

PHOTOMETRIC TESTING & EVALUATION TO IES LM-79-19

Sample Tested

Wallis / GUS

Prepared for:

Alva Light1212 19th Street
Oakland, CA. 94607**Technical Report Number**

80167894-2

May 4, 2023

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Program Description

Photometric and electrical testing of a Wallis / GUS Type C LED Luminaire to IES LM-79-19.

Executive Summary

Sample Tested = Wallis / GUS

Sample Number = 44002879

Driver = Fahold FD-58E-054B

| Luminous Efficacy (Lumens/Watt) | Luminous Flux (Lumens) | Input Power (Watts) | Power Factor | ATHD (%) |
|--|-------------------------------|----------------------------|---------------------|-----------------|
| 114.32 | 5107.90 | 44.68 | 0.9938 | 5.36 |

| IES Classification | Longitudinal Classification | Maximum Candela | BUG Rating |
|---------------------------|------------------------------------|--------------------------|-------------------|
| Type I | Medium | 8028 (80H, 67.5V) | B1-U0-G1 |

* The above results are recorded / derived from measurements made using an Integrating Sphere

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Test Sample Pictures

The following sample was submitted for evaluation:



Alva Light : Wallis / GUS

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| Test Result | |
|--|-------------------------|
| <p>The following results were measured after stabilization of the sample in the Integrating Sphere (unless otherwise stated). Stability shall be achieved when the variation (Maximum to minimum) of at least three readings of the light output and electrical power consumption, taken at a maximum of 10 minute intervals over a period of 20 minutes and divided by the last of these measurements chronologically, is less than 0.5%.</p> | |
| Key Photometric Results | Sample Reference |
| | Wallis / GUS |
| | Goniophotometer |
| Luminous Efficacy (Lumens/Watt) | 114.32 |
| Total Luminous Flux (Lumens) | 5107.9 |
| IES Classification | Type I |
| Longitudinal Classification | Medium |
| Maximum Candela | 8028 (80H, 67.5V) |
| Stabilization Time (Light and Power) | 30 minutes |
| Total Run Time (Goniophotometer) | 60 minutes |

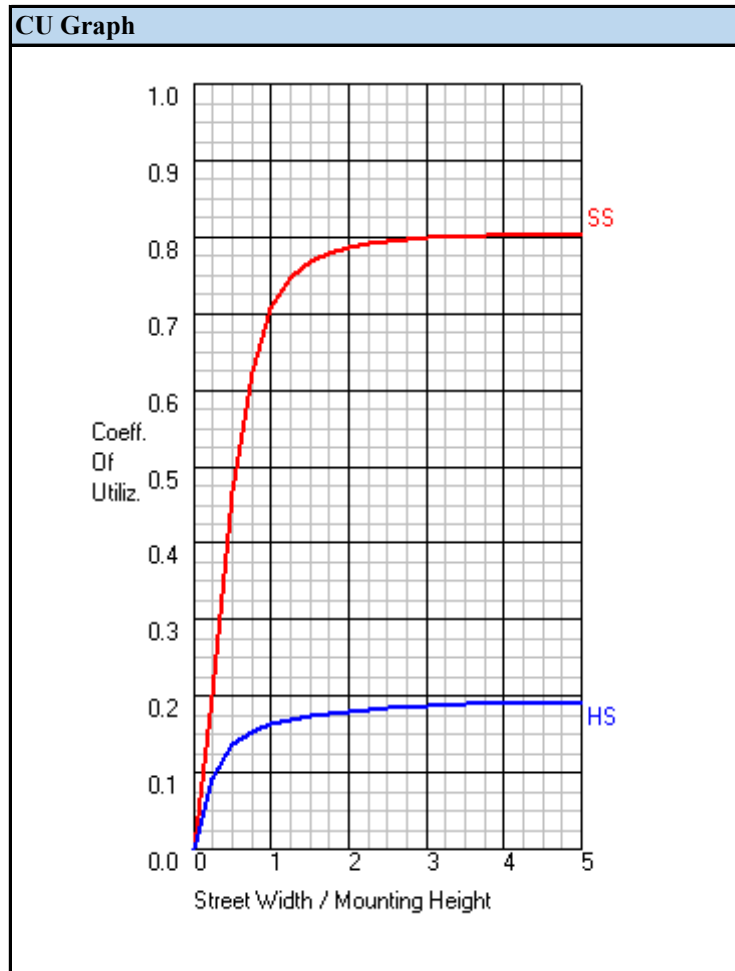
| Electrical Input Results: | Sample Reference |
|------------------------------------|-------------------------|
| | Wallis / GUS |
| Input Power (Watts) | 44.68 |
| Input Voltage (Volts AC) | 120.08 |
| Input Current (Amps) | 0.37 |
| Input Frequency (Hertz) | 60 |
| Power Factor | 0.9938 |
| Total Harmonic Distortion (THD A)% | 5.36 |

| Additional Information | Sample Reference |
|-------------------------------|-------------------------|
| | Wallis / GUS |
| Ambient Temperature | 25.5 |
| Date Tested | 45049 |

