

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: P906807

Luminaire Tested: DFN2DIP-SQ4F0-090D160US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906807
REPORT IS A COMBINATION OF REPORTS P901730 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-090D160US835-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

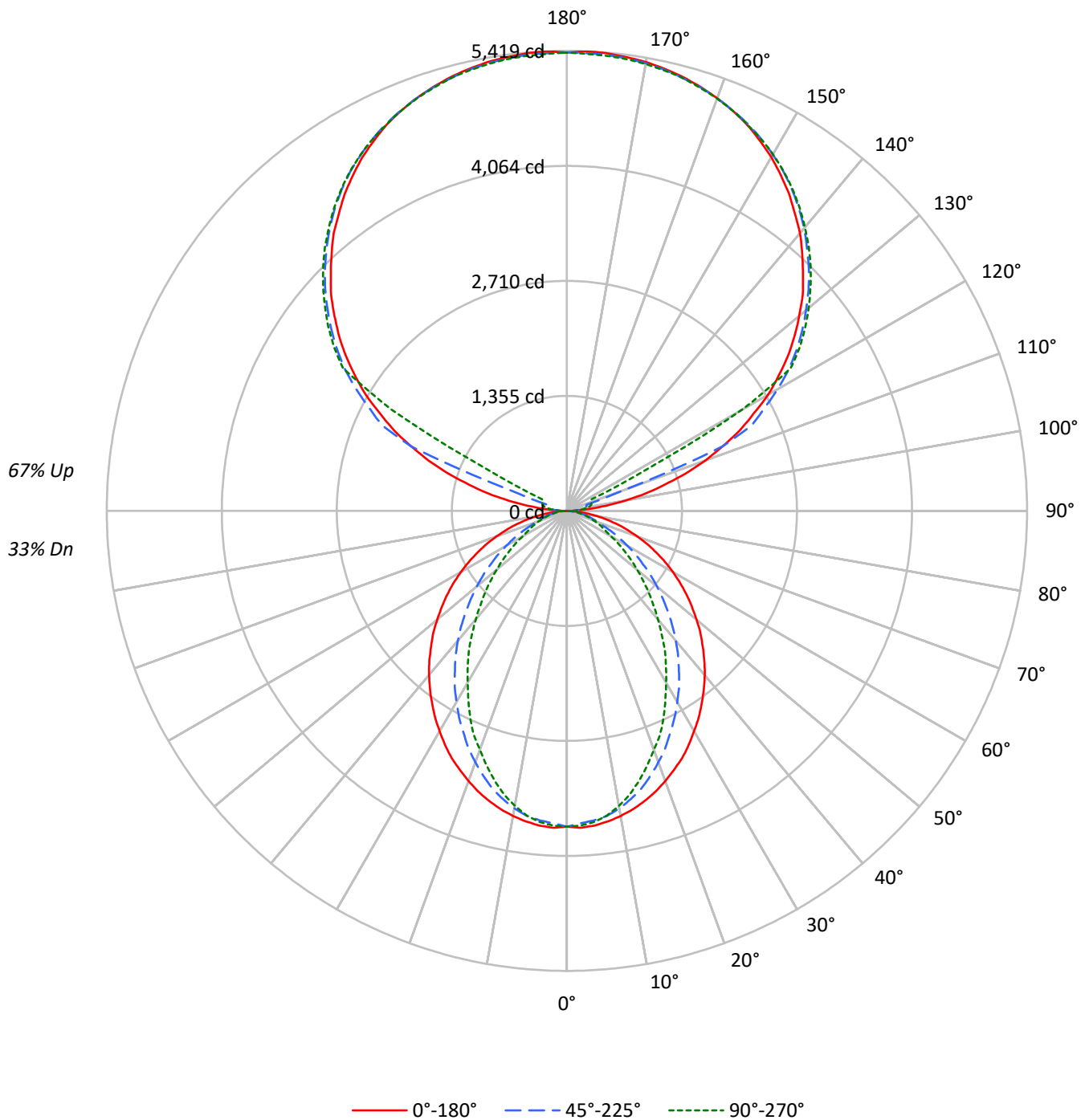
Lumens per Lamp: N/A
Luminaire Lumens: 23490.0 lumens
Efficiency: N/A
Efficacy: 114.7 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 204.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.983
Total Harmonic Distortion (THDi): 0.073
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	103	103	103	103	93	93	93	93	74	74	74	56	56	56	40	40	40
1	94	90	86	83	85	81	78	75	65	63	61	50	49	47	36	35	34
2	86	79	73	68	77	71	67	62	57	54	51	44	42	40	32	31	29
3	79	70	63	57	71	63	57	52	51	47	43	39	36	34	29	27	25
4	72	62	54	49	65	56	50	45	45	41	37	35	32	29	26	24	22
5	66	55	47	42	59	50	43	38	41	36	32	32	28	26	23	21	19
6	61	49	42	36	55	45	38	33	37	32	28	29	25	23	21	19	17
7	56	45	37	32	51	41	34	29	33	28	25	26	23	20	19	17	15
8	52	40	33	28	47	37	30	26	30	25	22	24	20	18	18	16	14
9	49	37	30	25	44	34	27	23	28	23	20	22	19	16	17	14	13
10	45	34	27	22	41	31	25	21	25	21	18	20	17	15	15	13	12

