

LM-79 Photometric Test Report

Fixture Model Number: LW10

Report Prepared For: ikan international
11500 S. SAM HOUSTON PKWY, HOUSTON, TX

Test: Electrical and Photometric tests as required by the IESNA test standards

Description of Sample (Test results are applicable only to the following configuration): IKAN LYRA DAYLIGHT ONE FOOT X ONE FOOT LED LIGHT FIXTURE.

The sample(s) was (were) tested in accordance with the following applied standards/regulations:

- IESNA LM79: 2008 Approved 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
- ATAL Goniophotometer Test Procedure
- ATAL Sphere Test Procedure

Test Report shall not be reproduced except in full, without written approval of ATAL

ATAL Test Number: ATAL019078

Sample Arrival Date: 6/15/2017

Date of Tests: 6/19/2017

Test Report Prepared by:

Adrienne Lattimore

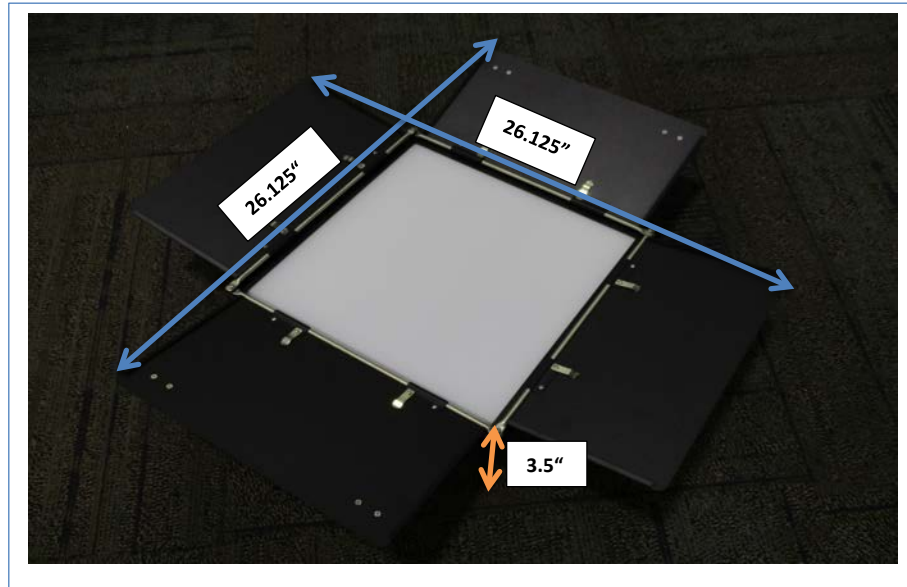
Adrienne Lattimore, Technician

Test Report Approved By:

Jim Rice

Jim Rice, Lab Manager

ATAL Test Number: ATAL019078



Sphere Equipment Used

Description	Model #	Serial #	Calibration Date	Calibration due date
Integrating 76 inch Sphere	LMS760	1230110011	4/26/2017	10/26/2017
Voltech Power Analyzer	PM1000+	100008202596	9/14/2016	9/14/2017
Onset Thermometer	U14-002	10408869	9/21/2016	9/21/2017
Agilent DC Power Supply	E3634A	MY53240055	9/14/2016	9/14/2017

Goniophotometer Equipment Used

Description	Model #	Serial #	Calibration Date	Calibration due date
ITL Type C Gonio System	ITL GCC1	C114-0512	1/6/2017	7/6/2017
Yokogawa Digital Power Meter	WT210	91MB22428	9/13/2016	9/13/2017
Agilent DC Power Supply	N5770A	US13A0157J	9/14/2016	9/14/2017
Onset Data Logger	U14-002	10408835	9/20/2016	9/20/2017

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LM-79 Test Summary

Manufacturer:	ikan international
Model Number:	LW10
Driver Model Number:	DC POWER SUPPLY
Lamp :	5600K 1 WATT LEDS
Pre-Burn Time (hours):	24

Electrical Measurement

Input Voltage:	15.00 VDC	Continuous Voltage Monitoring <input checked="" type="checkbox"/>
Input Current:	4.238 A	
Input Power:	63.59 W	

