

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: P906987

Luminaire Tested: DFN2DIP-SQ4F0-160D160US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906987
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-SQ4F0-160D160US835-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

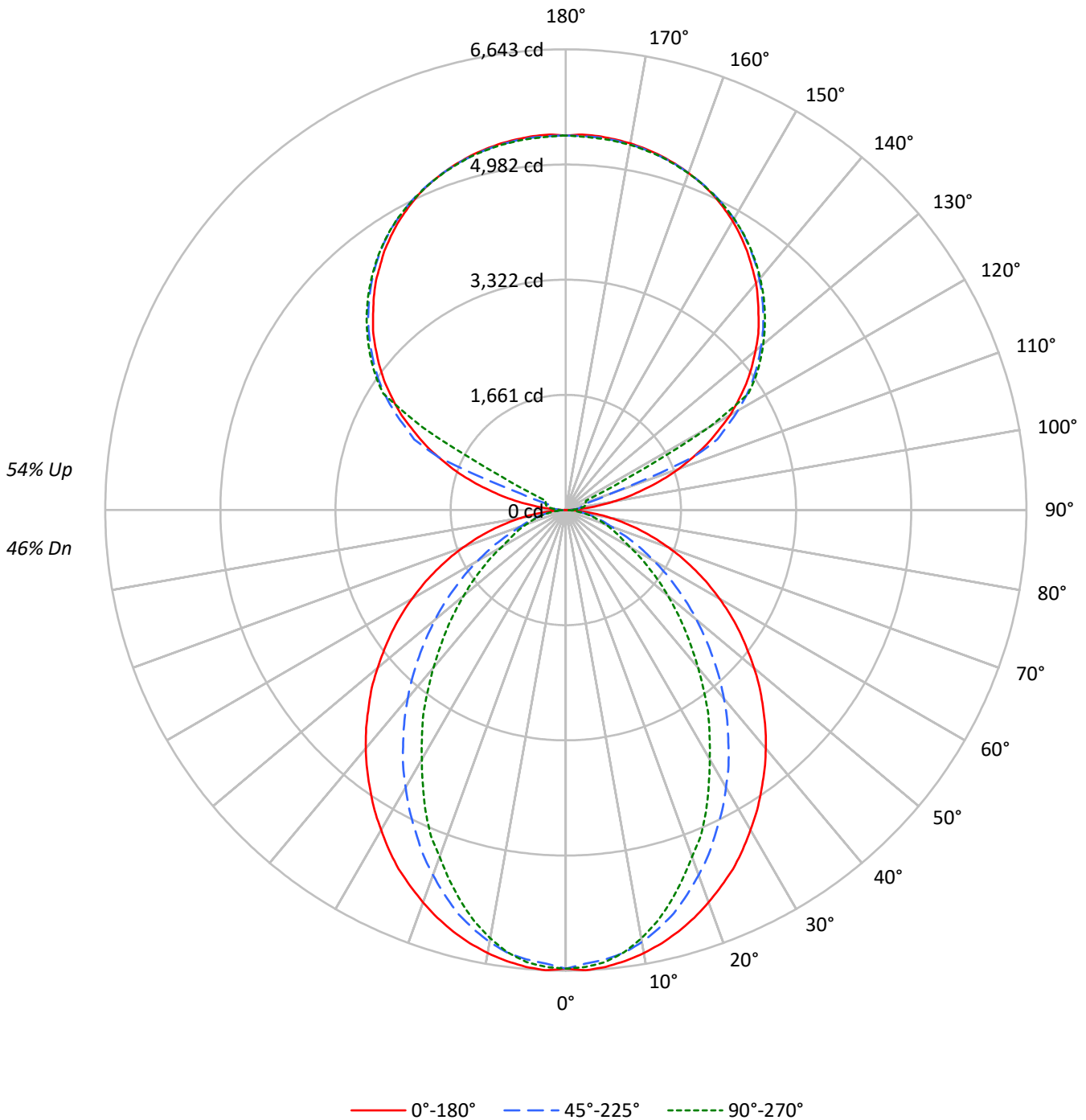
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 29440.0 lumens
Efficiency: N/A
Efficacy: 101.9 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				20
RC	80				70				50				30				10				0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	50	30	10	0
RCR																					
0	106	106	106	106	98	98	98	98	81	81	81	66	66	66	53	53	53	46			46
1	97	93	90	86	89	86	83	80	72	70	68	59	58	56	47	46	45	40			40
2	89	82	76	71	82	76	70	66	63	60	57	52	50	48	42	40	39	34			34
3	81	72	65	60	75	67	61	56	56	52	48	47	43	41	38	35	34	29			29
4	75	64	57	51	68	60	53	48	50	45	41	42	38	35	34	31	29	26			26
5	69	58	50	44	63	53	46	41	45	40	36	38	34	31	31	28	26	23			23
6	63	52	44	38	58	48	41	36	41	36	32	34	30	27	28	25	23	20			20
7	59	47	39	34	54	44	37	32	37	32	28	31	27	24	26	23	21	18			18
8	55	43	35	30	50	40	33	28	34	29	25	29	25	22	24	21	19	16			16
9	51	39	32	27	47	36	30	25	31	26	22	27	23	20	22	19	17	15			15
10	48	36	29	24	44	33	27	23	29	24	20	25	21	18	20	18	15	13			13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	4640	4640	4640
5°	4647	4567	4597
10°	4601	4479	4449
15°	4538	4331	4219
20°	4454	4128	3936
25°	4368	3900	3663
30°	4253	3667	3316
35°	4140	3415	3011
40°	4025	3155	2662
45°	3891	2866	2345
50°	3753	2574	2035
55°	3609	2262	1738
60°	3442	1936	1432
65°	3250	1605	1290
70°	3017	1295	1170
75°	2725	1144	1067
80°	2302	963	930
85°	1602	648	709

