

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: P904105

Luminaire Tested: DFN2DIP-SQ4F0-100D120US830-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904105
REPORT IS A COMBINATION OF REPORTS P901695 AND P898471
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D120US830-FLLONL
Description: 4 foot, Square Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

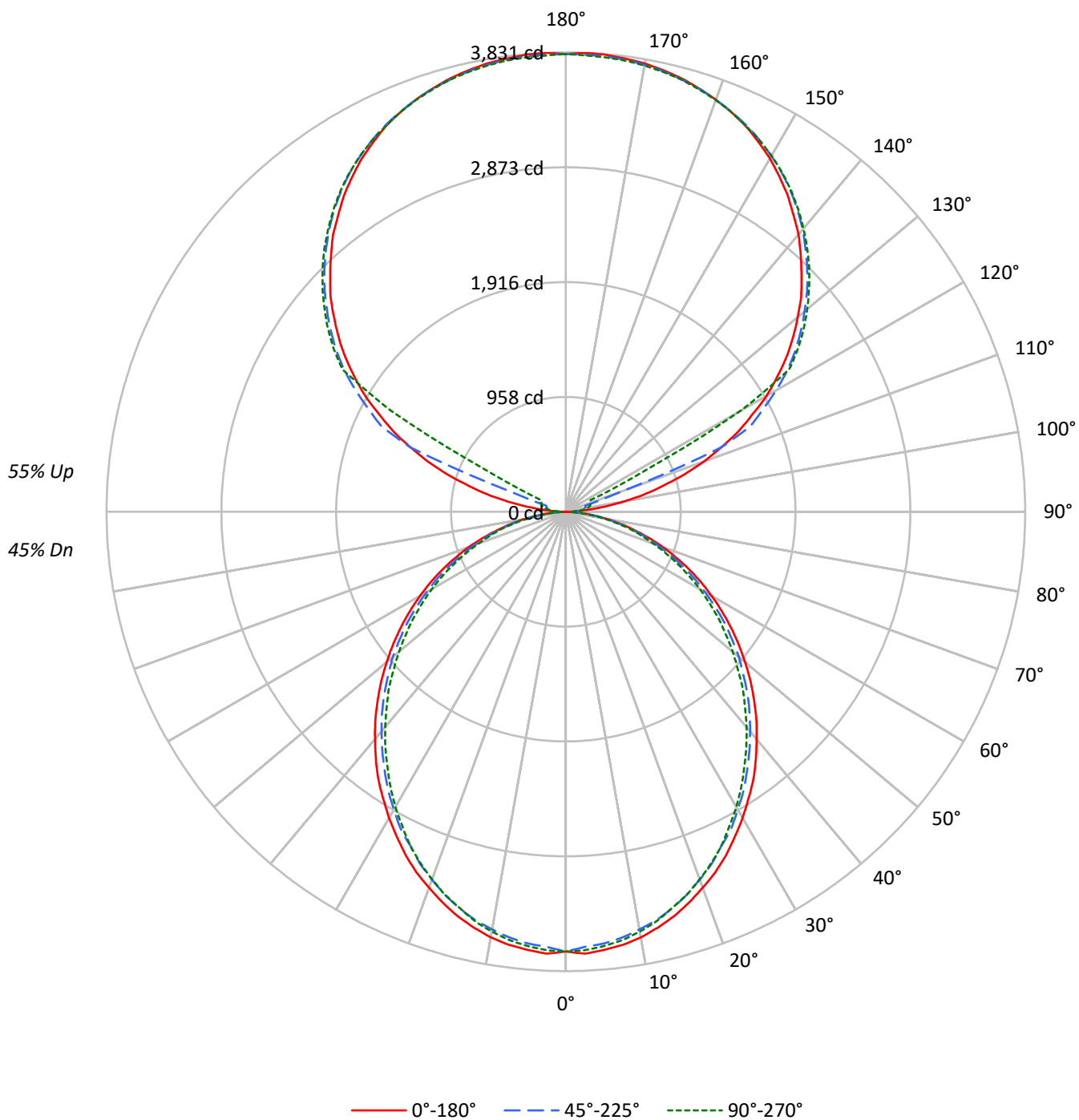
Lumens per Lamp: N/A
Luminaire Lumens: 20528.6 lumens
Efficiency: N/A
Efficacy: 112.3 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: General Diffuse

Input Watts (W): 182.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9968
Total Harmonic Distortion (THDi): 0.064
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	97	97	97	97	81	81	81	66	66	66	52	52	52
1	97	92	89	85	89	85	82	79	71	68	66	58	56	55	46	45	44
2	88	81	75	70	81	74	69	65	62	58	55	51	48	46	40	39	37
3	80	71	64	58	73	65	59	54	55	50	46	45	42	39	36	33	31
4	74	63	55	49	67	58	51	46	49	43	39	40	36	33	32	29	27
5	67	56	48	42	62	52	45	39	43	38	34	36	32	29	29	26	24
6	62	50	42	36	57	46	39	34	39	34	30	32	28	25	26	23	21
7	57	45	37	32	53	42	35	30	35	30	26	30	25	22	24	21	18
8	53	41	33	28	49	38	31	26	32	27	23	27	23	20	22	19	17
9	50	37	30	25	45	35	28	24	30	24	21	25	21	18	20	17	15
10	46	34	27	22	42	32	25	21	27	22	19	23	19	16	19	16	14

