

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: P920555

Luminaire Tested: DFN2DIP-SQ4F0-120D160US935-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P920555
REPORT IS A COMBINATION OF REPORTS P901736 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US935-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

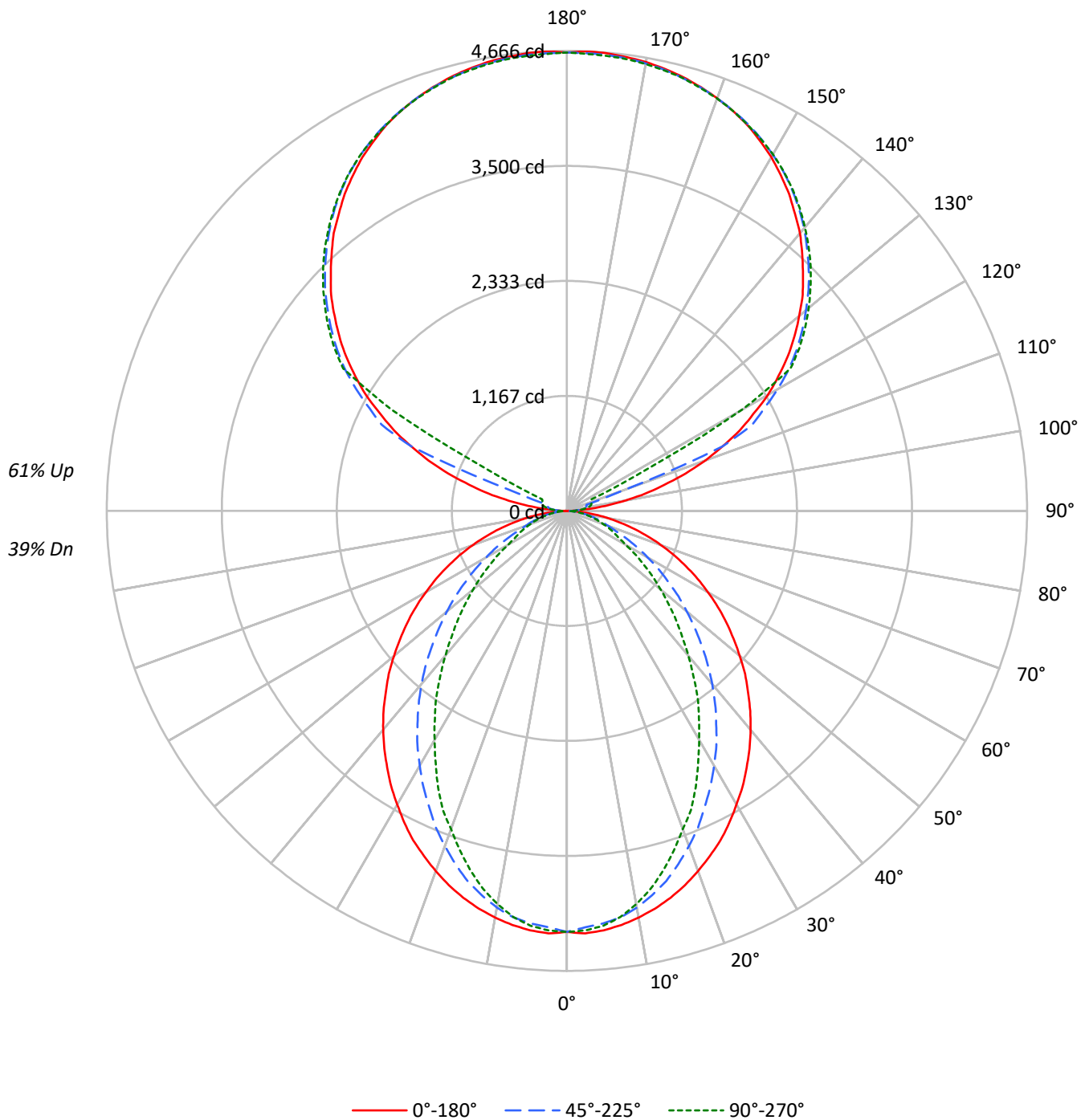
Lumens per Lamp: N/A
Luminaire Lumens: 22420.4 lumens
Efficiency: N/A
Efficacy: 93.5 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 239.7
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

