



# GONIOPHOTOMETER TEST REPORT

## IES LM79-08 Section 9.3

TÜV SÜD America

### Photometric Testing and Evaluation in Accordance with LM79-2008

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<b>Sample Tested:</b>	<b>GTSOLM21-ML-GR-NL</b>
<b>Sample Description:</b>	<b>LED Luminaire</b>
<b>Manufacturer:</b>	<b>Global Tech LED LLC</b>
<b>Technical Report Number:</b>	<b>72106423-03-GONI June</b>
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# GONIOPHOTOMETRIC TEST REPORT IES LM79-2008

Report# 72106423-04-GONI

June 25, 2015

## Summary of Key Test Results

Model# **GTSOLM21-ML-GR-NL**

Manufacturer Global Tech LED LLC

TÜV Sample# 1910-3

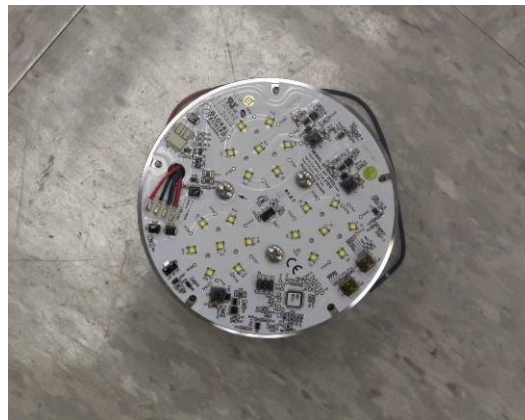
Date of Test June 25, 2015

### Notes:

Tested in FBU orientation (Fixture Base Up)

No Optics

Test of new LED chip Luxeon TX.



<b>Parameter</b>	<b>Measured Result</b>
Luminous Flux	<b>3777 Lumens</b>
Input Power	<b>39.76 Watts</b>
Efficacy	<b>94.99 Lumens/Watt</b>
Beam Angle	<b>124.3° (V) / 124.3° (H)</b>
Stabilization Time	<b>32 minutes</b>

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	Global Tech LED LLC: GTSOLM21-ML-GR	
	Goniophotometer (120V)	
Total Luminous Flux (Lumens)	3777	
Luminous Efficacy (Lumens/Watt)	94.99	

Electrical Results	Global Tech LED LLC: GTSOLM21-ML-GR	
	Goniophotometer (120V)	
Input Power (Watts)	39.76	
Input Voltage (Volts AC)	120.02	
Input Current (Amps)	.330	
Power Factor	.990	
Input Frequency (Hertz)	60	
A-THD (Current %)	11.67	

Additional Parameters	Global Tech LED LLC: GTSOLM21-ML-GR	
	Goniophotometer (120V)	
Stabilization Time (Light and Power)	32 minutes	
Test Geometry Configuration	Type C	
Ambient Temperature	24.1°C	

### Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0-60	2,841.50	75.20%
60-90	932.1	24.70%
70-100	422	11.20%
90-120	2.8	0.10%
0-90	3,773.60	99.90%





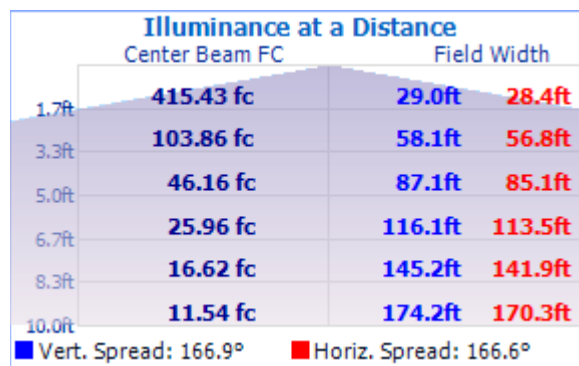
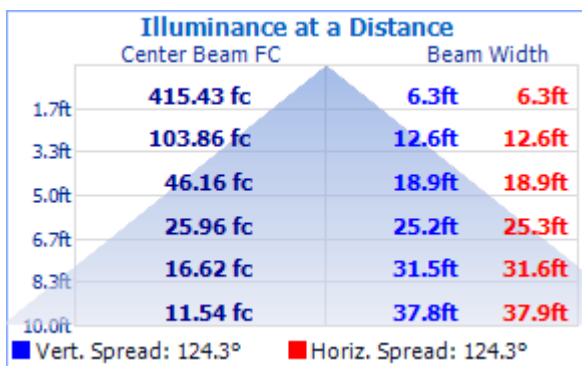
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## Test Results – Illuminance Plots

The following images depict the illuminance characteristics of the luminaire.

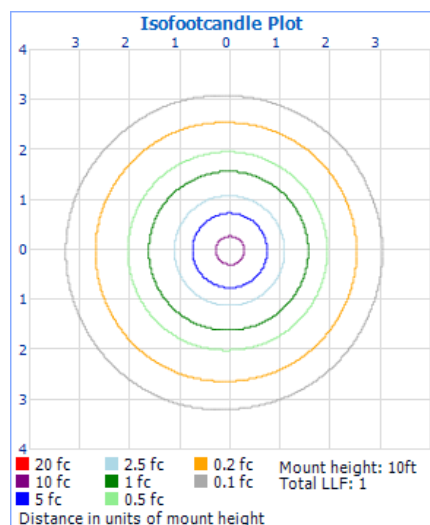


Beam Angle = 124.3° (V) / 124.3° (H)

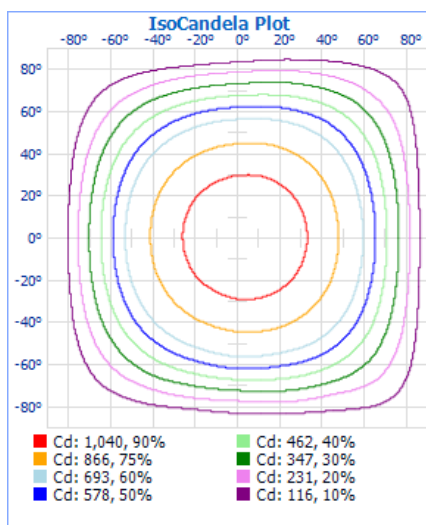
Field Angle = 166.9° (V) / 166.6° (H)

## Test Results – Candela Plots

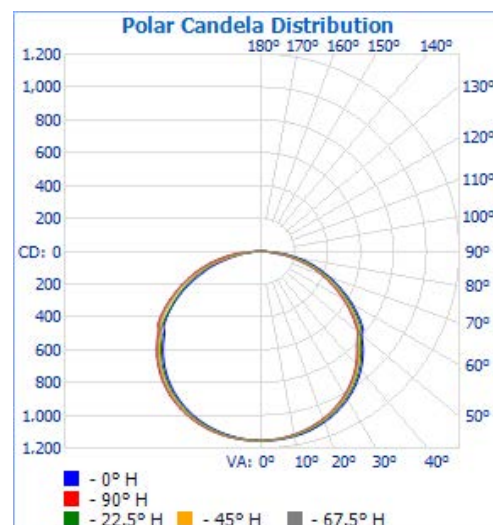
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

Maximum Candela = **1,155.1** at Horizontal: 270°, 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 3<sup>rd</sup> 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	ATLE0031	11/21/2015
Power Source	Chroma 61603	AC007	N/A

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