

# Sphere & Goniometer Test Report

Test results reported for:

**LightArt Samples Covered in Report: 24" Casper Beam**

Orb Optronix report:

**LIGT003-03-010**

Original issue date:

**May 5, 2017**

Revision Issue Date:

-

Prepared for:

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Test & Measurement Services

## PRODUCT TEST REPORT - SPHERE & GONIOMETER TEST REPORT

Manufacturer: LightArt  
Product Description: Long Wall Luminaire

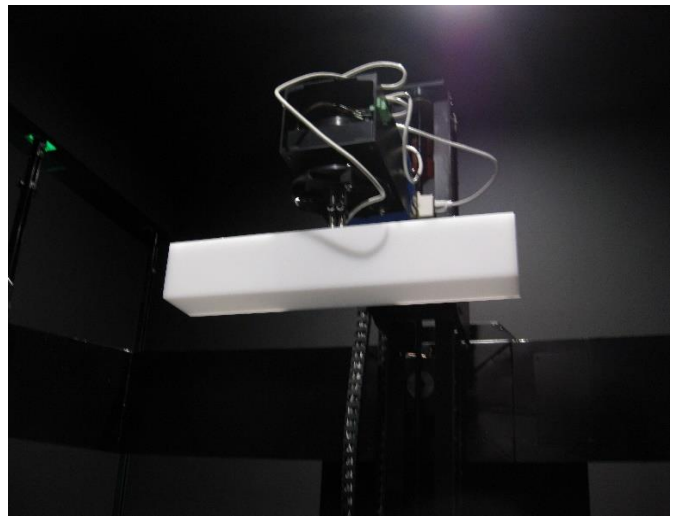
Report Number: LIGT003-03-010  
Release Date: 5/5/2017

### 1.0 SAMPLE DESCRIPTION

Lab sample identification: 01 Customer Identification: LIGT Manufacturer: LightArt Part number: - Model Number: Long Wall Luminaire Description: Interior wall luminaire	Manufacturer's ratings	
	Max Current (A):	-
	Operating voltage:	120VAC
	Wattage (watts):	-
	Frequency (Hz):	60Hz
	Dimmable:	-



Sample Device as Received



Sample Device Mounted to Test Apparatus

### 2.0 TEST DESCRIPTION

Photometric and electrical testing in accordance with IES LM 79-08 IES Approved Method for the Electrical and Photometric Measurements of Solid-State Lighting Products. All angular measurements are made using the goniometer - photometer test method. All integrating sphere measurements are made using the sphere - spectroradiometer method.

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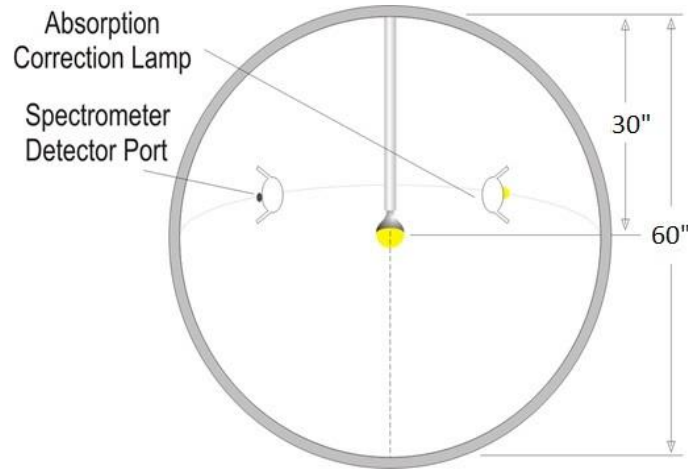
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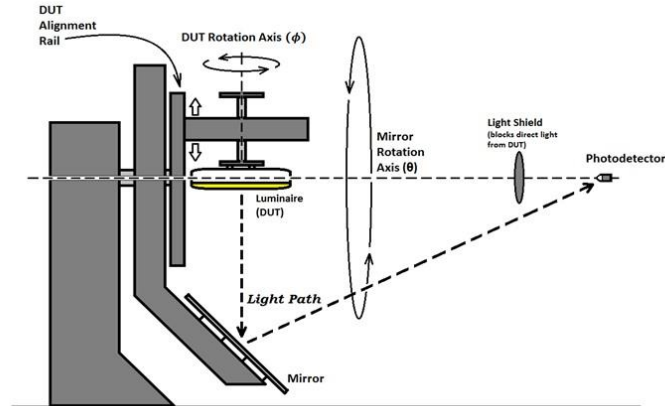
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### 3.0 Measurement Coordinates for Integrating Sphere (60inch.)