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 3891 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	619.8	2.1
10°-20°	1701.4	5.8
20°-30°	2388.6	8.1
30°-40°	2603.8	8.8
40°-50°	2393.2	8.1
50°-60°	1879.5	6.4
60°-70°	1223.3	4.2
70°-80°	629.7	2.1
80°-90°	170.3	0.6
90°-100°	178.0	0.6
100°-110°	663.8	2.3
110°-120°	1760.4	6.0
120°-130°	2919.7	9.9
130°-140°	3101.5	10.5
140°-150°	2882.5	9.8
150°-160°	2317.4	7.9
160°-170°	1493.3	5.1
170°-180°	514.0	1.7
0°-30°	4709.8	16.0
0°-40°	7313.5	24.8
0°-60°	11586.2	39.4
0°-90°	13609.5	46.2
90°-120°	2602.2	8.8
90°-150°	11505.9	39.1
90°-180°	15831.0	53.8
0°-180°	29440.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	6613	6613	6613	6613	6613	
5°	6613	6583	6505	6559	6541	627
15°	6290	6224	6020	5907	5847	1772
25°	5709	5518	5123	4878	4787	2626
35°	4919	4614	4088	3710	3578	3079
45°	4022	3620	2992	2567	2424	3106
55°	3058	2591	1945	1586	1472	2732
65°	2065	1580	1041	838	820	2047
75°	1101	682	479	437	431	1164
85°	257	131	114	114	114	295
90°	4	47	78	98	105	28
95°	254	125	152	172	168	301
105°	1188	1305	238	281	297	1269
115°	2247	2313	2411	602	321	2212
125°	3176	3227	3302	3329	3341	2833
135°	3931	3994	4028	4068	4060	3036
145°	4560	4556	4622	4650	4630	2852
155°	5021	4986	5033	5056	5025	2314
165°	5290	5267	5279	5306	5279	1495
175°	5411	5384	5392	5419	5380	515
180°	5400	5400	5400	5400	5400	



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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	6612.8	6612.8	6612.8	6612.8	6612.8
2.5°	6642.6	6612.8	6546.7	6607.1	6595.0
5°	6612.8	6582.9	6504.8	6558.8	6541.0
7.5°	6558.8	6523.2	6439.4	6462.9	6433.1
10°	6487.1	6445.2	6325.8	6307.4	6271.8
12.5°	6397.5	6343.6	6181.7	6146.1	6080.1
15°	6289.6	6223.6	6020.4	5906.7	5847.0
17.5°	6163.9	6068.0	5816.6	5685.1	5589.3
20°	6020.4	5900.4	5601.3	5452.1	5320.1
22.5°	5864.8	5727.0	5379.7	5176.6	5087.0
25°	5709.3	5517.5	5122.6	4877.5	4787.4
27.5°	5523.9	5320.1	4883.2	4602.0	4464.2
30°	5326.4	5098.5	4619.7	4315.0	4153.1
32.5°	5134.7	4859.1	4368.9	4009.6	3859.7
35°	4919.4	4614.0	4087.7	3710.5	3578.5
37.5°	4709.9	4380.4	3824.2	3410.8	3261.6
40°	4488.3	4129.6	3548.6	3123.8	2968.3
42.5°	4261.0	3878.1	3273.7	2830.5	2681.3
45°	4021.6	3620.4	2992.4	2567.0	2423.5
47.5°	3794.3	3369.6	2723.2	2297.8	2166.4
50°	3542.9	3118.1	2459.7	2046.4	1921.3
52.5°	3297.2	2848.3	2208.3	1813.4	1699.7
55°	3057.8	2591.1	1944.8	1586.0	1472.4
57.5°	2812.7	2334.0	1711.8	1376.5	1280.6
60°	2561.3	2082.6	1466.0	1161.3	1065.4
62.5°	2316.2	1837.5	1256.5	969.5	921.9
65°	2064.8	1579.7	1041.3	838.1	819.7
67.5°	1825.4	1340.3	838.1	735.9	718.1
70°	1574.0	1107.3	694.0	634.3	610.2
72.5°	1334.6	891.4	580.3	532.7	520.6
75°	1101.0	681.9	478.7	436.8	431.1
77.5°	867.9	484.4	377.1	353.0	341.0
80°	652.1	347.3	287.0	263.5	263.5
82.5°	454.6	233.7	197.5	185.4	185.4
85°	257.1	131.4	113.7	113.7	113.7
87.5°	95.9	47.6	47.6	41.9	41.9
90°	3.7	46.9	77.9	97.9	105.3
92.5°	97.9	82.1	93.7	101.6	105.3
95°	253.8	124.8	152.2	172.1	168.0
97.5°	457.0	136.9	199.0	211.1	214.8
100°	691.8	156.4	222.7	253.8	261.7
102.5°	949.3	941.9	230.6	273.3	285.3
105°	1187.8	1305.2	238.5	281.2	296.9
107.5°	1465.2	1562.7	246.4	289.1	304.8
110°	1731.1	1812.8	683.9	293.2	308.5



