

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

LED Performance Testing

## MODEL NUMBER

700FIA48B-LED930

## PROJECT NUMBER

G104659241

## REPORT NUMBER

104659241CHI-010

## ISSUE DATE

12/30/2022

## REVISED DATE

None

## TEST DATES

12/29/2022.

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

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**REPORT NUMBER**

104659241CHI-010

**MODEL NUMBER(s)**

700FIA48B-LED930

**REPORT RENDERED TO:**

VISUAL COMFORT AND COMPANY  
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-01166088-0.

**TEST STANDARDS**

ANSI/IES LM-79-19 Optical and Electrical Measurements of Solid-State Lighting Products

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

IES TM-30-18: IES Method for Evaluating Light Source Color Rendition

In Charge of Testing:



Tim Quigley  
Lighting Engineer  
Lighting Division

Reviewer:



Jeff Davis  
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**SAMPLE INFORMATION**

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ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH12152022125408	700FIA48B-LED930	Fiams 48 Suspension	Production	12/15/2022

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700FIA48B-LED930	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



## SUMMARY

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### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700FIA48B-LED930
Product Description:	Fiana 48 Suspension
LED Model No.:	700FIA48x-LED930-02-CC
Driver Model No.:	DA50W1400C2036-3001 2pcs
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	4305.1	4487.7
Input Power (W) @ 120 (Vac)	117.11	116.85
Lumen Efficacy (lm/W)	36.8	38.4
Input Power Factor (I) @ 120 (Vac)	0.998	0.998

Criteria	Results
Input ATHD (%) @ 120 (Vac)	5.92
Correlated Color Temperature (K)	3027
Color Rendering Index - Ra (I)	93.4
Color Rendering Index - R9 (I)	62.2
Duv (I)	-0.0027
Chromaticity Coordinate (x)	0.431
Chromaticity Coordinate (y)	0.395
Chromaticity Coordinate (u')	0.251
Chromaticity Coordinate (v')	0.517

## 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	700FIA48B-LED930	NA

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

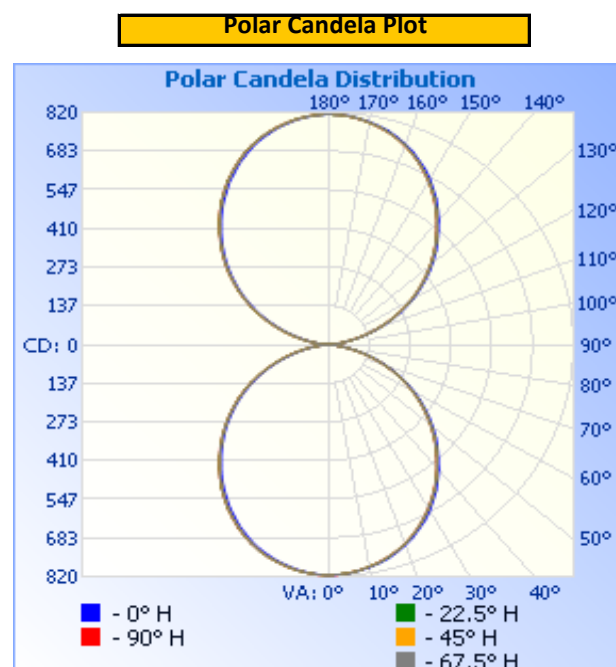
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ( )
Base Up/Down	120.03	977.6	117.11	0.998

