

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: P903928

Luminaire Tested: DFN2DIP-SQ3F0-120D110US830-FLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P903928
REPORT IS A COMBINATION OF REPORTS P900003 AND P896733
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ3F0-120D110US830-FLLFLL
Description: 3 foot, Square Define Geo, with Direct Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

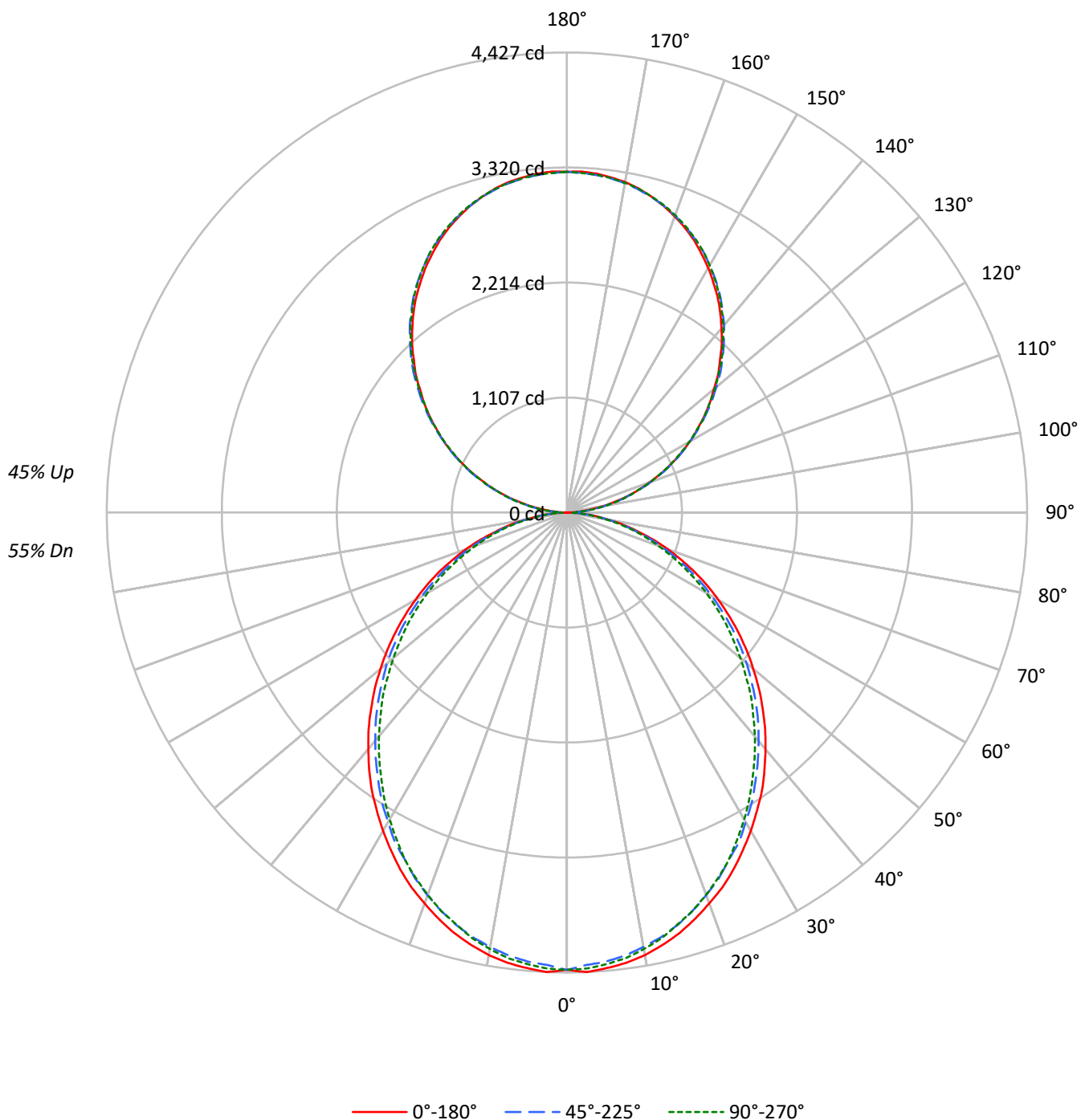
Lumens per Lamp: N/A
Luminaire Lumens: 20373.0 lumens
Efficiency: N/A
Efficacy: 96.2 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.06' x L: 3.06' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 211.7
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9957
Total Harmonic Distortion (THDi): 0.049
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	108	108	108	108	101	101	101	101	86	86	86	73	73	73	61	61	61
1	99	95	91	87	92	88	85	81	76	73	71	64	62	61	54	52	51
2	90	83	76	71	83	77	71	67	66	62	59	56	53	51	47	45	43
3	82	73	65	59	76	68	61	56	58	53	49	50	46	43	42	39	37
4	75	64	56	50	70	60	53	47	52	46	42	44	40	37	37	34	32
5	69	57	49	43	64	54	46	41	46	41	36	40	35	32	34	30	28
6	64	51	43	37	59	48	41	35	42	36	32	36	32	28	31	27	24
7	59	46	38	33	55	44	36	31	38	32	28	33	28	25	28	24	22
8	55	42	34	29	51	40	33	28	35	29	25	30	25	22	26	22	19
9	51	39	31	26	47	36	29	25	32	26	22	28	23	20	24	20	18
10	48	35	28	23	44	33	27	22	29	24	20	26	21	18	22	19	16

