



8165 E Kaiser Blvd. Anaheim, CA 92808
www.lightlaboratory.com

Report No: L032113406



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Issue Date: 4/20/2021

Report Prepared For: Light and Green
2340 E Olympic Blvd. Unit E, Los Angeles, CA 90021

Model Number: 9023 - 60 deg

Test: Photometric/Electrical Test

Standards Used: Appropriate part or all test guidelines were used for test performed:

IESNA LM79: 2008 Approved Methods for Electrical and Photometric Measurements of Solid-State Lighting Products

ANSI NEMA ANSLG C78.377: 2008 Specification of the Chromaticity of Solid State Lighting Products

ANSI C82.77:2002: Harmonic Emission Limits-Related Quality Requirements for Lighting Equipment

Description of Sample: Client submitted the sample. Received in working and undamaged condition. No modifications were necessary.

Special Test Condition: Fixture is tested with no special conditions.

Sample Arrival Date: 4/15/21

Date of Tests: 4/16/21 - 4/20/21

Seasoning of Sample: No seasoning was performed in accordance with IESNA LM-79.

Equipment List

Equipment Used	Model No	Stock No	Calibration Due Date
Chroma Programmable AC Source	61604	PS-AC02	--
Yokogawa Digital Power Meter	WT210	MT-EL06-S4	4/7/23
HP Power Supply	6032A	PS-DC05-S2	--
Fluke Digital Thermometer	52K/J	MT-TP05	3/17/23
LLI Type C Goniophotometer System	RMG-C-MKII	CD-LL04-GC	--
LLI 2M Sphere	2MR97	CD-SN03-S2	--
LLI Spectroradiometer	SPR-3000	MT-SC01-S2	Before Use

General Information

Manufacturer:	Light and Green
Model Number:	9023 - 60 deg
Driver Model Number:	L.T.F. DIMMABLE LED DRIER DA10W250C2040-3001

Photometric & Electrical Test Results

Total Lumens:	2471.20
Efficacy:	73.15
Input Voltage (VAC/60Hz):	120.04
Input Current (Amp):	0.2825
Input Power (W):	33.78
Input Power Factor:	0.9963
Current ATHD (%):	6.7%

Test Condition

Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:55
Total Operating Time (Hours):	1:20

