

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: P906872

Luminaire Tested: DFN2DIP-SQ4F0-110D140US835-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906872
REPORT IS A COMBINATION OF REPORTS P900195 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-110D140US835-FLLFLL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

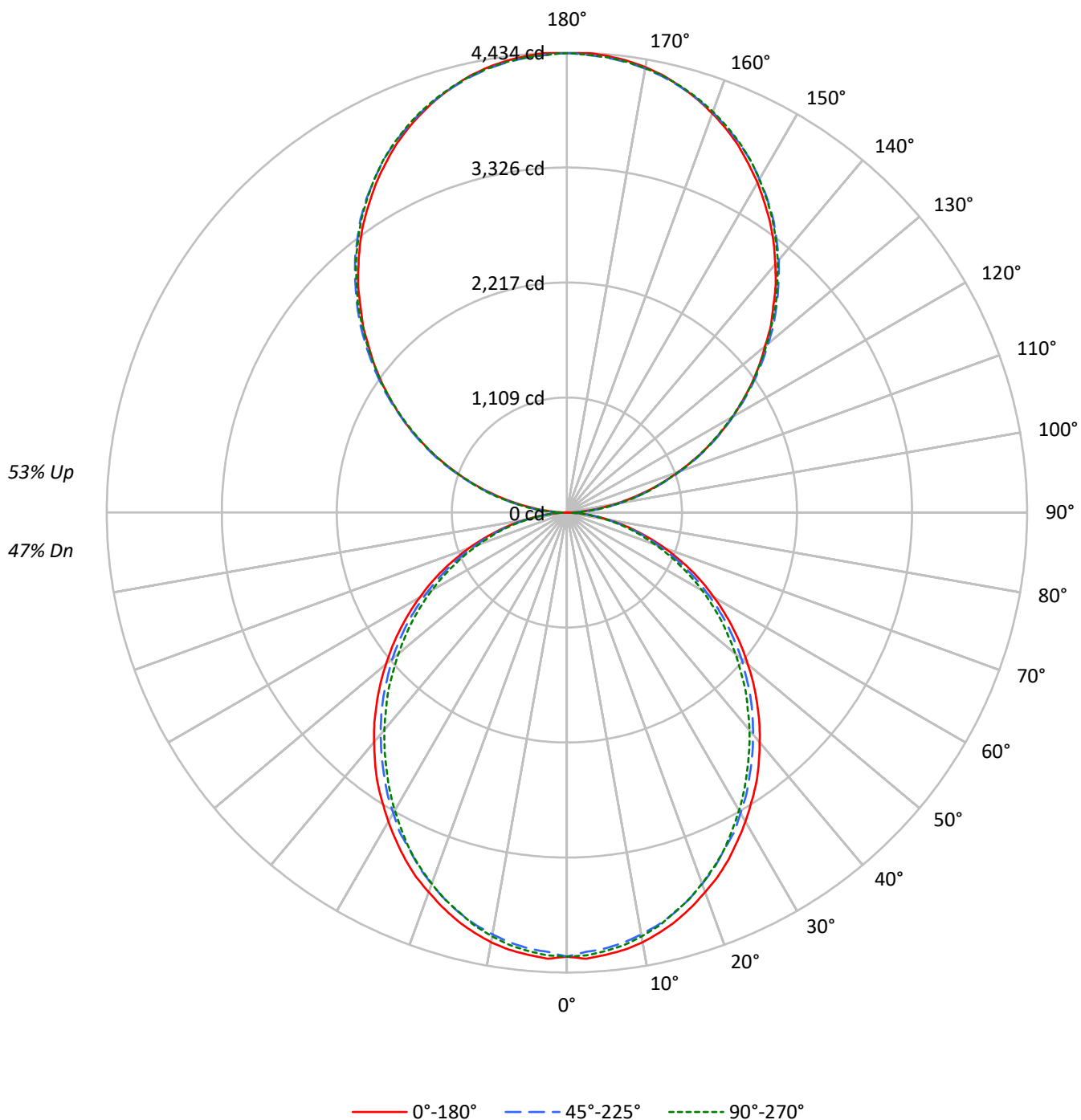
Lumens per Lamp: N/A
Luminaire Lumens: 23280.0 lumens
Efficiency: N/A
Efficacy: 110.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

