

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: P906913

Luminaire Tested: DFN2DIP-SQ4F0-120D160US835-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P906913
REPORT IS A COMBINATION OF REPORTS P901735 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-120D160US835-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

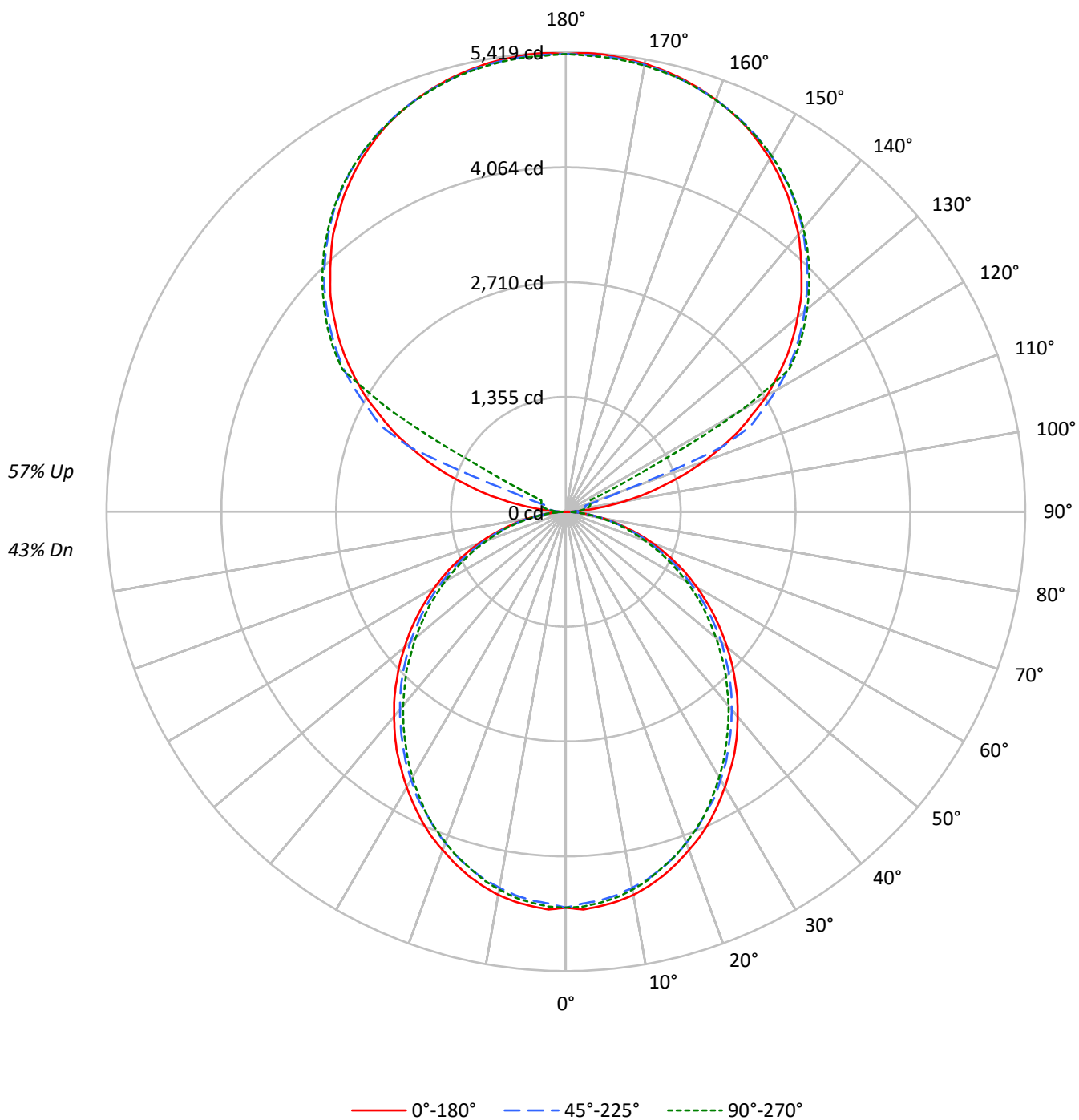
Lumens per Lamp: N/A
Luminaire Lumens: 27720.0 lumens
Efficiency: N/A
Efficacy: 115.6 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 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	96	96	96	96	79	79	79	64	64	64	50	50	50
1	96	92	88	85	88	84	81	78	70	67	65	56	55	53	44	43	42
2	88	80	74	69	80	74	68	64	61	57	54	49	47	44	39	37	35
3	80	71	63	58	73	65	58	53	54	49	45	44	40	38	34	32	30
4	73	62	55	49	66	57	50	45	48	43	39	39	35	32	31	28	26
5	67	56	48	42	61	51	44	39	43	37	33	35	31	28	28	25	23
6	62	50	42	36	56	46	39	34	38	33	29	31	27	24	25	22	20
7	57	45	37	32	52	41	34	29	35	29	25	29	25	22	23	20	18
8	53	41	33	28	48	38	31	26	32	26	23	26	22	19	21	18	16
9	49	37	30	25	45	34	28	23	29	24	20	24	20	17	19	16	14
10	46	34	27	22	42	31	25	21	27	22	18	22	18	16	18	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	3276	3276	3276
5°	3282	3231	3253
10°	3255	3188	3210
15°	3207	3137	3142
20°	3142	3064	3073
25°	3078	2978	2992
30°	2997	2897	2890
35°	2921	2802	2781
40°	2827	2706	2678
45°	2733	2610	2572
50°	2630	2509	2449
55°	2523	2392	2337
60°	2401	2254	2209
65°	2269	2110	2057
70°	2100	1935	1894
75°	1867	1726	1745
80°	1586	1460	1458
85°	1146	999	980

