

GENERATION BRANDS, LLC TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

ESSF0606U48225930AW1

PROJECT NUMBER

G104349704

REPORT NUMBER

104349704CHI-048

ISSUE DATE

11/16/2020

REVISED DATE

None

TEST DATES

11/05/2020.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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REPORT NUMBER

104349704CHI-048

MODEL NUMBER(s)

ESSF0606U48225930AW1

REPORT RENDERED TO:

GENERATION BRANDS, LLC
7400 LINDER AVE
SKOKIE, IL 60077
USA

STATEMENT OF LIMITATION

NVLAP Lab Code 600186-0. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

AUTHORIZATION

The testing performed was authorized by signed quote number Qu-01080748-3.

TEST STANDARDS

IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

ANSI NEMA ANSLG C78.377: 2017: Specifications for the Chromaticity of Solid State Lighting (SSL) Products

In Charge of Testing:



Ian Smith
Engineer
Lighting Division

Reviewer:



Jeff Davis
NA Technical Lead
Lighting Division

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SAMPLE INFORMATION

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH10292020032135	ESSF0606U48225930AW 1	ESSENCE 0606 U 300 930 WW	Production	10/29/2020

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	ESSF0606U48225930AW1	1

SUMMARY

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PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	ESSF0606U48225930AW1
Product Description:	ESSENCE 0606 U 300 930 WW
LED Model No.:	U Series 300lm/ft
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	721.9	711.8
Input Power (W) @ 24 (Vdc)	10.80	10.79
Lumen Efficacy (lm/W)	66.8	66.0

Criteria	Results
Input ATHD (%) @ 24 (Vdc)	NA
Correlated Color Temperature (K)	2940
Color Rendering Index - Ra (l)	97.4
Color Rendering Index - R9 (l)	98.9
Duv (l)	-0.0011
Chromaticity Coordinate (x)	0.440
Chromaticity Coordinate (y)	0.402
Chromaticity Coordinate (u')	0.253
Chromaticity Coordinate (v')	0.521

TEST METHODS

SEASONING IN SAMPLE ORIENTATION - LED PRODUCTS

No seasoning was performed in accordance with IESNA LM-79.

INTEGRATING SPHERE TESTING

A spectroradiometer and integrating sphere were used to measure the spectral distribution for each EUT resulting in photometric and colorimetric data. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position inside the sphere and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

A Type C Mirror Goniophotometer system was used to measure the luminous intensity (candela) at each angle of distribution for the EUT. Electrical measurements of the unit were measured using a power analyzer. Each EUT was operated at the rated input voltage of the system in its designated orientation. The ambient temperature was measured at a position near the EUT at equal height and stabilization procedures to LM-79 were followed.

TYPE C GONIOPHOTOMETER DISTRIBUTION TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606U48225930AW1	NA

PHOTOMETRIC AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

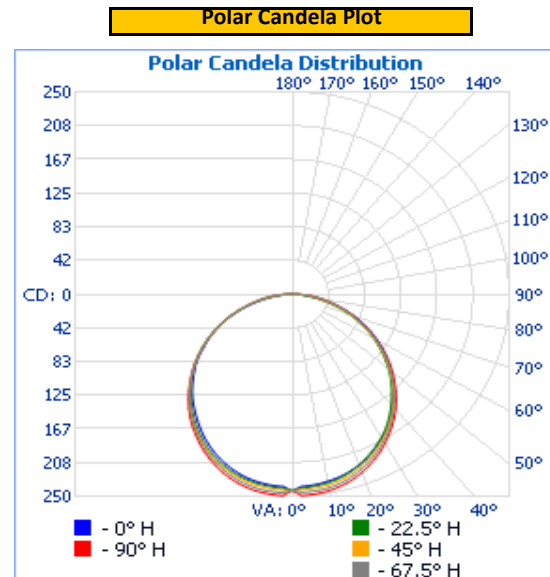
Base Orientation	Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	24.0	449.8	10.80	NA

