

VISUAL COMFORT AND COMPANY TEST REPORT

SCOPE OF WORK

LED Performance Testing

MODEL NUMBER

700OBT36NB-LED927

PROJECT NUMBER

G105221021

REPORT NUMBER

105221021CHI-001

ISSUE DATE

10/7/2022

REVISED DATE

None

TEST DATES

2022-10-03 through 2022-10-06.

DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2017 INTERTEK



REPORT NUMBER

105221021CHI-001

MODEL NUMBER(s)

7000BT36NB-LED927

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-01297671-0.

TEST STANDARDS

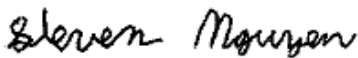
IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting

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:



Steven Nguyen
Engineer
Lighting Division

Reviewer:



Jeff Davis
N.A. Technical Lead
Lighting Division

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

SAMPLE INFORMATION

REPORT NO. 105221021CHI-001

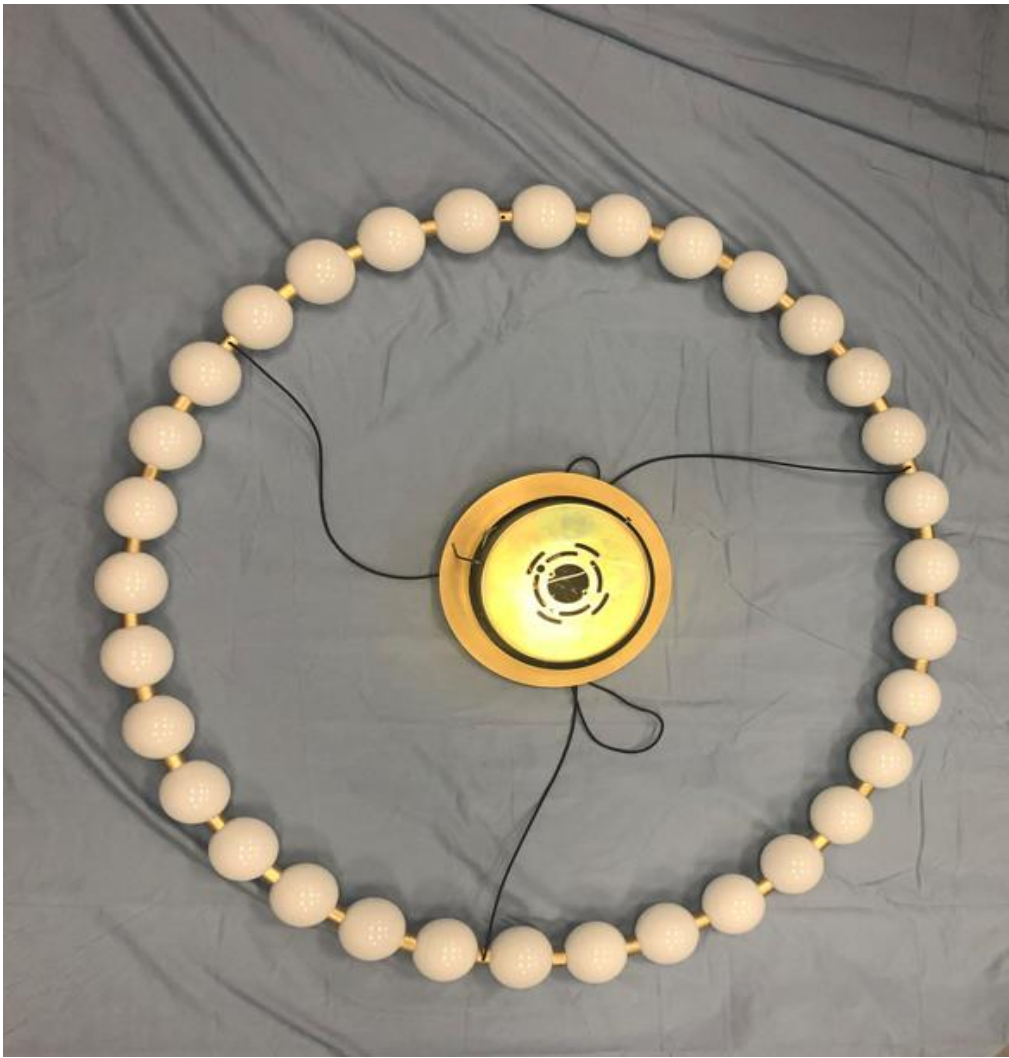
ITEMS RECEIVED

Item No.	Control No.	Model No.	Description	Type	Received
1	AH10062021124223	700OBT36NB-LED927	Orbet 36 Chandelier	Production	10/6/2021

