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

NVLAP TESTING
NVLAP LAB CODE 200927-0

Report No: L062012202 **Issue Date: 6/18/2020**

Report Prepared For: Light and Green
5242 Washington Blvd, Commerce, CA 90040

Model Number: RQSM-D45

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: 6/15/20

Date of Tests: 6/15/20 - 6/18/20

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	1/9/21
BK PRECISION	1747	PS-DC04	1/10/21
Fluke Digital Thermometer	52K/J	MT-TP05	1/10/21
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

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General Information	
Manufacturer:	Light and Green
Model Number:	RQSM-D45
Driver Model Number:	LIFUD LF-GMD045YSV1050U

Photometric & Electrical Test Results	
Total Lumens:	3023.69
Efficacy:	73.14
Input Voltage (VAC/60Hz):	120.00
Input Current (Amp):	0.3480
Input Power (W):	41.34
Input Power Factor:	0.9910
Current ATHD (%):	10.0%

Test Condition	
Ambient Temperature (°C):	25.0
Stabilization Time (Hours):	0:35
Total Operating Time (Hours):	1:20

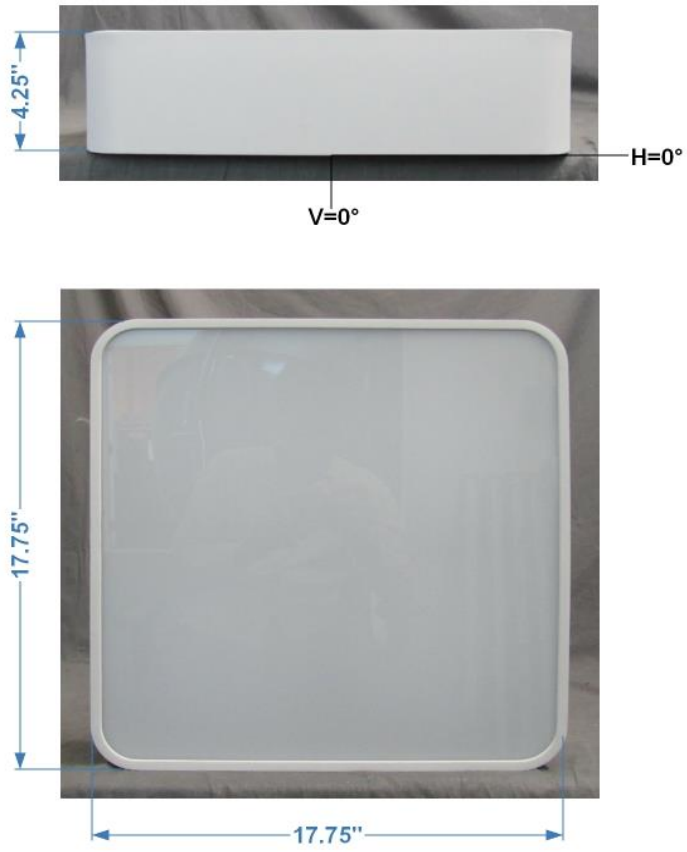

FIG. 1 LUMINAIRE

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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^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}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^{o}C and is measured from the center of the fixture, within 1ft from the outside of the fixture. Temperature is maintained at 25^{o}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 : L062012202.IES

DESCRIPTION INFORMATION (From Photometric File)

IESNA:LM-63-2002
[TEST] L062012202
[TESTLAB] LIGHT LABORATORY, INC. (www.lightlaboratory.com)
[ISSUEDATE] 6/18/2020
[MANUFAC] Light and Green
[LUMCAT] RQSM-D45
[LUMINAIRE] Rondo Soft Edge Square surface mount, 40W SMD with lens 45cm
[BALLASTCAT] LIFUD LF-GMD045YSV1050U
[OTHER] INDICATING THE CANDELA VALUES ARE ABSOLUTE AND
[MORE] SHOULD NOT BE FACTORED FOR DIFFERENT LAMP RATINGS.
[INPUT] 120.0VAC, 41.34W
[TEST PROCEDURE] IESNA:LM-79-08