Light Output (lm)	Lumen Efficacy (lm/W)
4305.1	36.8

**INTENSITY SUMMARY - CANDELA**

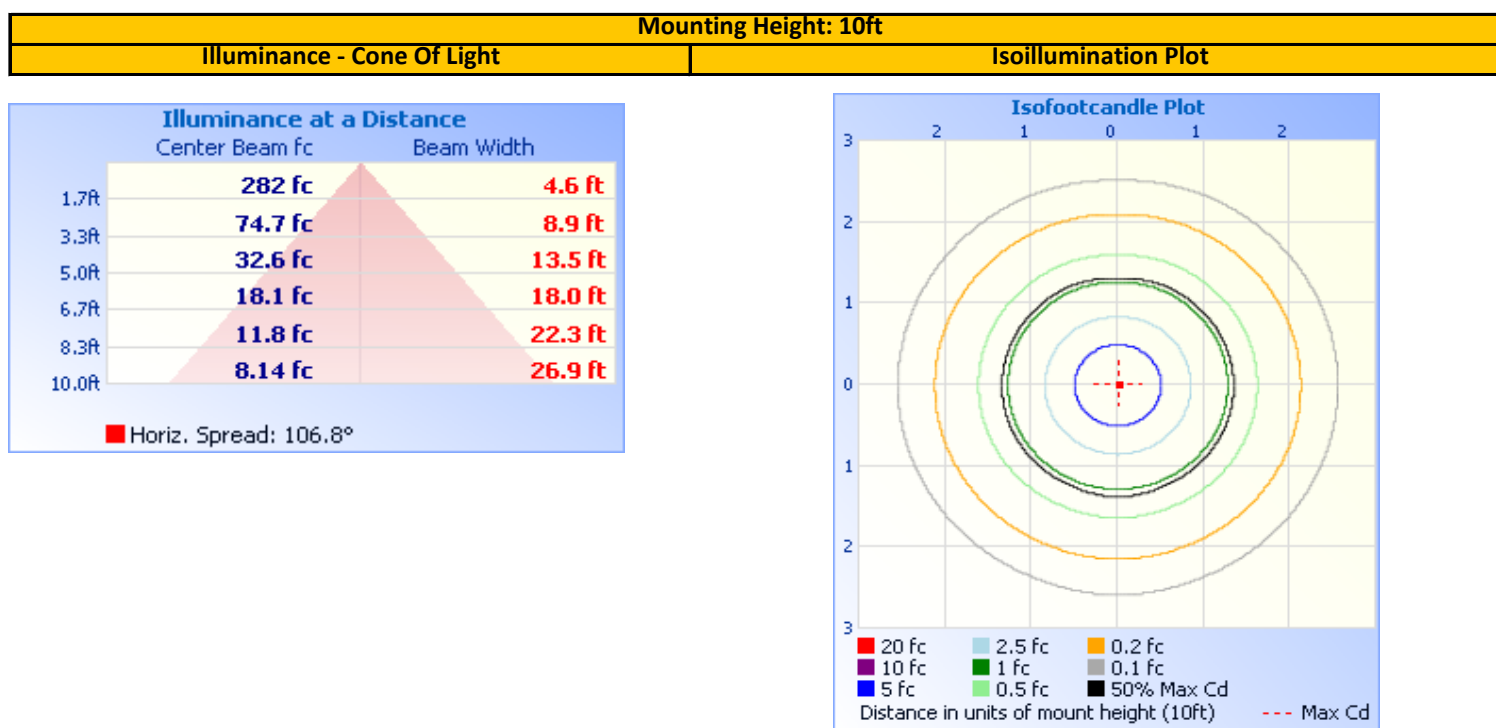
Angle	0	22.5	45	67.5	90
0	814	814	814	814	814
5	810	810	809	810	809
10	799	796	796	797	797
15	781	777	776	776	776
20	754	750	749	749	748
25	718	713	713	713	712
30	678	670	671	670	669
35	629	622	621	621	619
40	575	567	567	566	565
45	517	510	509	509	508
50	458	451	450	449	449
55	396	389	388	387	386
60	332	325	324	324	323
65	266	258	258	257	257
70	197	190	189	189	188
75	128	123	124	123	122
80	67	62	63	62	61
85	20	17	17	17	17
90	2	2	2	2	2
95	20	17	17	17	17
100	67	62	63	62	61
105	128	123	124	123	122
110	197	190	189	189	188
115	266	258	258	257	257
120	332	325	324	324	323
125	396	389	388	387	386
130	458	451	450	449	449
135	517	510	509	509	508
140	575	567	567	566	565
145	629	622	621	621	619
150	678	670	671	670	669
155	718	713	713	713	712
160	754	750	749	749	748
165	781	777	776	776	776
170	799	796	796	797	797
175	810	810	809	810	809
180	814	814	814	814	814

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	623.1	14.5%	0-10	76.8	1.8%
0-40	1,010.1	23.5%	10-20	218.8	5.1%
0-60	1,747.0	40.6%	20-30	327.5	7.6%
60-90	405.8	9.4%	30-40	387.0	9.0%
70-100	177.2	4.1%	40-50	391.6	9.1%
90-120	405.8	9.4%	50-60	345.2	8.0%
0-90	2,152.7	50.0%	60-70	252.7	5.9%
90-180	2,152.3	50.0%	70-80	129.0	3.0%
0-180	4,305.1	100.0%	80-90	24.1	0.6%
			90-100	24.1	0.6%
			100-110	129.0	3.0%
			110-120	252.7	5.9%
			120-130	345.2	8.0%
			130-140	391.5	9.1%
			140-150	386.9	9.0%
			150-160	327.5	7.6%
			160-170	218.7	5.1%
			170-180	76.8	1.8%