TESTED SAMPLE CONFIGURATIONS

Config No.	Tested Model No.	Item Nos. Utilized
1	700OBT36NB-LED927	1

SAMPLE PHOTOS - TESTED CONFIGURATIONS



SUMMARY

REPORT NO. 105221021CHI-001

PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	700OBT36NB-LED927
Product Description:	Orbet 36 Chandelier
LED Model No.:	GL-24-F447N-A
Driver Model No.:	GBLD001
Light Source:	LED

Criteria	Results	
	Goniophotometer	Integrating Sphere
Light Output (lumens)	2635.3	2669.2
Input Power (W) @ 120VAC (Vac)	43.06	43.30
Lumen Efficacy (lm/W)	61.2	61.6
Input Power Factor () @ 120VAC (Vac)	0.991	0.991

Criteria	Results
Input ATHD (%) @ 120VAC (Vac)	9.39
Correlated Color Temperature (K)	2657
Color Rendering Index - Ra ()	93.5
Color Rendering Index - R9 ()	62.8
Duv ()	-0.0016
Chromaticity Coordinate (x)	0.461
Chromaticity Coordinate (y)	0.406
Chromaticity Coordinate (u')	0.265
Chromaticity Coordinate (v')	0.526
Input Power (W) @ (Vac)	43.20
Input Power Factor () @ (Vac)	0.897
Input ATHD (%) @ (Vac)	19.48

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

REPORT NO. 105221021CHI-001

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700OBT36NB-LED927	NA

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

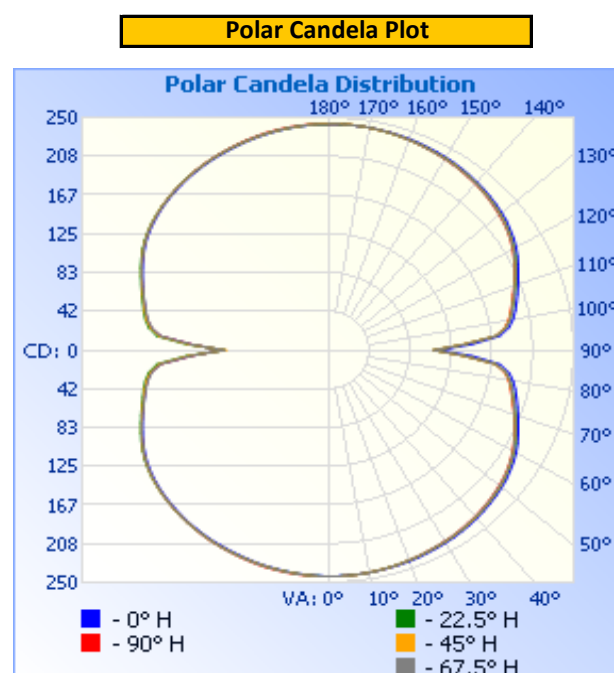
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()
Up	120.01	362.2	43.06	0.991