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	5043	5043	5043
5°	5048	4969	5004
10°	5003	4899	4935
15°	4927	4815	4827
20°	4824	4699	4717
25°	4722	4562	4590
30°	4594	4434	4430
35°	4474	4284	4259
40°	4325	4131	4097
45°	4177	3979	3931
50°	4015	3818	3739
55°	3845	3632	3562
60°	3653	3413	3360
65°	3443	3185	3121
70°	3175	2906	2863
75°	2805	2572	2622
80°	2358	2146	2168
85°	1659	1422	1419

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 4177 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	414.2	2.0
10°-20°	1165.5	5.7
20°-30°	1712.8	8.4
30°-40°	1989.3	9.8
40°-50°	1986.8	9.8
50°-60°	1732.4	8.5
60°-70°	1280.6	6.3
70°-80°	724.6	3.6
80°-90°	200.6	1.0
90°-100°	202.9	1.0
100°-110°	644.7	3.2
110°-120°	1103.3	5.4
120°-130°	1451.0	7.1
130°-140°	1628.6	8.0
140°-150°	1597.1	7.8
150°-160°	1339.7	6.6
160°-170°	888.5	4.4
170°-180°	310.5	1.5
0°-30°	3292.4	16.2
0°-40°	5281.7	25.9
0°-60°	9000.9	44.2
0°-90°	11206.7	55.0
90°-120°	1950.9	9.6
90°-150°	6627.6	32.5
90°-180°	9166.0	45.0
0°-180°	20373.0	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	4401	4401	4401	4401	4401	
5°	4401	4384	4338	4371	4363	418
15°	4190	4164	4109	4126	4105	1180
25°	3792	3758	3686	3694	3686	1745
35°	3271	3229	3161	3136	3115	2043
45°	2662	2632	2569	2522	2505	2054
55°	2015	1989	1938	1888	1866	1801
65°	1359	1333	1291	1253	1232	1343
75°	711	703	681	656	664	759
85°	173	169	165	152	148	193
90°	3	36	97	91	94	20
95°	144	172	177	177	172	161
105°	595	603	609	614	614	628
115°	1107	1123	1118	1115	1107	1095
125°	1610	1635	1627	1618	1615	1439
135°	2083	2114	2119	2116	2109	1610
145°	2529	2548	2564	2567	2556	1580
155°	2892	2899	2908	2922	2913	1331
165°	3146	3142	3142	3162	3148	887
175°	3273	3265	3259	3279	3262	311
180°	3279	3279	3279	3279	3279	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	4401.0	4401.0	4401.0	4401.0	4401.0
2.5°	4426.6	4405.4	4358.8	4401.0	4392.9
5°	4401.0	4384.3	4337.7	4371.3	4363.2
7.5°	4371.3	4346.2	4299.5	4333.6	4325.1
10°	4325.1	4295.4	4244.7	4278.4	4265.9
12.5°	4261.3	4236.2	4185.5	4206.6	4198.0
15°	4189.5	4164.3	4109.1	4126.2	4105.1
17.5°	4100.6	4075.5	4020.2	4041.3	4020.2
20°	4003.2	3978.0	3918.8	3931.3	3914.8
22.5°	3906.2	3868.0	3812.8	3812.8	3804.3
25°	3791.7	3758.0	3686.2	3694.3	3686.2
27.5°	3664.6	3635.0	3580.2	3567.6	3546.6
30°	3538.0	3503.9	3440.6	3428.0	3411.0
32.5°	3402.4	3377.3	3309.5	3283.9	3266.9
35°	3271.3	3229.1	3161.3	3135.7	3114.6
37.5°	3123.1	3085.0	3017.2	2987.6	2966.5
40°	2971.0	2936.9	2869.0	2831.3	2814.2
42.5°	2822.8	2788.7	2721.3	2678.7	2653.5
45°	2662.0	2632.4	2568.6	2522.4	2505.4
47.5°	2505.4	2475.7	2407.9	2361.3	2336.1
50°	2340.1	2319.0	2259.7	2200.5	2179.3
52.5°	2179.3	2149.8	2095.0	2048.2	2018.6
55°	2014.6	1989.0	1938.2	1887.5	1866.4
57.5°	1849.4	1828.2	1773.0	1722.3	1705.2
60°	1684.1	1667.5	1608.3	1561.6	1549.0
62.5°	1523.4	1493.7	1451.6	1409.4	1392.3
65°	1358.7	1333.0	1290.8	1252.6	1231.6
67.5°	1189.4	1167.8	1130.1	1100.5	1083.5
70°	1032.6	1015.6	977.4	947.8	931.2
72.5°	871.9	854.9	833.8	804.2	791.5
75°	710.8	702.7	681.1	656.0	664.5
77.5°	567.0	550.0	541.5	528.9	516.3
80°	423.4	418.9	410.4	397.8	389.3
82.5°	287.8	287.8	283.8	266.7	266.7
85°	173.3	169.3	165.2	152.2	148.2
87.5°	76.3	67.8	59.3	46.7	42.2
90°	2.9	35.6	96.9	91.0	93.9
92.5°	61.3	83.0	86.0	89.0	89.0
95°	144.3	172.0	176.9	176.9	172.0
97.5°	240.3	265.9	276.8	276.8	276.8
100°	350.9	373.6	381.5	381.5	378.6
102.5°	467.6	484.4	495.3	498.2	495.3
105°	595.1	603.0	609.0	613.9	613.9
107.5°	721.6	733.5	733.5	735.5	721.6
110°	844.2	860.1	860.1	860.1	852.2