## INTEGRATING SPHERE TESTING

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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700FIA48B-LED930	NA

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

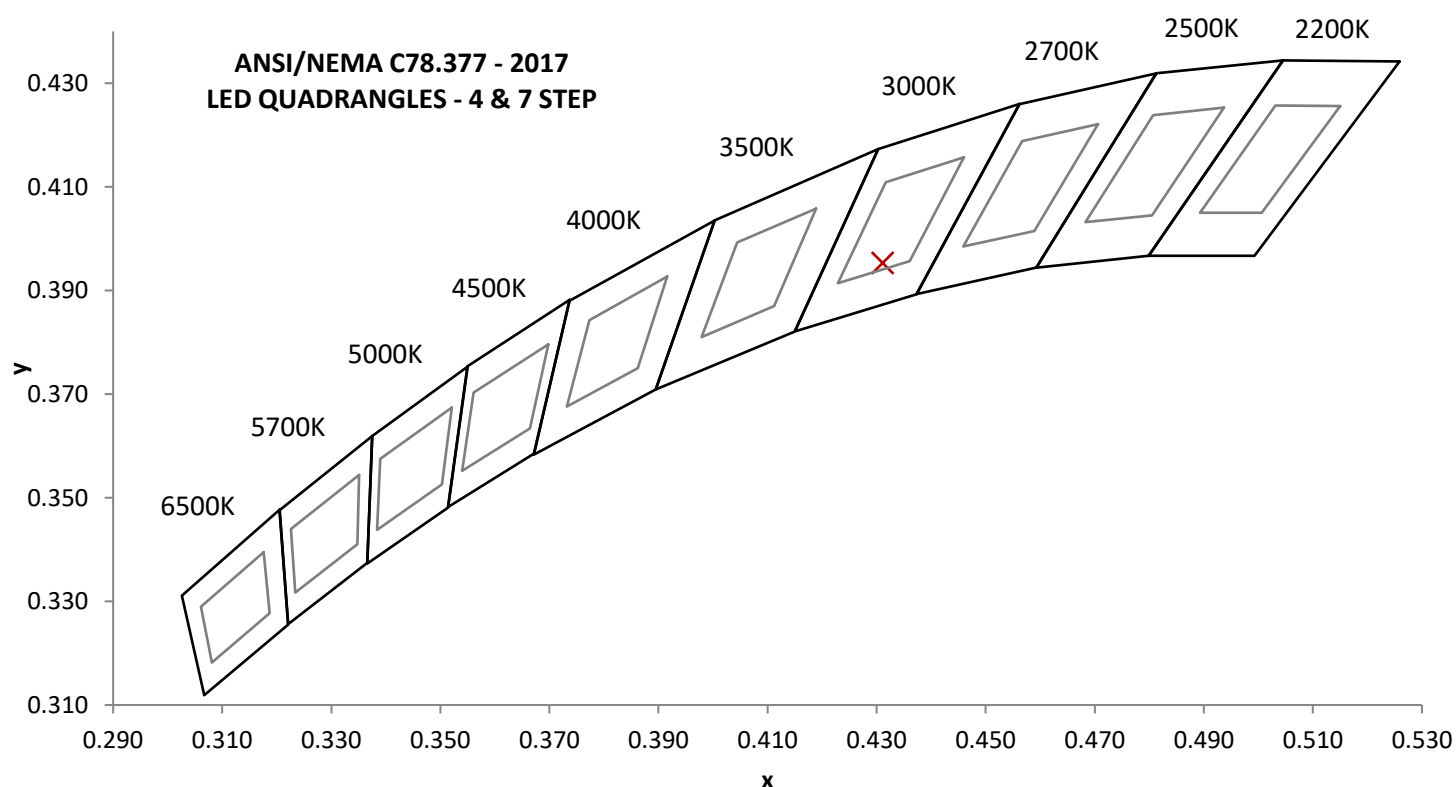
Base Orientation
Base Up/Down

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ( )	Input ATHD (%)
120.00	975.6	116.85	0.998	5.92

## Measured at 120(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ( )	CRI - R9 ( )
4487.7	38.4	3027	93.4	62.2

Duv ( )	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0027	0.431	0.395	0.251	0.517