CHARACTERISTICS

Lumens Per Lamp	N.A. (absolute)
Total Lamp Lumens	N.A. (absolute)
Luminaire Lumens	3024
Total Luminaire Efficiency	N.A.
Luminaire Efficacy Rating (LER)	73
Total Luminaire Watts	41.34
Ballast Factor	1.00
CIE Type	Direct
Spacing Criterion (0-180)	1.22
Spacing Criterion (90-270)	1.22
Spacing Criterion (Diagonal)	1.34
Basic Luminous Shape	Rectangular
Luminous Length (0-180)	1.40 ft
Luminous Width (90-270)	1.40 ft
Luminous Height	0.00 ft

LUMINANCE DATA (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	5540	5532	5517
55	5165	5156	5165
65	4700	4687	4700
75	3689	3689	3689
85	1700	1700	1763

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L062012202.IES

CANDELA TABULATION

	0	5	10	15	20	25	30	35	40	45
0	1143	1143	1143	1143	1143	1143	1143	1143	1143	1143
5	1133	1134	1134	1133	1134	1133	1134	1134	1133	1134
10	1113	1113	1111	1112	1113	1113	1114	1114	1112	1113
15	1082	1081	1081	1082	1082	1081	1080	1082	1082	1082
20	1037	1039	1040	1039	1039	1039	1040	1039	1040	1040
25	987	987	988	988	988	987	986	988	988	989
30	929	928	929	927	929	929	928	929	929	929
35	861	862	862	862	862	862	862	861	860	862
40	791	792	791	792	791	791	791	790	790	791
45	714	714	713	713	713	713	714	713	711	713
50	631	631	632	631	631	631	631	630	630	631
55	540	539	540	540	539	540	539	539	538	539
60	452	453	453	453	453	453	452	452	452	452
65	362	362	362	362	362	362	362	361	361	361
70	271	270	270	270	270	270	270	270	270	270
75	174	174	174	174	174	174	174	173	173	174
80	90	90	90	90	90	90	89	89	89	89
85	27	27	27	27	27	27	27	27	27	27
90	0	0	0	0	0	0	0	0	0	0

Vert. Angles	**Horizontal Angles**								
	50	**55**	**60**	**65**	**70**	**75**	**80**	**85**	**90**
0	1143	1143	1143	1143	1143	1143	1143	1143	1143
5	1133	1133	1133	1134	1134	1134	1134	1133	1134
10	1113	1113	1113	1113	1113	1113	1113	1113	1112
15	1081	1080	1080	1082	1082	1082	1080	1082	1080
20	1040	1039	1039	1039	1038	1038	1038	1038	1039
25	987	988	988	988	987	988	988	988	987
30	928	927	928	928	927	928	928	928	928
35	862	861	860	859	861	862	861	862	859
40	791	791	791	790	791	791	790	791	789
45	713	713	713	713	712	713	713	712	711
50	630	630	630	631	631	630	630	630	631
55	539	538	538	539	539	539	540	539	540
60	452	452	452	453	453	453	452	453	453
65	361	361	361	362	361	362	361	362	362
70	270	270	270	270	270	271	271	271	270
75	173	173	173	174	174	174	174	174	174
80	89	89	90	90	90	90	90	90	90
85	27	27	27	27	28	28	28	28	28
90	0	0	0	0	0	0	0	0	0

Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L062012202.IES

ZONAL LUMEN SUMMARY

Zone	Lumens	%Lamp	%Fixt
0-20	412.47	N.A.	13.60
0-30	867.49	N.A.	28.70
0-40	1406.64	N.A.	46.50
0-60	2440.08	N.A.	80.70
0-80	2984.46	N.A.	98.70
0-90	3023.69	N.A.	100.00
10-90	2916.11	N.A.	96.40
20-40	994.17	N.A.	32.90
20-50	1544.06	N.A.	51.10
40-70	1391.31	N.A.	46.00
60-80	544.38	N.A.	18.00
70-80	186.51	N.A.	6.20
80-90	39.23	N.A.	1.30
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	3023.69	N.A.	100.00