Light Output (lm)	Lumen Efficacy (lm/W)
2635.3	61.2

INTENSITY SUMMARY - CANDELA

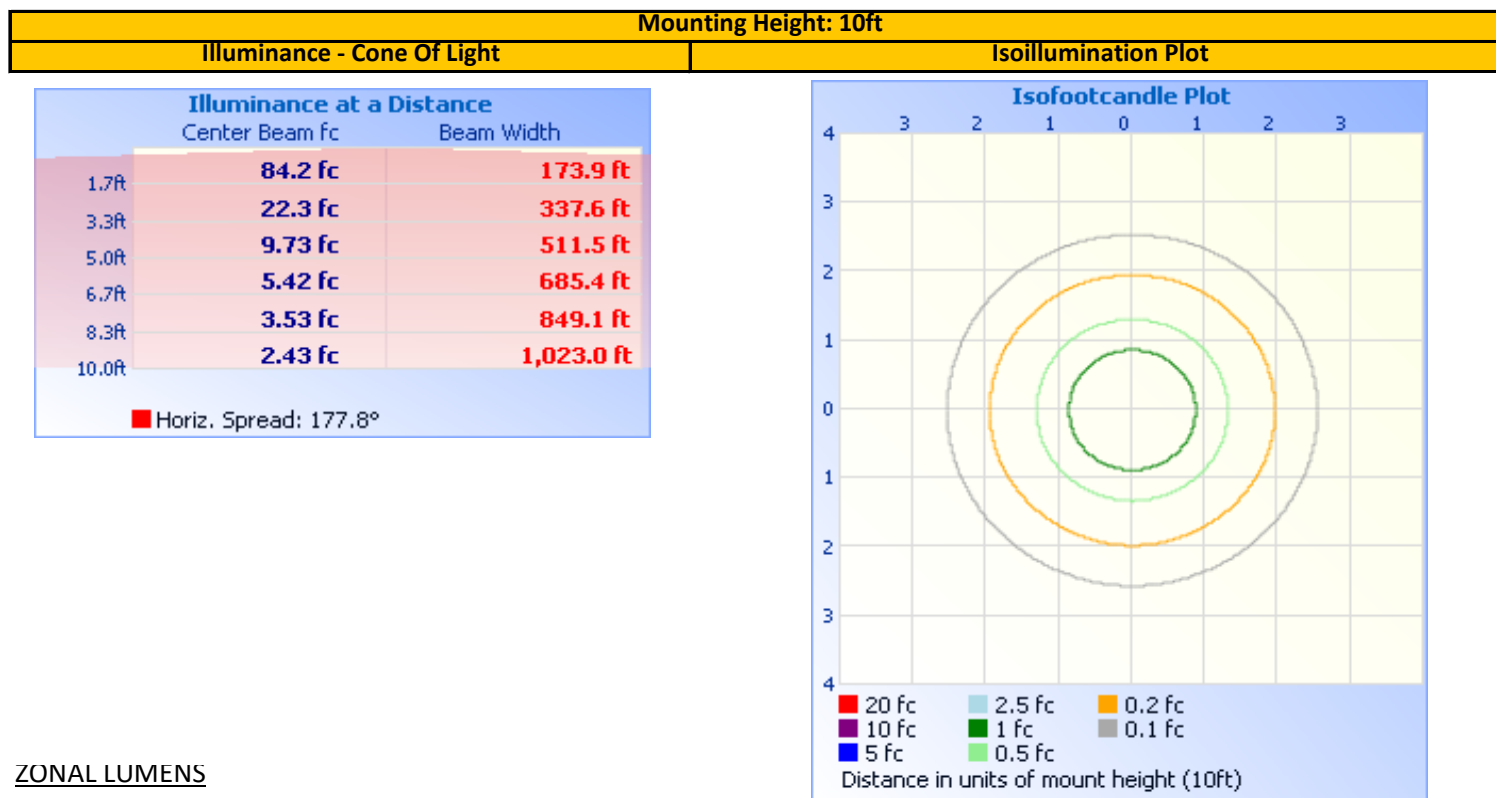
Angle	0	22.5	45	67.5	90
0	243	243	243	243	243
5	243	243	243	243	243
10	243	243	243	243	243
15	242	242	242	242	242
20	242	241	241	241	240
25	241	239	239	239	239
30	239	238	238	237	237
35	238	236	236	236	235
40	236	234	234	234	233
45	233	232	231	231	230
50	230	228	228	228	227
55	226	224	224	223	223
60	221	219	218	217	217
65	214	211	210	210	209
70	206	203	202	202	201
75	199	195	194	195	194
80	191	188	187	188	187
85	176	171	171	171	171
90	113	108	107	107	108
95	176	171	171	171	171
100	191	188	187	188	187
105	199	195	194	195	194
110	206	203	202	202	201
115	214	211	210	210	209
120	221	219	218	217	217
125	226	224	224	223	223
130	230	228	228	228	227
135	233	232	231	231	230
140	236	234	234	234	233
145	238	236	236	236	235
150	239	238	238	237	237
155	241	239	239	239	239
160	242	241	241	241	240
165	242	242	242	242	242
170	243	243	243	243	243
175	243	243	243	243	243
180	243	243	243	243	243

