

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: P904114

Luminaire Tested: DFN2DIP-SQ4F0-100D160US830-RLLFLL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P904114
REPORT IS A COMBINATION OF REPORTS P900212 AND P896915
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-SQ4F0-100D160US830-RLLFLL
Description: 4 foot, Square Define Geo, with Direct 1in Regressed Frosted Lens, Indirect Frosted Lens
Light Source: -
Ballast/Driver: -

Summary

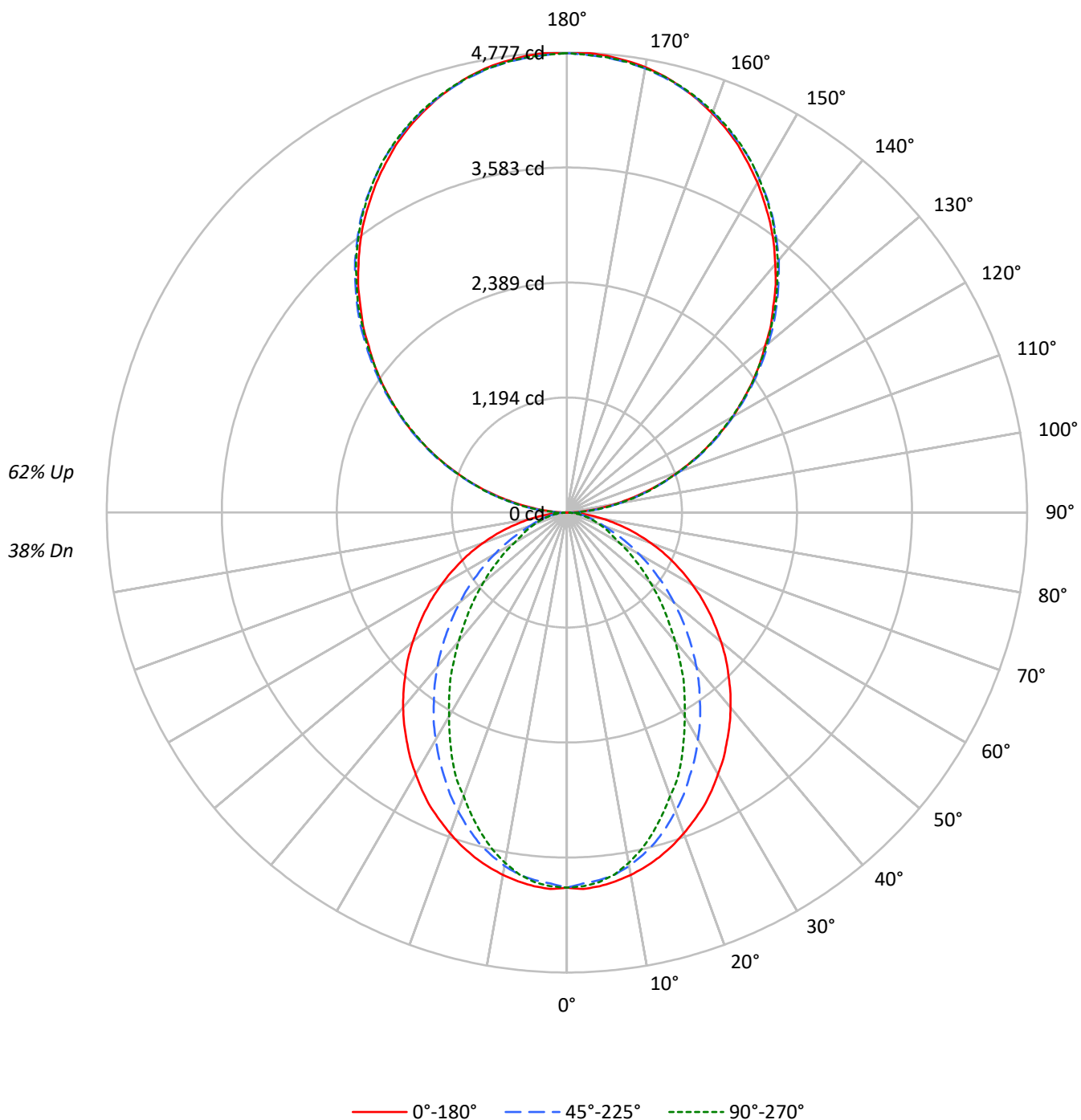
Lumens per Lamp: N/A
Luminaire Lumens: 21358.9 lumens
Efficiency: N/A
Efficacy: 99.4 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 0.99 / 1.16
Luminous Opening: Rectangular w/ Sides (W: 3.92' x L: 3.92' x H: 0.1')
CIE Type: Semi-Indirect

