

LM-79 Photometric Test Report

Fixture Model Number: LB5

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 BI-COLOR HALF 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: ATAL019094

Sample Arrival Date: 6/15/2017

Date of Tests: 6/20/2017

Test Report Prepared by:

Adrienne Lattimore

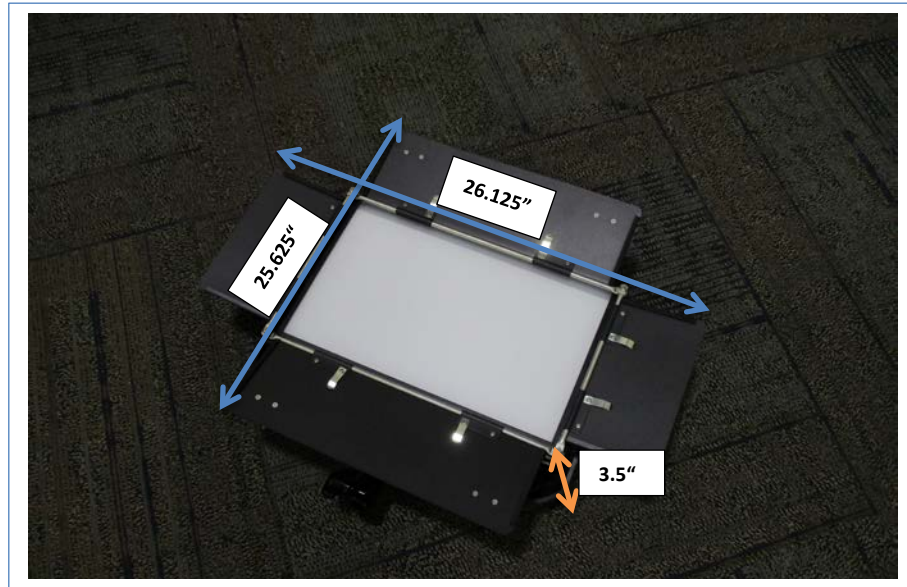
Adrienne Lattimore, Technician

Test Report Approved By:

Jim Rice

Jim Rice, Lab Manager

ATAL Test Number: ATAL019094



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:	LB5
Driver Model Number:	DC POWER SUPPLY
Lamp :	5600K 1 WATT LEDS
Pre-Burn Time (hours):	24

Electrical Measurement

Input Voltage:	15.03 VDC	Continuous Voltage Monitoring <input checked="" type="checkbox"/>
Input Current:	2.097 A	
Input Power:	31.52 W	

Light Output:

Lumens:	2673 Lm
Efficacy:	84.9 Lm/W
Color Rendering Index (CRI):	R _a : 96.11 R _g : 84.92
Correlated Color Temperature (K):	5962
Chromaticity Coordinate x:	0.3232
Chromaticity Coordinate y:	0.3265
Ambient Temperature (°C):	25.5
Stabilization Time (Mins):	30
Total Operating Time (Hours):	24
u/u':	1
v:	0.3124
v':	0.4685
Duv:	-0.0033

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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.

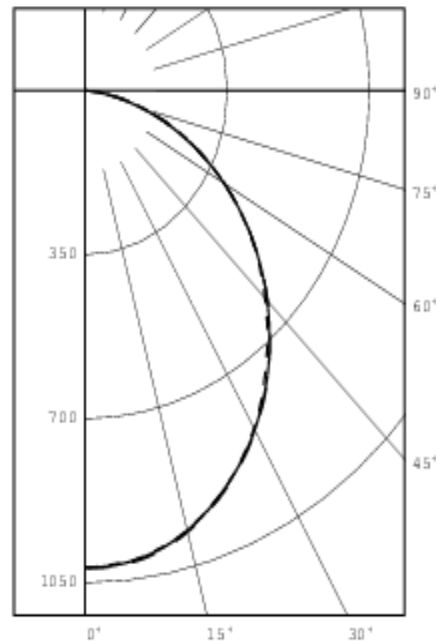
REPORT NUMBER: ATAL019094
 ISSUE DATE: 06/20/17
 PREPARED FOR: ikan international
 CATALOG NUMBER: LB5
 LUMINAIRE: IKAN LYRA BI-COLOR .5X1 LED LIGHT FIXTURE.
 LAMP CAT. NO.: 3200-5600K 1 WATT LEDS
 LAMP: 5600K LED MODULE
 BALLAST CAT. NO.: DC POWER SUPPLY 114
 BALLAST: (1) AGILENT DC POWER SUPPLY
 INPUT WATTS: 31.52, AMPS: 2.097, VDC:
 15.03, 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	1018	1018	1018	1018	1018	96
5	1012	1013	1014	1015	1016	274
15	971	971	972	974	975	409
25	887	887	889	890	891	483
35	767	770	775	776	777	488
45	626	628	635	637	636	427
55	476	476	478	480	479	308
65	313	312	310	310	311	157
75	152	149	144	145	149	29
85	22	21	20	17	17	
90	1	2	2	1	1	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	780	29.2
0- 40	1263	47.3
0- 60	2178	81.5
0- 90	2673	100.0
90-180	0	0.0
0-180	2673	100.0

TOTAL INPUT WATTS = 31.5
 EFFICACY = 84.9 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%) : 105.8 X 106.2 DEGREES
FIELD ANGLE (10%): 156.8 X 156.3 DEGREES