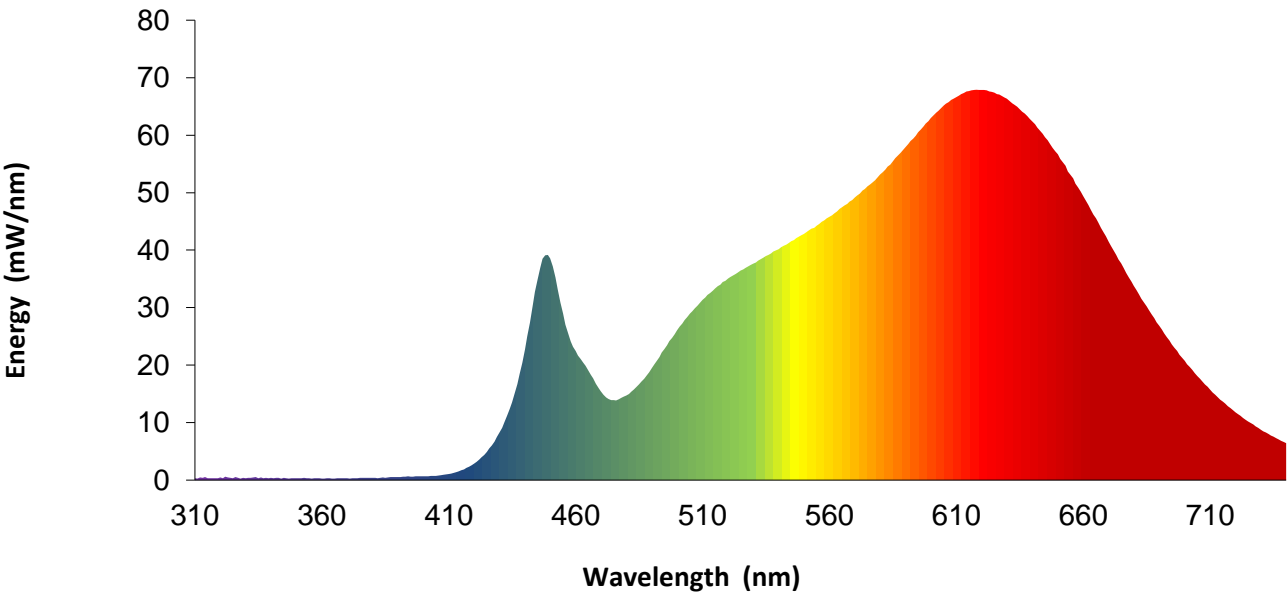


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SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.3		460	2.9		570	37.7		680	62.4
355	0.3		465	4.9		575	39.0		685	59.6
360	0.4		470	8.3		580	40.2		690	56.7
365	0.3		475	13.5		585	41.6		695	53.1
370	0.4		480	22.7		590	42.8		700	49.5
375	0.4		485	34.9		595	44.3		705	45.5
380	0.4		490	38.6		600	45.8		710	41.5
385	0.4		495	28.9		605	47.4		715	37.7
390	0.3		500	22.5		610	49.1		720	33.8
395	0.4		505	19.1		615	51.1		725	30.2
400	0.3		510	15.4		620	53.2		730	26.8
405	0.3		515	13.9		625	55.5		735	23.6
410	0.4		520	14.7		630	58.0		740	20.8
415	0.4		525	16.6		635	60.5		745	18.1
420	0.4		530	19.5		640	63.0		750	15.8
425	0.4		535	22.8		645	65.2		755	13.7
430	0.5		540	26.1		650	66.6		760	11.8
435	0.6		545	29.0		655	67.6		765	10.2
440	0.7		550	31.4		660	67.8		770	8.8
445	0.8		555	33.3		665	67.4		775	7.5
450	1.0		560	35.1		670	66.3		780	6.4
455	1.7		565	36.4		675	64.5		---	---

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	WT310E	CHI0664	3/30/2022	3/30/2023
2	Omega Thermometer	DPI8-C24	146920	10/4/2022	10/4/2023
3	LSI High Speed Mirror Goniometer	6440T	146928	VBU	VBU
4	Newport Thermohygrometer	iServer	CHI0452	2/3/2022	2/3/2023
5	Chroma Power Supply	61604	CHI0371	VBU	VBU
6	Sorenson DC Power Supply	XHR 150-7	146922	VBU	VBU
7	Multi Channel Spectroradiometer	OL770	CHI0092	VBU	VBU
8	Labsphere Spectroradiometer	CDS2600	CHI0539	VBU	VBU
9	3 Meter Sphere	SPR600	CHI0088	VBU	VBU
10	Elgar AC Power Supply	CW1251	146112	VBU	VBU
11	Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
12	Newport Humidity Recorder	iTHX-SD	146379	5/11/2022	5/11/2023
13	Yokogawa Power Meter	WT1600	146769	4/5/2022	4/4/2023
17	Omega thermometer	USB TC08	EQAH002615	4/5/2022	4/5/2023
26	Xitron Power Analyzer	XT-2640	CHI0611	7/6/2022	7/6/2023

