

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: P906875

Luminaire Tested: DFN2DIP-SQ4F0-110D140US835-RLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906875
REPORT IS A COMBINATION OF REPORTS P901716 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D140US835-RLLONL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

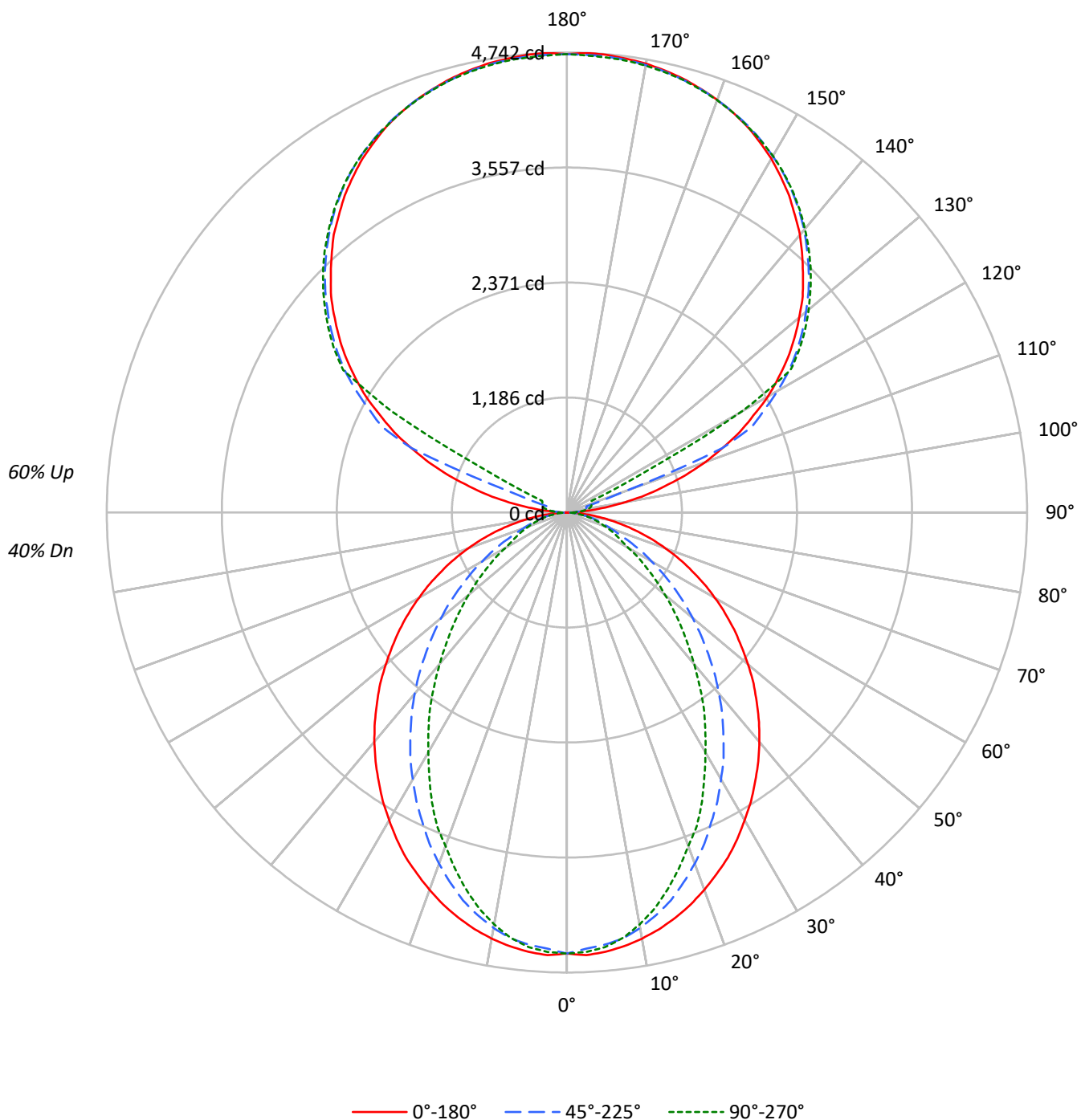
Lumens per Lamp: N/A
Luminaire Lumens: 23210.0 lumens
Efficiency: N/A
Efficacy: 110.1 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 210.9
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9951
Total Harmonic Distortion (THDi): 0.07
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	78	78	78	62	62	62	47	47	47
1	96	92	88	85	87	84	81	78	69	67	65	55	54	52	42	41	41
2	88	81	75	70	80	74	69	65	61	57	54	49	46	44	38	36	35
3	80	71	64	59	73	65	59	54	54	50	46	43	40	38	34	32	30
4	74	63	56	50	67	58	51	46	48	43	39	39	36	33	30	28	26
5	68	56	49	43	61	52	45	40	43	38	34	35	31	29	28	25	23
6	62	51	43	37	57	47	40	35	39	34	30	32	28	25	25	23	20
7	58	46	38	33	53	42	36	31	35	30	27	29	25	22	23	20	18
8	54	42	34	29	49	38	32	27	32	27	24	27	23	20	21	19	17
9	50	38	31	26	46	35	29	24	30	25	21	25	21	18	20	17	15
10	47	35	28	23	43	32	26	22	27	23	19	23	19	16	18	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3190	3190	3190
5°	3195	3140	3160
10°	3163	3079	3058
15°	3120	2978	2900
20°	3062	2838	2706
25°	3003	2681	2518
30°	2924	2521	2280
35°	2846	2348	2070
40°	2767	2169	1830
45°	2675	1970	1612
50°	2580	1770	1399
55°	2481	1555	1195
60°	2367	1331	984
65°	2234	1103	887
70°	2074	890	804
75°	1873	786	734
80°	1582	662	640
85°	1102	445	487

