

# VISUAL COMFORT AND COMPANY TEST REPORT

## SCOPE OF WORK

Performance Testing for Luminaires

## MODEL NUMBER

E3SRF-LO9302A w/ E3SLB-OW

## PROJECT NUMBER

G104622548

## REPORT NUMBER

104622548CRT-006

## ISSUE DATE

9/21/2021

## REVISED DATE

None

## TEST DATES

9/17/21 through 9/21/21

## DOCUMENT CONTROL NUMBER

RTTDS-R-AMER-Test-3407

© 2017 INTERTEK



**REPORT NUMBER**

104622548CRT-006

**MODEL NUMBER(s)**

E3SRF-LO9302A w/ E3SLB-OW

**REPORT RENDERED TO:**

VISUAL COMFORT AND COMPANY  
7400 LINDER AVE  
SKOKIE, IL 60077  
USA

**STATEMENT OF LIMITATION**

NVLAP Lab Code 100402-0. 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-01154433-0.

**TEST STANDARDS**

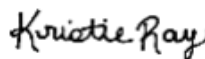
IESNA LM-79 - 2008: Electrical and Photometric Measurements of Solid State Lighting  
ANSI NEMA ANSLG C78.377: 2017: Specifications of the Chromaticity of Solid State Lighting Products

In Charge of Testing:



Gerald Gray  
Associate Engineer  
Lighting Division

Reviewer:



Kristie Ray  
Team Lead, Engineering  
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. 104622548CRT-006**

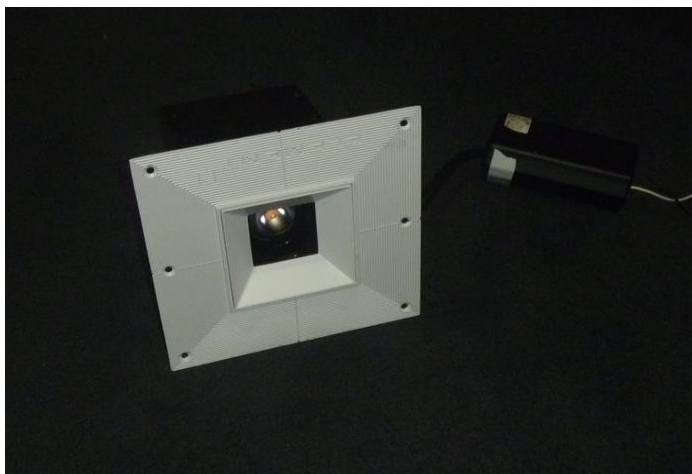
**ITEMS RECEIVED**

Item No.	Control No.	Model No.	Description	Type	Received
1	CRT2109100744-001-1	--	Housing w/PTB15W-0300-38-VCC	Production	9/10/2021
2	CRT2109100744-001-9	--	3000K LED	Production	9/10/2021
3	CRT2109100744-001-16	--	20° Lens	Production	9/10/2021
4	CRT2109100744-001-19	--	Trim with Lens	Production	9/10/2021

**TESTED SAMPLE CONFIGURATIONS**

Config No.	Tested Model No.	Item Nos. Utilized
1	E3SRF-LO9302A w/ E3SLB-OW	1,2,3,4

**SAMPLE PHOTOS - TESTED CONFIGURATIONS**



## SUMMARY

REPORT NO. 104622548CRT-006

### PRODUCT INFORMATION AND SUMMARY OF DATA

Product Model No.:	E3SRF-LO9302A w/ E3SLB-OW
Product Description:	E3 IC REMODEL-930-20DEG-NO LENS
LED Model No.:	Bridgelux® Gen 8 V10 Array Series
Driver Model No.:	PTB15W-0300-38-VCC
Light Source:	LED
CEC Product Type:	Inseparable