Note: Standard sources listed above are traceable to NIST: National Institute of Standards and Technology

**REVISION HISTORY**

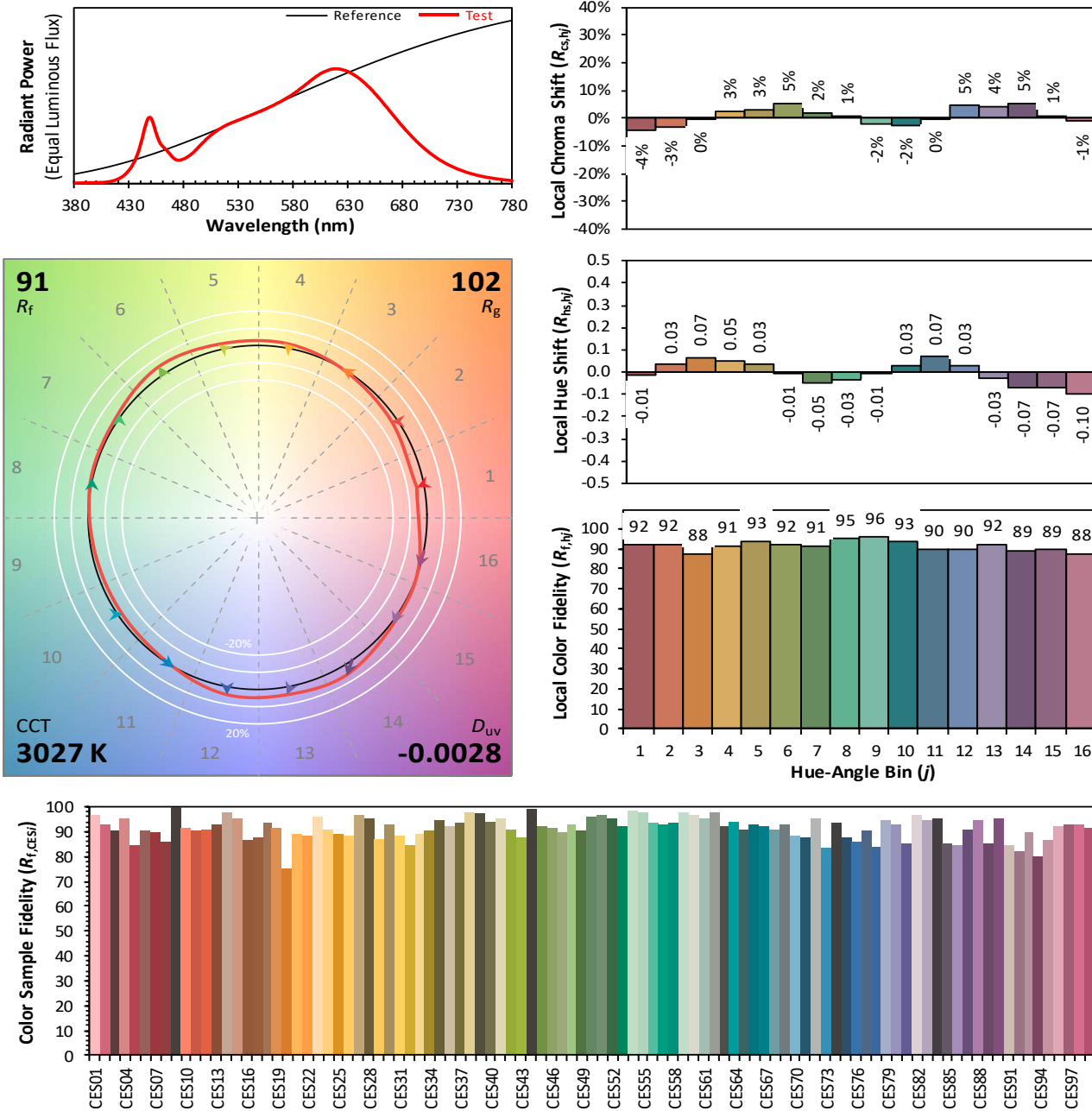
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Test Configuration	Tested Model No.	Pass/Fail/NA
1	700FIA48B-LED930	NA

ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD  
Date: 12/29/2022

Manufacturer: VISUAL COMFORT AND COMPANY  
Model: 700FIA48B-LED930



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

$x$ 0.4311

$y$ 0.3952

$u'$ 0.2506

$v'$ 0.5170

CIE 13.3-1995 (CRI)

$R_a$ 93

$R_g$ 62