Total Luminaire Efficiency = N.A.%

ZONAL LUMEN SUMMARY

Zone	Lumens
0-10	107.58
10-20	304.90
20-30	455.01
30-40	539.15
40-50	549.89
50-60	483.55
60-70	357.87
70-80	186.51
80-90	39.23
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

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IES INDOOR REPORT
PHOTOMETRIC FILENAME : L062012202.IES

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	109	105	100	97	106	102	98	95	98	95	92	94	92	89	91	89	87	85
2	99	91	85	79	97	89	83	78	86	81	76	83	78	75	80	76	73	71
3	91	80	72	66	88	79	71	65	76	69	64	73	68	63	71	66	62	60
4	83	71	63	56	81	70	62	56	68	60	55	65	59	54	63	58	53	51
5	77	64	55	48	74	63	54	48	61	53	48	59	52	47	57	51	47	44
6	71	58	49	42	69	57	48	42	55	47	42	53	46	41	51	46	41	39
7	66	52	43	37	64	51	43	37	50	42	37	48	42	37	47	41	36	34
8	61	48	39	33	60	47	39	33	46	38	33	44	38	33	43	37	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	34	30	40	34	30	28
10	54	40	33	27	52	40	32	27	39	32	27	38	32	27	37	31	27	25

Calculations based on published IES Methods and recommendations, values rounded for display purposes.
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IES INDOOR REPORT
PHOTOMETRIC FILENAME : L062012202.IES

