

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: P923355

Luminaire Tested: DFN2DIP-SQ4F0-160D160US940-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P923355
REPORT IS A COMBINATION OF REPORTS P901740 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-160D160US940-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

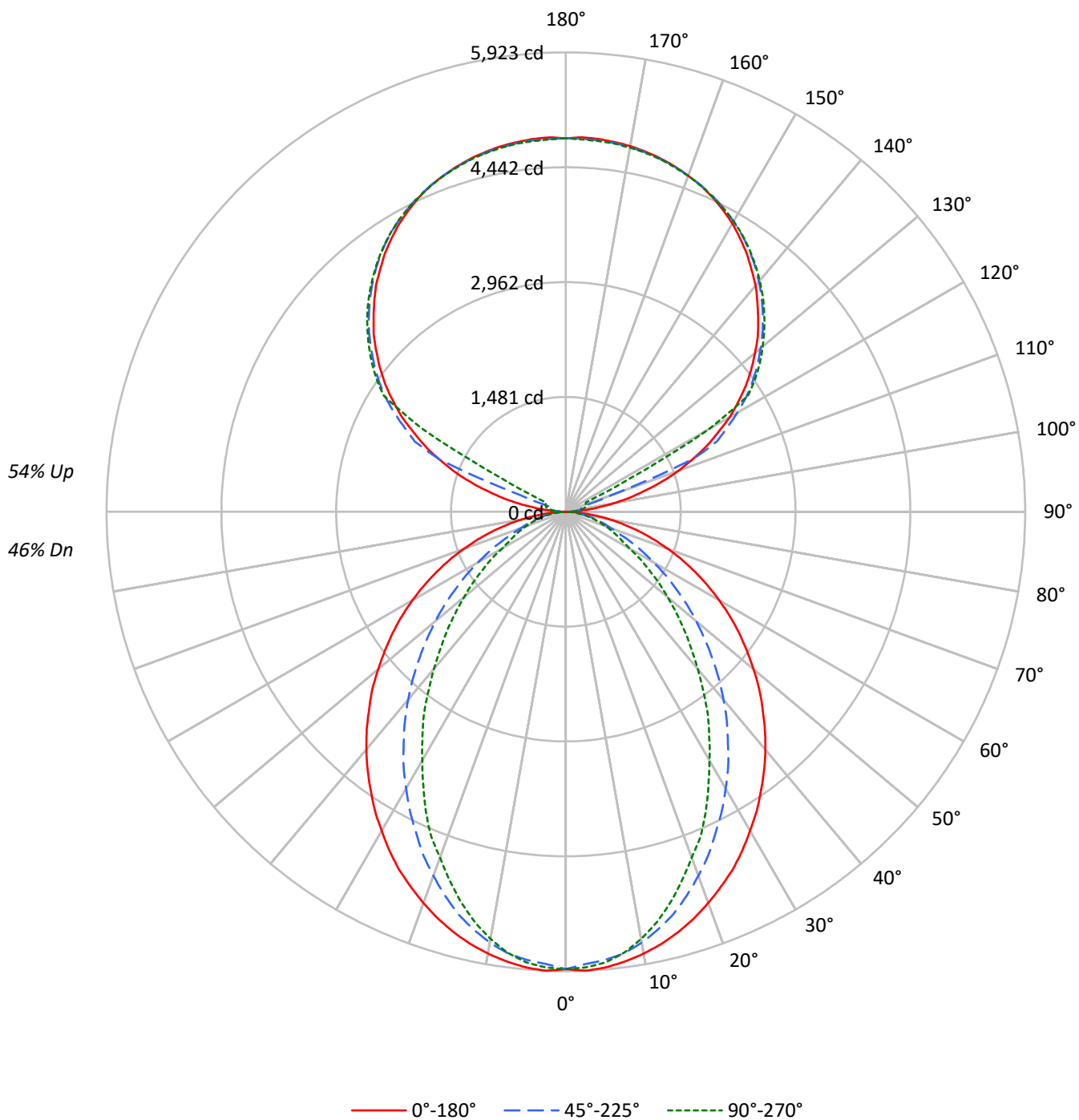
Lumens per Lamp: N/A
Luminaire Lumens: 26251.9 lumens
Efficiency: N/A
Efficacy: 90.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 288.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9971
Total Harmonic Distortion (THDi): 0.049
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

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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	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4138	4138	4138
5°	4144	4073	4099
10°	4103	3994	3967
15°	4046	3862	3762
20°	3972	3681	3510
25°	3895	3478	3266
30°	3792	3269	2957
35°	3692	3045	2685
40°	3589	2813	2374
45°	3470	2556	2091
50°	3347	2295	1815
55°	3218	2017	1550
60°	3069	1726	1277
65°	2898	1431	1151
70°	2691	1155	1043
75°	2430	1020	951
80°	2053	858	829
85°	1429	578	632