Criteria	Results
Light Output (lumens)	705.5
Input Power (W)	11.10
Lumen Efficacy (lm/W)	63.6
Input Power Factor ( )	0.987
Correlated Color Temperature (K)	2976
Color Rendering Index - Ra ( )	91.9
Color Rendering Index - R9 ( )	73.1
Duv ( )	-0.0015
Chromaticity Coordinate (x)	0.436
Chromaticity Coordinate (y)	0.400
Chromaticity Coordinate (u')	0.252
Chromaticity Coordinate (v')	0.520

### 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. 104622548CRT-006**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	E3SRF-LO9302A w/ E3SLB-OW	NA

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

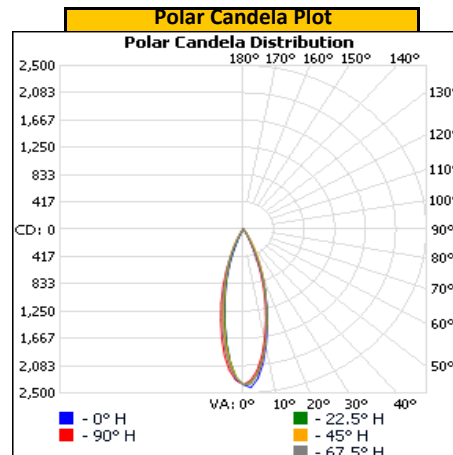
Base Orientation	Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ( )
Up	120.02	93.0	11.04	0.989

Light Output (lm)	Lumen Efficacy (lm/W)
691.3	62.6

**INTENSITY SUMMARY - CANDELA**

Angle	0	22.5	45	67.5	90
0	2371	2371	2371	2371	2371
5	2287	2223	2223	2206	2164
10	1794	1751	1760	1747	1691
15	1248	1219	1220	1211	1165
20	764	778	796	754	679
25	352	391	463	357	295
30	138	158	219	134	102
35	52	64	66	51	36
40	10	21	31	17	8
45	0	1	12	1	0
50	0	0	0	0	0
55	0	0	0	0	0
60	0	0	0	0	0
65	0	0	0	0	0
70	0	0	0	0	0
75	0	0	0	0	0
80	0	0	0	0	0
85	0	0	0	0	0
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



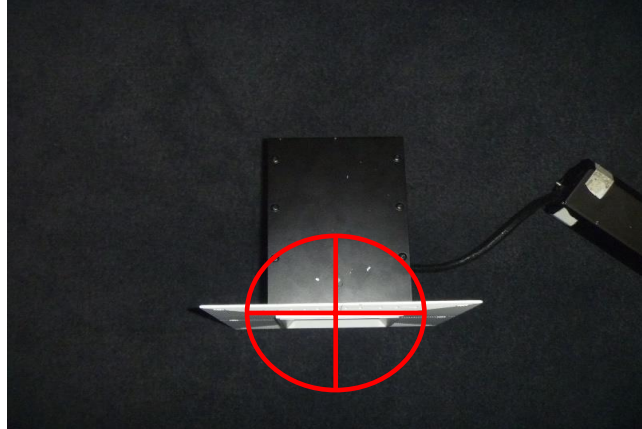
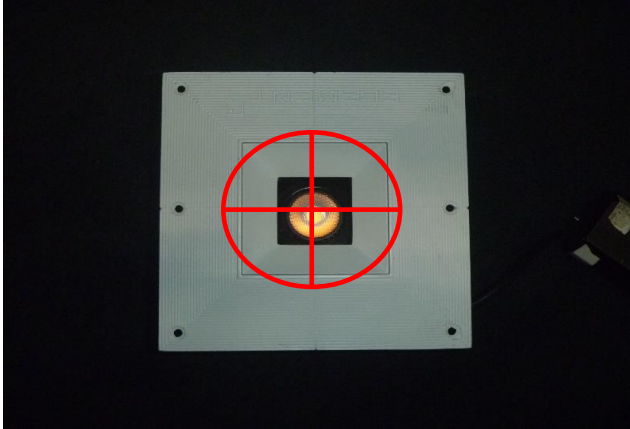
REPORT NO. 104622548CRT-006