Entire luminous intensity matrix found in .IES file



REPORT NO. 105221021CHI-001

ILLUMINANCE SUMMARY



ZONAL LUMENS

Zonal Lumen Summary					
Zone	Lumens	Luminaire	Zone	Lumens	Total
0-30	202.1	7.7%	90-100	174.9	6.6%
0-40	350.1	13.3%	100-110	205.9	7.8%
0-60	728.8	27.7%	110-120	208.2	7.9%
60-90	589.0	22.3%	120-130	200.1	7.6%
70-100	555.6	21.1%	130-140	178.6	6.8%
90-120	589.0	22.3%	140-150	147.9	5.6%
0-90	1,317.7	50.0%	150-160	110.5	4.2%
90-180	1,317.6	50.0%	160-170	68.4	2.6%
0-180	2,635.3	100.0%	170-180	23.2	0.9%

INTEGRATING SPHERE TESTING

REPORT NO. 105221021CHI-001

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700OBT36NB-LED927	NA

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

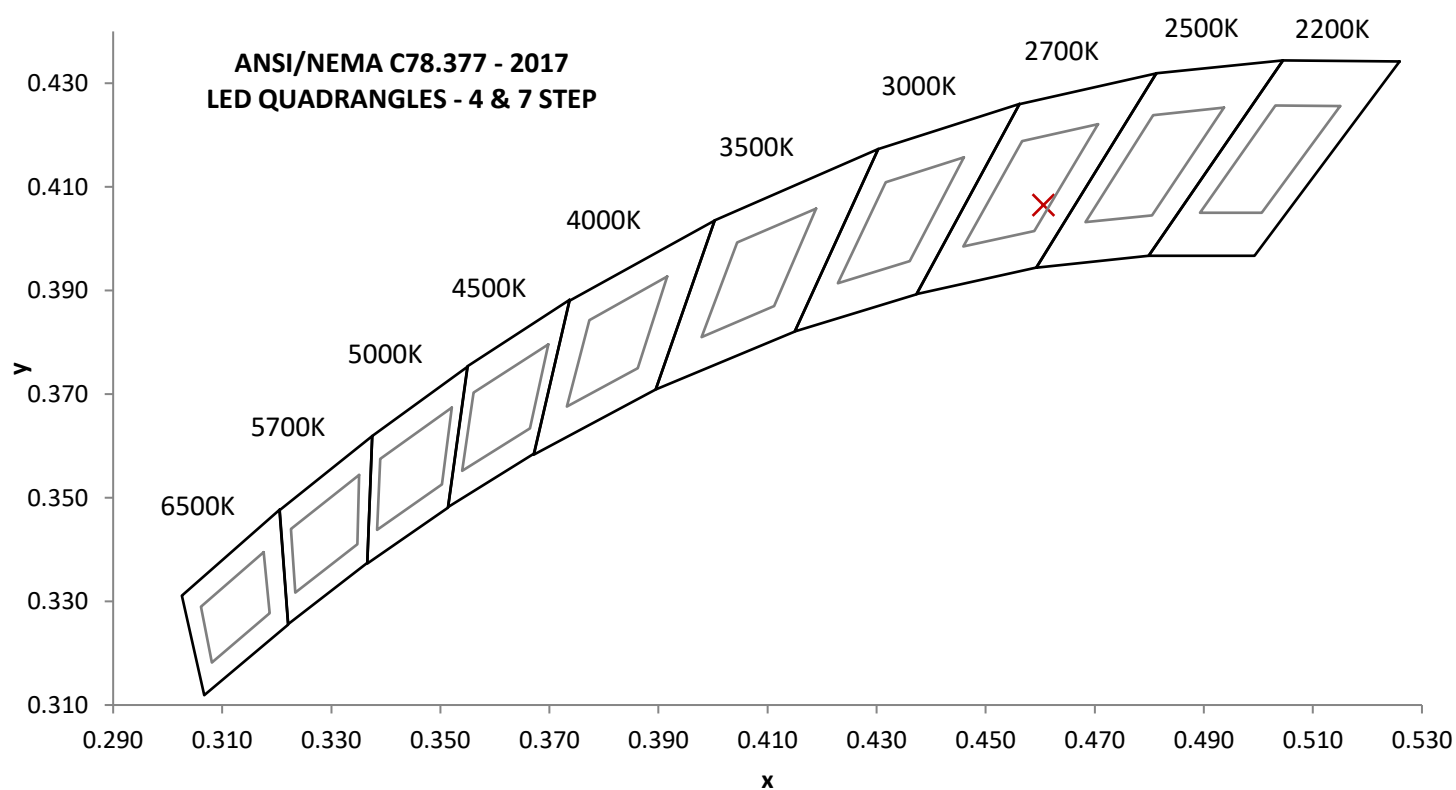
Base Orientation
Up

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ()	Input ATHD (%)
120.00	364.0	43.30	0.991	9.39
276.98	173.8	43.20	0.897	19.48

Measured at 120(Vac)

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ()	CRI - R9 ()
2669.2	61.6	2657	93.5	62.8

Duv ()	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0016	0.461	0.406	0.265	0.526