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2573	2573	2573
5°	2577	2538	2555
10°	2557	2504	2522
15°	2519	2464	2468
20°	2468	2407	2413
25°	2418	2339	2350
30°	2354	2276	2270
35°	2294	2201	2184
40°	2220	2126	2103
45°	2147	2050	2020
50°	2066	1971	1924
55°	1982	1879	1836
60°	1886	1770	1735
65°	1782	1658	1616
70°	1650	1520	1488
75°	1466	1356	1371
80°	1245	1147	1145
85°	900	785	770

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
Vertical Angle: 45°
Luminance: 2147 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	345.2	1.7
10°-20°	971.2	4.7
20°-30°	1427.3	7.0
30°-40°	1657.7	8.1
40°-50°	1655.7	8.1
50°-60°	1443.7	7.0
60°-70°	1067.2	5.2
70°-80°	603.8	2.9
80°-90°	166.1	0.8
90°-100°	125.9	0.6
100°-110°	469.2	2.3
110°-120°	1244.4	6.1
120°-130°	2064.0	10.1
130°-140°	2192.4	10.7
140°-150°	2037.6	9.9
150°-160°	1638.2	8.0
160°-170°	1055.6	5.1
170°-180°	363.3	1.8
0°-30°	2743.7	13.4
0°-40°	4401.4	21.4
0°-60°	7500.8	36.5
0°-90°	9337.9	45.5
90°-120°	1839.5	9.0
90°-150°	8133.6	39.6
90°-180°	11191.0	54.5
0°-180°	20528.6	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3668	3668	3668	3668	3668	
5°	3668	3654	3615	3643	3636	348
15°	3491	3470	3424	3438	3421	983
25°	3160	3132	3072	3078	3072	1454
35°	2726	2691	2634	2613	2596	1702
45°	2218	2194	2140	2102	2088	1712
55°	1679	1658	1615	1573	1555	1501
65°	1132	1111	1076	1044	1026	1119
75°	592	586	568	547	554	632
85°	144	141	138	127	124	161
90°	3	33	55	69	74	19
95°	179	88	108	122	119	212
105°	840	923	169	199	210	897
115°	1588	1635	1704	425	227	1563
125°	2245	2282	2334	2353	2362	2003
135°	2779	2823	2848	2876	2870	2146
145°	3224	3221	3267	3287	3273	2016
155°	3549	3524	3558	3574	3552	1635
165°	3740	3723	3732	3751	3732	1057
175°	3825	3806	3812	3831	3803	364
180°	3817	3817	3817	3817	3817	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3667.5	3667.5	3667.5	3667.5	3667.5
2.5°	3688.8	3671.2	3632.3	3667.5	3660.7
5°	3667.5	3653.7	3614.7	3642.8	3636.0
7.5°	3642.8	3621.8	3582.9	3611.4	3604.3
10°	3604.3	3579.6	3537.3	3565.4	3554.9
12.5°	3551.1	3530.2	3487.9	3505.5	3498.3
15°	3491.3	3470.3	3424.3	3438.5	3421.0
17.5°	3417.2	3396.3	3350.2	3367.8	3350.2
20°	3335.9	3315.0	3265.6	3276.1	3262.2
22.5°	3255.2	3223.4	3177.3	3177.3	3170.2
25°	3159.8	3131.7	3071.8	3078.5	3071.8
27.5°	3053.8	3029.1	2983.5	2973.1	2955.4
30°	2948.4	2919.9	2867.1	2856.7	2842.4
32.5°	2835.4	2814.4	2757.9	2736.6	2722.3
35°	2726.1	2691.0	2634.4	2613.1	2595.5
37.5°	2602.6	2570.8	2514.3	2489.6	2472.0
40°	2475.8	2447.3	2390.9	2359.5	2345.2
42.5°	2352.3	2323.8	2267.8	2232.2	2211.3
45°	2218.4	2193.7	2140.5	2102.0	2087.8
47.5°	2087.8	2063.1	2006.6	1967.7	1946.7
50°	1950.1	1932.5	1883.1	1833.7	1816.2
52.5°	1816.2	1791.5	1745.8	1706.9	1682.2
55°	1678.9	1657.6	1615.2	1572.9	1555.4
57.5°	1541.2	1523.5	1477.5	1435.3	1421.1
60°	1403.4	1389.6	1340.2	1301.3	1290.8
62.5°	1269.5	1244.8	1209.7	1174.5	1160.3
65°	1132.2	1110.9	1075.7	1043.9	1026.3
67.5°	991.2	973.2	941.8	917.1	902.9
70°	860.5	846.3	814.5	789.9	776.0
72.5°	726.6	712.4	694.8	670.1	659.6
75°	592.3	585.6	567.6	546.7	553.7
77.5°	472.6	458.4	451.2	440.7	430.3
80°	352.8	349.1	342.0	331.5	324.4
82.5°	239.9	239.9	236.5	222.3	222.3
85°	144.4	141.1	137.7	126.9	123.5
87.5°	63.6	56.5	49.4	38.9	35.2
90°	2.6	33.1	55.1	69.2	74.5
92.5°	69.2	58.1	66.3	71.8	74.5
95°	179.4	88.2	107.5	121.7	118.8
97.5°	323.1	96.8	140.7	149.2	151.8
100°	489.0	110.6	157.4	179.4	185.0
102.5°	671.1	665.8	163.0	193.2	201.7
105°	839.6	922.7	168.6	198.8	209.9
107.5°	1035.8	1104.7	174.2	204.3	215.5
110°	1223.7	1281.5	483.4	207.3	218.1