ORIENTATION AND ALIGNMENT OF EUT

Luminous Opening		
Length (ft)	Width (ft)	Height (ft)
0.29	0.29	0.00
0°-180° H	90°-270° H	0°-180° V

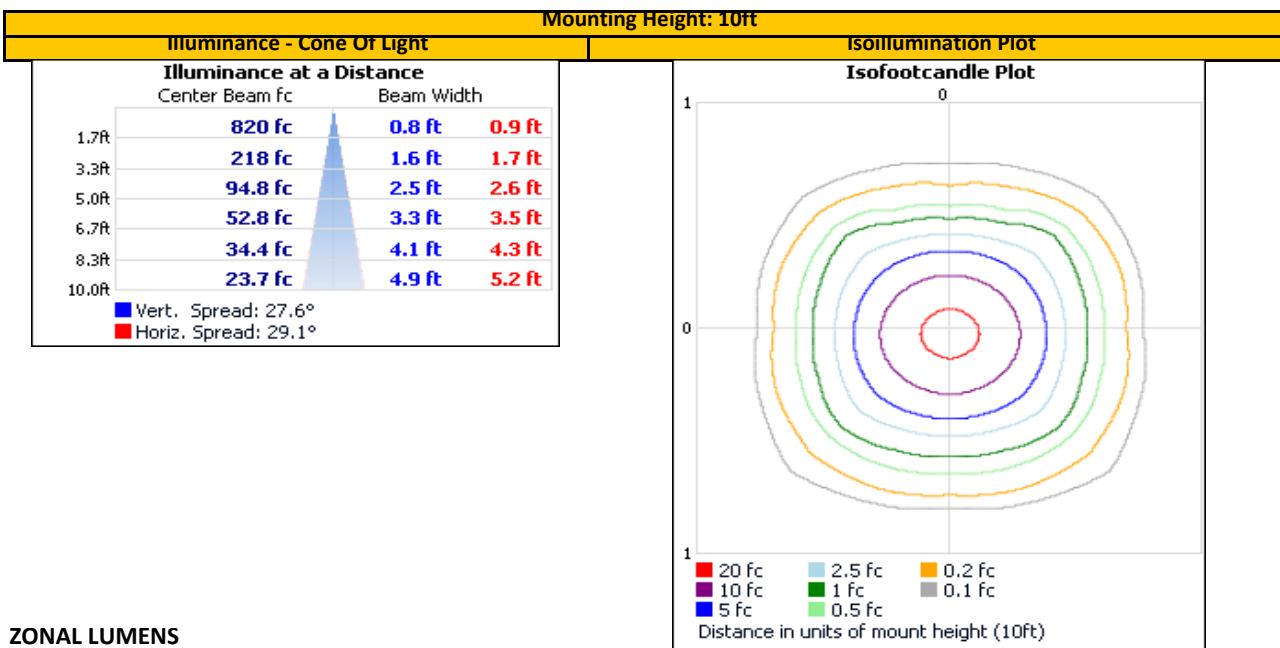
Test Distance (ft)
29.6

PHOTOMETRIC CENTER OF EUT



REPORT NO. 104622548CRT-006

## ILLUMINANCE SUMMARY



## ZONAL LUMENS

Zonal Lumen Summary								
Zone	Lumens	% Lum	Zone	Lumens	% Total	Zone	Lumens	% Total
0-30	653.2	94.5%	0-10	187.8	27.2%	90-100	0.0	0.0%
0-40	687.6	99.5%	10-20	306.2	44.3%	100-110	0.0	0.0%
0-60	691.3	100.0%	20-30	159.2	23.0%	110-120	0.0	0.0%
60-90	0.0	0.0%	30-40	34.4	5.0%	120-130	0.0	0.0%
70-100	0.0	0.0%	40-50	3.7	0.5%	130-140	0.0	0.0%
90-120	0.0	0.0%	50-60	0.0	0.0%	140-150	0.0	0.0%
0-90	691.3	100.0%	60-70	0.0	0.0%	150-160	0.0	0.0%
90-180	0.0	0.0%	70-80	0.0	0.0%	160-170	0.0	0.0%
0-180	691.3	100.0%	80-90	0.0	0.0%	170-180	0.0	0.0%

