NVLAP Lab Code: 200952-0

Verification Services

Project No.:4787300777-1
Report No.:4787300777-1aR01
Report Issued Date: 2016-02-08

Test Report

Customer Company & Address:			
Elec-Tech International Co., Ltd **ADD: 1 JINFENG RD TANGJIAWAN TOWN XIANGZHOU DISTRICT ZHUHAIGUANGDONG P.R. CHINA 519085**			
Contact Person:	Sean Luo		
Phone Number:	0756-3639678	**Email Address:**	luolixue@electech.com.cn

Relevant Standards:	IES LM-79-2008
Product Description:	Luminaire Description: LED Wrap Light Amount of Light Source: 154 LEDs of 67-21S Manufacturer Of Light Source: Everlight Electronics Co.,Ltd
Brand Name:	ETI & Commercial Electric
Tested Model Number:	546761XX
Product Family:	N/A
Allowable Variations:	Where “XX” denotes color temperature, XX=41～50 identifies 4000K
Electrical Specification:	120 V AC, 60 Hz, 39.5 W

Test Laboratory & Address:			
UL Verification Services (Guangzhou) Co., Ltd. ADD: Building A1, 1F & 2F, Nansha Science and Technology Innovation Center, No. 25, South Huanshi Avenue , Nansha District, Guangzhou 511458, China			
Telephone:	+86 20 28667188	**Fax:**	+86 20 83486605

Sample Reception Date:	2015-12-31	**Test Date:**	2016-01-05~2016-01-09

Tested By	**Approved By**
Candy Zhang ,Candy Zhang	Derek /Derek Zhang
Signatory & Test Personnel Name	**Signatory & Approval Name**

Test Report

Statement of Results

Test Flow	Test Item	Sample ID (Lab)	Pass/Fail/NA
1	Integrating Sphere Test	2285892-S001	Evaluate by customer
2	Goniophotometer Test	2285892-S001	Evaluate by customer

Deviation from Test Method (*if any*)

N/A

Remark *(if any)*

1.This report shall not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the US government.

2.This report replace 4787300777-1a (original report number), the report 4787300777-1a is terminated. This report noly revise the Luminaire Description of page 1.

Test Report

Test Flow 1: Integrating Sphere Test

Environmental Conditions

Temperature: 25.1℃

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-PE003	Integrating Sphere	Before Use	Before Use
GVS-LE-PM009	Digtal Power Meter	2015-04-28	2016-04-27
GVS-LE-FS009	Measurement Standard Lamp	2015-08-22	2016-08-21

Test Sample

2285892-S001

Test Method

The sample was tested according to the IES LM-79-2008.
Photometric paramters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at 25º C ± 1º C.
The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at rated voltage and was stabilized before measurement. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral radiant flux measurements taken at 1 nm intervals over the range of 380 to 780 nm.

Test Results

Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	120.10	60	0.327	0.972	38.2

Test Type	CCT (K)	CRI	Lumen Output (lm)	Luminous Efficacy (lm/W)
Output	4101	91.0	3604	94.4