Light Output:

Lumens:	5335 Lm
Efficacy:	83.9 Lm/W
Color Rendering Index (CRI):	R _a : 95.20 R _g : 80.03
Correlated Color Temperature (K):	6314
Chromaticity Coordinate x:	0.3174
Chromaticity Coordinate y:	0.3186
Ambient Temperature (°C):	25.5
Stabilization Time (Mins):	30
Total Operating Time (Hours):	24
u/u':	1
v:	0.3089
v':	0.4634
Duv:	-0.0046

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Test Methods

Photometric Measurements – Goniophotometer

An ITL 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 $25^{\circ}\text{C} \pm 1^{\circ}$ and is measured from the center of the fixture, within 1 meter from the outside of the fixture. Temperature is maintained at $25^{\circ}\text{C} \pm 1^{\circ}$ throughout the testing process and the sample is stabilized for at least 30 minutes and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

Spectral Measurements – Integrating Sphere

A sensing Spectrometer CDS-2100, in conjunction with Labsphere 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 $25^{\circ}\text{C} \pm 1^{\circ}$ and is measured from the center of the fixture, within 1 meter from the outside of the fixture. Temperature is maintained at $25^{\circ}\text{C} \pm 1^{\circ}$ throughout the testing process and the sample is stabilized for at least 30 minutes and longer as necessary for the sample to achieve stabilization.

Electrical measurements are measured using the listed equipment.

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

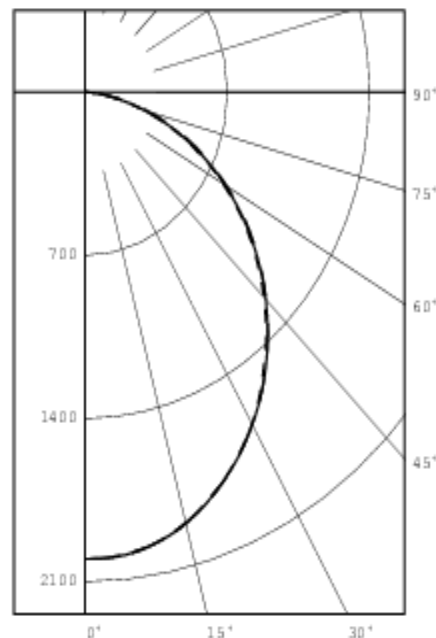
REPORT NUMBER: ATAL019078
 ISSUE DATE: 06/19/17
 PREPARED FOR: ikan international
 CATALOG NUMBER: LW10
 LUMINAIRE: IKAN LYRA DAYLIGHT 1X1 LED LIGHT FIXTURE.
 LAMP CAT. NO.: 5600K 1 WATT LEDS
 LAMP: 5600K LED MODULE
 BALLAST CAT. NO.: DC POWER SUPPLY 114
 BALLAST: (1) AGILENT DC POWER SUPPLY
 INPUT WATTS: 63.59, AMPS: 4.238, VDC:
 15.00, TEMP: 25.5 C, HRS OPERATED
 PRIOR TO TESTING: 24; STABILITY: 30
 MIN
 MOUNTING: POLE MOUNTED
 TEST ABSOLUTE PHOTOMETRY IS BASED ON
 CALIBRATION FACTORS CREATED USING A
 1000 WATT, NIST TRACEABLE,
 OMNIDIRECTIONAL LAB LUMEN STANDARD
 IN THE GONIOPHOTOMETER WITH A TEST
 DISTANCE OF 28 FEET
 DATA SHOWN IS ABSOLUTE FOR THE SAMPLE
 PROVIDED.