**INTEGRATING SPHERE TESTING**

**REPORT NO. 104622548CRT-006**

Test Configuration	Tested Model No.	Pass/Fail/NA
1	E3SRF-LO9302A w/ E3SLB-OW	NA

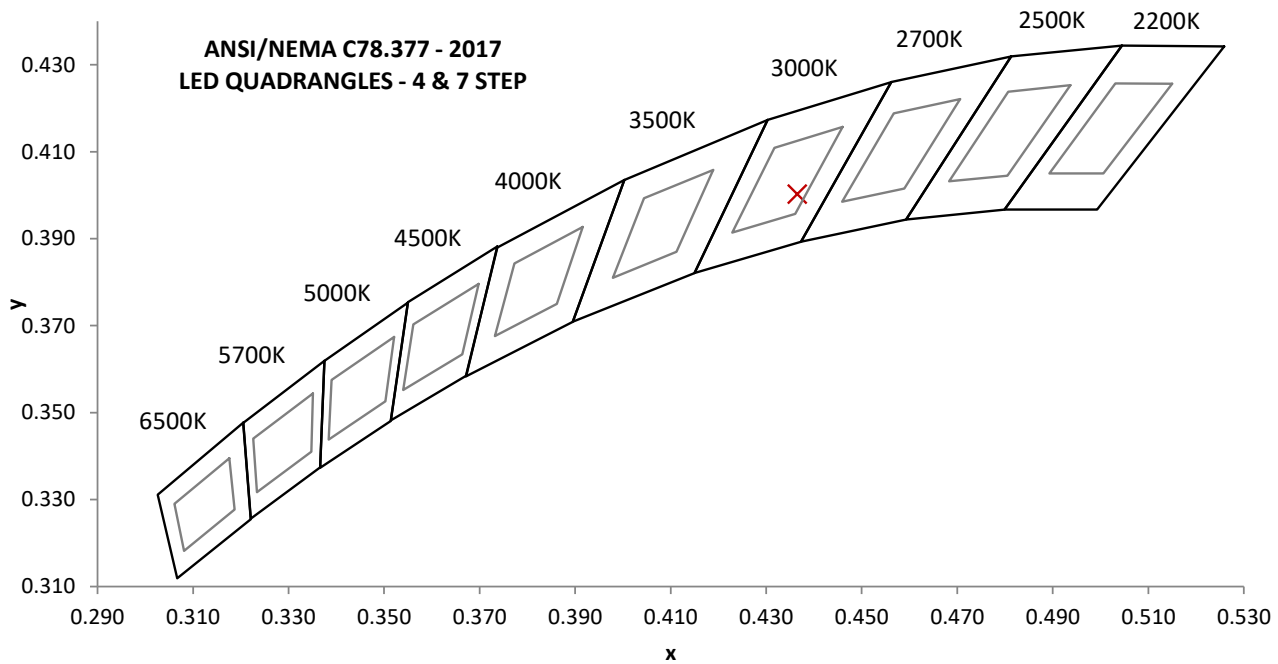
**PHOTOMETRIC, COLORIMETRIC, AND ELECTRICAL MEASUREMENTS (25°C +/- 1°C)**

Base Orientation
Select One

Input Voltage (Vac)	Input Current (mA)	Input Power (W)	Input Power Factor ( )	Input ATHD (%)
120.01	93.7	11.10	0.987	10.98
277.00	44.9	11.27	0.906	14.67

Light Output (lm)	Lumen Efficacy (lm/W)	CCT (K)	CRI - Ra ( )	CRI - R9 ( )
705.5	63.6	2976	91.9	73.1

Duv ( )	1931 Chrom (x)	1931 Chrom (y)	1976 Chrom (u')	1976 Chrom (v')
-0.0015	0.436	0.400	0.252	0.520