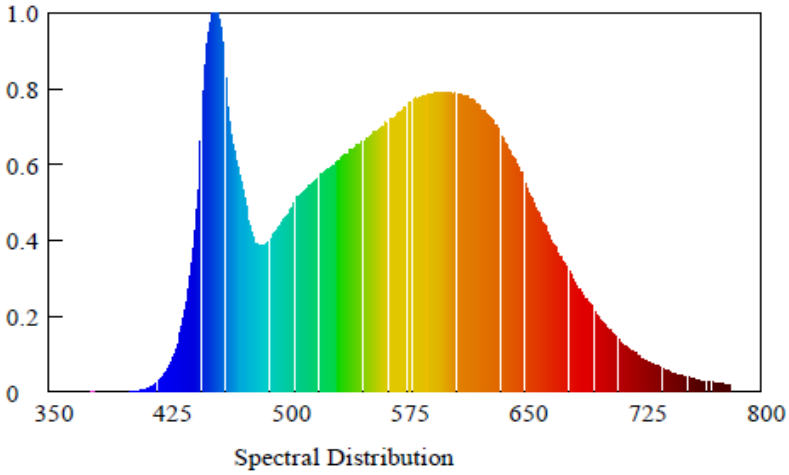
Test Report

Test Condition

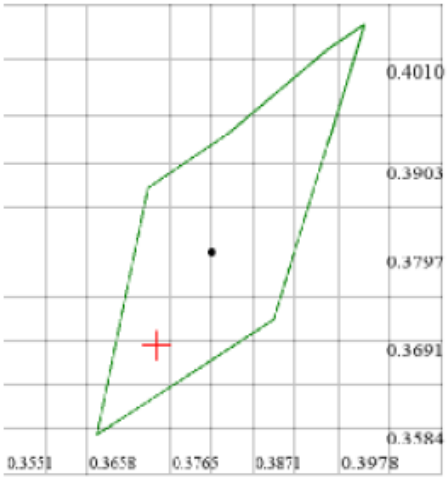
Temperature: 25.1°C RH: ----%

Spectrum Range: 380-780 nm Scan Step: 1 nm

Spectroradiometric Parameters



Spectral Distribution



Nominal CCT:LED_4000K
x0=0.3747 y0=0.3685

Chromaticity Coordinates: x=0.3747 y=0.3685 u'=0.2246 v'=0.497

Correlated Color Temperature: 4101 K Dominant Wavelength: 579.0 nm(E)

Luminous Flux: 3603.861 lm Purity: 0.2304

Chromaticity Difference: -0.0022Duv Peak Wavelength: 456.6 nm

Color Ratio: Kr=38.0% Kg=51.0% Kb=10.9%

Bandwidth: 27.4nm Radiant Flux: 12.01 W

Rendering Index: Ra=91.0

R1=92	R2=98	R3=96	R4=88	R5=91	R6=94	R7=89	R8=80
R9=56	R10=94	R11=88	R12=69	R13=95	R14=99	R15=89	

Test Flow 2: Goniophotometer Test

Environmental Conditions

Temperature: 25.1℃

Test Equipment

Equipment ID	Equipment Name	Last Calibration Date	Calibration Due Date
GVS-LE-GS003	Goniophotometer	Before Use	Before Use
GVS-LE-PM007	Digtal Power Meter	2015-06-09	2016-06-08
GVS-LE-FS009	Measurement Standard Lamp	2015-08-22	2016-08-21

Test Sample

2285892-S001

Test Method

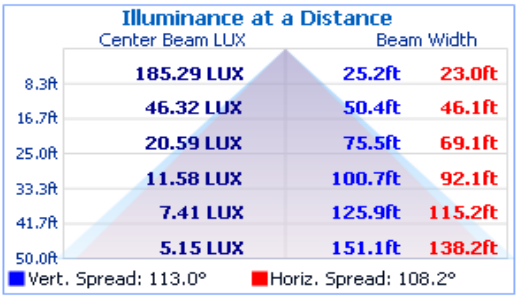
The sample was tested according to the IES LM-79-2008.
Photometric paramters were measured using a type C goniophotometer and software.
The ambient temperature shall be maintained at 25° C ± 1° C, measured at a point not more than 1 m from the sample and at the same height as the sample.
The samples were operated at rated voltage and was stabilized before measurement. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 0.5^{o} vertical intervals and 22.5^{o} horizontal intervals.

Test Results

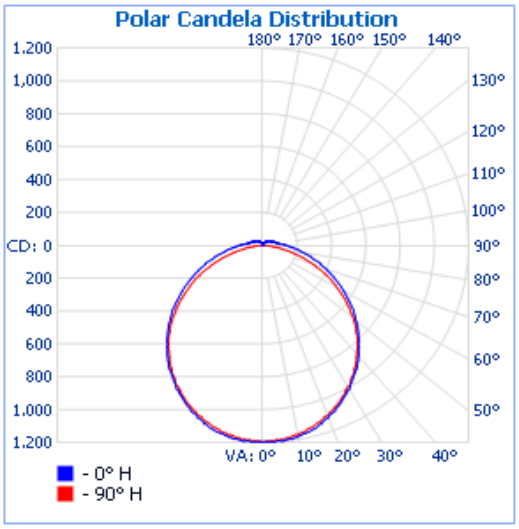
Test Type	Voltage (V AC)	Frequency (Hz)	Current (A)	Power Factor	Power (W)
Input	120.05	60	0.328	0.972	38.3

