

LM-79 Photometric Test Report

Fixture Model Number: LB10

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 ONE FOOT BY 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: ATAL020038

Sample Arrival Date: 8/15/2017

Date of Tests: 8/17/2017

Test Report Prepared by:

Adrienne Lattimore

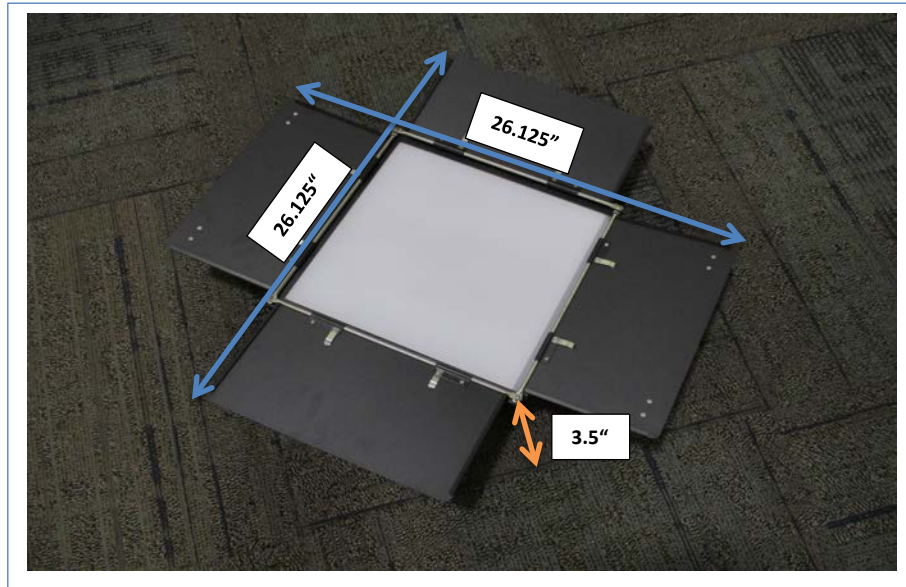
Adrienne Lattimore, Deputy

Test Report Approved By:

Jim Rice

Jim Rice, Lab Manager

ATAL Test Number: ATAL020038



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	7/7/2017	1/7/2018
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:	LB10
Driver Model Number:	DC POWER SUPPLY
Lamp :	5600K 1 WATT LEDS
Pre-Burn Time (hours):	24

Electrical Measurement

Input Voltage:	15.01 VDC	Continuous Voltage Monitoring <input checked="" type="checkbox"/>
Input Current:	4.226 A	
Input Power:	63.44 W	

Light Output:

Lumens:	5263 Lm
Efficacy:	83.0 Lm/W
Color Rendering Index (CRI):	R _a : 95.83 R _g : 84.02
Correlated Color Temperature (K):	5957
Chromaticity Coordinate x:	0.3234
Chromaticity Coordinate y:	0.3252
Ambient Temperature (°C):	25.5
Stabilization Time (Mins):	30
Total Operating Time (Hours):	24
u/u':	1
v:	0.3119
v':	0.4679
Duv:	-0.0041

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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.

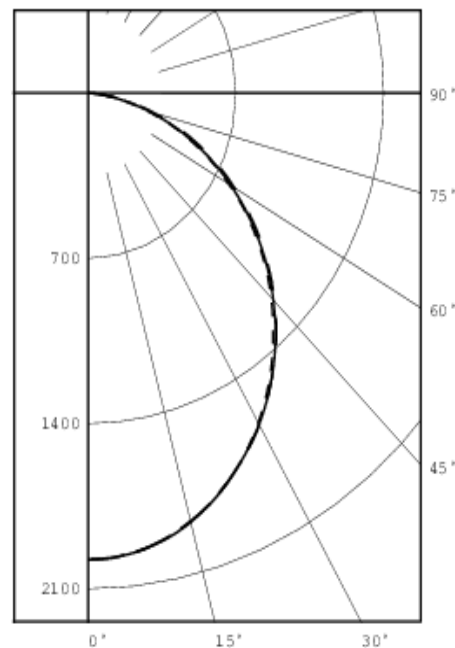
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REPORT NUMBER: ATAL020038
 ISSUE DATE: 08/17/17
 PREPARED FOR: ikan international
 CATALOG NUMBER: LB10
 LUMINAIRE: IKAN LYRA BI-COLOR 1X1 LED LIGHT FIXTURE.
 LAMP CAT. NO.: 3200-5600K 1 WATT LEDS
 LAMP: 5600K LED MODULE
 BALLAST CAT. NO.: DC POWER SUPPLY 114
 BALLAST: (1) AGILENT DC POWER SUPPLY
 INPUT WATTS: 63.44, AMPS: 4.226, VDC:
 15.01, 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.

CANDELA DISTRIBUTION						FLUX
	0.0	22.5	45.0	67.5	90.0	
0	1977	1977	1977	1977	1977	
5	1965	1966	1966	1965	1965	187
15	1879	1880	1881	1880	1878	530
25	1718	1720	1720	1720	1720	792
35	1495	1501	1508	1508	1507	941
45	1227	1230	1242	1249	1249	956
55	930	934	941	957	957	843
65	611	618	622	634	644	618
75	295	300	302	313	323	325
85	44	47	52	54	60	70
90	4	4	5	5	5	

ZONAL LUMEN SUMMARY		
ZONE	LUMENS	%FIXT
0- 30	1509	28.7
0- 40	2450	46.5
0- 60	4249	80.7
0- 90	5263	100.0
90-180	0	0.0
0-180	5263	100.0