### 3.1 Measurement Coordinates for Moving-Mirror Type-C Goniometer



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### 4.0 SUMMARY OF RESULTS - SPHERE MEASUREMENTS

#### Test Conditions

Test Date: 27-Apr-17  
Method: goniometer-photometer  
x-axis Alignment:  $0.0 \pm 0.01$  m  
y-axis Alignment:  $0.0 \pm 0.01$  m  
z-axis Alignment:  $3 \pm 0.01$  m

Theta Minimum:  $0.0 \pm 0.01^\circ$   
Theta Maximum:  $180.0 \pm 0.01^\circ$   
Theta Step Size:  $2.5 \pm 0.01^\circ$   
Phi Minimum:  $0.0 \pm 0.01^\circ$   
Phi Maximum:  $180.0 \pm 0.01^\circ$   
Phi Step Size:  $22.5 \pm 0.01^\circ$

Ambient Temperature ( $^\circ\text{C}$ ):  $25 \pm 1^\circ\text{C}$   
Ambient Humidity (%RH): 34.0

#### Optical Measurements

Total Integrated Luminous Flux (**lm**): 1635.18  
Luminous Efficacy (**lm/W**): 72.28  
Total Integrated Radiant Flux (**W**): 5.140  
Radiant Efficiency (**W<sub>optical</sub>/W<sub>electric</sub>**): 0.227  
Correlated Color Temperature - CCT (**K**): 3050  
Color Rendering Index - CRI, Ra: 82.7  
R9: 16.4  
Color Purity (%): 48.6  
Dominant Wavelength (**nm**): 583.3  
Centroid Wavelength (**nm**): 583.1  
Peak Wavelength (**nm**): 604.6

#### Chromaticity Coordinates

Cx: 0.4309  
Cy: 0.3974  
u: 0.2495  
v: 0.3452  
u': 0.2495  
v': 0.5178  
Duv: -0.0018