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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	105	105	105	105	95	95	95	95	77	77	77	61	61	61	46	46	46
1	96	92	88	85	87	83	80	78	68	66	64	54	53	52	41	41	40
2	87	80	75	70	79	73	68	64	60	57	54	48	46	44	37	35	34
3	80	71	64	58	73	65	59	54	53	49	46	43	40	37	33	31	29
4	73	63	55	50	67	58	51	46	48	43	39	38	35	32	30	27	26
5	67	56	48	43	61	52	45	40	43	38	34	35	31	28	27	25	23
6	62	51	43	37	56	46	40	35	39	34	30	31	28	25	25	22	20
7	57	46	38	33	52	42	35	31	35	30	26	29	25	22	23	20	18
8	53	42	34	29	49	38	32	27	32	27	23	26	22	20	21	18	16
9	50	38	31	26	45	35	29	24	29	24	21	24	20	18	19	17	15
10	46	35	28	23	42	32	26	22	27	22	19	22	19	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2996	2996	2996
5°	3001	2949	2969
10°	2971	2892	2873
15°	2930	2797	2724
20°	2876	2666	2542
25°	2821	2519	2365
30°	2746	2368	2141
35°	2673	2205	1945
40°	2599	2037	1719
45°	2513	1851	1514
50°	2424	1662	1314
55°	2331	1461	1122
60°	2223	1250	925
65°	2099	1036	833
70°	1949	836	755
75°	1760	739	689
80°	1486	621	600
85°	1035	418	457

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2513 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	400.2	1.8
10°-20°	1098.7	4.9
20°-30°	1542.5	6.9
30°-40°	1681.4	7.5
40°-50°	1545.4	6.9
50°-60°	1213.7	5.4
60°-70°	790.0	3.5
70°-80°	406.7	1.8
80°-90°	112.0	0.5
90°-100°	153.3	0.7
100°-110°	571.5	2.5
110°-120°	1515.7	6.8
120°-130°	2513.9	11.2
130°-140°	2670.3	11.9
140°-150°	2481.8	11.1
150°-160°	1995.3	8.9
160°-170°	1285.7	5.7
170°-180°	442.5	2.0
0°-30°	3041.3	13.6
0°-40°	4722.7	21.1
0°-60°	7481.7	33.4
0°-90°	8790.4	39.2
90°-120°	2240.5	10.0
90°-150°	9906.5	44.2
90°-180°	13630.0	60.8
0°-180°	22420.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4270	4270	4270	4270	4270	
5°	4270	4251	4200	4235	4224	405
15°	4062	4019	3888	3814	3776	1144
25°	3687	3563	3308	3150	3091	1696
35°	3177	2980	2640	2396	2311	1988
45°	2597	2338	1932	1658	1565	2006
55°	1975	1673	1256	1024	951	1764
65°	1333	1020	672	541	529	1322
75°	711	440	309	282	278	752
85°	166	85	73	73	73	191
90°	3	40	67	84	91	21
95°	218	108	131	148	145	259
105°	1023	1124	205	242	256	1093
115°	1934	1991	2076	518	276	1904
125°	2735	2779	2843	2866	2876	2439
135°	3384	3438	3468	3502	3496	2614
145°	3926	3922	3980	4003	3986	2456
155°	4323	4293	4333	4353	4326	1992
165°	4555	4535	4545	4568	4545	1287
175°	4659	4636	4642	4666	4632	443
180°	4649	4649	4649	4649	4649	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4270.2	4270.2	4270.2	4270.2	4270.2
2.5°	4289.5	4270.2	4227.6	4266.5	4258.7
5°	4270.2	4250.9	4200.5	4235.3	4223.9
7.5°	4235.3	4212.3	4158.3	4173.4	4154.1
10°	4189.0	4162.0	4084.8	4073.0	4050.0
12.5°	4131.2	4096.4	3991.8	3968.9	3926.2
15°	4061.5	4018.9	3887.7	3814.2	3775.7
17.5°	3980.3	3918.4	3756.0	3671.2	3609.3
20°	3887.7	3810.2	3617.1	3520.7	3435.4
22.5°	3787.2	3698.2	3474.0	3342.7	3285.0
25°	3686.8	3562.9	3307.9	3149.6	3091.4
27.5°	3567.0	3435.4	3153.3	2971.7	2882.7
30°	3439.5	3292.4	2983.2	2786.4	2681.8
32.5°	3315.7	3137.7	2821.2	2589.2	2492.4
35°	3176.7	2979.5	2639.6	2396.1	2310.7
37.5°	3041.4	2828.6	2469.4	2202.5	2106.2
40°	2898.3	2666.7	2291.5	2017.2	1916.8
42.5°	2751.5	2504.3	2114.0	1827.8	1731.5
45°	2596.9	2337.9	1932.3	1657.7	1564.9
47.5°	2450.1	2175.9	1758.5	1483.8	1398.9
50°	2287.8	2013.5	1588.4	1321.5	1240.7
52.5°	2129.2	1839.3	1426.0	1171.0	1097.6
55°	1974.6	1673.3	1255.9	1024.2	950.8
57.5°	1816.3	1507.2	1105.3	888.9	827.0
60°	1654.0	1344.8	946.7	749.9	688.0
62.5°	1495.7	1186.5	811.4	626.1	595.3
65°	1333.3	1020.1	672.4	541.2	529.3
67.5°	1178.8	865.5	541.2	475.2	463.7
70°	1016.4	715.1	448.1	409.6	394.0
72.5°	861.9	575.7	374.7	344.0	336.2
75°	710.9	440.3	309.2	282.1	278.4
77.5°	560.5	312.8	243.6	228.0	220.2
80°	421.1	224.3	185.3	170.1	170.1
82.5°	293.6	150.8	127.5	119.7	119.7
85°	166.1	84.9	73.4	73.4	73.4
87.5°	61.9	30.7	30.7	27.0	27.0
90°	3.2	40.4	67.1	84.3	90.7
92.5°	84.3	70.7	80.7	87.5	90.7
95°	218.5	107.5	131.0	148.2	144.6
97.5°	393.5	117.9	171.3	181.8	184.9
100°	595.6	134.7	191.7	218.5	225.3
102.5°	817.3	811.0	198.5	235.3	245.6
105°	1022.7	1123.8	205.3	242.1	255.6
107.5°	1261.5	1345.5	212.1	248.9	262.4
110°	1490.5	1560.8	588.8	252.4	265.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1705.8	1766.2	1709.0	258.9	269.2
115°	1934.3	1991.4	2075.7	518.1	276.0
117.5°	2132.9	2199.9	2257.5	1776.2	894.8
120°	2355.0	2405.3	2466.0	2506.4	2052.2
122.5°	2543.1	2597.0	2664.5	2684.5	2688.1
125°	2734.9	2778.8	2842.8	2866.3	2876.3
127.5°	2909.8	2957.0	3007.7	3041.3	3044.5
130°	3074.9	3128.8	3165.5	3202.7	3199.5
132.5°	3243.0	3286.9	3323.7	3354.1	3350.9
135°	3384.4	3438.4	3468.4	3502.3	3495.5
137.5°	3532.2	3572.6	3606.5	3640.1	3630.1
140°	3676.9	3704.0	3740.8	3771.2	3754.4
142.5°	3798.3	3821.9	3865.4	3892.2	3875.4
145°	3926.2	3922.5	3979.7	4003.2	3986.5
147.5°	4036.8	4026.8	4084.0	4100.8	4087.5
150°	4144.7	4121.1	4175.1	4195.0	4178.3
152.5°	4235.3	4208.6	4258.9	4279.3	4255.7
155°	4322.8	4292.8	4333.2	4353.2	4326.4
157.5°	4393.6	4366.8	4397.1	4420.7	4393.6
160°	4454.3	4433.9	4454.3	4474.3	4450.7
162.5°	4507.8	4487.9	4504.6	4528.2	4497.9
165°	4554.9	4535.0	4544.9	4568.5	4544.9
167.5°	4592.1	4571.7	4582.1	4605.6	4575.3
170°	4622.4	4602.1	4608.8	4632.4	4602.1
172.5°	4642.4	4622.4	4629.2	4652.8	4622.4
175°	4659.2	4635.6	4642.4	4666.0	4632.4
177.5°	4666.0	4642.4	4646.0	4669.6	4639.2
180°	4649.2	4649.2	4649.2	4649.2	4649.2