Input Watts (W): 214.8
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	104	104	104	104	95	95	95	95	76	76	76	60	60	60	45	45	45
1	95	91	88	84	86	83	80	77	67	65	63	53	52	50	40	39	38
2	87	80	74	69	79	73	68	64	59	56	53	47	45	43	36	34	33
3	80	71	64	58	72	64	58	54	53	48	45	42	39	37	32	30	28
4	73	63	55	49	66	57	51	46	47	42	39	38	34	32	29	27	25
5	67	56	48	42	61	51	44	39	42	37	33	34	30	28	26	24	22
6	62	50	42	37	56	46	39	34	38	33	29	31	27	24	24	21	19
7	57	45	38	32	52	42	35	30	35	30	26	28	24	22	22	19	17
8	53	41	34	29	48	38	31	27	32	27	23	26	22	19	20	18	16
9	49	38	30	26	45	35	28	24	29	24	21	24	20	17	19	16	14
10	46	35	28	23	42	32	26	21	27	22	19	22	18	16	17	15	13

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2733	2733	2733
5°	2738	2691	2708
10°	2711	2638	2621
15°	2673	2552	2485
20°	2624	2432	2319
25°	2573	2298	2158
30°	2505	2160	1954
35°	2439	2012	1774
40°	2371	1859	1568
45°	2292	1688	1381
50°	2211	1516	1199
55°	2126	1333	1024
60°	2028	1141	843
65°	1915	945	760
70°	1778	763	689
75°	1605	674	628
80°	1356	567	548
85°	944	381	417

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 90°

Vertical Angle: 90°

Luminance: 3754 cd/sqm

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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	365.1	1.7
10°-20°	1002.2	4.7
20°-30°	1407.1	6.6
30°-40°	1533.9	7.2
40°-50°	1409.8	6.6
50°-60°	1107.2	5.2
60°-70°	720.7	3.4
70°-80°	371.0	1.7
80°-90°	108.2	0.5
90°-100°	295.1	1.4
100°-110°	937.8	4.4
110°-120°	1604.9	7.5
120°-130°	2110.7	9.9
130°-140°	2369.1	11.1
140°-150°	2323.2	10.9
150°-160°	1948.8	9.1
160°-170°	1292.4	6.1
170°-180°	451.7	2.1
0°-30°	2774.5	13.0
0°-40°	4308.3	20.2
0°-60°	6825.3	32.0
0°-90°	8025.1	37.6
90°-120°	2837.8	13.3
90°-150°	9640.8	45.1
90°-180°	13334.0	62.4
0°-180°	21358.9	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	3896	3896	3896	3896	3896	
5°	3896	3878	3832	3864	3853	369
15°	3705	3666	3546	3480	3444	1044
25°	3363	3250	3018	2873	2820	1547
35°	2898	2718	2408	2186	2108	1814
45°	2369	2133	1763	1512	1428	1830
55°	1801	1526	1146	934	867	1610
65°	1216	931	613	494	483	1206
75°	649	402	282	257	254	686
85°	152	77	67	67	67	174
90°	4	52	141	132	137	21
95°	210	250	257	257	250	234
105°	866	877	886	893	893	914
115°	1610	1634	1626	1622	1610	1593
125°	2342	2378	2367	2354	2350	2093
135°	3030	3074	3083	3079	3067	2342
145°	3678	3707	3730	3734	3719	2298
155°	4206	4218	4230	4251	4238	1936
165°	4576	4571	4571	4600	4580	1291
175°	4761	4750	4741	4770	4745	452
180°	4770	4770	4770	4770	4770	