#### Electrical Measurements

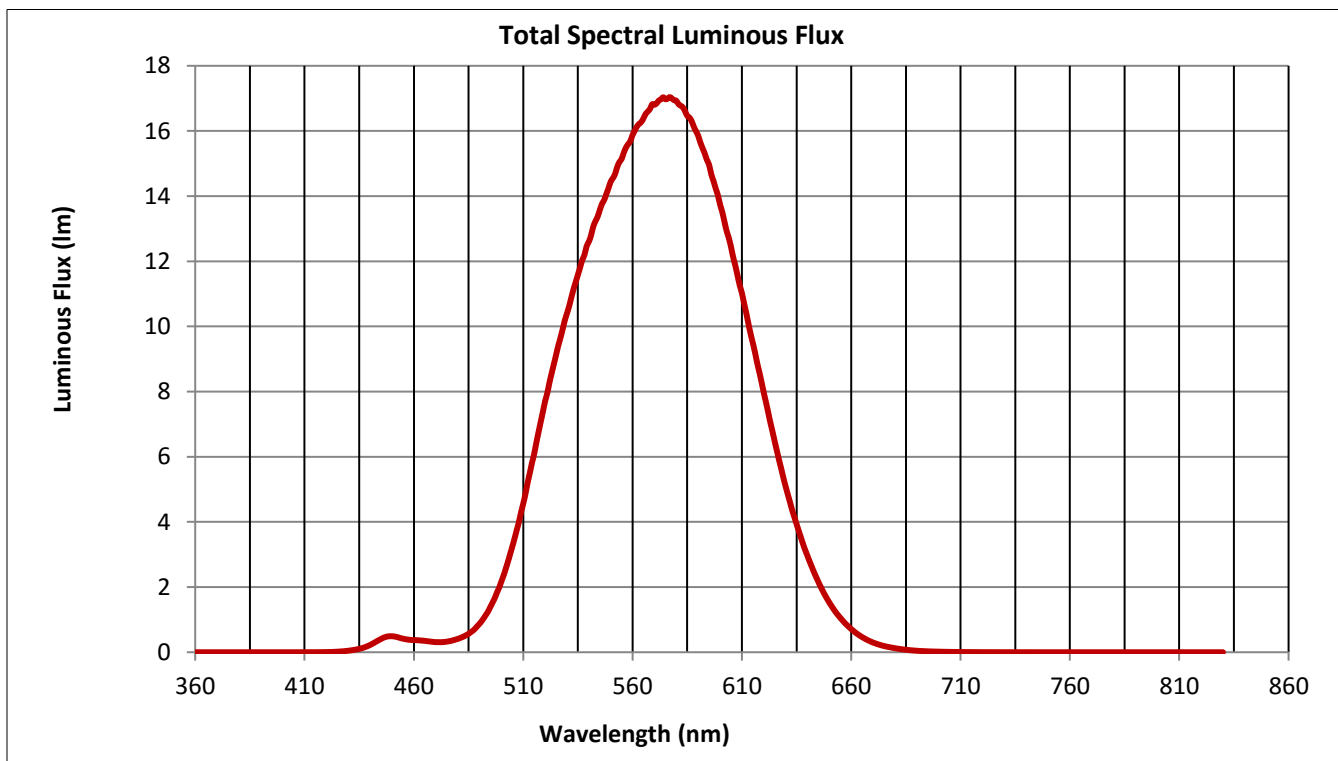
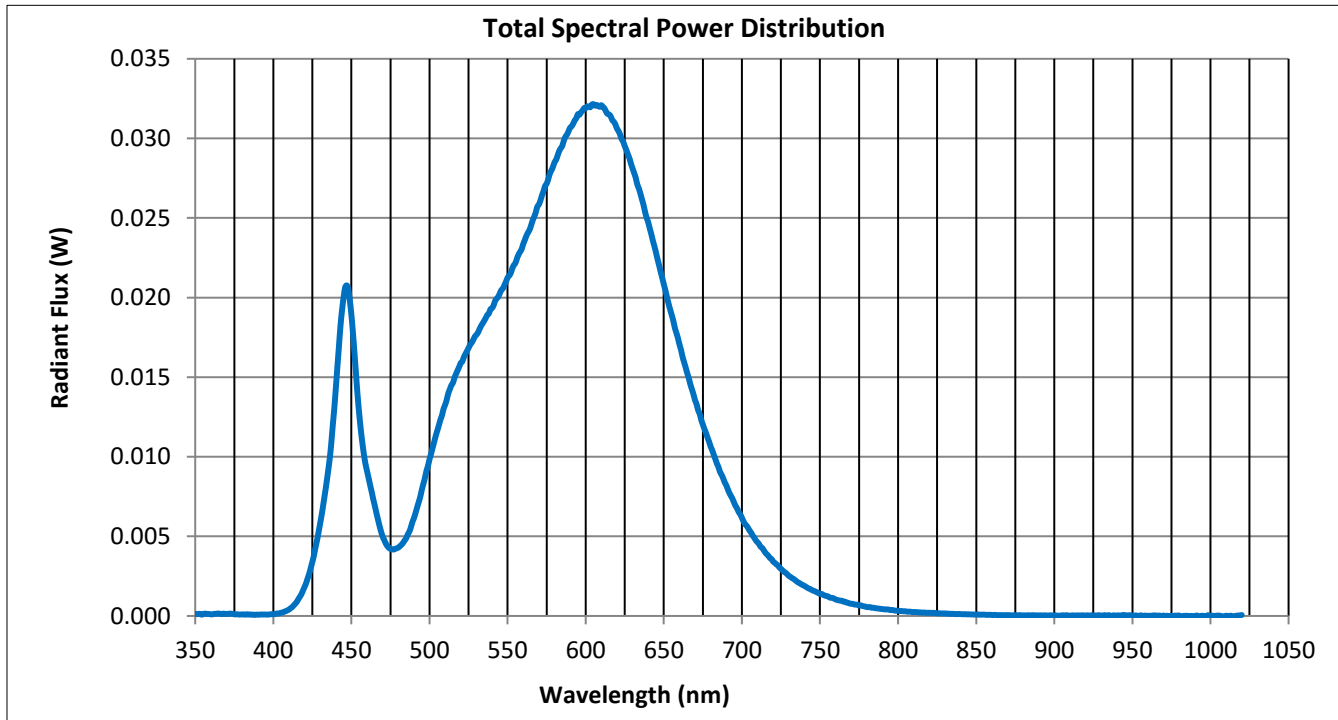
Active Power(**W**): 22.624  
Apparent Power (**W**): 23.168  
Power Factor: 0.977  
Average Voltage(**V**): 119.870  
Average Current (**A**): 0.193  
Frequency (**Hz**): 60.0