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 3470 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	552.6	2.1
10°-20°	1517.1	5.8
20°-30°	2130.0	8.1
30°-40°	2321.8	8.8
40°-50°	2134.0	8.1
50°-60°	1675.9	6.4
60°-70°	1090.9	4.2
70°-80°	561.5	2.1
80°-90°	151.8	0.6
90°-100°	158.8	0.6
100°-110°	591.9	2.3
110°-120°	1569.8	6.0
120°-130°	2603.6	9.9
130°-140°	2765.6	10.5
140°-150°	2570.3	9.8
150°-160°	2066.5	7.9
160°-170°	1331.6	5.1
170°-180°	458.3	1.7
0°-30°	4199.7	16.0
0°-40°	6521.6	24.8
0°-60°	10331.5	39.4
0°-90°	12135.7	46.2
90°-120°	2320.4	8.8
90°-150°	10259.9	39.1
90°-180°	14116.0	53.8
0°-180°	26251.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	5897	5897	5897	5897	5897	
5°	5897	5870	5800	5848	5833	559
15°	5608	5550	5368	5267	5214	1580
25°	5091	4920	4568	4349	4269	2341
35°	4387	4114	3645	3309	3191	2746
45°	3586	3228	2668	2289	2161	2769
55°	2727	2310	1734	1414	1313	2437
65°	1841	1409	928	747	731	1825
75°	982	608	427	390	384	1038
85°	229	117	101	101	101	263
90°	3	42	70	87	94	25
95°	226	111	136	154	150	268
105°	1059	1164	213	251	265	1132
115°	2003	2062	2150	537	286	1972
125°	2832	2878	2944	2969	2979	2526
135°	3505	3561	3592	3627	3620	2708
145°	4066	4062	4122	4146	4129	2543
155°	4477	4446	4488	4508	4481	2063
165°	4717	4697	4707	4732	4707	1333
175°	4825	4801	4808	4832	4798	459
180°	4815	4815	4815	4815	4815	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	5896.7	5896.7	5896.7	5896.7	5896.7
2.5°	5923.3	5896.7	5837.8	5891.6	5880.8
5°	5896.7	5870.0	5800.4	5848.5	5832.7
7.5°	5848.5	5816.8	5742.1	5763.0	5736.5
10°	5784.6	5747.3	5640.8	5624.4	5592.6
12.5°	5704.7	5656.7	5512.3	5480.5	5421.7
15°	5608.5	5549.6	5368.5	5267.1	5213.8
17.5°	5496.4	5410.9	5186.7	5069.5	4984.0
20°	5368.5	5261.4	4994.7	4861.7	4744.0
22.5°	5229.7	5106.8	4797.1	4616.0	4536.1
25°	5091.0	4920.0	4567.9	4349.3	4269.0
27.5°	4925.7	4744.0	4354.4	4103.7	3980.8
30°	4749.6	4546.4	4119.4	3847.7	3703.4
32.5°	4578.7	4332.9	3895.8	3575.4	3441.7
35°	4386.7	4114.4	3645.0	3308.7	3191.0
37.5°	4199.9	3906.0	3410.1	3041.4	2908.4
40°	4002.3	3682.4	3164.3	2785.5	2646.9
42.5°	3799.6	3458.1	2919.2	2524.0	2390.9
45°	3586.1	3228.3	2668.4	2289.0	2161.1
47.5°	3383.4	3004.7	2428.3	2049.0	1931.8
50°	3159.2	2780.4	2193.3	1824.8	1713.2
52.5°	2940.1	2539.9	1969.2	1617.0	1515.6
55°	2726.7	2310.5	1734.2	1414.3	1313.0
57.5°	2508.1	2081.3	1526.4	1227.4	1141.9
60°	2283.9	1857.1	1307.2	1035.5	950.0
62.5°	2065.4	1638.5	1120.4	864.5	822.1
65°	1841.2	1408.6	928.5	747.3	730.9
67.5°	1627.7	1195.2	747.3	656.2	640.3
70°	1403.6	987.4	618.8	565.6	544.1
72.5°	1190.1	794.9	517.5	475.0	464.2
75°	981.8	608.1	426.9	389.5	384.4
77.5°	773.9	431.9	336.3	314.8	304.1
80°	581.5	309.7	255.9	235.0	235.0
82.5°	405.4	208.4	176.1	165.3	165.3
85°	229.3	117.2	101.4	101.4	101.4
87.5°	85.5	42.4	42.4	37.4	37.4
90°	3.3	41.8	69.5	87.3	93.9
92.5°	87.3	73.2	83.6	90.6	93.9
95°	226.3	111.3	135.7	153.5	149.8
97.5°	407.5	122.1	177.5	188.2	191.5
100°	616.9	139.5	198.6	226.3	233.4
102.5°	846.5	839.9	205.6	243.7	254.4
105°	1059.2	1163.9	212.7	250.7	264.7
107.5°	1306.5	1393.5	219.7	257.8	271.8
110°	1543.6	1616.5	609.8	261.4	275.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1766.7	1829.2	1770.0	268.1	278.8
115°	2003.3	2062.4	2149.7	536.6	285.9
117.5°	2208.9	2278.4	2338.1	1839.5	926.8
120°	2439.0	2491.1	2553.9	2595.8	2125.4
122.5°	2633.8	2689.7	2759.6	2780.3	2784.0
125°	2832.4	2877.9	2944.2	2968.6	2978.9
127.5°	3013.6	3062.5	3115.0	3149.8	3153.1
130°	3184.6	3240.4	3278.5	3316.9	3313.6
132.5°	3358.7	3404.2	3442.3	3473.7	3470.4
135°	3505.1	3561.0	3592.1	3627.2	3620.2
137.5°	3658.2	3700.1	3735.2	3770.0	3759.6
140°	3808.0	3836.1	3874.2	3905.7	3888.3
142.5°	3933.8	3958.2	4003.3	4031.1	4013.7
145°	4066.2	4062.5	4121.7	4146.0	4128.7
147.5°	4180.8	4170.4	4229.6	4247.0	4233.3
150°	4292.5	4268.1	4324.0	4344.7	4327.3
152.5°	4386.4	4358.7	4410.8	4432.0	4407.5
155°	4477.0	4446.0	4487.8	4508.5	4480.8
157.5°	4550.3	4522.6	4554.0	4578.4	4550.3
160°	4613.2	4592.0	4613.2	4633.9	4609.4
162.5°	4668.6	4648.0	4665.3	4689.7	4658.3
165°	4717.4	4696.7	4707.1	4731.5	4707.1
167.5°	4755.9	4734.8	4745.6	4769.9	4738.5
170°	4787.3	4766.3	4773.2	4797.7	4766.3
172.5°	4808.0	4787.3	4794.4	4818.8	4787.3
175°	4825.4	4801.0	4808.0	4832.4	4797.7
177.5°	4832.4	4808.0	4811.8	4836.2	4804.7
180°	4815.1	4815.1	4815.1	4815.1	4815.1