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CANDELA DISTRIBUTION						FLUX
0.0	22.5	45.0	67.5	90.0		
0	2003	2003	2003	2003	2003	190
5	1995	1995	1998	1996	1996	540
15	1914	1913	1916	1915	1914	806
25	1750	1750	1752	1750	1751	954
35	1518	1522	1530	1528	1529	968
45	1245	1246	1259	1262	1261	854
55	944	945	955	968	965	626
65	620	625	631	643	644	328
75	299	301	304	316	324	70
85	46	48	50	54	60	
90	3	5	5	5	4	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	1536	28.8
0- 40	2490	46.7
0- 60	4311	80.8
0- 90	5335	100.0
90-180	0	0.0
0-180	5335	100.0

TOTAL INPUT WATTS = 63.6
 EFFICACY = 83.9 Lm/W
 CIE TYPE - DIRECT
 PLANE : 0-DEG 90-DEG
 SPACING CRITERIA : 1.2 1.2



LEGEND:
 0-deg:
 45-deg: _____
 90-deg: - - - - -

Checked _____
 Approved _____

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PLANE : 0-DEG 90-DEG
BEAM ANGLE (50%) : 106.3 X 107.6 DEGREES
FIELD ANGLE (10%) : 156.8 X 158.3 DEGREES

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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	2003	2003	2003	2003	2003
2.5	2001	2001	2003	2002	2002
5.0	1995	1995	1998	1996	1996
7.5	1984	1985	1986	1985	1986
10.0	1967	1966	1968	1968	1967
12.5	1944	1943	1945	1944	1944
15.0	1914	1913	1916	1915	1914
17.5	1878	1878	1881	1880	1879
20.0	1840	1838	1841	1840	1840
22.5	1796	1795	1797	1796	1799
25.0	1750	1750	1752	1750	1751
27.5	1698	1699	1701	1700	1701
30.0	1645	1644	1647	1646	1647
32.5	1585	1585	1591	1588	1590
35.0	1518	1522	1530	1528	1529
37.5	1451	1457	1466	1464	1465
40.0	1386	1388	1399	1400	1399
42.5	1316	1318	1330	1332	1331
45.0	1245	1246	1259	1262	1261
47.5	1172	1173	1186	1191	1190
50.0	1098	1098	1110	1118	1117
52.5	1022	1022	1033	1045	1041
55.0	944	945	955	968	965
57.5	864	867	875	890	886
60.0	784	787	795	809	805
62.5	703	707	714	726	725
65.0	620	625	631	643	644
67.5	539	543	547	559	566
70.0	458	462	465	476	484
72.5	378	380	383	397	403
75.0	299	301	304	316	324
77.5	225	228	229	239	247
80.0	156	157	160	169	177
82.5	94	98	99	106	116
85.0	46	48	50	54	60
87.5	20	20	18	18	17
90.0	3	5	5	5	4

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5-DEGREE
 ZONAL LUMEN SUMMARY

0- 5	48
5- 10	142
10- 15	230
15- 20	309
20- 25	376
25- 30	430
30- 35	467
35- 40	487
40- 45	491
45- 50	477
50- 55	449
55- 60	405
60- 65	347
65- 70	279
70- 75	203
75- 80	125
80- 85	57
85- 90	13
90- 95	1
95-100	0
100-105	0
105-110	0
110-115	0
115-120	0
120-125	0
125-130	0
130-135	0
135-140	0
140-145	0
145-150	0
150-155	0
155-160	0
160-165	0
165-170	0
170-175	0
175-180	0

10-DEGREE
 ZONAL LUMEN SUMMARY

0- 10	190
0- 20	729
0- 30	1536
0- 40	2490
0- 50	3458
0- 60	4311
0- 70	4937
0- 80	5265
0- 90	5335
0-100	5335
0-110	5335
0-120	5335
0-130	5335
0-140	5335
0-150	5335
0-160	5335
0-170	5335
0-180	5335