Light Output (lm)	Lumen Efficacy (lm/W)
721.9	66.8

INTENSITY SUMMARY - CANDELA

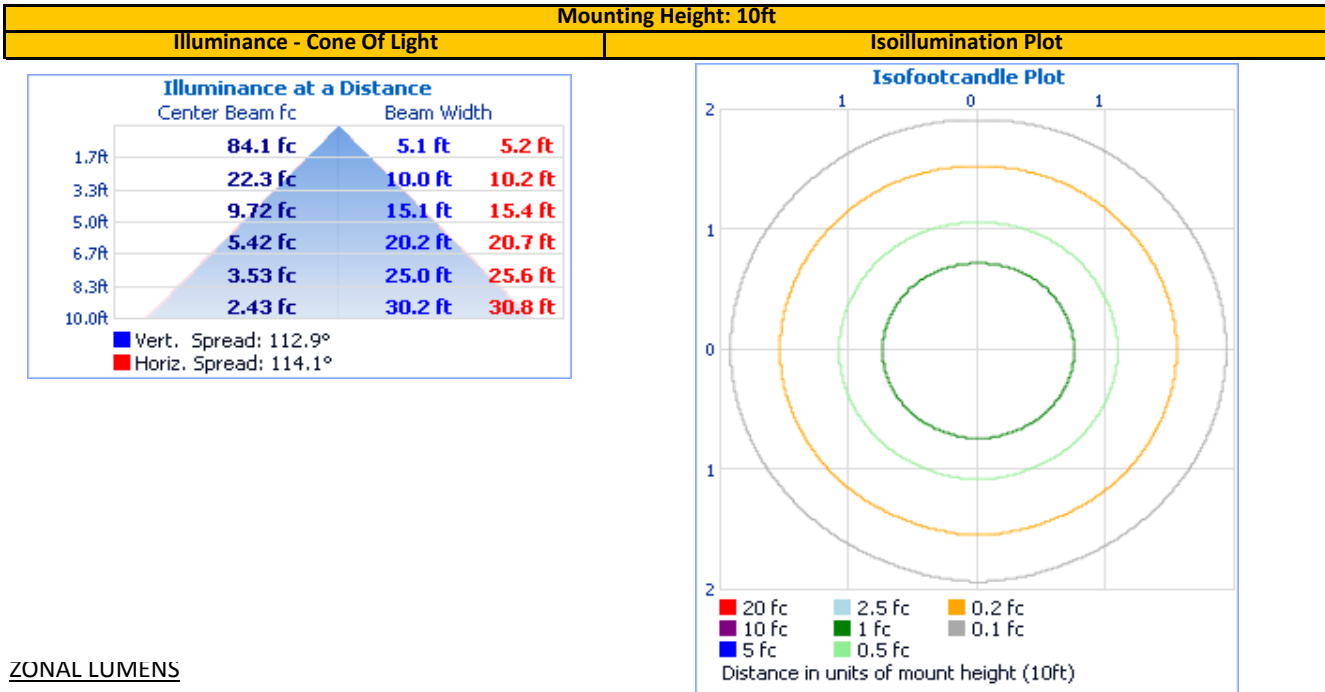
Angle	0	22.5	45	67.5	90
0	243	243	243	243	243
5	238	239	242	245	249
10	235	237	240	243	247
15	231	232	235	238	242
20	225	225	228	231	235
25	216	216	219	222	225
30	206	205	208	211	213
35	194	192	195	198	200
40	179	178	181	182	185
45	164	162	164	166	169
50	148	145	147	149	151
55	131	127	129	130	133
60	112	108	109	111	113
65	92	88	89	91	93
70	72	68	70	72	74
75	50	47	50	52	54
80	30	28	32	35	36
85	12	12	16	20	22
90	0	0	0	0	0
95	0	0	0	0	0
100	0	0	0	0	0
105	0	0	0	0	0
110	0	0	0	0	0
115	0	0	0	0	0
120	0	0	0	0	0
125	0	0	0	0	0
130	0	0	0	0	0
135	0	0	0	0	0
140	0	0	0	0	0
145	0	0	0	0	0
150	0	0	0	0	0
155	0	0	0	0	0
160	0	0	0	0	0
165	0	0	0	0	0
170	0	0	0	0	0
175	0	0	0	0	0
180	0	0	0	0	0