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	976.7	993.4	990.5	982.6	976.7
115°	1107.2	1122.9	1118.0	1115.1	1107.2
117.5°	1236.7	1258.4	1244.5	1236.7	1228.8
120°	1367.2	1388.9	1367.2	1367.2	1358.3
122.5°	1485.8	1513.4	1499.6	1491.7	1485.8
125°	1610.3	1635.0	1627.1	1618.3	1615.2
127.5°	1731.9	1762.6	1751.7	1739.8	1731.9
130°	1845.6	1881.2	1876.2	1870.3	1859.4
132.5°	1973.1	2000.8	2002.8	1989.0	1981.0
135°	2082.8	2113.5	2119.4	2116.5	2108.6
137.5°	2205.5	2230.1	2235.1	2233.1	2221.3
140°	2313.2	2337.9	2351.7	2351.7	2340.9
142.5°	2423.9	2448.6	2456.5	2459.5	2448.6
145°	2528.7	2548.4	2564.3	2567.2	2556.4
147.5°	2622.6	2647.3	2659.2	2664.1	2653.3
150°	2719.5	2736.3	2747.1	2756.1	2747.1
152.5°	2805.5	2822.3	2836.1	2847.0	2836.1
155°	2891.5	2899.4	2908.3	2922.2	2913.2
157.5°	2965.6	2971.6	2976.5	2996.2	2982.4
160°	3031.9	3037.8	3040.7	3057.6	3045.7
162.5°	3093.1	3093.1	3096.2	3114.9	3101.1
165°	3145.5	3142.5	3142.5	3162.3	3148.5
167.5°	3193.0	3184.1	3184.1	3203.9	3190.0
170°	3228.6	3220.7	3217.7	3237.4	3220.7
172.5°	3253.3	3245.4	3242.4	3262.2	3245.4
175°	3273.1	3265.2	3259.2	3279.0	3262.2
177.5°	3283.9	3276.0	3270.1	3286.9	3270.1
180°	3279.0	3279.0	3279.0	3279.0	3279.0



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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	13.31	14.22	14.22	15.15	16.35	12.86	13.77	13.78	14.70	15.90
	3H	14.97	15.78	15.89	16.72	17.95	14.48	15.29	15.40	16.23	17.46
	4H	15.55	16.33	16.49	17.27	18.50	15.06	15.83	16.00	16.78	18.01
	6H	15.95	16.66	16.90	17.62	18.86	15.45	16.16	16.40	17.12	18.36
	8H	16.06	16.73	17.02	17.70	18.95	15.56	16.23	16.51	17.20	18.44
	12H	16.11	16.75	17.07	17.71	18.98	15.60	16.24	16.56	17.20	18.47
4H	2H	13.77	14.54	14.72	15.49	16.72	13.42	14.19	14.36	15.13	16.36
	3H	15.64	16.28	16.59	17.26	18.50	15.23	15.87	16.18	16.85	18.09
	4H	16.35	16.94	17.31	17.91	19.18	15.92	16.51	16.89	17.48	18.75
	6H	16.86	17.37	17.84	18.36	19.63	16.43	16.94	17.41	17.93	19.20
	8H	17.01	17.48	17.99	18.47	19.75	16.57	17.05	17.55	18.03	19.32
	12H	17.08	17.51	18.08	18.51	19.80	16.63	17.06	17.63	18.07	19.35
8H	4H	16.54	17.02	17.52	18.01	19.29	16.17	16.64	17.15	17.63	18.91
	6H	17.17	17.56	18.18	18.59	19.87	16.79	17.18	17.79	18.21	19.49
	8H	17.39	17.74	18.40	18.75	20.05	17.00	17.34	18.01	18.36	19.66
	12H	17.52	17.82	18.54	18.83	20.18	17.11	17.41	18.13	18.42	19.77
12H	4H	16.53	16.96	17.53	17.96	19.25	16.16	16.59	17.16	17.59	18.88
	6H	17.20	17.55	18.21	18.56	19.86	16.83	17.17	17.84	18.19	19.49
	8H	17.44	17.74	18.46	18.76	20.10	17.06	17.36	18.08	18.37	19.72