GONIOPHOTOMETER TEST REPORT
IES LM79-08 Section 9.3
TÜV SÜD America

Photometric Testing and Evaluation in Accordance with LM79-2008

Report Prepared for:

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Sample Tested:	**GTSOL112-HI-GR-360S**
Sample Description:	**LED Module**
Manufacturer:	**Global Tech LED, LLC**
Technical Report Number:	**72112305-16-GONI**
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GONIOPHOTOMETRIC TEST REPORT IES LM79-2008

January 18, 2016

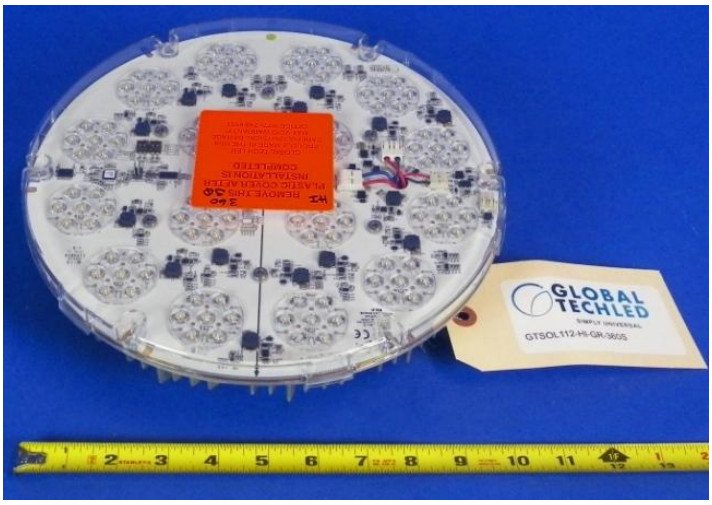
Summary of Key Test Results

Model# **GTSOL112-HI-GR-360S**

Manufacturer Global Tech LED, LLC

TÜV Sample# 2176-16 (Test Plan#16)

Date of Test January 18th 2016



Notes: Tested in intended orientation "Aperture Down, Cover Removed".
(cover shown attached in image)

Driver: **HATCH LV150-24N-UNV-BB (x2)**
LED Chip: **Lumileds Luxeon Zes**

Parameter	Measured Result
Luminous Flux	**26,055 Lumens**
Input Power	**274.14 Watts**
Efficacy	**95.04 Lumens/Watt**
Beam Angle	**15.5° (V) / 31.8 ° (H)**
Stabilization Time	**44 minutes**

The above results are recorded / derived from measurements in accordance with LM79-08.

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Test Results –

The following results were obtained after stabilization of the sample in accordance with the requirements set forth in section 5.0 of IES LM79-2008. Stability is achieved when the variation of 3 readings of light output and electrical power over a period of 30 minutes, taken 15 minutes apart, is less than 0.5%.

Photometric Results	GTSOL112-HI-GR-360S
	Goniophotometer (120V)
Total Luminous Flux (Lumens)	26,055
Luminous Efficacy (Lumens/Watt)	95.04

Electrical Results	GTSOL112-HI-GR-360S
	Goniophotometer (120V)
Input Power (Watts)	274.14
Input Voltage (Volts AC)	120.03
Input Current (Amps)	2.290
Power Factor	0.997
Input Frequency (Hertz)	60.0
A-THD (Current %)	4.43%

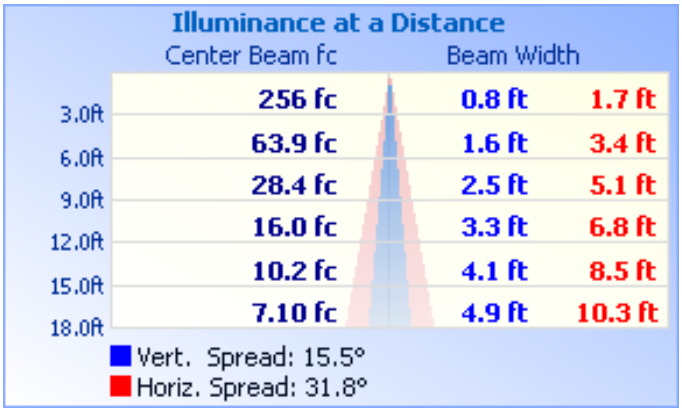
Additional Parameters	GTSOL112-HI-GR-360S
	Goniophotometer (120V)
Stabilization Time (Light and Power)	44 minutes
Test Geometry Configuration	Type C
Ambient Temperature	24.6°C