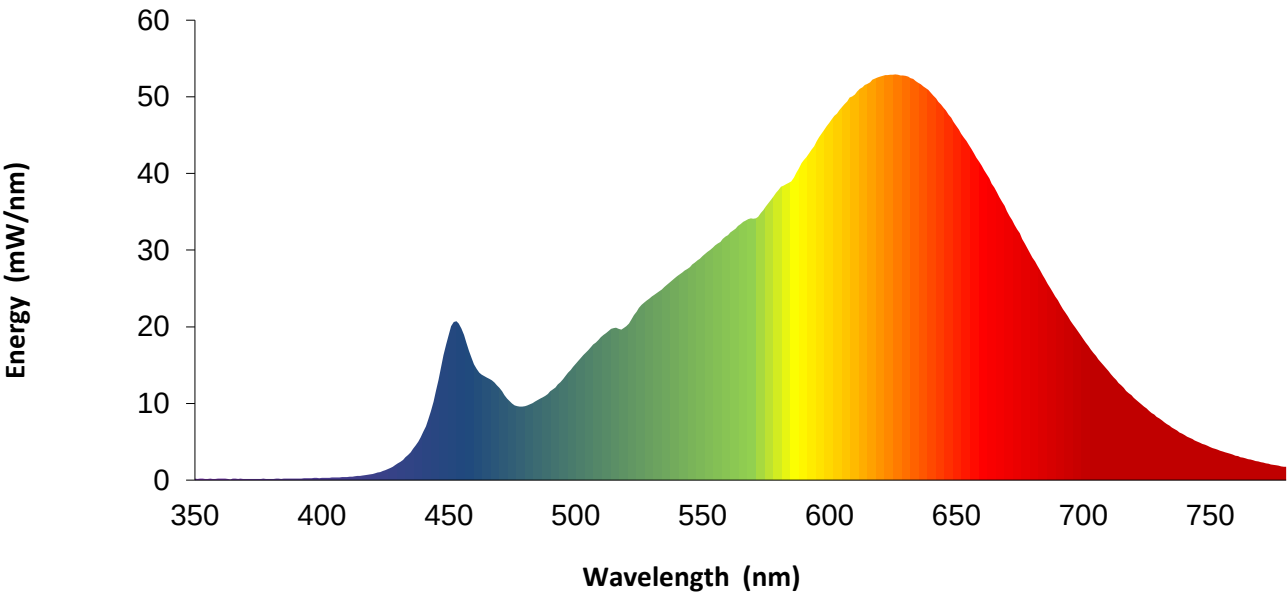


REPORT NO. 105221021CHI-001

SPECTRAL DISTRIBUTION OVER WAVELENGTHS

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.2		460	15.1		570	34.1		680	29.0
355	0.2		465	13.4		575	35.7		685	26.2
360	0.2		470	12.0		580	37.9		690	23.5
365	0.2		475	10.0		585	39.0		695	20.8
370	0.1		480	9.7		590	41.8		700	18.5
375	0.1		485	10.4		595	44.2		705	16.2
380	0.2		490	11.6		600	46.6		710	14.2
385	0.2		495	13.2		605	48.7		715	12.4
390	0.2		500	15.2		610	50.3		720	10.7
395	0.3		505	17.0		615	51.7		725	9.4
400	0.3		510	18.6		620	52.6		730	8.1
405	0.3		515	19.8		625	52.9		735	6.9
410	0.4		520	20.1		630	52.7		740	5.9
415	0.6		525	22.5		635	51.8		745	5.0
420	0.8		530	24.0		640	50.5		750	4.3
425	1.3		535	25.2		645	48.6		755	3.7
430	2.2		540	26.6		650	46.2		760	3.2
435	3.6		545	27.8		655	43.7		765	2.7
440	6.3		550	29.2		660	41.0		770	2.3
445	11.6		555	30.6		665	38.2		775	2.0
450	19.0		560	31.9		670	35.1		780	1.7
455	19.8		565	33.4		675	32.2		---	---

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

REPORT NO. 105221021CHI-001

#	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
8	Newport Humidity Recorder	iTHX-SD	10/8/2300	5/11/2022	5/11/2023
9	Labsphere Spectroradiometer	CDS2600	CHI0539	VBU	VBU
10	3 Meter Sphere	SPR600	CHI0088	VBU	VBU
11	Elgar AC Power Supply	CW1251	146112	VBU	VBU
12	Sorenson DC Power Supply	XFR150-8	146846	VBU	VBU
13	Yokogawa Power Meter	WT1600	146769	4/5/2022	4/5/2023
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