Test Type	Lumen Output (lm)	Center Beam Candle Power (cd)	Field angle (10%)		Beam angle (50%)		Luminous Efficacy (lm/W)
			Horizontal Spread	Vertical Spread	Horizontal Spread	Vertical Spread	
Output	3610	1195	156.0	184.0	108.2	113.0	94.4

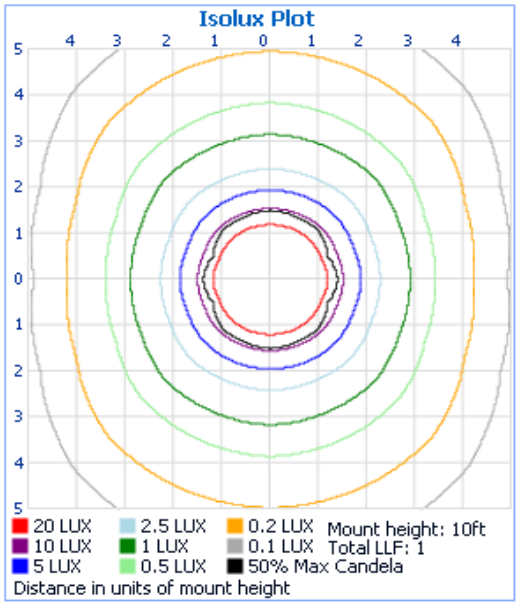
Illuminance at a Distance



Polar Candela Distribution



Isolux Plot



Zonal Lumen Tabulation

Zonal Lumen Summary

Zone	Lumens	% Luminaire
0-30	919.6	25.5%
0-40	1,496.4	41.5%
0-60	2,620.0	72.6%
60-90	807.2	22.4%
70-100	455.1	12.6%
90-120	136.7	3.8%
0-90	3,427.2	94.9%
90-180	182.7	5.1%
0-180	3,609.9	100%