Entire luminous intensity matrix found in .IES file



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ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	190.8	26.4%	90-100	0.0	0.0%
0-40	313.2	43.4%	100-110	0.0	0.0%
0-60	557.4	77.2%	110-120	0.0	0.0%
60-90	164.5	22.8%	120-130	0.0	0.0%
70-100	73.7	10.2%	130-140	0.0	0.0%
90-120	0.0	0.0%	140-150	0.0	0.0%
0-90	721.9	100.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	160-170	0.0	0.0%
0-180	721.9	100.0%	170-180	0.0	0.0%

INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606U48225930AW1	NA

PHOTOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)

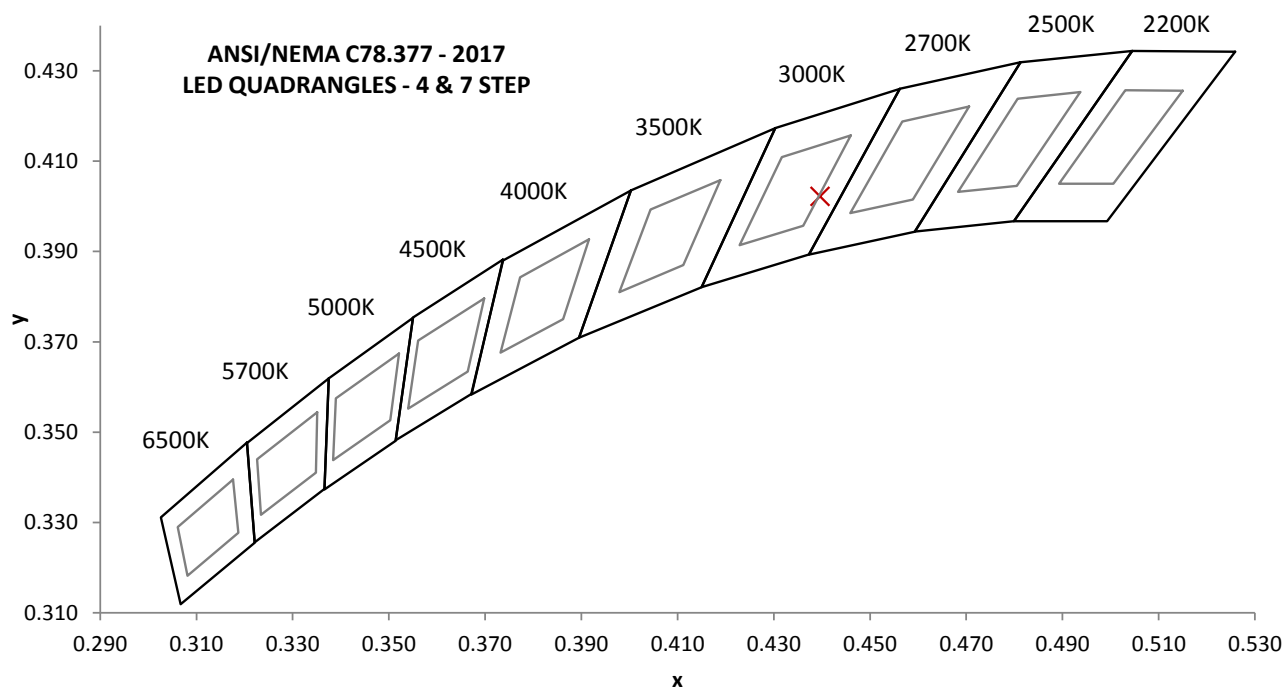
Base Orientation
Up

Input Voltage (Vdc)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
23.99	449.7	10.79	NA	NA

Measured at 23.99(Vdc)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
711.8	66.0	2940	97.4	98.9

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0011	0.440	0.402	0.253	0.521