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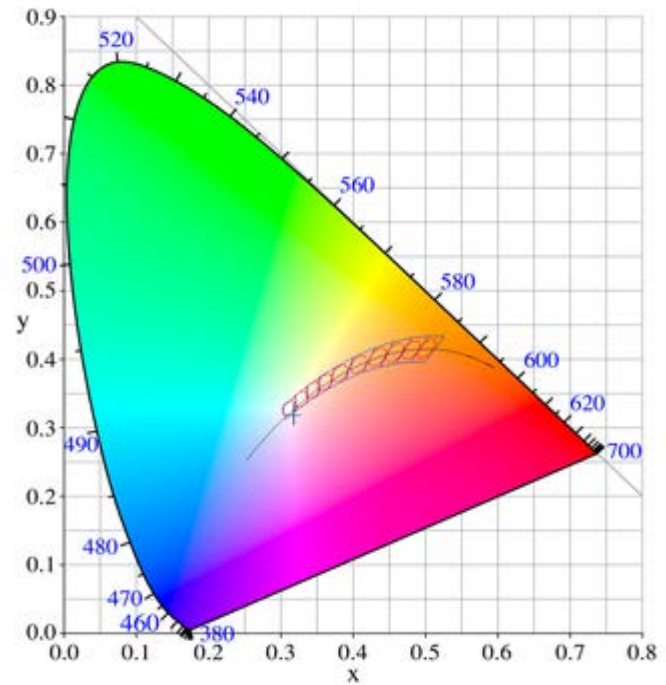
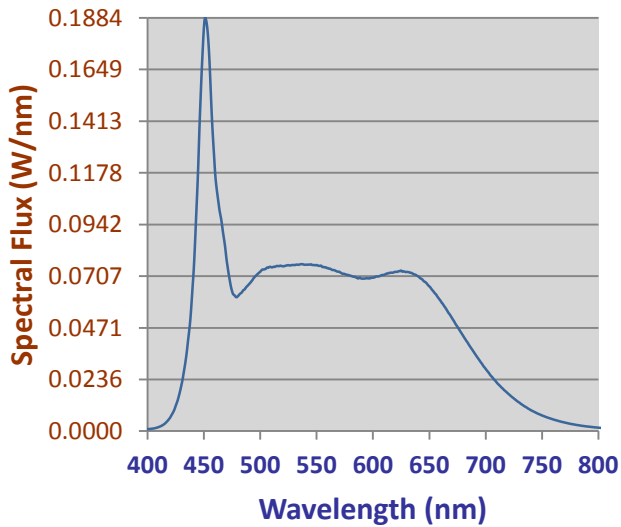
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	50	30	10	0
0	119	119	119	119	116	116	116	116	111	111	111	111	111	111	106	106	106	102	102	102	100
1	109	105	100	97	106	102	99	95	98	95	92	94	92	89	91	89	87	91	89	87	85
2	99	91	85	79	97	90	83	78	86	81	76	83	78	75	80	76	73	80	76	73	71
3	91	80	72	66	88	79	71	65	76	70	64	73	68	63	71	66	62	71	66	62	60
4	83	71	63	56	81	70	62	56	68	61	55	65	59	54	63	58	53	63	58	53	51
5	77	64	55	48	74	63	54	48	61	53	48	59	52	47	57	51	47	57	51	47	44
6	71	58	49	42	69	57	48	42	55	47	42	53	46	41	52	46	41	52	46	41	39
7	66	52	44	37	64	51	43	37	50	42	37	48	42	37	47	41	37	47	41	37	35
8	61	48	39	33	60	47	39	33	46	38	33	44	38	33	43	37	33	43	37	33	31
9	57	44	36	30	56	43	35	30	42	35	30	41	34	30	40	34	30	40	34	30	28
10	54	40	33	27	52	40	32	27	39	32	27	38	32	27	37	31	27	37	31	27	25

ALL CANDELA, LUMENS, LUMINANCE, AND VCP VALUES IN THIS REPORT ARE
 BASED ON ABSOLUTE PHOTOMETRY. THE COEFFICIENT OF UTILIZATION VALUES
 ARE BASED ON THE TOTAL ABSOLUTE LUMEN OUTPUT OF THIS LUMINAIRE SAMPLE.

Relative Spectral Power Distribution



CCT		CRI		x		y		Duv		u'		v'	
6314.0		95.202		0.3174		0.3186		-0.0046		0.2052		0.4634	
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
93	95.8	96.8	96.2	94.3	93	98.6	93.9	80	93.9	93.8	75.9	93.6	97.7