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2610	2610	2610
5°	2614	2569	2586
10°	2588	2519	2502
15°	2553	2436	2373
20°	2505	2322	2214
25°	2457	2194	2060
30°	2392	2062	1865
35°	2329	1921	1694
40°	2264	1775	1497
45°	2189	1612	1319
50°	2111	1448	1145
55°	2030	1273	978
60°	1936	1089	805
65°	1828	903	726
70°	1697	729	658
75°	1533	643	600
80°	1295	541	523
85°	901	364	398

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 2894 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	348.6	1.5
10°-20°	957.0	4.1
20°-30°	1343.6	5.7
30°-40°	1464.6	6.2
40°-50°	1346.2	5.7
50°-60°	1057.2	4.5
60°-70°	688.1	2.9
70°-80°	354.2	1.5
80°-90°	99.9	0.4
90°-100°	178.0	0.8
100°-110°	663.8	2.8
110°-120°	1760.4	7.5
120°-130°	2919.7	12.4
130°-140°	3101.5	13.2
140°-150°	2882.5	12.3
150°-160°	2317.4	9.9
160°-170°	1493.3	6.4
170°-180°	514.0	2.2
0°-30°	2649.2	11.3
0°-40°	4113.9	17.5
0°-60°	6517.2	27.7
0°-90°	7659.5	32.6
90°-120°	2602.2	11.1
90°-150°	11505.9	49.0
90°-180°	15831.0	67.4
0°-180°	23490.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3720	3720	3720	3720	3720	
5°	3720	3703	3659	3689	3679	353
15°	3538	3501	3386	3322	3289	997
25°	3212	3104	2882	2744	2693	1477
35°	2767	2595	2299	2087	2013	1732
45°	2262	2036	1683	1444	1363	1747
55°	1720	1458	1094	892	828	1537
65°	1161	889	586	471	461	1151
75°	619	384	269	246	242	655
85°	145	74	64	64	64	166
90°	4	47	78	98	105	22
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°	3719.7	3719.7	3719.7	3719.7	3719.7
2.5°	3736.5	3719.7	3682.5	3716.5	3709.7
5°	3719.7	3702.9	3659.0	3689.3	3679.3
7.5°	3689.3	3669.3	3622.2	3635.4	3618.6
10°	3649.0	3625.4	3558.3	3547.9	3527.9
12.5°	3598.6	3568.3	3477.2	3457.2	3420.0
15°	3537.9	3500.8	3386.5	3322.5	3289.0
17.5°	3467.2	3413.3	3271.8	3197.9	3144.0
20°	3386.5	3319.0	3150.7	3066.8	2992.5
22.5°	3299.0	3221.5	3026.1	2911.8	2861.5
25°	3211.5	3103.6	2881.5	2743.6	2692.9
27.5°	3107.2	2992.5	2746.8	2588.6	2511.1
30°	2996.1	2867.9	2598.6	2427.2	2336.1
32.5°	2888.2	2733.2	2457.5	2255.4	2171.1