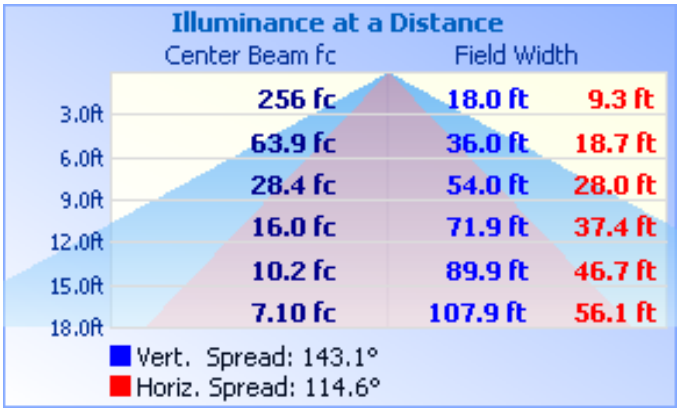
Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0 - 60	**12,488.9**	**47.9%**
60 - 90	**13,565.9**	**52.1%**
0 - 90	**26,054.8**	**100.0%**
90 - 180	**0.0**	**0.0%**
0 - 180	**26,054.8**	**100.0%**

Test Results – Illuminance Plots

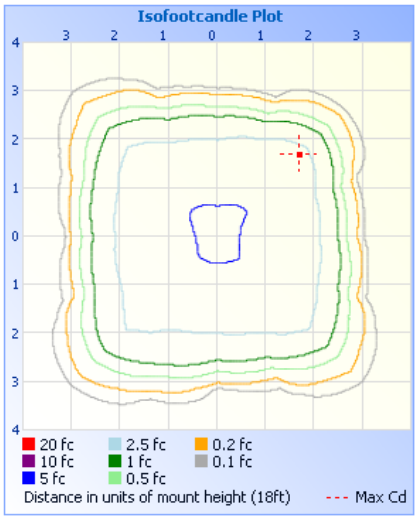
The following images depict the illuminance characteristics of the Luminaire at a mount height of 18ft.



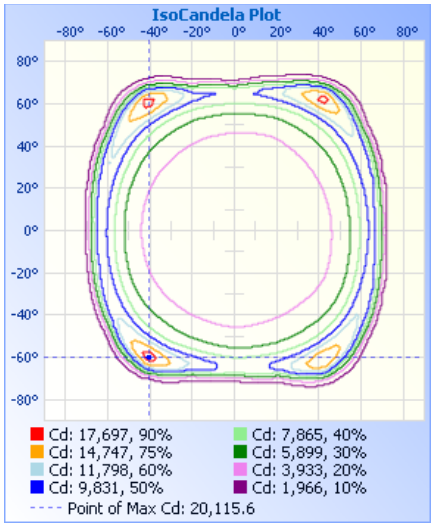


Test Results – Candela Plots

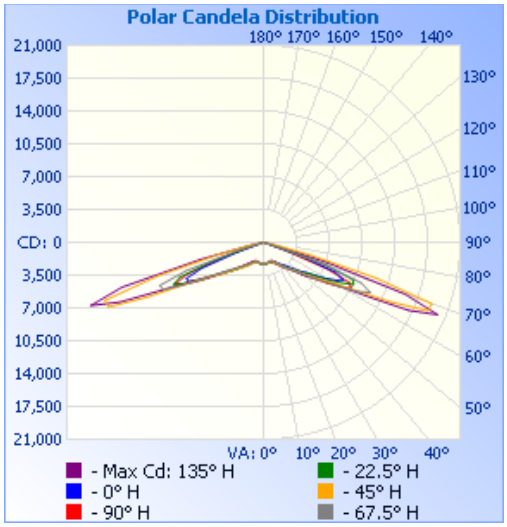
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

Maximum Candela = **20,115.6** at Horizontal: 135.0°, Vertical: 67.5°

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ACCREDITED
Testing Certificates
Electrical 2955.09

TÜV SÜD America is accredited under the ISO/IEC 17025:2005 program

NRG_F_10.04, Rev. 2, Effective: 2015-07-13

TÜV SÜD Photometric Testing Information

Testing is performed in accordance with the procedures outlined in IESNA LM79-2008. The sample is evaluated for photometric and electrical characteristics using a goniophotometer, located in an accredited, temperature and humidity-controlled, draft free photometric laboratory.

Sample Stabilization

The sample (UUT) is placed on a goniophotometer and powered by a regulated and conditioned alternating or direct current supply. The stabilization times shown on the results pages of this report denote the time of the 3rd measurement (of the 3 consecutive readings) since this is the minimum time that the sample is assumed to have taken to reach stabilization in accordance with section 5.0 of LM79-2008.

Goniophotometer

The Goniophotometer is a Mirror based Type C optical measurement system in accordance with section 9.3.1 of IESNA LM79-2008.

Goniophotometer Calibration

The Goniophotometer is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: General Electric
Part Number: CSB-110
Lamp Number: 112-A
Voltage: 16.52 Volts DC
Wattage: 150.0 Watts
Calibration Current: 4.816 Amperes
Luminous Intensity: 151.5 Candelas
Calibration Date: 02-13-2011 (NIST traceable)

TÜV SÜD Test Equipment List:

TÜV SÜD Mirror Goniophotometer System – contains the following:			
Goniophotometer	M.E. GONC02	GON002	Weekly
Spectroradiometer	Gigahertz Optik P9801	GIG002	Weekly
Power Analyzer	Yokogawa WT210	ATLE0073	5/15/2016
Power Source	Chroma 61603	AC007	N/A

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