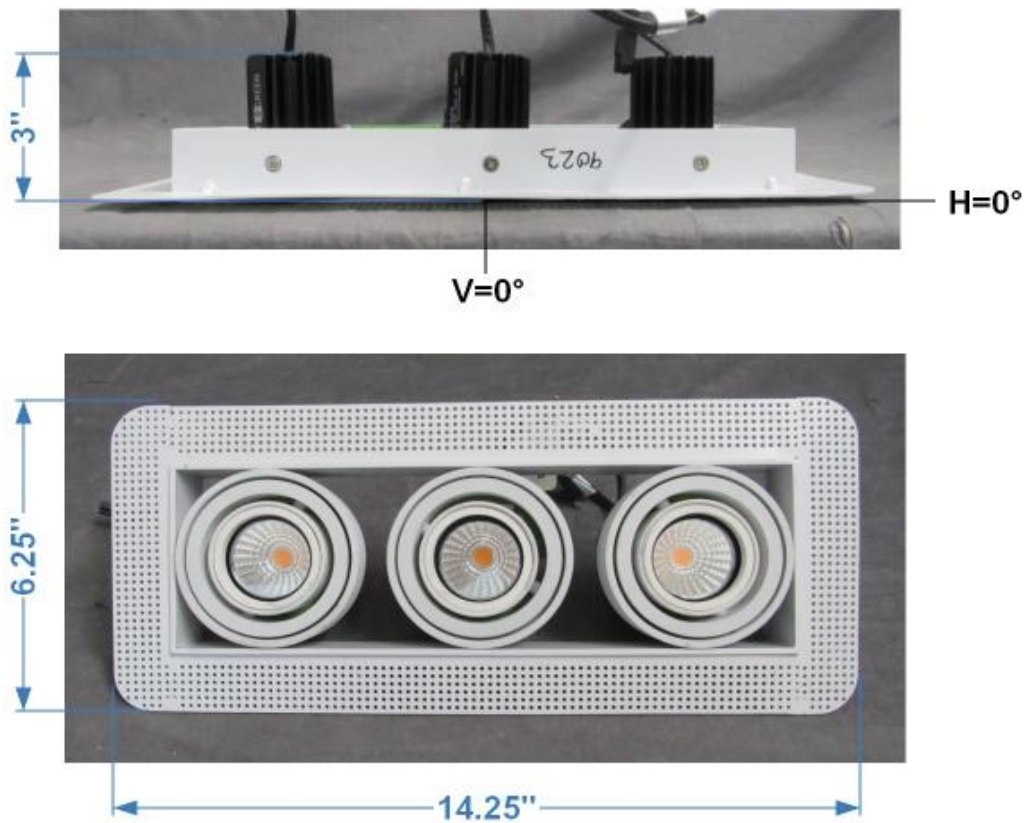


FIG. 1 LUMINAIRE

Test Methods

Photometric Measurements - Goniophotometer

A Custom Light Laboratory Type C Rotating Mirror Goniophotometer was used to measure candelas(intensity) at each angle of distribution as defined by IESNA for the appropriate fixture type.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements - Integrating Sphere

A Sensing Spectroradiometer SPR-3000, in conjunction with Light Laboratory 2 meter integrating sphere was used to measure chromaticity coordinates, correlated color temperature(CCT) and the color rendering index(CRI) for each sample.

Ambient temperature is set to 25°C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25°C throughout the testing process and the sample is stabilized for at least 30mins and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Disclaimers:

This report must not be used by the customer to claim product certification, approval or endorsement by NVLAP, NIST or any agency of Federal Government.

Report Prepared by : Keyur Patel

Test Report Reviewed by:



Steve Kang
Quality Assurance

**Attached are photometric data reports. Total number of pages: 9*



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Photometric Test Report

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L032113406.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
 [TEST] L032113406
 [TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
 [ISSUEDATE] 4/20/2021
 [MANUFAC] Light and Green
 [LUMCAT] 9023 - 60 deg
 [LUMINAIRE] LED LUMINAIRE
 [BALLASTCAT] L.T.F. DIMMABLE LED DRIER DA10W250C2040-3001
 [OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
 [MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
 [INPUT] 120.04VAC, 33.78W
 [TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	2471
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	73
Total Luminaire Watts	33.78
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	0.92
Spacing Criterion (90-270)	0.94
Spacing Criterion (Diagonal)	0.92
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	0.81 ft
Luminous Width (90-270)	0.15 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	20778	21029	21091
55	13271	13425	13579
65	13404	13404	13404
75	14363	14705	14705
85	23357	23357	23357