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### 5.0 CHARTS

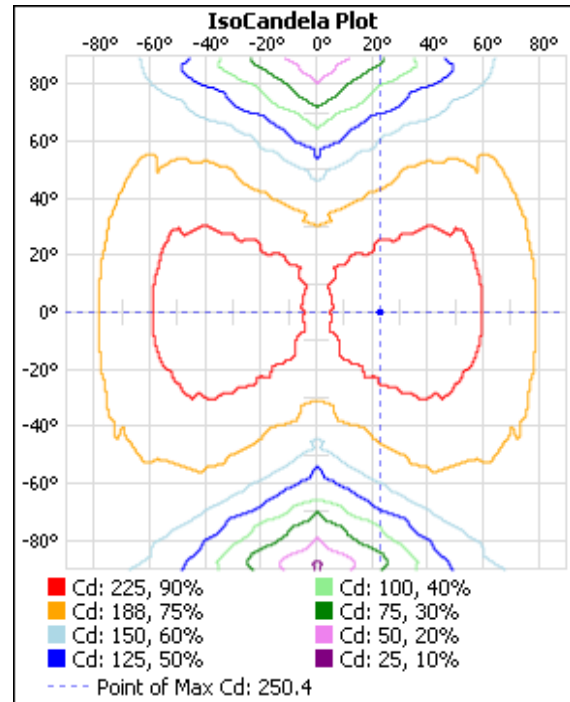
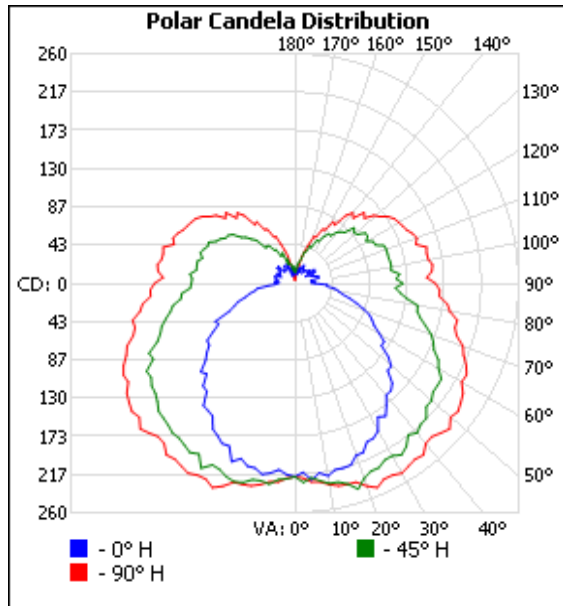


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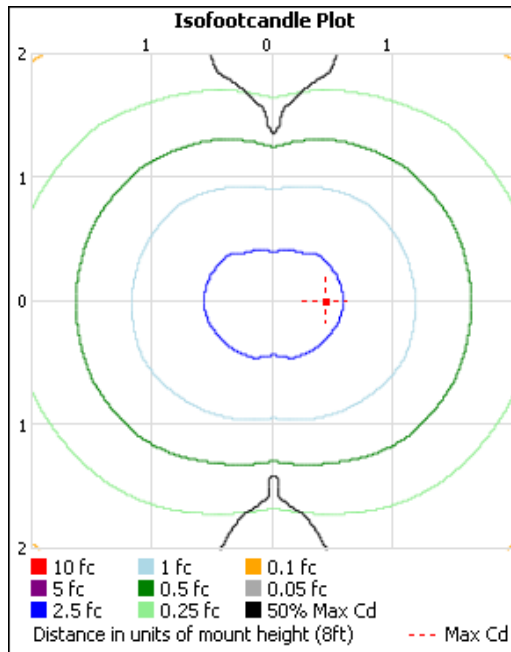
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## 6.0 CANDELA PLOTS



## 6.1 ILLUMINANCE PLOTS



Illuminance at a Distance		
	Center Beam fc	Beam Width
1.3ft	130 fc	7.0 ft
2.7ft	30.0 fc	14.5 ft
4.0ft	13.7 fc	21.4 ft
5.3ft	7.79 fc	28.4 ft
6.7ft	4.88 fc	35.9 ft
8.0ft	3.42 fc	42.9 ft