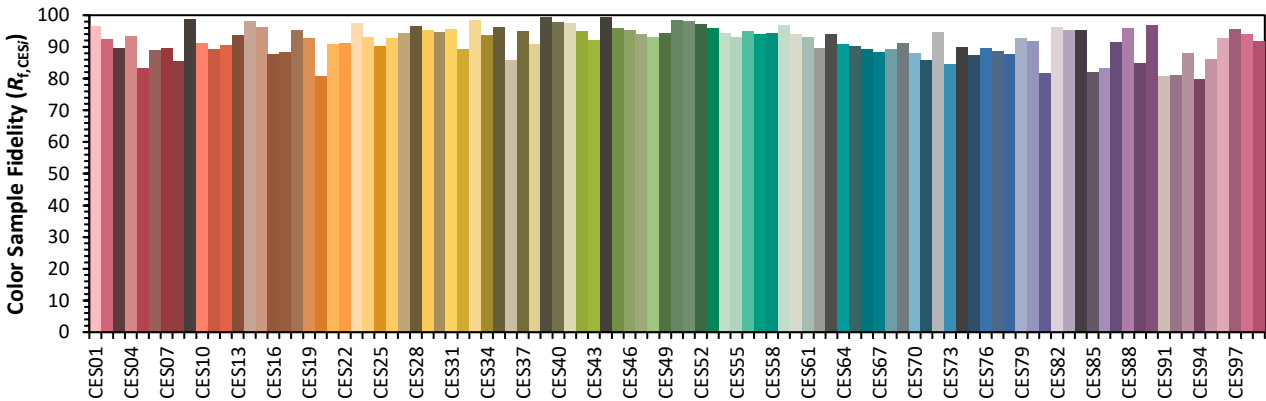
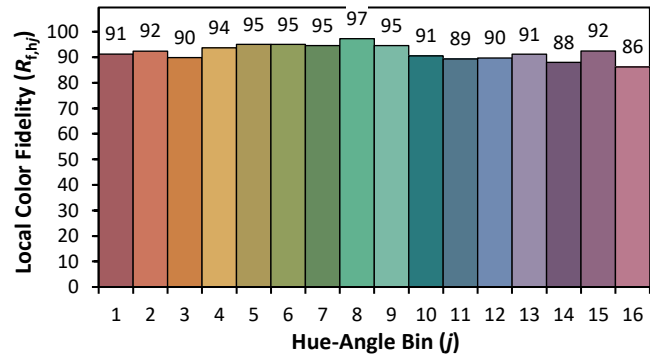
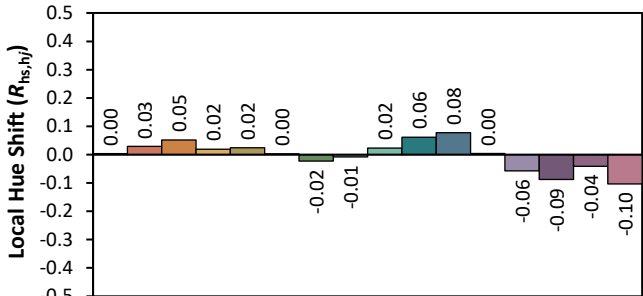
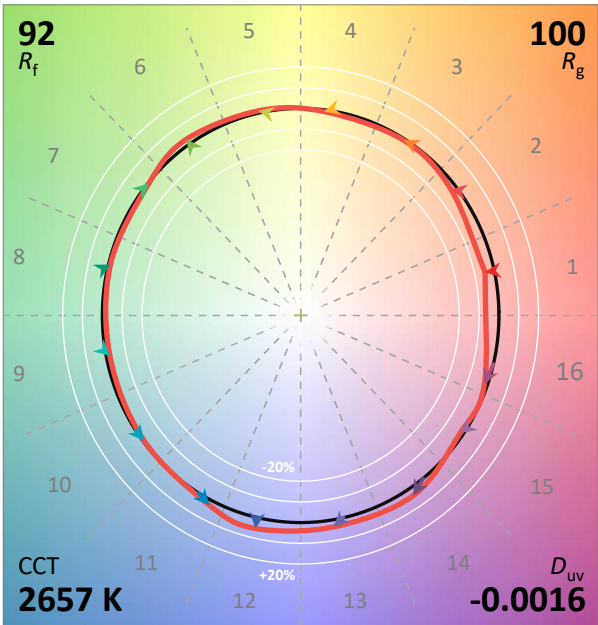
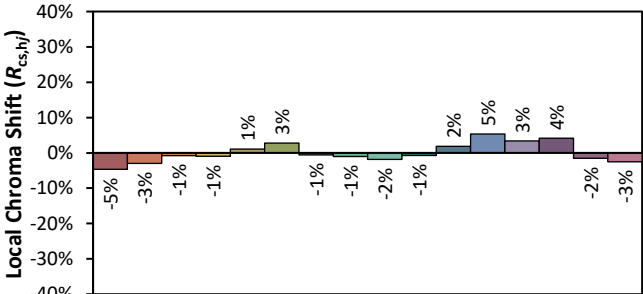
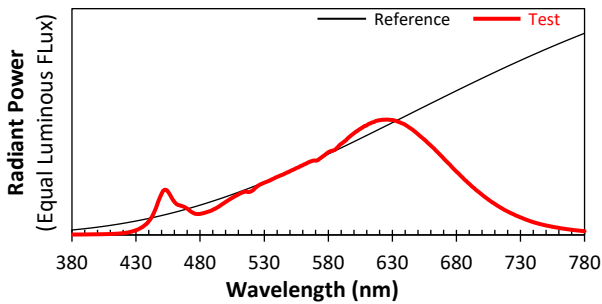
#	Revision Date	Updated By	Reviewed By	Description of Change
---	None	---	---	---
---	---	---	---	---
---	---	---	---	---

Test Configuration	Tested Model No.	Pass/Fail/NA
1	700OBT36NB-LED927	NA

ANSI/IES TM-30-18 Color Rendition Report

Source: User SPD
Date: 10/3/2022

Manufacturer: VISUAL COMFORT AND COMPANY
Model: 700OBT36NB-LED927



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

x 0.4606
y 0.4064
u' 0.2649
v' 0.5259