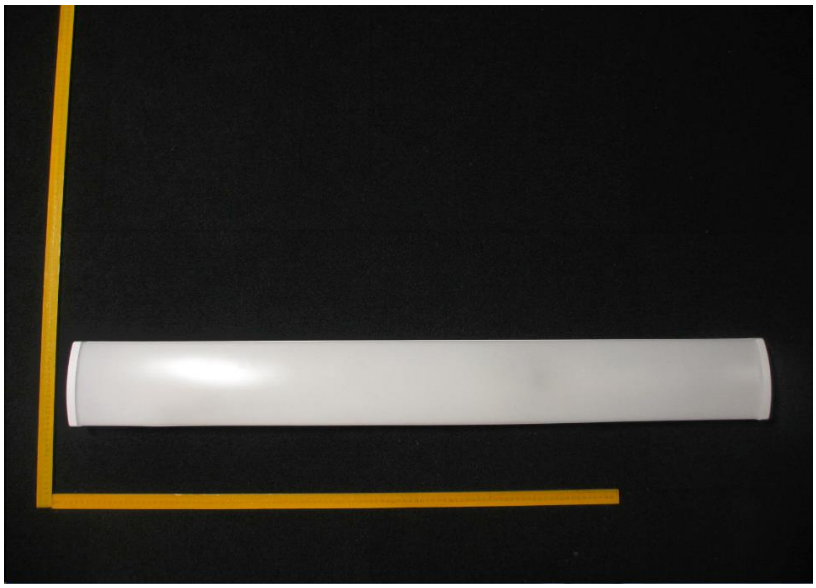
Lumens Per Zone

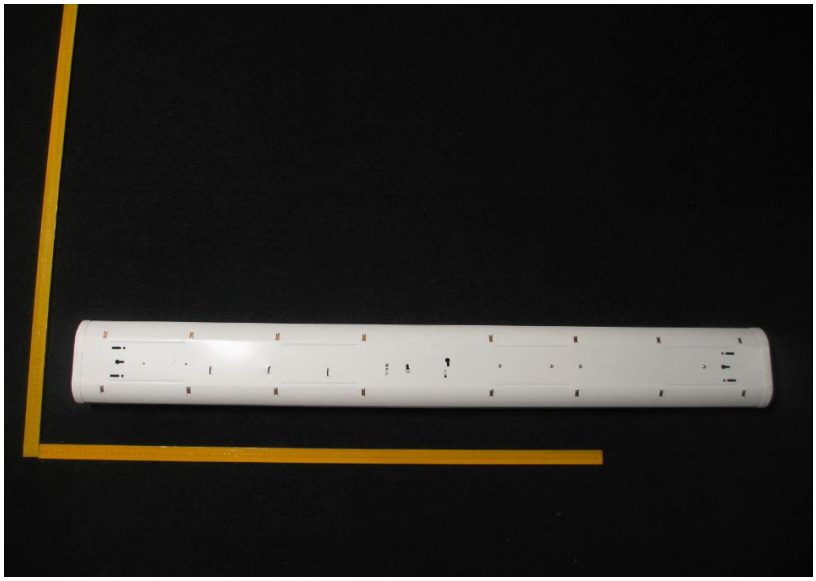
Zone	Lumens	% Total	Zone	Lumens	% Total
0-5	28.5	0.8%	90-95	36.0	1%
5-10	84.5	2.3%	95-100	27.4	0.8%
10-15	137.4	3.8%	100-105	22.5	0.6%
15-20	185.1	5.1%	105-110	19.5	0.5%
20-25	225.8	6.3%	110-115	16.8	0.5%
25-30	258.3	7.2%	115-120	14.5	0.4%
30-35	281.6	7.8%	120-125	12.3	0.3%
35-40	295.2	8.2%	125-130	9.9	0.3%
40-45	298.8	8.3%	130-135	7.9	0.2%
45-50	292.7	8.1%	135-140	6.1	0.2%
50-55	277.6	7.7%	140-145	4.1	0.1%
55-60	254.4	7.0%	145-150	2.7	0.1%
60-65	225.3	6.2%	150-155	1.7	0%
65-70	190.2	5.3%	155-160	0.8	0%
70-75	151.3	4.2%	160-165	0.3	0%
75-80	111.5	3.1%	165-170	0.0	0%
80-85	77.3	2.1%	170-175	0	0%
85-90	51.5	1.4%	175-180	0	0%

Intensity Data(cd)