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	106	106	106	106	98	98	98	98	82	82	82	67	67	67	53	53	53
1	97	93	89	85	89	85	82	79	71	69	67	59	57	56	47	46	45
2	88	81	75	70	81	75	69	65	63	59	55	52	49	46	41	40	38
3	81	71	64	58	74	66	59	54	55	51	47	46	42	39	37	34	32
4	74	63	55	49	67	58	51	46	49	44	40	41	37	34	33	30	28
5	68	56	48	42	62	52	45	39	44	38	34	36	32	29	30	27	24
6	62	50	42	36	57	47	39	34	40	34	30	33	29	26	27	24	21
7	58	45	37	32	53	42	35	30	36	30	26	30	26	23	24	21	19
8	53	41	33	28	49	38	31	27	33	27	23	27	23	20	22	19	17
9	50	38	30	25	46	35	28	24	30	25	21	25	21	18	21	18	15
10	46	34	27	23	43	32	26	21	28	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3003	3003	3003
5°	3008	2962	2982
10°	2984	2923	2943
15°	2940	2875	2880
20°	2880	2809	2817
25°	2821	2730	2743
30°	2747	2656	2649
35°	2677	2569	2549
40°	2591	2481	2454
45°	2505	2393	2358
50°	2411	2300	2245
55°	2313	2193	2142
60°	2201	2066	2025
65°	2080	1935	1885
70°	1925	1774	1736
75°	1711	1583	1600
80°	1454	1339	1336
85°	1051	916	898

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3485 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	402.8	1.7
10°-20°	1133.5	4.9
20°-30°	1665.7	7.2
30°-40°	1934.7	8.3
40°-50°	1932.3	8.3
50°-60°	1684.9	7.2
60°-70°	1245.5	5.4
70°-80°	704.7	3.0
80°-90°	198.6	0.9
90°-100°	274.0	1.2
100°-110°	870.6	3.7
110°-120°	1489.8	6.4
120°-130°	1959.3	8.4
130°-140°	2199.2	9.4
140°-150°	2156.6	9.3
150°-160°	1809.1	7.8
160°-170°	1199.7	5.2
170°-180°	419.3	1.8
0°-30°	3202.1	13.8
0°-40°	5136.7	22.1
0°-60°	8753.8	37.6
0°-90°	10902.6	46.8
90°-120°	2634.3	11.3
90°-150°	8949.3	38.4
90°-180°	12377.0	53.2
0°-180°	23280.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4280	4280	4280	4280	4280	
5°	4280	4264	4219	4251	4244	406
15°	4074	4050	3996	4013	3992	1148
25°	3688	3655	3585	3593	3585	1697
35°	3182	3140	3074	3050	3029	1987
45°	2589	2560	2498	2453	2437	1998
55°	1959	1934	1885	1836	1815	1752
65°	1321	1296	1255	1218	1198	1306
75°	691	683	662	638	646	738
85°	169	165	161	148	144	188
90°	4	48	131	123	127	23
95°	195	232	239	239	232	217
105°	804	814	822	829	829	848
115°	1495	1516	1510	1506	1495	1479
125°	2174	2208	2197	2185	2181	1943
135°	2812	2854	2862	2858	2847	2174
145°	3414	3441	3463	3467	3452	2133
155°	3904	3915	3927	3946	3934	1797
165°	4248	4244	4244	4270	4252	1198
175°	4420	4409	4401	4428	4405	420
180°	4428	4428	4428	4428	4428	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4280.2	4280.2	4280.2	4280.2	4280.2
2.5°	4305.0	4284.5	4239.1	4280.2	4272.3
5°	4280.2	4264.0	4218.6	4251.3	4243.5
7.5°	4251.3	4226.9	4181.5	4214.7	4206.4
10°	4206.4	4177.5	4128.2	4160.9	4148.7
12.5°	4144.4	4119.9	4070.6	4091.1	4082.8
15°	4074.5	4050.0	3996.3	4012.9	3992.4
17.5°	3988.0	3963.6	3909.9	3930.4	3909.9
20°	3893.3	3868.8	3811.2	3823.4	3807.3
22.5°	3799.0	3761.8	3708.1	3708.1	3699.8
25°	3687.6	3654.9	3585.0	3592.9	3585.0
27.5°	3564.0	3535.2	3481.9	3469.7	3449.2
30°	3440.9	3407.7	3346.1	3333.9	3317.3
32.5°	3309.0	3284.6	3218.6	3193.7	3177.1
35°	3181.5	3140.5	3074.5	3049.6	3029.1
37.5°	3037.4	3000.3	2934.4	2905.5	2885.0
40°	2889.4	2856.2	2790.3	2753.6	2737.0
42.5°	2745.3	2712.1	2646.6	2605.1	2580.7
45°	2589.0	2560.1	2498.1	2453.2	2436.6
47.5°	2436.6	2407.8	2341.8	2296.4	2271.9
50°	2275.9	2255.4	2197.7	2140.1	2119.6
52.5°	2119.6	2090.7	2037.5	1992.0	1963.2
55°	1959.3	1934.4	1885.1	1835.7	1815.2
57.5°	1798.6	1778.1	1724.4	1675.0	1658.4
60°	1637.9	1621.8	1564.1	1518.7	1506.5
62.5°	1481.6	1452.8	1411.7	1370.7	1354.1
65°	1321.3	1296.4	1255.4	1218.3	1197.8
67.5°	1156.7	1135.8	1099.1	1070.3	1053.7
70°	1004.3	987.7	950.6	921.8	905.6
72.5°	848.0	831.4	810.9	782.1	769.8
75°	691.2	683.4	662.4	638.0	646.3
77.5°	551.5	534.9	526.6	514.4	502.2
80°	411.8	407.4	399.1	386.9	378.6
82.5°	279.9	279.9	276.0	259.4	259.4
85°	168.6	164.6	160.7	148.0	144.1
87.5°	74.2	65.9	57.6	45.4	41.0
90°	4.0	48.1	130.8	122.8	126.8
92.5°	82.8	112.1	116.1	120.1	120.1
95°	194.9	232.3	238.9	238.9	232.3
97.5°	324.4	359.1	373.8	373.8	373.8
100°	473.9	504.6	515.2	515.2	511.2
102.5°	631.4	654.1	668.8	672.8	668.8
105°	803.6	814.3	822.3	828.9	828.9
107.5°	974.4	990.5	990.5	993.1	974.4
110°	1140.0	1161.3	1161.3	1161.3	1150.6