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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1981.2	2051.3	1984.9	300.7	312.7
115°	2246.6	2312.9	2410.8	601.8	320.6
117.5°	2477.2	2555.1	2622.0	2062.9	1039.3
120°	2735.2	2793.6	2864.1	2911.0	2383.5
122.5°	2953.7	3016.3	3094.7	3117.9	3122.1
125°	3176.4	3227.4	3301.7	3329.1	3340.7
127.5°	3379.6	3434.4	3493.3	3532.3	3536.0
130°	3571.3	3633.9	3676.6	3719.7	3716.0
132.5°	3766.6	3817.6	3860.3	3895.6	3891.9
135°	3930.8	3993.5	4028.3	4067.7	4059.8
137.5°	4102.5	4149.4	4188.8	4227.8	4216.2
140°	4270.5	4302.0	4344.7	4380.0	4360.5
142.5°	4411.5	4438.9	4489.5	4520.6	4501.1
145°	4560.0	4555.8	4622.2	4649.5	4630.1
147.5°	4688.5	4676.9	4743.3	4762.8	4747.4
150°	4813.8	4786.4	4849.1	4872.3	4852.8
152.5°	4919.1	4888.0	4946.5	4970.2	4942.8
155°	5020.7	4985.9	5032.8	5056.0	5024.9
157.5°	5102.9	5071.8	5107.0	5134.4	5102.9
160°	5173.4	5149.7	5173.4	5196.6	5169.2
162.5°	5235.6	5212.4	5231.8	5259.2	5224.0
165°	5290.3	5267.1	5278.7	5306.1	5278.7
167.5°	5333.5	5309.8	5321.9	5349.2	5314.0
170°	5368.7	5345.1	5352.9	5380.3	5345.1
172.5°	5391.9	5368.7	5376.6	5404.0	5368.7
175°	5411.4	5384.0	5391.9	5419.3	5380.3
177.5°	5419.3	5391.9	5396.1	5423.5	5388.2
180°	5399.8	5399.8	5399.8	5399.8	5399.8



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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	12.13	12.93	13.12	13.93	15.26	8.09	8.89	9.08	9.89	11.22
	3H	13.81	14.52	14.81	15.54	16.88	9.28	9.99	10.28	11.00	12.35
	4H	14.42	15.10	15.44	16.11	17.47	9.73	10.40	10.74	11.42	12.77
	6H	14.84	15.47	15.87	16.48	17.85	10.05	10.67	11.07	11.69	13.06
	8H	14.97	15.56	16.00	16.60	17.96	10.14	10.73	11.17	11.76	13.13
	12H	15.03	15.60	16.07	16.62	18.01	10.18	10.74	11.22	11.77	13.16
4H	2H	12.14	12.82	13.17	13.83	15.19	8.68	9.36	9.71	10.37	11.73
	3H	13.97	14.54	15.01	15.58	16.95	10.03	10.59	11.07	11.64	13.01
	4H	14.67	15.18	15.71	16.22	17.61	10.58	11.09	11.62	12.13	13.52
	6H	15.19	15.63	16.24	16.69	18.07	11.00	11.44	12.05	12.50	13.89
	8H	15.36	15.78	16.41	16.83	18.23	11.13	11.54	12.18	12.59	13.99
	12H	15.46	15.83	16.53	16.90	18.30	11.19	11.56	12.26	12.63	14.04
8H	4H	14.63	15.05	15.69	16.10	17.50	10.86	11.27	11.91	12.32	13.73
	6H	15.20	15.54	16.28	16.64	18.04	11.38	11.72	12.45	12.81	14.21
	8H	15.42	15.72	16.51	16.80	18.22	11.57	11.87	12.65	12.95	14.37
	12H	15.56	15.83	16.65	16.90	18.36	11.69	11.95	12.77	13.02	14.48
12H	4H	14.59	14.96	15.65	16.02	17.43	10.86	11.24	11.93	12.30	13.71
	6H	15.18	15.48	16.26	16.56	17.97	11.43	11.73	12.51	12.80	14.22
	8H	15.40	15.67	16.49	16.74	18.20	11.64	11.90	12.72	12.97	14.43