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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	1018	1018	1018	1018	1018
2.5	1015	1016	1017	1018	1019
5.0	1012	1013	1014	1015	1016
7.5	1007	1007	1008	1010	1011
10.0	997	998	999	1001	1002
12.5	986	986	987	989	990
15.0	971	971	972	974	975
17.5	953	953	954	956	957
20.0	933	933	934	935	937
22.5	912	911	912	913	915
25.0	887	887	889	890	891
27.5	861	861	863	864	866
30.0	832	833	836	837	838
32.5	801	802	806	807	808
35.0	767	770	775	776	777
37.5	732	736	742	744	743
40.0	699	701	707	710	709
42.5	663	665	671	674	672
45.0	626	628	635	637	636
47.5	590	592	597	600	598
50.0	555	554	558	561	559
52.5	516	516	519	521	519
55.0	476	476	478	480	479
57.5	436	436	437	439	438
60.0	395	395	395	396	396
62.5	354	354	353	353	354
65.0	313	312	310	310	311
67.5	272	272	268	267	273
70.0	231	229	226	225	231
72.5	191	189	185	186	190
75.0	152	149	144	145	149
77.5	114	111	108	108	111
80.0	80	76	73	72	75
82.5	49	46	44	42	44
85.0	22	21	20	17	17
87.5	3	5	6	3	2
90.0	1	2	2	1	1

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5-DEGREE
 ZONAL LUMEN SUMMARY

0- 5	24
5- 10	72
10- 15	117
15- 20	157
20- 25	191
25- 30	218
30- 35	237
35- 40	247
40- 45	248
45- 50	240
50- 55	225
55- 60	202
60- 65	172
65- 70	136
70- 75	98
75- 80	59
80- 85	25
85- 90	4
90- 95	0
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	96
0- 20	370
0- 30	780
0- 40	1263
0- 50	1751
0- 60	2178
0- 70	2486
0- 80	2643
0- 90	2672
0-100	2673
0-110	2673
0-120	2673
0-130	2673
0-140	2673
0-150	2673
0-160	2673
0-170	2673
0-180	2673

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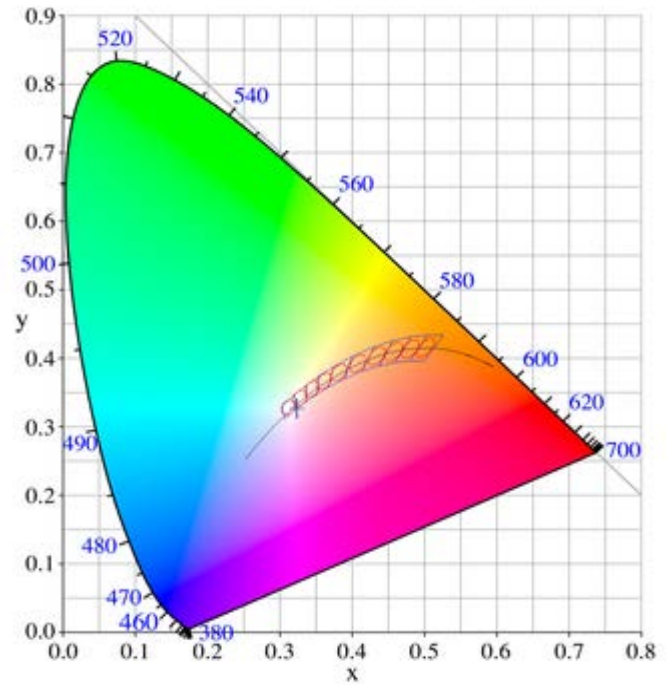
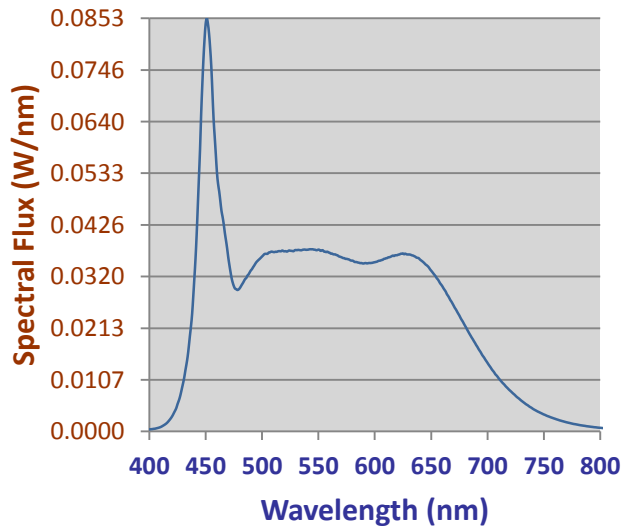
COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

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	0
0	119	119	119	119	116	116	116	116	111	111	111	111	111	111	106	106	106	100
1	109	105	101	97	107	103	99	95	98	95	92	94	92	90	91	89	87	85
2	100	92	85	80	97	90	84	79	86	81	77	83	79	75	80	77	73	71
3	91	81	73	67	89	79	72	66	76	70	65	74	68	64	71	66	63	60
4	83	72	63	57	81	70	62	56	68	61	55	66	60	55	63	58	54	52
5	77	64	55	49	75	63	55	49	61	54	48	59	53	48	57	52	47	45
6	71	58	49	43	69	57	49	43	55	48	42	53	47	42	52	46	41	39
7	66	53	44	38	64	52	44	38	50	43	37	49	42	37	47	41	37	35
8	61	48	40	34	60	47	39	34	46	39	34	45	38	33	44	38	33	31
9	57	44	36	30	56	44	36	30	42	35	30	41	35	30	40	34	30	28
10	54	41	33	28	53	40	33	28	39	32	27	38	32	27	37	31	27	26

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'	
5962.0		96.106		0.3232		0.3265		-0.0033		0.2061		0.4685	
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
94.4	96.7	97.2	97	95.4	93.9	98.9	95.4	84.9	95.2	94.3	77.9	94.9	98