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 2675 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	426.1	1.8
10°-20°	1169.7	5.0
20°-30°	1642.2	7.1
30°-40°	1790.1	7.7
40°-50°	1645.3	7.1
50°-60°	1292.1	5.6
60°-70°	841.1	3.6
70°-80°	432.9	1.9
80°-90°	118.8	0.5
90°-100°	155.8	0.7
100°-110°	580.8	2.5
110°-120°	1540.3	6.6
120°-130°	2554.8	11.0
130°-140°	2713.8	11.7
140°-150°	2522.1	10.9
150°-160°	2027.7	8.7
160°-170°	1306.6	5.6
170°-180°	449.7	1.9
0°-30°	3238.0	14.0
0°-40°	5028.1	21.7
0°-60°	7965.5	34.3
0°-90°	9358.3	40.3
90°-120°	2276.9	9.8
90°-150°	10067.6	43.4
90°-180°	13852.0	59.7
0°-180°	23210.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4546	4546	4546	4546	4546	
5°	4546	4526	4472	4509	4497	431
15°	4324	4279	4139	4061	4020	1218
25°	3925	3793	3522	3353	3291	1805
35°	3382	3172	2810	2551	2460	2117
45°	2765	2489	2057	1765	1666	2135
55°	2102	1781	1337	1090	1012	1879
65°	1420	1086	716	576	564	1407
75°	757	469	329	300	296	801
85°	177	90	78	78	78	203
90°	3	41	68	86	92	22
95°	222	109	133	151	147	263
105°	1039	1142	209	246	260	1110
115°	1966	2024	2110	527	280	1935
125°	2779	2824	2889	2913	2923	2479
135°	3440	3494	3525	3559	3552	2657
145°	3990	3986	4044	4068	4051	2495
155°	4393	4363	4404	4424	4397	2024
165°	4629	4609	4619	4643	4619	1308
175°	4735	4711	4718	4742	4708	451
180°	4725	4725	4725	4725	4725	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4546.3	4546.3	4546.3	4546.3	4546.3
2.5°	4566.8	4546.3	4500.9	4542.4	4534.1
5°	4546.3	4525.8	4472.1	4509.2	4497.0
7.5°	4509.2	4484.7	4427.1	4443.3	4422.7
10°	4459.9	4431.0	4349.0	4336.3	4311.9
12.5°	4398.3	4361.2	4249.9	4225.4	4180.0
15°	4324.1	4278.7	4139.0	4060.9	4019.8
17.5°	4237.7	4171.8	3998.9	3908.5	3842.6
20°	4139.0	4056.5	3850.9	3748.3	3657.5
22.5°	4032.1	3937.3	3698.6	3558.9	3497.3
25°	3925.1	3793.3	3521.8	3353.3	3291.3
27.5°	3797.7	3657.5	3357.2	3163.8	3069.1
30°	3661.9	3505.2	3176.1	2966.5	2855.2
32.5°	3530.1	3340.6	3003.6	2756.6	2653.6
35°	3382.1	3172.1	2810.3	2551.0	2460.2
37.5°	3238.1	3011.5	2629.1	2344.9	2242.4
40°	3085.7	2839.1	2439.7	2147.6	2040.7
42.5°	2929.4	2666.2	2250.7	1946.0	1843.4
45°	2764.9	2489.0	2057.3	1764.8	1666.2
47.5°	2608.6	2316.6	1872.2	1579.7	1489.4
50°	2435.7	2143.7	1691.1	1406.9	1320.9
52.5°	2266.8	1958.2	1518.2	1246.7	1168.5
55°	2102.2	1781.4	1337.0	1090.4	1012.3
57.5°	1933.8	1604.6	1176.8	946.4	880.4
60°	1760.9	1431.8	1007.9	798.4	732.5
62.5°	1592.4	1263.3	863.9	666.6	633.8
65°	1419.5	1086.0	715.9	576.2	563.5
67.5°	1255.0	921.5	576.2	505.9	493.7
70°	1082.1	761.3	477.1	436.1	419.5
72.5°	917.5	612.9	399.0	366.2	357.9
75°	756.9	468.8	329.1	300.3	296.4
77.5°	596.7	333.1	259.3	242.7	234.4
80°	448.3	238.8	197.3	181.2	181.2
82.5°	312.5	160.6	135.8	127.5	127.5
85°	176.8	90.4	78.1	78.1	78.1
87.5°	65.9	32.7	32.7	28.8	28.8
90°	3.2	41.0	68.2	85.7	92.2
92.5°	85.7	71.9	82.0	88.9	92.2
95°	222.1	109.2	133.2	150.6	147.0
97.5°	399.9	119.8	174.2	184.7	188.0
100°	605.3	136.8	194.9	222.1	229.0
102.5°	830.6	824.1	201.8	239.1	249.7
105°	1039.3	1142.0	208.7	246.0	259.8
107.5°	1282.1	1367.3	215.6	252.9	266.7
110°	1514.7	1586.2	598.4	256.6	270.0