■ Beam Spread: 139.1°

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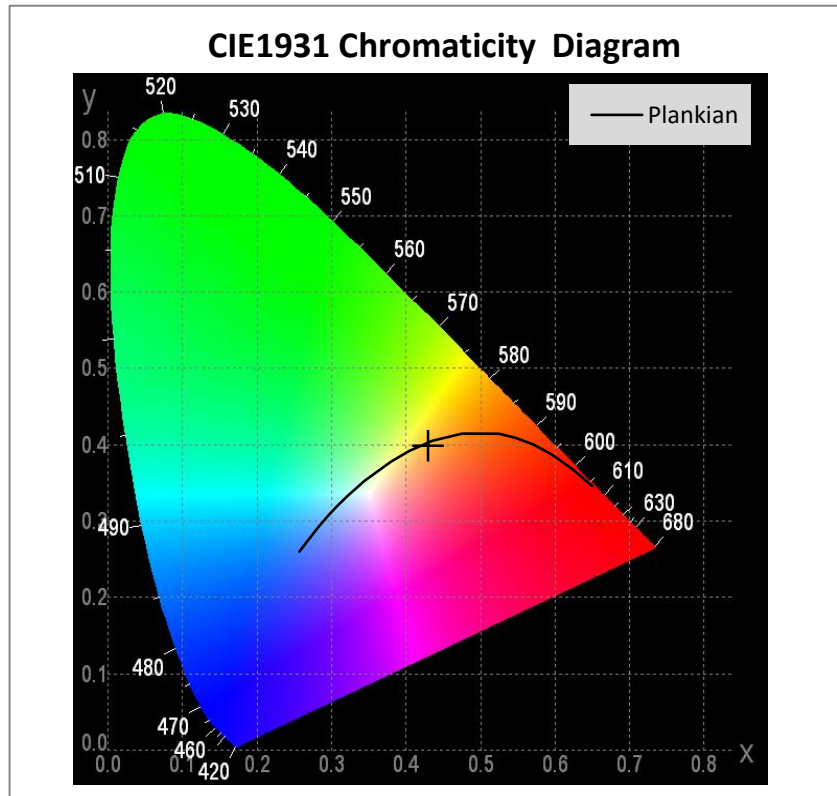
### 6.2 ZONAL LUMEN SUMMARY

Zonal Lumen Summary		
Zone	Lumens	% Luminaire
0-30	191.4	11.7%
0-40	328.8	20.1%
0-60	661.5	40.4%
60-90	452.9	27.7%
70-100	400.3	24.5%
90-120	324.4	19.8%
0-90	1114.4	68.1%
90-180	521.7	31.9%
0-180	1636.1	100.0%

Lumens Per Zone		
Zone	Lumens	% Total
0-10	21.4	1.3%
10-20	65	4.0%
20-30	105	6.4%
30-40	137.4	8.4%
40-50	160.3	9.8%
50-60	172.5	10.5%
60-70	170	10.4%
70-80	152.7	9.3%
80-90	130.2	8.0%

Lumens Per Zone		
Zone	Lumens	% Total
90-100	117.4	7.2%
100-110	110.7	6.8%
110-120	96.3	5.9%
120-130	77.8	4.8%
130-140	56.5	3.5%
140-150	35.4	2.2%
150-160	18.7	1.1%
160-170	7.4	0.5%
170-180	1.4	0.1%

### 6.3 CHROMATICY DIAGRAM



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### 7.0 EQUIPMENT

Item	Description/use	Manufacturer	Model	Serial #
1.5m Sphere	Sphere Optical Measurements	Labsphere	AA-00463-000 LMS650	SPH100
Current Source	Device Power Supply	Quadtech	31015	PSAC001
Goniometer	Type-C	Lighting Sciences	6400T	GONI300
Optical Meter	Goni Optical Measurements	Newport	2936-R	METR010
Photodetector	Goni Optical Measurements	INPHORA	IPR-PDET	110902
Power Analyzer	Electrical Measurement, Goni	Yokogawa	WT310	C2QD10013V
Power Analyzer	Electrical Measure., Sphere	Yokogawa	WT210	91L122484
Power Supply	Electrical, Sphere	Kikusui	PCR500M	RB002843
Spectroradiometer	Sphere Optical Measurements	Instrument Systems	CAS140CT	2010268

END OF REPORT