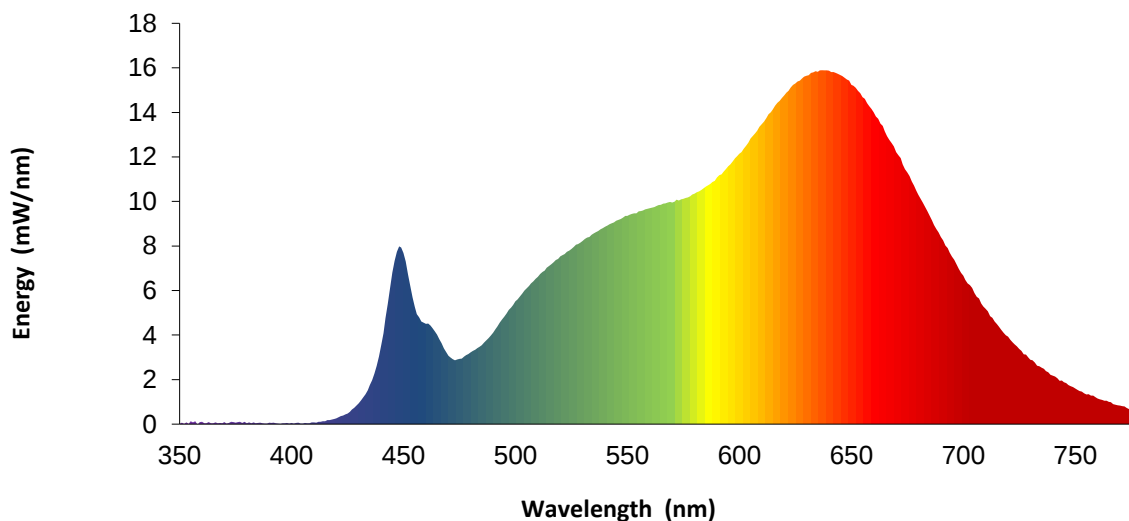


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.0		460	4.5		570	10.0		680	10.3
355	0.1		465	4.0		575	10.1		685	9.4
360	0.1		470	3.1		580	10.3		690	8.4
365	0.0		475	2.9		585	10.7		695	7.5
370	0.1		480	3.2		590	11.1		700	6.7
375	0.1		485	3.5		595	11.6		705	5.9
380	0.0		490	4.1		600	12.1		710	5.2
385	0.0		495	4.8		605	12.8		715	4.5
390	0.1		500	5.5		610	13.5		720	3.9
395	0.0		505	6.1		615	14.1		725	3.4
400	0.1		510	6.6		620	14.8		730	2.9
405	0.0		515	7.1		625	15.3		735	2.5
410	0.1		520	7.5		630	15.6		740	2.2
415	0.1		525	7.9		635	15.8		745	1.9
420	0.3		530	8.2		640	15.9		750	1.6
425	0.5		535	8.6		645	15.7		755	1.3
430	0.9		540	8.9		650	15.2		760	1.2
435	1.8		545	9.1		655	14.7		765	1.0
440	3.5		550	9.3		660	14.0		770	0.8
445	6.8		555	9.6		665	13.2		775	0.7
450	7.7		560	9.7		670	12.2		780	0.6
455	5.3		565	9.9		675	11.3		---	---

Without correction of sample absorption.



Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only

EQUIPMENT LIST

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#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Yokogawa Power Meter	WT210	146919	7/1/2020	7/1/2021
2	Omega Thermometer	DPI8-C24	146920	10/1/2020	10/1/2021
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	146957	12/2/2019	12/2/2020
5	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
6	Labsphere Spectroradiometer	CDS-600	146923	VBU	VBU
7	2M Rotating Sphere	7660-ROT	146923	VBU	VBU
8	Omega thermometer	USB TC08	EQA002615	4/7/2020	4/7/2021
9	Ametek DC Power Supply	XFR150-8	1468464	VBU	VBU
10	Yokogawa Power Meter	WT210	146880	10/1/2020	10/1/2021
11	Chroma Power Supply	61604	CHI0371	VBU	VBU
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Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

REVISION HISTORY

#	Revision Date	Updated By	Reviewed By	Description of Change
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ANNEX A - TM-30 CALCULATIONS