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1318.8	1341.5	1337.5	1326.8	1318.8
115°	1495.0	1516.4	1509.7	1505.7	1495.0
117.5°	1669.9	1699.3	1680.6	1669.9	1659.2
120°	1846.1	1875.5	1846.1	1846.1	1834.1
122.5°	2006.3	2043.6	2025.0	2014.3	2006.3
125°	2174.5	2207.8	2197.1	2185.1	2181.1
127.5°	2338.6	2380.0	2365.3	2349.3	2338.6
130°	2492.1	2540.2	2533.5	2525.5	2510.8
132.5°	2664.3	2701.7	2704.4	2685.7	2675.0
135°	2812.5	2853.9	2861.9	2857.9	2847.2
137.5°	2978.0	3011.4	3018.1	3015.4	2999.4
140°	3123.5	3156.9	3175.6	3175.6	3160.9
142.5°	3273.0	3306.4	3317.1	3321.1	3306.4
145°	3414.5	3441.2	3462.6	3466.6	3451.9
147.5°	3541.3	3574.7	3590.7	3597.4	3582.7
150°	3672.1	3694.8	3709.5	3721.5	3709.5
152.5°	3788.3	3811.0	3829.7	3844.3	3829.7
155°	3904.4	3915.1	3927.1	3945.8	3933.8
157.5°	4004.5	4012.5	4019.2	4045.9	4027.2
160°	4094.0	4102.0	4106.0	4128.7	4112.6
162.5°	4176.7	4176.7	4180.7	4206.1	4187.4
165°	4247.5	4243.5	4243.5	4270.2	4251.5
167.5°	4311.5	4299.5	4299.5	4326.2	4307.5
170°	4359.6	4348.9	4344.9	4371.6	4348.9
172.5°	4393.0	4382.3	4378.3	4405.0	4382.3
175°	4419.7	4409.0	4401.0	4427.7	4405.0
177.5°	4434.3	4423.7	4415.7	4438.3	4415.7
180°	4427.7	4427.7	4427.7	4427.7	4427.7

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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	10.80	11.64	11.79	12.63	13.95	10.36	11.19	11.34	12.19	13.50
	3H	12.47	13.21	13.46	14.22	15.56	11.98	12.72	12.97	13.73	15.07
	4H	13.05	13.76	14.06	14.77	16.12	12.56	13.27	13.57	14.28	15.62
	6H	13.46	14.11	14.48	15.12	16.48	12.96	13.61	13.97	14.62	15.98
	8H	13.56	14.18	14.59	15.21	16.57	13.06	13.68	14.08	14.71	16.07
	12H	13.61	14.20	14.64	15.23	16.60	13.10	13.69	14.13	14.72	16.09
4H	2H	11.26	11.97	12.28	12.98	14.32	10.91	11.61	11.92	12.62	13.97
	3H	13.13	13.72	14.15	14.76	16.12	12.72	13.31	13.74	14.35	15.71
	4H	13.85	14.39	14.88	15.42	16.80	13.42	13.96	14.45	14.99	16.37
	6H	14.36	14.83	15.40	15.88	17.26	13.93	14.40	14.97	15.45	16.83
	8H	14.52	14.95	15.56	16.00	17.39	14.08	14.51	15.12	15.56	16.95
	12H	14.59	14.98	15.65	16.04	17.44	14.14	14.53	15.20	15.59	16.99
8H	4H	14.04	14.48	15.08	15.52	16.91	13.66	14.10	14.71	15.14	16.54
	6H	14.68	15.04	15.74	16.12	17.51	14.29	14.65	15.36	15.74	17.13
	8H	14.90	15.22	15.97	16.29	17.70	14.51	14.82	15.58	15.89	17.30
	12H	15.03	15.31	16.11	16.38	17.83	14.62	14.90	15.70	15.97	17.42
12H	4H	14.02	14.42	15.08	15.48	16.88	13.66	14.05	14.72	15.11	16.51
	6H	14.71	15.02	15.78	16.09	17.50	14.33	14.65	15.41	15.72	17.13
	8H	14.95	15.23	16.03	16.29	17.74	14.57	14.85	15.65	15.91	17.36