



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-MH-GR-NL
Sample Description: LED Module
Manufacturer: Global Tech LED, LLC

Technical Report Number: 72112305-03-GONI
Report Issue Date: January 15th 2016
Total Number of Pages: 6 (including this page)

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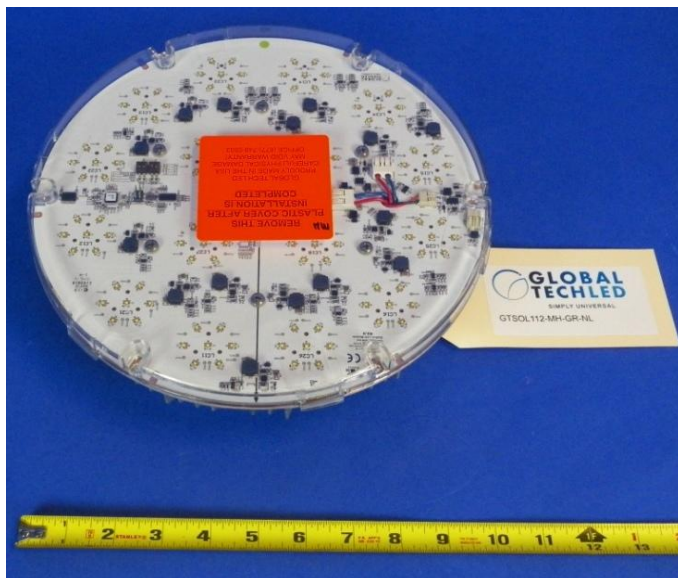
January 15, 2016

Summary of Key Test Results

Model# **GTSOL112-MH-GR-NL**
Manufacturer Global Tech LED, LLC
TÜV Sample# 2176-3 (Test Plan#3)
Date of Test January 12th 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	23,749 Lumens
Input Power	253.14 Watts
Efficacy	93.82 Lumens/Watt
Beam Angle	119.6° (V) / 119.5° (H)
Stabilization Time	46 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-MH-GR-NL
	Goniophotometer (120V)
Total Luminous Flux (Lumens)	23,749
Luminous Efficacy (Lumens/Watt)	93.82

Electrical Results	GTSOL112-MH-GR-NL
	Goniophotometer (120V)
Input Power (Watts)	253.14
Input Voltage (Volts AC)	120.04
Input Current (Amps)	2.120
Power Factor	0.996
Input Frequency (Hertz)	60.0
A-THD (Current %)	4.63%

Additional Parameters	GTSOL112-MH-GR-NL
	Goniophotometer (120V)
Stabilization Time (Light and Power)	46 minutes
Test Geometry Configuration	Type C
Ambient Temperature	25.0°C

Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0 - 60	18,317.1	77.1%
60 - 90	5,432.3	22.9%
0 - 90	23,749.4	100.0%
90 - 180	0.0	0.0%
0 - 180	23,749.4	100.0%





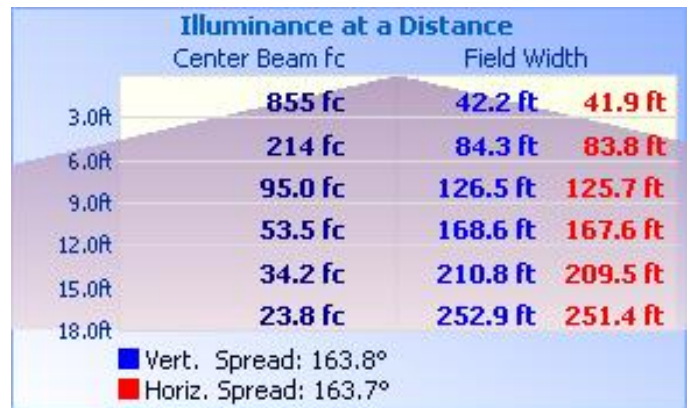
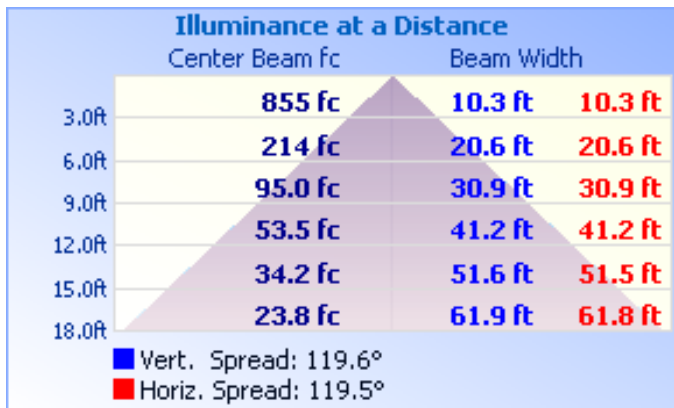
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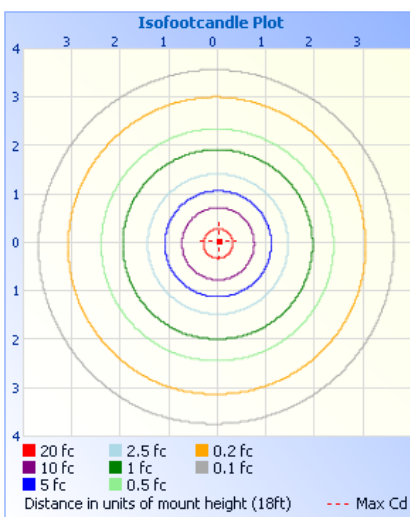
Test Results – Illuminance Plots

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

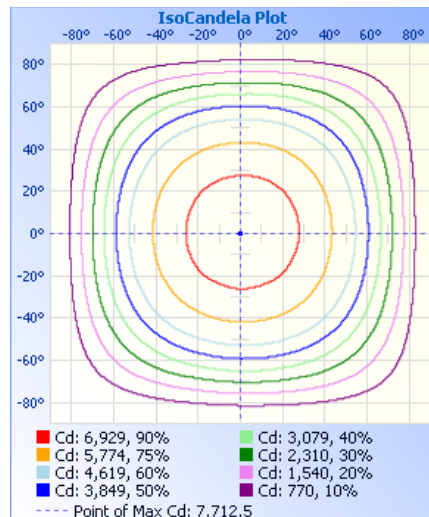


Test Results – Candela Plots

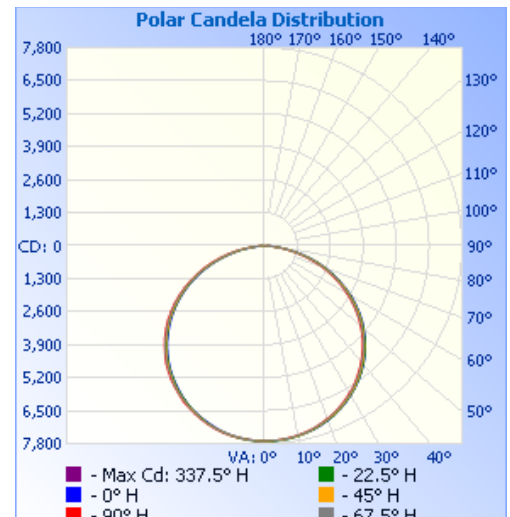
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

Maximum Candela = **7,712.5** at Horizontal: 337.5°, Vertical: 2.5°

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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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