35°	2767.2	2595.4	2299.3	2087.2	2012.9
37.5°	2649.3	2464.0	2151.1	1918.6	1834.7
40°	2524.7	2322.9	1996.1	1757.2	1669.7
42.5°	2396.8	2181.5	1841.4	1592.2	1508.2
45°	2262.2	2036.5	1683.2	1443.9	1363.2
47.5°	2134.3	1895.4	1531.8	1292.5	1218.6
50°	1992.9	1753.9	1383.6	1151.1	1080.7
52.5°	1854.7	1602.2	1242.2	1020.0	956.1
55°	1720.0	1457.5	1093.9	892.2	828.2
57.5°	1582.2	1312.9	962.9	774.3	720.4
60°	1440.7	1171.4	824.7	653.2	599.3
62.5°	1302.9	1033.6	706.8	545.4	518.6
65°	1161.4	888.6	585.7	471.4	461.1
67.5°	1026.8	753.9	471.4	413.9	403.9
70°	885.4	622.9	390.4	356.8	343.2
72.5°	750.7	501.4	326.4	299.6	292.9
75°	619.3	383.6	269.3	245.7	242.5
77.5°	488.2	272.5	212.1	198.6	191.8
80°	366.8	195.4	161.4	148.2	148.2
82.5°	255.7	131.4	111.1	104.3	104.3
85°	144.6	73.9	63.9	63.9	63.9
87.5°	53.9	26.8	26.8	23.6	23.6
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	8.61	9.31	9.71	10.41	11.91	4.57	5.27	5.67	6.37	7.87
	3H	10.28	10.91	11.39	12.01	13.53	5.75	6.38	6.85	7.48	9.00
	4H	10.89	11.48	12.00	12.59	14.11	6.19	6.79	7.31	7.89	9.42
	6H	11.30	11.85	12.43	12.96	14.50	6.51	7.06	7.63	8.16	9.70
	8H	11.43	11.95	12.56	13.07	14.60	6.59	7.12	7.72	8.24	9.77
	12H	11.49	11.99	12.62	13.10	14.65	6.63	7.13	7.77	8.25	9.80
4H	2H	8.61	9.21	9.73	10.31	11.84	5.15	5.75	6.27	6.85	8.38
	3H	10.43	10.93	11.56	12.06	13.60	6.49	6.99	7.62	8.12	9.65
	4H	11.12	11.58	12.26	12.70	14.26	7.03	7.49	8.17	8.61	10.17
	6H	11.64	12.03	12.78	13.17	14.72	7.45	7.84	8.59	8.98	10.53
	8H	11.81	12.18	12.95	13.31	14.87	7.57	7.94	8.71	9.07	10.64
	12H	11.90	12.23	13.06	13.38	14.95	7.63	7.96	8.79	9.11	10.68
8H	4H	11.08	11.45	12.22	12.58	14.14	7.31	7.67	8.45	8.80	10.37
	6H	11.65	11.95	12.81	13.12	14.69	7.82	8.12	8.98	9.30	10.86
	8H	11.87	12.13	13.03	13.28	14.87	8.01	8.28	9.18	9.43	11.01
	12H	12.00	12.23	13.17	13.39	15.00	8.13	8.36	9.30	9.51	11.13
12H	4H	11.03	11.36	12.18	12.50	14.07	7.31	7.64	8.46	8.78	10.35
	6H	11.62	11.89	12.79	13.04	14.62	7.87	8.14	9.04	9.29	10.87
	8H	11.84	12.07	13.01	13.22	14.84	8.08	8.31	9.25	9.46	11.08

END OF REPORT