REPORT NO. 104349704CHI-048

Test Configuration	Tested Model No.	Pass/Fail/NA
1	ESSF0606U48225930AW1	NA

TM-30 REPORT

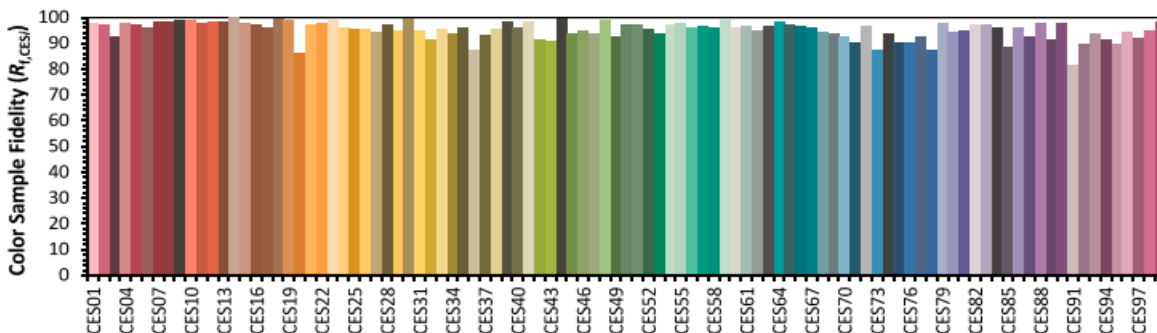
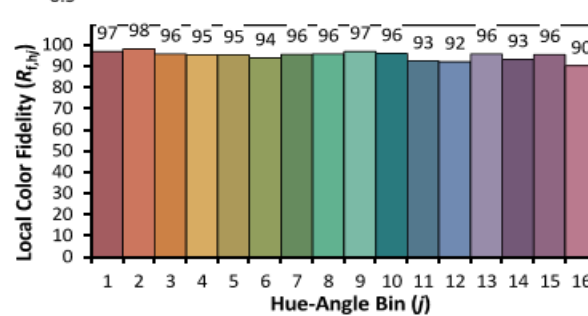
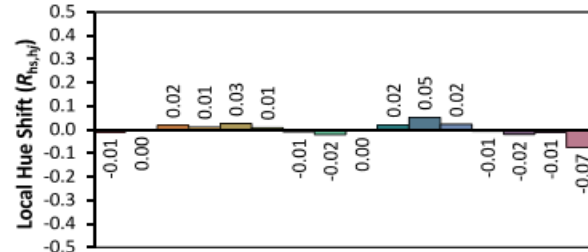
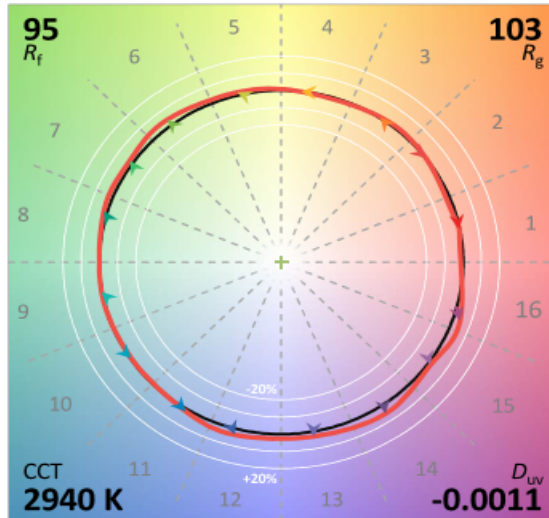
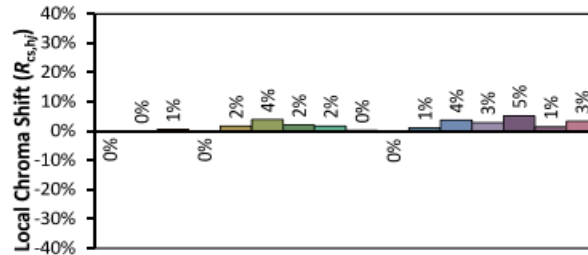
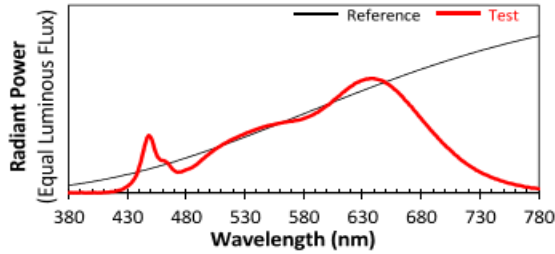
ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD

Manufacturer: Generation Brands, LLC

Date: 11/5/2020

Model: ESSF0606U48225930AW1



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4396
 y 0.4022
 u' 0.2531
 v' 0.5210

Colors are for visual orientation purposes only. Created with the IES TM-30-18 Calculator Version 2.00.