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CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	3895.5	3895.5	3895.5	3895.5	3895.5
2.5°	3913.1	3895.5	3856.6	3892.1	3885.1
5°	3895.5	3877.9	3831.9	3863.8	3853.2
7.5°	3863.8	3842.7	3793.4	3807.2	3789.7
10°	3821.4	3796.7	3726.4	3715.6	3694.7
12.5°	3768.8	3736.9	3641.5	3620.6	3581.7
15°	3705.1	3666.2	3546.5	3479.6	3444.4
17.5°	3631.0	3574.6	3426.5	3349.0	3292.6
20°	3546.5	3475.8	3299.7	3211.8	3134.0
22.5°	3454.9	3373.7	3169.1	3049.5	2996.7
25°	3363.3	3250.4	3017.6	2873.2	2820.2
27.5°	3254.0	3134.0	2876.6	2710.9	2629.8
30°	3137.7	3003.4	2721.4	2541.9	2446.6
32.5°	3024.8	2862.4	2573.7	2362.0	2273.7
35°	2897.9	2718.1	2408.0	2185.8	2108.0
37.5°	2774.6	2580.4	2252.8	2009.3	1921.4
40°	2644.0	2432.7	2090.5	1840.2	1748.6
42.5°	2510.1	2284.5	1928.5	1667.5	1579.5
45°	2369.1	2132.7	1762.8	1512.2	1427.7
47.5°	2235.2	1985.0	1604.2	1353.6	1276.2
50°	2087.1	1836.8	1449.0	1205.5	1131.8
52.5°	1942.3	1677.9	1300.9	1068.2	1001.3
55°	1801.3	1526.4	1145.7	934.3	867.3
57.5°	1657.0	1374.9	1008.4	810.9	754.4
60°	1508.8	1226.8	863.7	684.1	627.6
62.5°	1364.4	1082.4	740.2	571.2	543.1
65°	1216.4	930.6	613.4	493.7	482.9
67.5°	1075.3	789.6	493.7	433.5	423.0
70°	927.2	652.3	408.8	373.6	359.5
72.5°	786.2	525.1	341.9	313.8	306.7
75°	648.6	401.7	282.0	257.3	253.9
77.5°	511.3	285.4	222.2	207.9	200.9
80°	384.1	204.6	169.1	155.2	155.2
82.5°	267.8	137.6	116.3	109.2	109.2
85°	151.5	77.4	66.9	66.9	66.9
87.5°	56.5	28.1	28.1	24.7	24.7
90°	4.3	51.7	140.9	132.3	136.6
92.5°	89.2	120.8	125.1	129.4	129.4
95°	209.9	250.2	257.4	257.4	250.2
97.5°	349.4	386.8	402.7	402.7	402.7
100°	510.5	543.6	555.1	555.1	550.7
102.5°	680.1	704.6	720.4	724.7	720.4
105°	865.6	877.1	885.8	893.0	893.0
107.5°	1049.7	1067.0	1067.0	1069.9	1049.7
110°	1228.0	1251.0	1251.0	1251.0	1239.5