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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	11.73	12.53	12.73	13.53	14.86	7.69	8.49	8.69	9.49	10.82
	3H	13.41	14.13	14.42	15.14	16.49	8.88	9.59	9.88	10.60	11.95
	4H	14.02	14.70	15.04	15.71	17.07	9.33	10.00	10.35	11.02	12.37
	6H	14.44	15.07	15.47	16.09	17.45	9.65	10.27	10.68	11.29	12.66
	8H	14.57	15.16	15.61	16.20	17.56	9.74	10.33	10.77	11.37	12.73
	12H	14.63	15.20	15.67	16.23	17.61	9.78	10.34	10.82	11.37	12.76
4H	2H	11.75	12.42	12.77	13.44	14.79	8.28	8.96	9.31	9.98	11.33
	3H	13.58	14.14	14.61	15.18	16.55	9.63	10.20	10.67	11.24	12.61
	4H	14.27	14.79	15.31	15.82	17.21	10.18	10.70	11.22	11.73	13.12
	6H	14.79	15.23	15.84	16.29	17.68	10.60	11.04	11.65	12.10	13.49
	8H	14.97	15.38	16.02	16.43	17.83	10.73	11.14	11.78	12.19	13.59
	12H	15.06	15.43	16.13	16.50	17.91	10.79	11.17	11.86	12.23	13.64
8H	4H	14.24	14.65	15.29	15.70	17.10	10.46	10.87	11.51	11.92	13.33
	6H	14.81	15.15	15.88	16.24	17.64	10.98	11.32	12.05	12.41	13.81
	8H	15.03	15.32	16.11	16.40	17.82	11.17	11.47	12.25	12.55	13.97
	12H	15.17	15.43	16.25	16.50	17.96	11.29	11.55	12.38	12.63	14.09
12H	4H	14.19	14.56	15.26	15.62	17.03	10.47	10.84	11.53	11.90	13.31
	6H	14.78	15.08	15.86	16.16	17.58	11.03	11.33	12.11	12.41	13.83
	8H	15.00	15.27	16.09	16.34	17.80	11.24	11.50	12.33	12.58	14.04

END OF REPORT