TOTAL INPUT WATTS = 63.4
 EFFICACY = 83.0 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%) : 106.2 X 107.9 DEGREES
FIELD ANGLE (10%) : 156.8 X 158.6 DEGREES

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CANDELA DISTRIBUTION

	0.0	22.5	45.0	67.5	90.0
0.0	1977	1977	1977	1977	1977
2.5	1973	1974	1975	1974	1973
5.0	1965	1966	1966	1965	1965
7.5	1952	1953	1953	1952	1951
10.0	1932	1933	1934	1933	1932
12.5	1908	1909	1911	1910	1908
15.0	1879	1880	1881	1880	1878
17.5	1845	1846	1847	1847	1845
20.0	1807	1808	1809	1809	1807
22.5	1764	1765	1766	1766	1764
25.0	1718	1720	1720	1720	1720
27.5	1668	1670	1672	1673	1674
30.0	1613	1617	1621	1621	1623
32.5	1556	1560	1566	1567	1568
35.0	1495	1501	1508	1508	1507
37.5	1431	1436	1446	1449	1446
40.0	1364	1370	1381	1385	1386
42.5	1297	1301	1313	1318	1319
45.0	1227	1230	1242	1249	1249
47.5	1156	1158	1170	1179	1180
50.0	1082	1084	1095	1106	1107
52.5	1006	1011	1019	1033	1033
55.0	930	934	941	957	957
57.5	852	857	862	878	879
60.0	772	777	781	798	799
62.5	692	699	701	716	724
65.0	611	618	622	634	644
67.5	530	539	540	553	562
70.0	451	458	460	471	482
72.5	372	378	380	390	401
75.0	295	300	302	313	323
77.5	222	226	230	237	248
80.0	155	158	160	168	178
82.5	97	98	102	106	114
85.0	44	47	52	54	60
87.5	11	13	19	22	24
90.0	4	4	5	5	5

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5-DEGREE
 ZONAL LUMEN SUMMARY

0- 5	47
5- 10	139
10- 15	226
15- 20	304
20- 25	370
25- 30	423
30- 35	460
35- 40	481
40- 45	485
45- 50	472
50- 55	443
55- 60	400
60- 65	343
65- 70	276
70- 75	201
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	187
0- 20	717
0- 30	1509
0- 40	2450
0- 50	3406
0- 60	4249
0- 70	4868
0- 80	5193
0- 90	5263
0-100	5263
0-110	5263
0-120	5263
0-130	5263
0-140	5263
0-150	5263
0-160	5263
0-170	5263
0-180	5263

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COEFFICIENTS OF UTILIZATION - ZONAL CAVITY METHOD

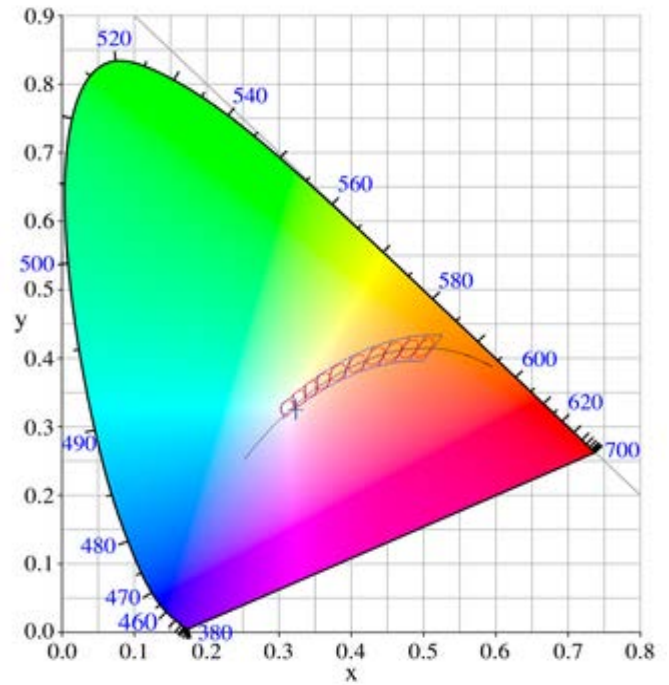
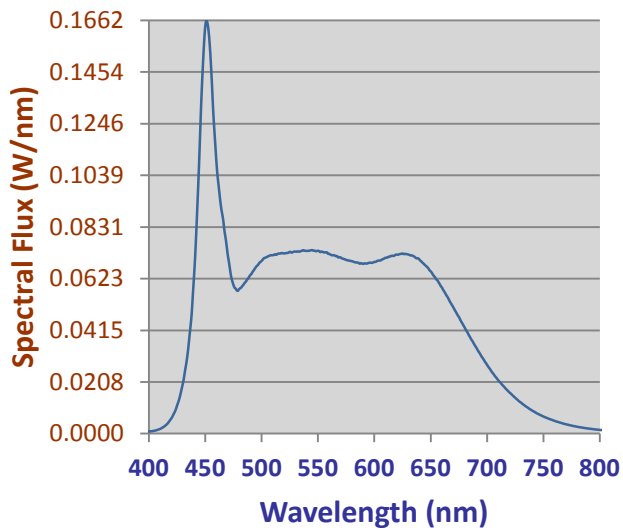
EFFECTIVE FLOOR CAVITY REFLECTANCE 0.20

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

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Relative Spectral Power Distribution



CCT		CRI		x		y		Duv		u'		v'	
5957.0		95.827		0.3233		0.3252		-0.0041		0.2068		0.4679	
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14
93.9	96.4	96.9	96.7	95	93.6	98.9	95.1	84	94.8	94.1	77.7	94.4	97.8