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1733.5	1794.8	1736.8	263.1	273.6
115°	1965.8	2023.8	2109.5	526.6	280.5
117.5°	2167.5	2235.7	2294.2	1805.0	909.4
120°	2393.3	2444.4	2506.1	2547.1	2085.5
122.5°	2584.5	2639.3	2707.9	2728.2	2731.9
125°	2779.4	2824.0	2889.0	2912.9	2923.1
127.5°	2957.2	3005.1	3056.6	3090.7	3094.0
130°	3124.8	3179.7	3217.0	3254.8	3251.5
132.5°	3295.8	3340.4	3377.8	3408.6	3405.4
135°	3439.5	3494.3	3524.7	3559.2	3552.3
137.5°	3589.7	3630.7	3665.2	3699.3	3689.2
140°	3736.7	3764.3	3801.6	3832.5	3815.4
142.5°	3860.1	3884.0	3928.3	3955.5	3938.4
145°	3990.0	3986.3	4044.4	4068.4	4051.3
147.5°	4102.5	4092.3	4150.4	4167.4	4154.0
150°	4212.1	4188.1	4242.9	4263.2	4246.2
152.5°	4304.2	4277.0	4328.2	4348.9	4324.9
155°	4393.1	4362.7	4403.7	4424.0	4396.8
157.5°	4465.0	4437.8	4468.7	4492.6	4465.0
160°	4526.7	4506.0	4526.7	4547.0	4523.1
162.5°	4581.1	4560.8	4577.9	4601.8	4571.0
165°	4629.0	4608.7	4618.9	4642.8	4618.9
167.5°	4666.8	4646.1	4656.6	4680.6	4649.7
170°	4697.6	4676.9	4683.8	4707.8	4676.9
172.5°	4717.9	4697.6	4704.5	4728.5	4697.6
175°	4735.0	4711.0	4717.9	4741.9	4707.8
177.5°	4741.9	4717.9	4721.6	4745.5	4714.7
180°	4724.8	4724.8	4724.8	4724.8	4724.8



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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	10.21	10.97	11.26	12.01	13.42	6.17	6.93	7.22	7.98	9.38
	3H	11.89	12.57	12.94	13.62	15.04	7.36	8.04	8.41	9.09	10.51
	4H	12.50	13.14	13.56	14.19	15.63	7.81	8.45	8.87	9.50	10.93
	6H	12.92	13.51	13.99	14.57	16.01	8.12	8.71	9.20	9.77	11.22
	8H	13.05	13.61	14.12	14.68	16.12	8.21	8.77	9.29	9.85	11.29
	12H	13.11	13.64	14.19	14.71	16.17	8.25	8.79	9.34	9.85	11.32
4H	2H	10.22	10.86	11.29	11.92	13.35	6.76	7.40	7.83	8.46	9.89
	3H	12.05	12.58	13.13	13.67	15.11	8.11	8.64	9.19	9.72	11.17
	4H	12.74	13.23	13.83	14.30	15.77	8.65	9.14	9.74	10.22	11.68
	6H	13.26	13.68	14.35	14.77	16.23	9.07	9.49	10.16	10.58	12.04
	8H	13.44	13.83	14.53	14.91	16.39	9.20	9.59	10.29	10.68	12.15
	12H	13.53	13.88	14.64	14.98	16.46	9.26	9.61	10.37	10.72	12.20
8H	4H	12.71	13.10	13.80	14.18	15.66	8.93	9.32	10.02	10.41	11.89
	6H	13.27	13.60	14.39	14.73	16.20	9.45	9.77	10.56	10.90	12.37
	8H	13.49	13.78	14.61	14.89	16.38	9.64	9.92	10.76	11.03	12.53
	12H	13.63	13.88	14.75	14.99	16.52	9.76	10.01	10.88	11.11	12.64
12H	4H	12.65	13.01	13.76	14.11	15.59	8.93	9.29	10.04	10.39	11.87
	6H	13.25	13.53	14.37	14.64	16.14	9.50	9.78	10.62	10.89	12.39
	8H	13.47	13.72	14.59	14.83	16.36	9.71	9.96	10.83	11.06	12.59

END OF REPORT