



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: GTSOLM21-MH-GR-NL
Sample Description: LED Luminaire Global
Manufacturer: Tech LED LLC

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Summary of Key Test Results

Model# **GTSOLM21-MH-GR-NL**

Manufacturer Global Tech LED LLC

TÜV Sample# 1910-2

Date of Test June 25, 2015

Notes:

Tested in FBU orientation (Fixture Base Up)

No Optics

Test of new LED chip Luxeon TX.



Parameter	Measured Result
Luminous Flux	4,632 Lumens
Input Power	48.1 Watts
Efficacy	96.29 Lumens/Watt
Beam Angle	123.8° (V) / 123.9° (H)
Stabilization Time	31 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	Global Tech LED LLC: GTSOLM21-MH-GR	
	Goniophotometer (120V)	
Total Luminous Flux (Lumens)	4,632	
Luminous Efficacy (Lumens/Watt)	96.29	

Electrical Results	Global Tech LED LLC: GTSOLM21-MH-GR	
	Goniophotometer (120V)	
Input Power (Watts)	48.1	
Input Voltage (Volts AC)	120.01	
Input Current (Amps)	.40	
Power Factor	.993	
Input Frequency (Hertz)	60	
A-THD (Current %)	10.41	

Additional Parameters	Global Tech LED LLC: GTSOLM21-MH-GR	
	Goniophotometer (120V)	
Stabilization Time (Light and Power)	31 minutes	
Test Geometry Configuration	Type C	
Ambient Temperature	24.3°C	

Zonal Lumen Summary

Zone	Lumens	% Lamp / Luminaire
0-60	3,490.90	75.40%
60-90	1,137.10	24.50%
70-100	511.2	11%
90-120	2.7	0.10%
0-90	4,628.00	99.90%





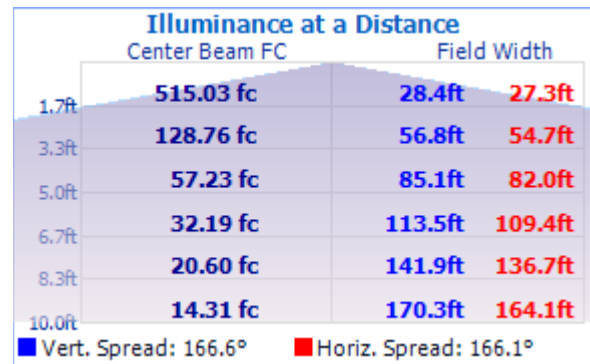
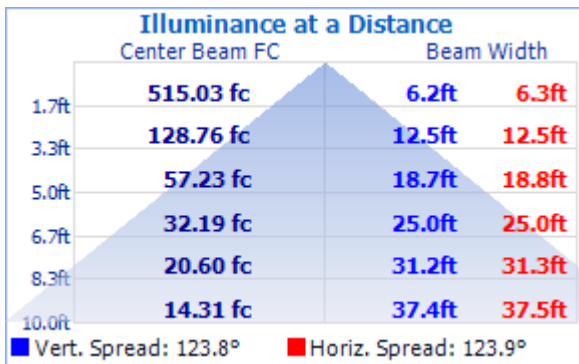
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Test Results – Illuminance Plots

The following images depict the illuminance characteristics of the luminaire.

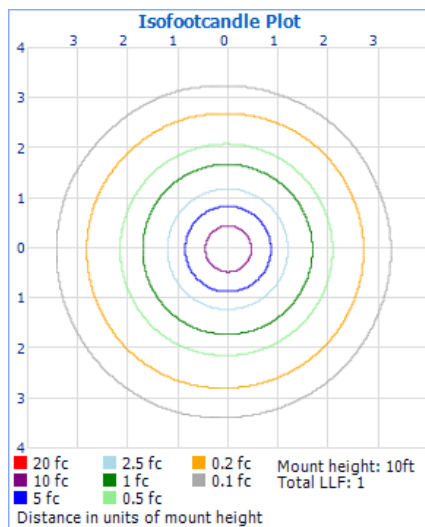


Beam Angle = 123.8° (V) / 123.9° (H)

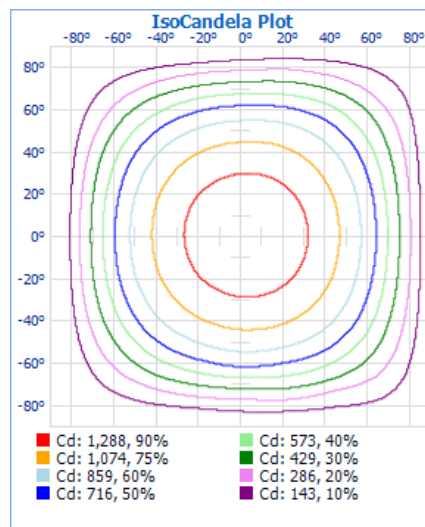
Field Angle = 166.6° (V) / 166.1° (H)

Test Results – Candela Plots

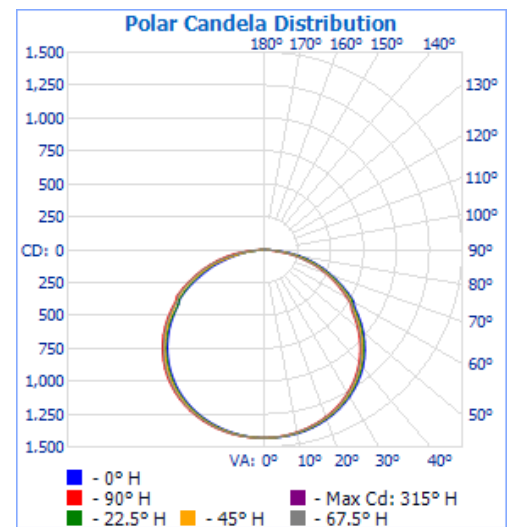
The following images depict the luminous intensity distribution characteristics of the luminaire:



Isofootcandle Plot



Isocandela Plot



Polar Candela

Maximum Candela = **1,431.7** at Horizontal: 315°, 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	ATLE0031	11/21/2015
Power Source	Chroma 61603	AC007	N/A

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