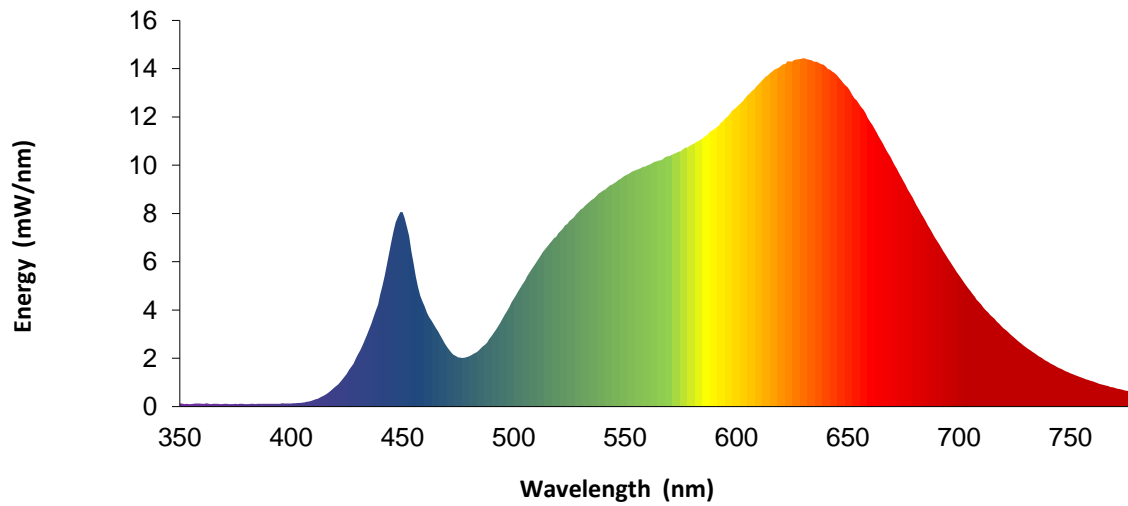




**REPORT NO. 104622548CRT-006**

**SPECTRAL DISTRIBUTION OVER WAVELENGTHS**

nm	mW/nm		nm	mW/nm		nm	mW/nm		nm	mW/nm
350	0.1		460	4.1		570	10.4		680	8.5
355	0.1		465	3.3		575	10.6		685	7.7
360	0.1		470	2.5		580	10.9		690	6.9
365	0.1		475	2.0		585	11.1		695	6.1
370	0.1		480	2.1		590	11.5		700	5.4
375	0.1		485	2.4		595	11.9		705	4.8
380	0.1		490	2.9		600	12.4		710	4.2
385	0.1		495	3.6		605	12.9		715	3.7
390	0.1		500	4.5		610	13.4		720	3.2
395	0.1		505	5.2		615	13.8		725	2.8
400	0.1		510	6.0		620	14.1		730	2.5
405	0.2		515	6.6		625	14.3		735	2.1
410	0.3		520	7.2		630	14.4		740	1.9
415	0.5		525	7.7		635	14.3		745	1.6
420	0.8		530	8.2		640	14.1		750	1.4
425	1.4		535	8.6		645	13.7		755	1.2
430	2.2		540	8.9		650	13.2		760	1.0
435	3.2		545	9.2		655	12.6		765	0.9
440	4.6		550	9.6		660	11.8		770	0.8
445	6.8		555	9.8		665	11.0		775	0.7
450	8.1		560	10.0		670	10.2		780	0.6
455	5.9		565	10.2		675	9.4		---	---