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CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	1420.7	1445.2	1440.9	1429.4	1420.7
115°	1610.5	1633.5	1626.4	1622.0	1610.5
117.5°	1798.9	1830.5	1810.4	1798.9	1787.4
120°	1988.8	2020.3	1988.8	1988.8	1975.8
122.5°	2161.2	2201.6	2181.4	2169.9	2161.2
125°	2342.5	2378.4	2366.9	2354.0	2349.7
127.5°	2519.3	2563.9	2548.1	2530.8	2519.3
130°	2684.7	2736.5	2729.3	2720.6	2704.8
132.5°	2870.2	2910.5	2913.3	2893.2	2881.7
135°	3029.8	3074.4	3083.1	3078.7	3067.2
137.5°	3208.1	3244.0	3251.3	3248.4	3231.1
140°	3364.9	3400.8	3421.0	3421.0	3405.1
142.5°	3526.0	3561.9	3573.4	3577.7	3561.9
145°	3678.4	3707.1	3730.1	3734.4	3718.6
147.5°	3814.9	3850.9	3868.2	3875.4	3859.5
150°	3955.8	3980.4	3996.2	4009.1	3996.2
152.5°	4081.0	4105.4	4125.6	4141.3	4125.6
155°	4206.1	4217.6	4230.5	4250.7	4237.8
157.5°	4313.9	4322.6	4329.8	4358.5	4338.4
160°	4410.2	4418.9	4423.3	4447.7	4430.4
162.5°	4499.4	4499.4	4503.7	4531.1	4510.9
165°	4575.7	4571.3	4571.3	4600.1	4580.0
167.5°	4644.7	4631.7	4631.7	4660.5	4640.3
170°	4696.4	4684.9	4680.7	4709.4	4684.9
172.5°	4732.4	4720.9	4716.6	4745.3	4720.9
175°	4761.2	4749.7	4741.0	4769.8	4745.3
177.5°	4777.0	4765.5	4756.8	4781.3	4756.8
180°	4769.8	4769.8	4769.8	4769.8	4769.8

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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	9.37	10.11	10.43	11.17	12.61	5.33	6.07	6.39	7.13	8.57
	3H	11.04	11.70	12.11	12.77	14.23	6.51	7.17	7.58	8.24	9.70
	4H	11.65	12.27	12.73	13.35	14.81	6.96	7.58	8.04	8.65	10.12
	6H	12.07	12.65	13.16	13.72	15.20	7.27	7.85	8.37	8.92	10.40
	8H	12.20	12.74	13.29	13.83	15.31	7.36	7.91	8.46	9.00	10.47
	12H	12.26	12.78	13.36	13.86	15.36	7.40	7.92	8.50	9.01	10.50
4H	2H	9.37	10.00	10.46	11.07	12.54	5.91	6.54	7.00	7.61	9.08
	3H	11.20	11.72	12.30	12.82	14.30	7.26	7.78	8.35	8.88	10.35
	4H	11.89	12.37	12.99	13.46	14.96	7.80	8.28	8.90	9.37	10.87
	6H	12.41	12.81	13.52	13.93	15.42	8.22	8.63	9.33	9.74	11.23
	8H	12.58	12.96	13.69	14.07	15.58	8.34	8.73	9.45	9.83	11.34
	12H	12.68	13.02	13.80	14.14	15.65	8.41	8.75	9.53	9.87	11.38
8H	4H	11.85	12.23	12.96	13.34	14.85	8.08	8.46	9.19	9.56	11.07
	6H	12.42	12.73	13.55	13.88	15.39	8.59	8.91	9.72	10.06	11.56
	8H	12.64	12.91	13.78	14.04	15.57	8.79	9.06	9.92	10.19	11.71
	12H	12.78	13.02	13.92	14.14	15.70	8.90	9.14	10.04	10.27	11.83
12H	4H	11.80	12.15	12.93	13.26	14.78	8.08	8.42	9.20	9.54	11.05
	6H	12.40	12.67	13.53	13.80	15.32	8.64	8.92	9.78	10.05	11.57
	8H	12.61	12.86	13.75	13.98	15.54	8.85	9.09	9.99	10.22	11.78

END OF REPORT