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L032113406.IES

CANDELA TABULATION

	<u>0</u>	<u>5</u>	<u>10</u>	<u>15</u>	<u>20</u>	<u>25</u>	<u>30</u>	<u>35</u>	<u>40</u>	<u>45</u>
0.0	2497	2497	2497	2497	2497	2497	2497	2497	2497	2497
1.0	2450	2454	2462	2471	2474	2476	2479	2482	2490	2496
3.0	2438	2441	2451	2459	2461	2465	2468	2470	2480	2486
5.0	2418	2422	2431	2439	2443	2446	2449	2452	2462	2468
7.0	2387	2391	2400	2408	2411	2414	2417	2420	2429	2436
9.0	2350	2353	2361	2369	2371	2375	2377	2380	2388	2395
11.0	2298	2301	2310	2316	2319	2323	2326	2330	2340	2344
13.0	2242	2245	2253	2260	2263	2267	2270	2274	2283	2289
15.0	2174	2178	2185	2191	2195	2199	2201	2205	2213	2219
17.0	2090	2093	2100	2106	2108	2113	2116	2120	2128	2133
19.5	1959	1962	1969	1976	1978	1982	1985	1988	1996	2002
22.5	1764	1766	1773	1777	1779	1783	1786	1789	1796	1801
25.5	1567	1568	1574	1578	1581	1584	1587	1589	1595	1598
29.0	1335	1336	1342	1344	1347	1350	1351	1353	1358	1361
33.0	1019	1021	1024	1027	1029	1031	1035	1035	1040	1045
37.5	585	588	590	593	595	594	595	596	598	599
42.5	218	218	219	220	220	220	220	219	219	219
47.5	114	115	115	115	116	116	116	116	117	117
55.0	86	86	86	86	86	86	87	87	87	87
65.0	64	64	64	64	64	64	64	64	64	64
75.0	42	42	43	43	43	43	43	43	43	43
85.0	23	23	23	23	23	23	23	23	23	23
90.0	0	0	0	0	0	0	0	0	0	0

Vert. Angles **Horizontal Angles**

	<u>50</u>	<u>55</u>	<u>60</u>	<u>65</u>	<u>70</u>	<u>75</u>	<u>80</u>	<u>85</u>	<u>90</u>
0.0	2497	2497	2497	2497	2497	2497	2497	2497	2497
1.0	2502	2509	2512	2516	2522	2526	2529	2530	2531
3.0	2490	2499	2500	2503	2510	2515	2518	2519	2520
5.0	2471	2480	2482	2485	2491	2495	2498	2500	2500
7.0	2437	2446	2448	2451	2457	2461	2464	2466	2467
9.0	2395	2404	2406	2410	2417	2422	2425	2429	2430
11.0	2344	2353	2354	2359	2365	2371	2374	2377	2378
13.0	2290	2299	2299	2303	2309	2314	2317	2320	2321
15.0	2220	2228	2229	2233	2238	2243	2248	2249	2251
17.0	2135	2141	2143	2147	2151	2156	2160	2162	2164
19.5	2003	2010	2010	2014	2020	2025	2029	2032	2033
22.5	1803	1807	1811	1815	1819	1822	1826	1830	1832
25.5	1599	1604	1606	1609	1613	1616	1620	1622	1625
29.0	1361	1366	1368	1370	1375	1377	1382	1385	1386
33.0	1046	1050	1052	1053	1056	1058	1062	1063	1066
37.5	599	602	602	604	605	606	609	610	610
42.5	218	218	217	217	216	217	217	218	219
47.5	117	117	117	118	118	118	118	118	118
55.0	87	87	87	87	87	88	88	88	88
65.0	64	64	64	64	64	64	64	64	64
75.0	43	43	43	43	43	43	43	43	43
85.0	23	23	23	23	23	23	23	23	23
90.0	0	0	0	0	0	0	0	0	0

IES INDOOR REPORT
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ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	812.69	N.A.	32.90
0-30	1523.48	N.A.	61.60
0-40	2028.62	N.A.	82.10
0-60	2302.78	N.A.	93.20
0-80	2429.36	N.A.	98.30
0-90	2471.2	N.A.	100.00
10-90	2282.13	N.A.	92.30
20-40	1215.93	N.A.	49.20
20-50	1424.85	N.A.	57.70
40-70	345.72	N.A.	14.00
60-80	126.58	N.A.	5.10
70-80	55.02	N.A.	2.20
80-90	41.85	N.A.	1.70
90-110	0.00	N.A.	0.00
90-120	0.00	N.A.	0.00
90-130	0.00	N.A.	0.00
90-150	0.00	N.A.	0.00
90-180	0.00	N.A.	0.00
110-180	0.00	N.A.	0.00
0-180	2471.2	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	189.08
10-20	623.61
20-30	710.79
30-40	505.14
40-50	208.92
50-60	65.24
60-70	71.56
70-80	55.02
80-90	41.85
90-100	0.00
100-110	0.00
110-120	0.00
120-130	0.00
130-140	0.00
140-150	0.00
150-160	0.00
160-170	0.00
170-180	0.00

COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

Effective Floor Cavity Reflectance 0.20

RC	80				70				50			30			10			0
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100
1	112	108	105	103	109	106	104	101	102	100	98	98	97	95	95	93	92	90
2	105	100	95	91	103	98	93	90	94	91	88	91	88	86	89	86	84	82
3	99	92	86	81	97	90	85	81	88	83	79	85	81	78	83	80	77	75
4	94	85	79	74	92	84	78	73	81	76	72	79	75	71	77	74	71	69
5	88	79	72	67	87	78	72	67	76	71	66	74	70	66	73	69	65	64
6	83	74	67	62	82	73	66	62	71	66	61	70	65	61	68	64	60	59
7	79	69	62	57	78	68	62	57	67	61	57	65	60	57	64	60	56	55
8	75	64	58	53	74	64	58	53	63	57	53	62	56	53	61	56	52	51
9	71	61	54	50	70	60	54	50	59	53	49	58	53	49	57	52	49	48
10	68	57	51	46	66	57	50	46	56	50	46	55	50	46	54	49	46	45

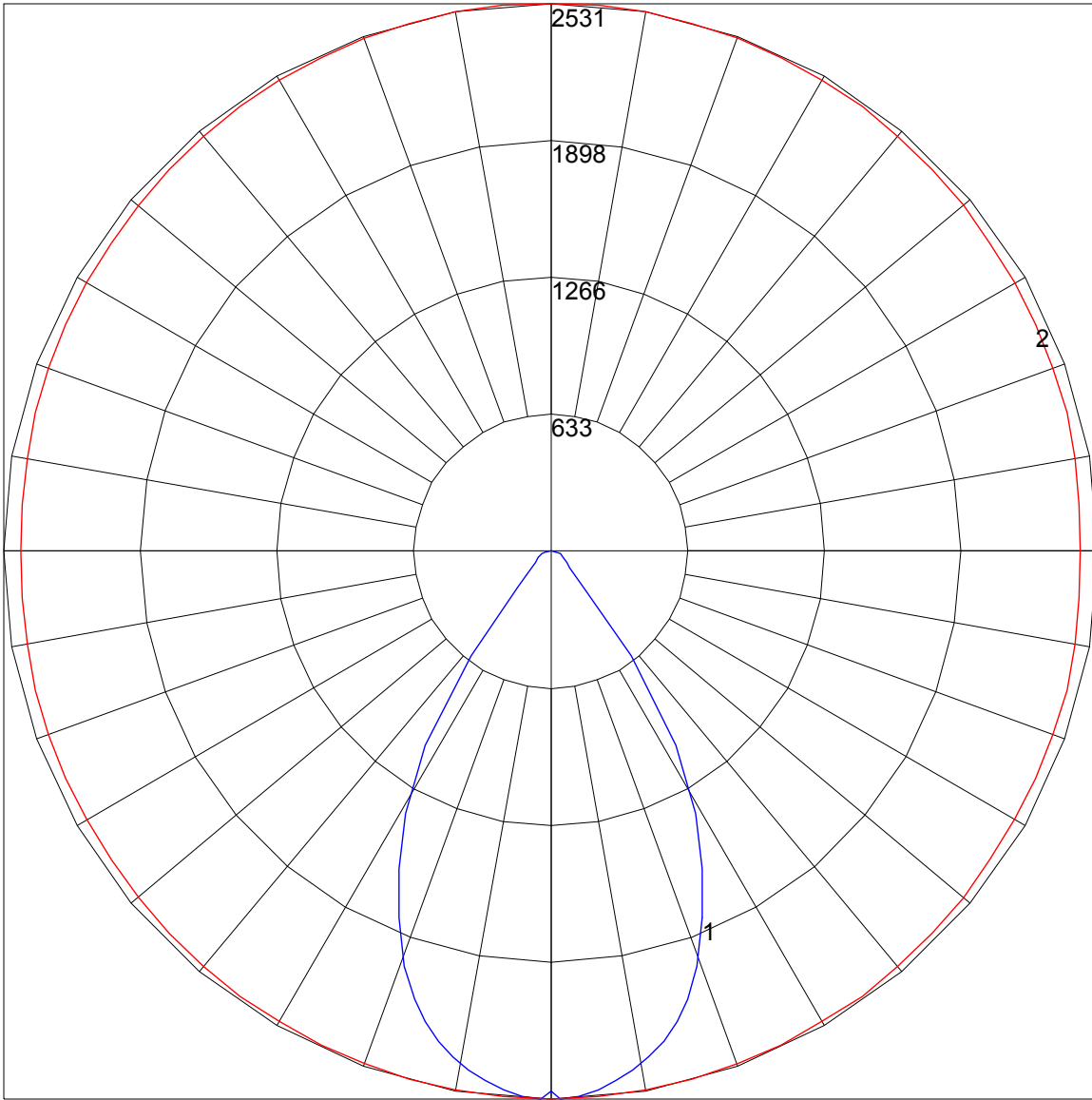
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UGR TABLE - CORRECTED