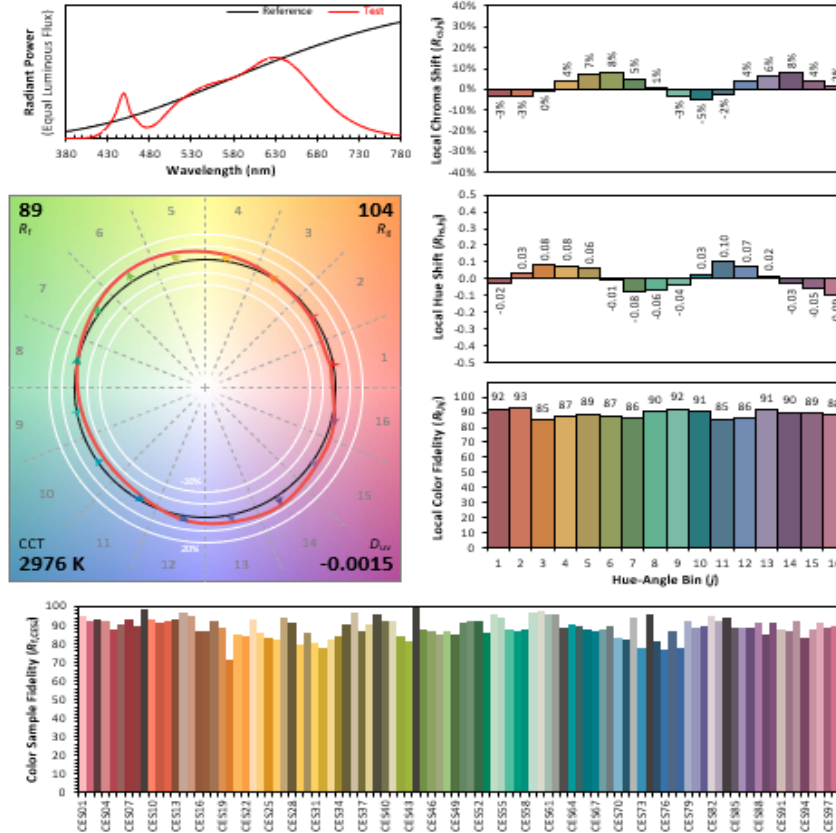
Portrayed color in graphic is estimated by wavelength (nm) and may not be exact - it is a visual representation only

**REPORT NO. 104622548CRT-006**

**ANSI/IES TM-30-18 Color Rendition Report**

**Source:** LED  
**Date:** 9/21/2021

**Manufacturer:** VISUAL COMFORT AND COMPANY  
**Model:** E3SRF-LO9302A w/ E3SLB-OW



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

$\alpha$  **0.4364**  
 $\beta$  **0.4002**  
 $\alpha'$  **0.2519**  
 $\beta'$  **0.5198**

CIE 13.3-1995  
(CRI)

$R_a$  92  
 $R_g$  73

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

**EQUIPMENT LIST**

**REPORT NO. 104622548CRT-006**

#	Equipment	Model No	Control No.	Last Cal	Cal Due
1	Elgar AC Power Supply	CW1251	---	VBV	VBV
2	Sorenson DC Power Supply	XFR 150-8	---	VBV	VBV
3	Traceable Hygrothermometer	4800	L206	2/12/2021	2/12/2022
4	Yokogawa Power Analyzer	WT1600	E474	6/15/2021	6/15/2022
5	Fluke Thermometer	53 II	D587	2/5/2021	2/5/2022
6	3M Integrating Sphere Spectrometer System	CDS 2600	---	9/3/2021	12/3/2021
7	Fisher Scientific Stopwatch	14-649-9	N1132	3/26/2021	3/26/2022
8	LSI High Speed Mirror Goniophotometer	6440	---	8/16/2021	11/16/2021
9	Elgar AC Power Supply	CW1251	---	VBV	VBV
10	Yokogawa Power Analyzer	WT210	E464	5/11/2021	5/11/2022
11	Traceable Hygrothermometer	4800	L204	2/21/2021	2/21/2022
12	Sorenson DC Power Supply	XG 150-10	---	VBV	VBV
13	Omega Thermometer	DPI8-C24	M263	3/23/2021	3/23/2022
14	Bosch Distance Laser	Pro GLM 20	L211	3/3/2021	3/3/2022
15	M-D Building Products Digital Level	Smart Tool	L112	5/26/2021	5/26/2022
16	Tape Measure	Powerlock	N1342	3/11/2019	3/11/2022

**REVISION HISTORY**

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