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1400.5	1450.0	1403.2	212.5	221.0
115°	1588.1	1635.0	1704.2	425.4	226.7
117.5°	1751.1	1806.3	1853.5	1458.2	734.7
120°	1933.5	1974.8	2024.7	2057.9	1684.9
122.5°	2088.0	2132.3	2187.7	2204.1	2207.1
125°	2245.4	2281.5	2334.0	2353.3	2361.5
127.5°	2389.1	2427.8	2469.5	2497.0	2499.6
130°	2524.5	2568.8	2599.0	2629.5	2626.9
132.5°	2662.6	2698.7	2728.8	2753.8	2751.2
135°	2778.7	2823.0	2847.6	2875.5	2869.9
137.5°	2900.1	2933.2	2961.1	2988.6	2980.4
140°	3018.9	3041.1	3071.3	3096.3	3082.5
142.5°	3118.5	3137.9	3173.6	3195.6	3181.8
145°	3223.5	3220.6	3267.4	3286.8	3273.0
147.5°	3314.4	3306.2	3353.1	3366.9	3356.0
150°	3402.9	3383.5	3427.8	3444.2	3430.5
152.5°	3477.3	3455.4	3496.7	3513.4	3494.1
155°	3549.1	3524.5	3557.7	3574.1	3552.2
157.5°	3607.2	3585.2	3610.2	3629.5	3607.2
160°	3657.1	3640.4	3657.1	3673.5	3654.1
162.5°	3701.1	3684.7	3698.4	3717.8	3692.9
165°	3739.7	3723.3	3731.5	3750.9	3731.5
167.5°	3770.3	3753.5	3762.1	3781.4	3756.5
170°	3795.1	3778.5	3784.0	3803.3	3778.5
172.5°	3811.5	3795.1	3800.8	3820.1	3795.1
175°	3825.3	3806.0	3811.5	3831.0	3803.3
177.5°	3831.0	3811.5	3814.6	3833.9	3809.0
180°	3817.2	3817.2	3817.2	3817.2	3817.2

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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	10.14	10.96	11.13	11.96	13.30	9.69	10.51	10.69	11.52	12.85
	3H	11.80	12.54	12.80	13.55	14.91	11.31	12.04	12.31	13.06	14.42
	4H	12.39	13.08	13.41	14.10	15.47	11.89	12.59	12.91	13.61	14.97
	6H	12.79	13.43	13.82	14.45	15.83	12.29	12.93	13.32	13.95	15.33
	8H	12.89	13.51	13.93	14.55	15.92	12.39	13.00	13.43	14.04	15.41
	12H	12.94	13.52	13.98	14.56	15.95	12.43	13.01	13.47	14.05	15.44
4H	2H	10.59	11.29	11.62	12.31	13.67	10.24	10.94	11.26	11.96	13.32
	3H	12.46	13.04	13.49	14.09	15.47	12.05	12.64	13.09	13.68	15.06
	4H	13.18	13.71	14.22	14.75	16.15	12.75	13.29	13.79	14.32	15.72
	6H	13.69	14.15	14.74	15.21	16.61	13.26	13.72	14.31	14.78	16.18
	8H	13.84	14.27	14.90	15.33	16.74	13.41	13.84	14.46	14.89	16.30
	12H	13.92	14.31	14.99	15.37	16.79	13.47	13.86	14.54	14.93	16.34
8H	4H	13.37	13.80	14.42	14.85	16.26	12.99	13.42	14.04	14.48	15.89
	6H	14.00	14.36	15.08	15.46	16.86	13.62	13.98	14.70	15.07	16.48
	8H	14.23	14.54	15.31	15.62	17.05	13.84	14.15	14.92	15.23	16.65
	12H	14.36	14.63	15.45	15.71	17.18	13.95	14.22	15.04	15.30	16.77
12H	4H	13.35	13.74	14.42	14.81	16.23	12.99	13.37	14.06	14.44	15.86
	6H	14.03	14.35	15.12	15.43	16.85	13.66	13.97	14.74	15.05	16.48
	8H	14.28	14.55	15.36	15.63	17.09	13.90	14.17	14.98	15.25	16.71

END OF REPORT