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°	439.5	1.6
10°-20°	1236.5	4.5
20°-30°	1817.2	6.6
30°-40°	2110.5	7.6
40°-50°	2107.9	7.6
50°-60°	1838.0	6.6
60°-70°	1358.7	4.9
70°-80°	768.7	2.8
80°-90°	212.4	0.8
90°-100°	178.0	0.6
100°-110°	663.8	2.4
110°-120°	1760.4	6.4
120°-130°	2919.7	10.5
130°-140°	3101.5	11.2
140°-150°	2882.5	10.4
150°-160°	2317.4	8.4
160°-170°	1493.3	5.4
170°-180°	514.0	1.9
0°-30°	3493.1	12.6
0°-40°	5603.7	20.2
0°-60°	9549.6	34.5
0°-90°	11889.5	42.9
90°-120°	2602.2	9.4
90°-150°	11505.9	41.5
90°-180°	15831.0	57.1
0°-180°	27720.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4669	4669	4669	4669	4669	
5°	4669	4652	4602	4638	4629	443
15°	4445	4418	4360	4378	4355	1252
25°	4023	3987	3911	3920	3911	1851
35°	3471	3426	3354	3327	3304	2167
45°	2824	2793	2725	2676	2658	2180
55°	2137	2110	2056	2003	1980	1911
65°	1442	1414	1370	1329	1307	1425
75°	754	746	723	696	705	805
85°	184	180	175	162	157	205
90°	4	47	78	98	105	26
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°	4669.3	4669.3	4669.3	4669.3	4669.3
2.5°	4696.4	4674.0	4624.5	4669.3	4660.7
5°	4669.3	4651.6	4602.1	4637.8	4629.2
7.5°	4637.8	4611.1	4561.6	4597.8	4588.8
10°	4588.8	4557.3	4503.5	4539.2	4525.9
12.5°	4521.1	4494.4	4440.6	4463.0	4453.9
15°	4444.9	4418.2	4359.6	4377.7	4355.3
17.5°	4350.6	4323.9	4265.3	4287.7	4265.3
20°	4247.2	4220.5	4157.7	4171.0	4153.4
22.5°	4144.3	4103.8	4045.2	4045.2	4036.2
25°	4022.8	3987.1	3910.9	3919.5	3910.9
27.5°	3888.0	3856.6	3798.5	3785.1	3762.8
30°	3753.7	3717.5	3650.3	3637.0	3618.9
32.5°	3609.8	3583.2	3511.2	3484.1	3466.0
35°	3470.7	3426.0	3354.0	3326.9	3304.5
37.5°	3313.5	3273.1	3201.1	3169.7	3147.3
40°	3152.1	3115.9	3043.9	3003.9	2985.8
42.5°	2994.9	2958.7	2887.2	2842.0	2815.3
45°	2824.3	2792.9	2725.2	2676.2	2658.1
47.5°	2658.1	2626.6	2554.7	2505.2	2478.5
50°	2482.8	2460.4	2397.5	2334.6	2312.2