Reflectances											
Ceiling Cavity	70	70	50	50	30	70	70	50	50	30	
Walls	50	30	50	30	30	50	30	50	30	30	
Floor Cavity	20	20	20	20	20	20	20	20	20	20	
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	16.2	17.3	16.6	17.6	18.0	16.3	17.4	16.6	17.7	18.0
	3H	18.3	19.4	18.7	19.7	20.1	18.4	19.4	18.8	19.7	20.1
	4H	19.3	20.2	19.7	20.6	21.0	19.3	20.3	19.7	20.6	21.0
	6H	20.2	21.1	20.6	21.4	21.8	20.2	21.1	20.7	21.5	21.9
	8H	20.6	21.4	21.1	21.8	22.2	20.7	21.5	21.1	21.9	22.3
	12H	21.1	21.9	21.5	22.2	22.7	21.1	21.9	21.6	22.3	22.7
4H	2H	16.8	17.8	17.2	18.1	18.5	16.9	17.8	17.3	18.2	18.6
	3H	19.2	20.0	19.6	20.4	20.8	19.3	20.0	19.7	20.4	20.8
	4H	20.3	21.0	20.8	21.5	21.9	20.4	21.1	20.8	21.5	21.9
	6H	21.4	22.0	21.9	22.5	22.9	21.5	22.1	21.9	22.5	23.0
	8H	21.9	22.5	22.4	23.0	23.4	22.0	22.5	22.4	23.0	23.5
	12H	22.5	23.0	23.0	23.5	23.9	22.5	23.0	23.0	23.5	24.0
8H	4H	20.7	21.3	21.2	21.8	22.2	20.8	21.3	21.2	21.8	22.3
	6H	22.1	22.5	22.6	23.0	23.5	22.1	22.5	22.6	23.0	23.5
	8H	22.7	23.1	23.2	23.7	24.1	22.7	23.2	23.3	23.7	24.2
	12H	23.5	23.8	24.0	24.3	24.9	23.5	23.8	24.0	24.3	24.9
12H	4H	20.8	21.3	21.3	21.8	22.3	20.8	21.3	21.3	21.8	22.3
	6H	22.2	22.6	22.7	23.1	23.6	22.2	22.6	22.8	23.1	23.7
	8H	23.0	23.3	23.5	23.8	24.4	23.0	23.4	23.5	23.8	24.4

Maximum UGR = 24.9

POLAR GRAPH



Maximum Candela = 2531 Located At Horizontal Angle = 90, Vertical Angle = 1
1 - Vertical Plane Through Horizontal Angles (90 - 270) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (1) (Through Max. Cd.)