465	1882
145°	2956	2979	2997	3001	2988	1847
155°	3380	3389	3399	3416	3405	1556
165°	3677	3673	3673	3696	3680	1037
175°	3826	3816	3810	3832	3813	363
180°	3832	3832	3832	3832	3832	



TEST NUMBER: P909634

CATALOG NUMBER: DFN2DIP-SQ4F0-120D120US840-RLFL

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°	3.4	41.6	113.2	106.3	109.8
92.5°	71.6	97.0	100.5	104.0	104.0
95°	168.6	201.1	206.8	206.8	201.1
97.5°	280.7	310.8	323.6	323.6	323.6
100°	410.2	436.8	446.0	446.0	442.5
102.5°	546.5	566.1	578.9	582.4	578.9
105°	695.6	704.8	711.8	717.5	717.5
107.5°	843.4	857.4	857.4	859.6	843.4
110°	986.7	1005.2	1005.2	1005.2	996.0

TEST NUMBER: P909634

CATALOG NUMBER: DFN2DIP-SQ4F0-120D120US840-RLLFLL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1141.6	1161.2	1157.7	1148.5	1141.6
115°	1294.0	1312.6	1306.8	1303.3	1294.0
117.5°	1445.4	1470.9	1454.7	1445.4	1436.2
120°	1598.0	1623.4	1598.0	1598.0	1587.6
122.5°	1736.7	1769.0	1752.8	1743.5	1736.7
125°	1882.2	1911.1	1901.9	1891.5	1887.9
127.5°	2024.4	2060.1	2047.4	2033.6	2024.4
130°	2157.2	2198.8	2193.0	2186.1	2173.3
132.5°	2306.2	2338.6	2340.9	2324.7	2315.5
135°	2434.5	2470.3	2477.3	2473.8	2464.6
137.5°	2577.8	2606.7	2612.4	2610.1	2596.3
140°	2703.7	2732.6	2748.8	2748.8	2736.0
142.5°	2833.2	2862.1	2871.2	2874.7	2862.1
145°	2955.6	2978.7	2997.2	3000.7	2988.0
147.5°	3065.3	3094.2	3108.2	3113.9	3101.2
150°	3178.7	3198.2	3211.0	3221.4	3211.0
152.5°	3279.1	3298.7	3315.0	3327.7	3315.0
155°	3379.6	3388.9	3399.3	3415.5	3405.1
157.5°	3466.4	3473.2	3479.0	3502.1	3486.0
160°	3543.7	3550.7	3554.1	3573.8	3559.9
162.5°	3615.3	3615.3	3618.9	3640.8	3624.6
165°	3676.6	3673.2	3673.2	3696.2	3680.1
167.5°	3732.1	3721.7	3721.7	3744.8	3728.6
170°	3773.7	3764.4	3760.9	3784.1	3764.4
172.5°	3802.5	3793.3	3789.8	3812.9	3793.3
175°	3825.7	3816.4	3809.5	3832.5	3812.9
177.5°	3838.4	3829.1	3822.1	3841.8	3822.1
180°	3832.5	3832.5	3832.5	3832.5	3832.5

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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	11.43	12.26	12.41	13.24	14.53	7.40	8.22	8.37	9.20	10.49
	3H	13.12	13.85	14.10	14.84	16.15	8.58	9.32	9.57	10.31	11.62
	4H	13.73	14.42	14.72	15.42	16.73	9.03	9.73	10.03	10.72	12.04
	6H	14.15	14.79	15.16	15.79	17.12	9.36	10.00	10.36	10.99	12.32
	8H	14.28	14.89	15.29	15.90	17.23	9.45	10.05	10.46	11.07	12.40
	12H	14.34	14.92	15.36	15.93	17.28	9.49	10.07	10.51	11.08	12.43
4H	2H	11.45	12.15	12.45	13.14	14.46	7.99	8.69	8.99	9.68	11.00
	3H	13.29	13.86	14.30	14.89	16.22	9.34	9.92	10.35	10.94	12.27
	4H	13.98	14.51	15.00	15.52	16.88	9.89	10.42	10.91	11.43	12.79
	6H	14.50	14.95	15.53	15.99	17.34	10.31	10.76	11.34	11.80	13.15
	8H	14.68	15.10	15.71	16.13	17.50	10.44	10.86	11.47	11.89	13.26
	12H	14.77	15.16	15.82	16.20	17.57	10.50	10.89	11.55	11.93	13.30
8H	4H	13.95	14.37	14.98	15.40	16.77	10.17	10.60	11.20	11.63	12.99
	6H	14.52	14.87	15.57	15.94	17.31	10.69	11.04	11.75	12.12	13.48
	8H	14.74	15.05	15.80	16.10	17.49	10.88	11.19	11.95	12.25	13.63
	12H	14.88	15.15	15.94	16.20	17.63	11.00	11.27	12.07	12.33	13.75
12H	4H	13.90	14.28	14.95	15.33	16.70	10.18	10.56	11.23	11.61	12.98
	6H	14.49	14.80	15.56	15.86	17.24	10.74	11.05	11.80	12.11	13.49
	8H	14.72	14.99	15.78	16.04	17.47	10.95	11.22	12.02	12.28	13.70

END OF REPORT