52.5°	2312.2	2280.8	2222.7	2173.1	2141.7
55°	2137.4	2110.3	2056.4	2002.6	1980.2
57.5°	1962.1	1939.7	1881.1	1827.3	1809.2
60°	1786.8	1769.2	1706.3	1656.8	1643.4
62.5°	1616.3	1584.8	1540.1	1495.3	1477.2
65°	1441.5	1414.3	1369.5	1329.0	1306.7
67.5°	1261.9	1239.0	1199.0	1167.6	1149.5
70°	1095.6	1077.5	1037.0	1005.6	988.0
72.5°	925.1	907.0	884.6	853.2	839.8
75°	754.1	745.5	722.6	696.0	705.0
77.5°	601.6	583.5	574.5	561.1	547.8
80°	449.2	444.4	435.4	422.1	413.0
82.5°	305.3	305.3	301.1	283.0	283.0
85°	183.9	179.6	175.3	161.5	157.2
87.5°	81.0	71.9	62.9	49.5	44.8
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	10.71	11.51	11.73	12.54	13.91	10.27	11.07	11.28	12.09	13.46
	3H	12.37	13.09	13.40	14.12	15.51	11.88	12.60	12.91	13.63	15.02
	4H	12.96	13.64	14.00	14.68	16.07	12.47	13.15	13.50	14.18	15.58
	6H	13.36	13.99	14.41	15.03	16.44	12.86	13.49	13.91	14.53	15.94
	8H	13.47	14.06	14.52	15.12	16.52	12.96	13.56	14.02	14.62	16.02
	12H	13.51	14.08	14.57	15.13	16.56	13.00	13.57	14.06	14.62	16.05
4H	2H	11.17	11.85	12.21	12.88	14.28	10.81	11.49	11.86	12.53	13.93
	3H	13.03	13.60	14.09	14.66	16.07	12.62	13.19	13.68	14.26	15.67
	4H	13.75	14.27	14.81	15.32	16.76	13.32	13.84	14.38	14.90	16.33
	6H	14.26	14.71	15.33	15.79	17.22	13.83	14.28	14.90	15.36	16.78
	8H	14.41	14.83	15.48	15.90	17.34	13.98	14.39	15.05	15.47	16.91
	12H	14.49	14.86	15.57	15.95	17.40	14.04	14.41	15.12	15.50	16.95
8H	4H	13.94	14.36	15.01	15.43	16.87	13.56	13.98	14.63	15.05	16.49
	6H	14.57	14.92	15.67	16.03	17.47	14.19	14.53	15.28	15.65	17.09
	8H	14.80	15.10	15.90	16.19	17.65	14.40	14.71	15.50	15.80	17.26
	12H	14.93	15.19	16.03	16.29	17.78	14.52	14.78	15.62	15.88	17.37
12H	4H	13.92	14.30	15.01	15.39	16.83	13.55	13.93	14.64	15.02	16.46
	6H	14.60	14.91	15.70	16.00	17.46	14.23	14.53	15.33	15.63	17.09
	8H	14.84	15.11	15.95	16.20	17.70	14.46	14.73	15.57	15.82	17.32

END OF REPORT