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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	9.87	10.62	10.92	11.67	13.09	5.83	6.58	6.89	7.63	9.05
	3H	11.55	12.22	12.61	13.28	14.72	7.02	7.69	8.08	8.75	10.19
	4H	12.16	12.79	13.23	13.85	15.30	7.46	8.10	8.54	9.16	10.61
	6H	12.58	13.16	13.66	14.23	15.69	7.78	8.37	8.86	9.43	10.89
	8H	12.70	13.26	13.79	14.34	15.79	7.87	8.43	8.96	9.51	10.96
	12H	12.77	13.29	13.86	14.37	15.84	7.91	8.44	9.00	9.51	10.99
4H	2H	9.88	10.52	10.96	11.58	13.02	6.42	7.06	7.50	8.12	9.56
	3H	11.71	12.24	12.79	13.33	14.78	7.77	8.29	8.85	9.38	10.84
	4H	12.40	12.88	13.49	13.96	15.44	8.31	8.80	9.40	9.87	11.35
	6H	12.92	13.33	14.01	14.43	15.91	8.73	9.14	9.83	10.24	11.72
	8H	13.09	13.48	14.19	14.57	16.06	8.86	9.24	9.95	10.34	11.83
	12H	13.19	13.54	14.30	14.64	16.14	8.92	9.27	10.03	10.37	11.87
8H	4H	12.36	12.75	13.46	13.84	15.33	8.59	8.98	9.69	10.07	11.56
	6H	12.93	13.25	14.05	14.39	15.87	9.11	9.42	10.23	10.56	12.05
	8H	13.15	13.43	14.28	14.55	16.05	9.30	9.58	10.42	10.69	12.20
	12H	13.29	13.53	14.42	14.65	16.19	9.41	9.66	10.54	10.77	12.32
12H	4H	12.31	12.66	13.43	13.77	15.26	8.59	8.94	9.71	10.05	11.54
	6H	12.91	13.19	14.03	14.30	15.81	9.16	9.43	10.28	10.55	12.06
	8H	13.13	13.37	14.26	14.49	16.03	9.36	9.61	10.49	10.72	12.27

END OF REPORT