	0	22.5	45	67.5	90	112.5	135	157.5	180	202.5	225	247.5	270	292.5	315	337.5	360
0	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195	1195
0.5	1200	1199	1195	1191	1195	1191	1195	1199	1200	1199	1195	1191	1195	1191	1195	1199	1200
1	1195	1199	1191	1189	1191	1189	1191	1199	1195	1199	1191	1189	1191	1189	1191	1199	1195
2	1200	1197	1195	1189	1191	1189	1195	1197	1200	1197	1195	1189	1191	1189	1195	1197	1200
3	1200	1193	1193	1189	1195	1189	1193	1193	1200	1193	1193	1189	1195	1189	1193	1193	1200
4	1191	1195	1193	1189	1186	1189	1193	1195	1191	1195	1193	1189	1186	1189	1193	1195	1191
5	1195	1195	1189	1183	1186	1183	1189	1195	1195	1195	1189	1183	1186	1183	1189	1195	1195
6	1195	1189	1189	1183	1191	1183	1189	1189	1195	1189	1189	1183	1191	1183	1189	1189	1195
7	1191	1191	1184	1183	1182	1183	1184	1191	1191	1191	1184	1183	1182	1183	1184	1191	1191
8	1191	1183	1177	1174	1177	1174	1177	1183	1191	1183	1177	1174	1177	1174	1177	1183	1191
9	1183	1164	1168	1162	1172	1169	1173	1183	1183	1195	1186	1170	1172	1169	1173	1183	1183
10	1183	1175	1171	1165	1172	1165	1171	1175	1183	1175	1171	1165	1172	1165	1171	1175	1183
11	1179	1175	1166	1159	1163	1159	1166	1175	1179	1175	1166	1159	1163	1159	1166	1175	1179
12	1171	1169	1157	1155	1158	1155	1157	1169	1171	1169	1157	1155	1158	1155	1157	1169	1171
13	1167	1161	1155	1148	1149	1148	1155	1161	1167	1161	1155	1148	1149	1148	1155	1161	1167
14	1162	1159	1144	1144	1144	1144	1144	1159	1162	1159	1144	1144	1144	1144	1144	1159	1162
15	1158	1147	1146	1135	1140	1135	1146	1147	1158	1147	1146	1135	1140	1135	1146	1147	1158
16	1150	1141	1137	1127	1131	1127	1137	1141	1150	1141	1137	1127	1131	1127	1137	1141	1150
17	1138	1133	1128	1122	1126	1122	1128	1133	1138	1133	1128	1122	1126	1122	1128	1133	1138
18.5	1125	1119	1115	1112	1112	1112	1115	1119	1125	1119	1115	1112	1112	1112	1115	1119	1125
19.5	1117	1115	1106	1101	1103	1101	1106	1115	1117	1115	1106	1101	1103	1101	1106	1115	1117
24.5	1072	1066	1056	1043	1061	1043	1056	1066	1072	1066	1056	1043	1061	1043	1056	1066	1072
29.5	1014	1004	995	983	996	983	995	1004	1014	1004	995	983	996	983	995	1004	1014
34.5	944	941	928	909	941	909	928	941	944	941	928	909	941	909	928	941	944
39.5	878	862	852	834	862	834	852	862	878	862	852	834	862	834	852	862	878
49.5	717	705	694	654	695	654	694	705	717	705	694	654	695	654	694	705	717
54.5	635	624	616	561	602	561	616	624	635	624	616	561	602	561	616	624	635
59.5	548	533	533	473	496	473	533	533	548	533	533	473	496	473	533	533	548
64.5	458	453	452	387	398	387	452	453	458	453	452	387	398	387	452	453	458
69.5	379	366	364	301	292	301	364	366	379	366	364	301	292	301	364	366	379
74.5	301	291	276	211	190	211	276	291	301	291	276	211	190	211	276	291	301
79.5	235	220	195	131	102	131	195	220	235	220	195	131	102	131	195	220	235
84.5	181	164	137	71	32	71	137	164	181	164	137	71	32	71	137	164	181
89.5	136	121	97	37	0	37	97	121	136	121	97	37	0	37	97	121	136
94.5	99	89	67	24	0	24	67	89	99	89	67	24	0	24	67	89	99
99.5	78	71	56	22	0	22	56	71	78	71	56	22	0	22	56	71	78
104.5	70	63	47	17	0	17	47	63	70	63	47	17	0	17	47	63	70
109.5	62	55	47	13	0	13	47	55	62	55	47	13	0	13	47	55	62
114.5	58	53	36	13	0	13	36	53	58	53	36	13	0	13	36	53	58
119.5	54	49	34	9	0	9	34	49	54	49	34	9	0	9	34	49	54
124.5	49	42	25	13	0	13	25	42	49	42	25	13	0	13	25	42	49
129.5	41	36	25	4	0	4	25	36	41	36	25	4	0	4	25	36	41
134.5	33	30	18	6	0	6	18	30	33	30	18	6	0	6	18	30	33
139.5	33	26	13	0	0	0	13	26	33	26	13	0	0	0	13	26	33
144.5	21	22	11	2	0	2	11	22	21	22	11	2	0	2	11	22	21
149.5	21	10	7	0	0	0	7	10	21	10	7	0	0	0	7	10	21
154.5	16	10	7	0	0	0	7	10	16	10	7	0	0	0	7	10	16
159.5	8	6	2	0	0	0	2	6	8	6	2	0	0	0	2	6	8
164.5	8	0	0	0	0	0	0	0	8	0	0	0	0	0	0	0	8
169.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
174.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Photos of sample





End of Test Report