UGR TABLE - CORRECTED

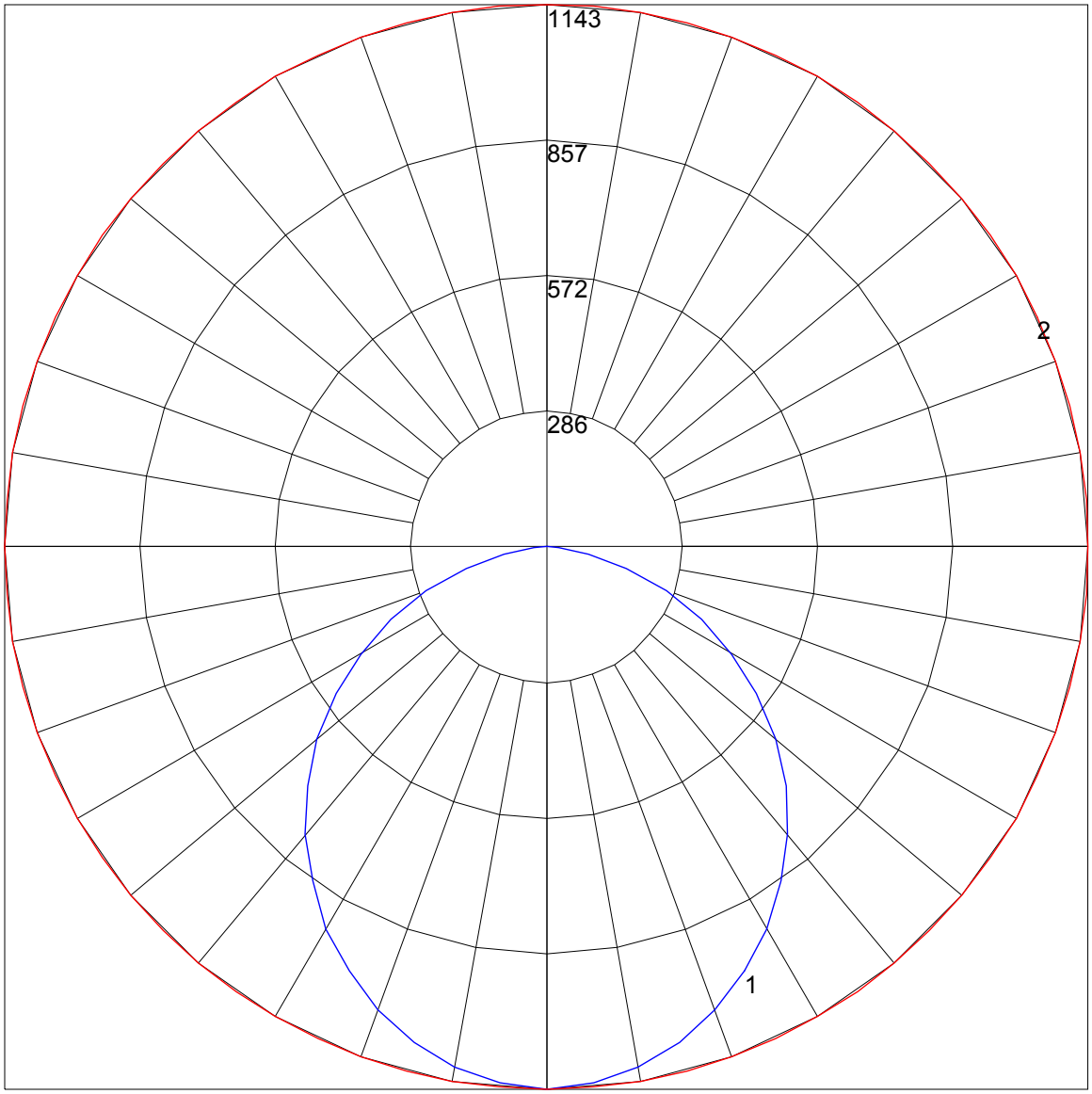
Reflectances											
Ceiling Cavity		70	70	50	50	30	70	70	50	50	30
Walls		50	30	50	30	30	50	30	50	30	30
Floor Cavity		20	20	20	20	20	20	20	20	20	20
Room Size		UGR Viewed Crosswise					UGR Viewed Endwise				
X=2H	Y=2H	17.8	19.4	18.1	19.7	20.0	17.8	19.4	18.1	19.7	20.0
	3H	19.5	20.9	19.9	21.3	21.6	19.5	20.9	19.9	21.3	21.6
	4H	20.0	21.4	20.4	21.7	22.1	20.0	21.4	20.4	21.8	22.1
	6H	20.4	21.6	20.8	22.0	22.4	20.4	21.6	20.8	22.0	22.4
	8H	20.5	21.7	20.9	22.0	22.4	20.5	21.7	20.9	22.1	22.5
	12H	20.5	21.6	20.9	22.0	22.4	20.5	21.6	20.9	22.0	22.5
4H	2H	18.4	19.7	18.8	20.1	20.5	18.4	19.7	18.8	20.1	20.5
	3H	20.3	21.4	20.7	21.8	22.2	20.3	21.4	20.7	21.8	22.2
	4H	20.9	22.0	21.4	22.4	22.8	20.9	22.0	21.4	22.4	22.8
	6H	21.4	22.3	21.8	22.7	23.2	21.4	22.3	21.8	22.7	23.2
	8H	21.5	22.3	21.9	22.8	23.2	21.5	22.3	21.9	22.8	23.2
	12H	21.6	22.3	22.0	22.8	23.2	21.6	22.3	22.0	22.8	23.3
8H	4H	21.2	22.0	21.6	22.5	22.9	21.2	22.0	21.6	22.5	22.9
	6H	21.7	22.4	22.2	22.9	23.4	21.7	22.4	22.2	22.9	23.4
	8H	21.9	22.5	22.4	23.0	23.5	21.9	22.5	22.4	23.0	23.5
	12H	21.9	22.5	22.5	23.0	23.6	22.0	22.5	22.5	23.0	23.6
12H	4H	21.2	22.0	21.7	22.4	22.9	21.2	22.0	21.7	22.4	22.9
	6H	21.8	22.4	22.3	22.8	23.4	21.8	22.4	22.3	22.8	23.4
	8H	21.9	22.5	22.4	23.0	23.5	21.9	22.5	22.4	23.0	23.5

Maximum UGR = 23.6

Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

IES INDOOR REPORT
PHOTOMETRIC FILENAME : L062012202.IES

POLAR GRAPH



Maximum Candela = 1143 Located At Horizontal Angle = 0, Vertical Angle = 0
1 - Vertical Plane Through Horizontal Angles (0 - 180) (Through Max. Cd.)
2 - Horizontal Cone Through Vertical Angle (0) (Through Max. Cd.)