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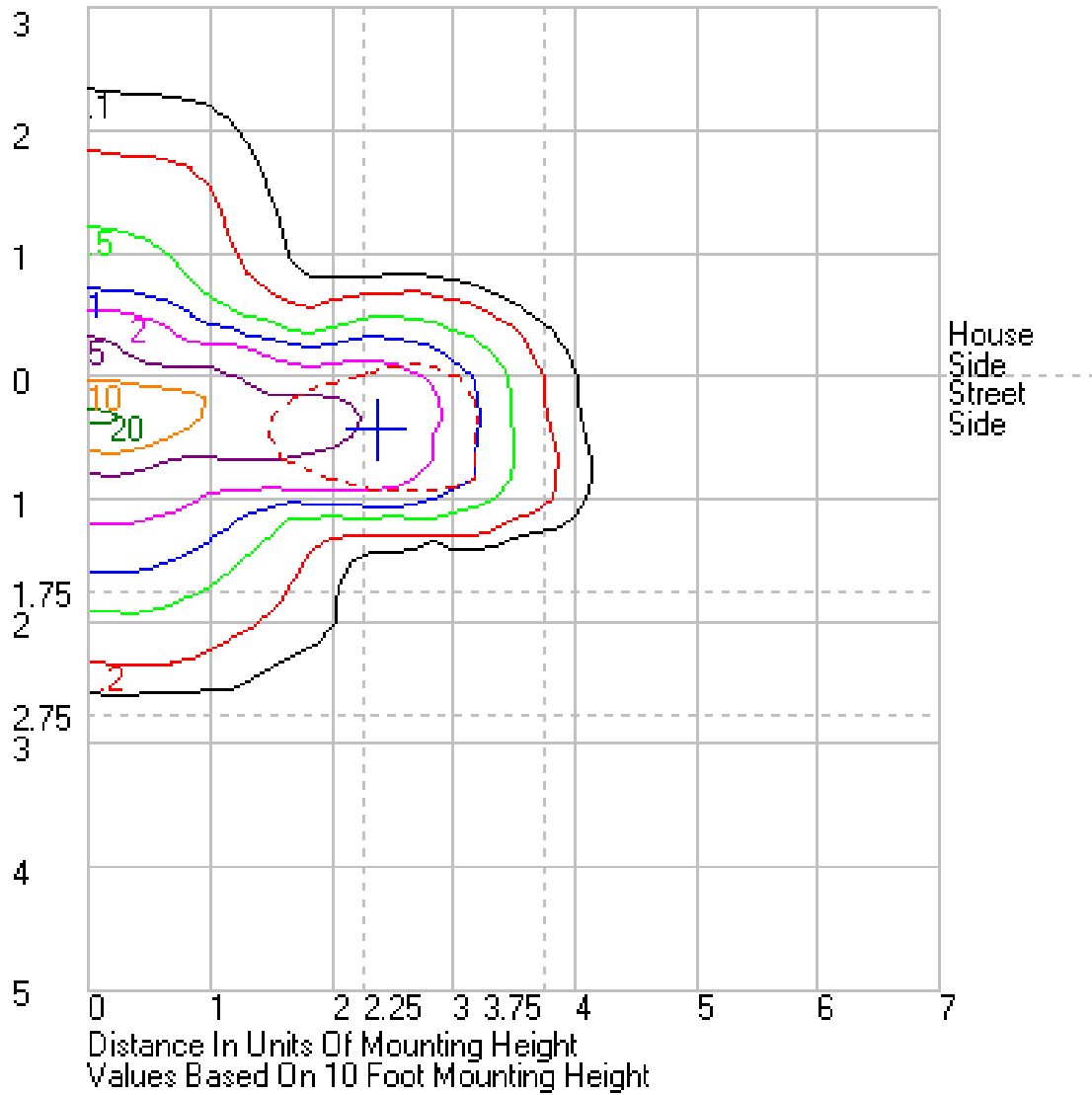
| Lumens Classification System (LCS) | | | |
|------------------------------------|----------|--------|------|
| LCS Zone | | Lumens | %Lum |
| FL | 0-30° | 804.9 | 15.8 |
| FM | 30-60° | 1983 | 38.8 |
| FH | 60-80° | 1307.3 | 25.6 |
| FVH | 80-90° | 19.2 | 0.4 |
| BL | 0-30° | 247.5 | 4.8 |
| BM | 30-60° | 414.4 | 8.1 |
| BH | 60-80° | 310.9 | 6.1 |
| BVH | 80-90° | 20.7 | 0.4 |
| UL | 90-100° | 0 | 0 |
| UH | 100-180° | 0 | 0 |
| Total | | 5107.9 | 100 |

| Flux Distribution | | |
|----------------------|--------|------------|
| | Lumens | %Luminaire |
| Downward Street Side | 4114.4 | 80.5 |
| Downward House Side | 993.5 | 19.5 |
| Downward Total | 5107.9 | 100 |
| Upward Street Side | 0 | 0 |
| Upward House Side | 0 | 0 |
| Upward Total | 0 | 0 |
| Total Flux | 5107.9 | 100 |



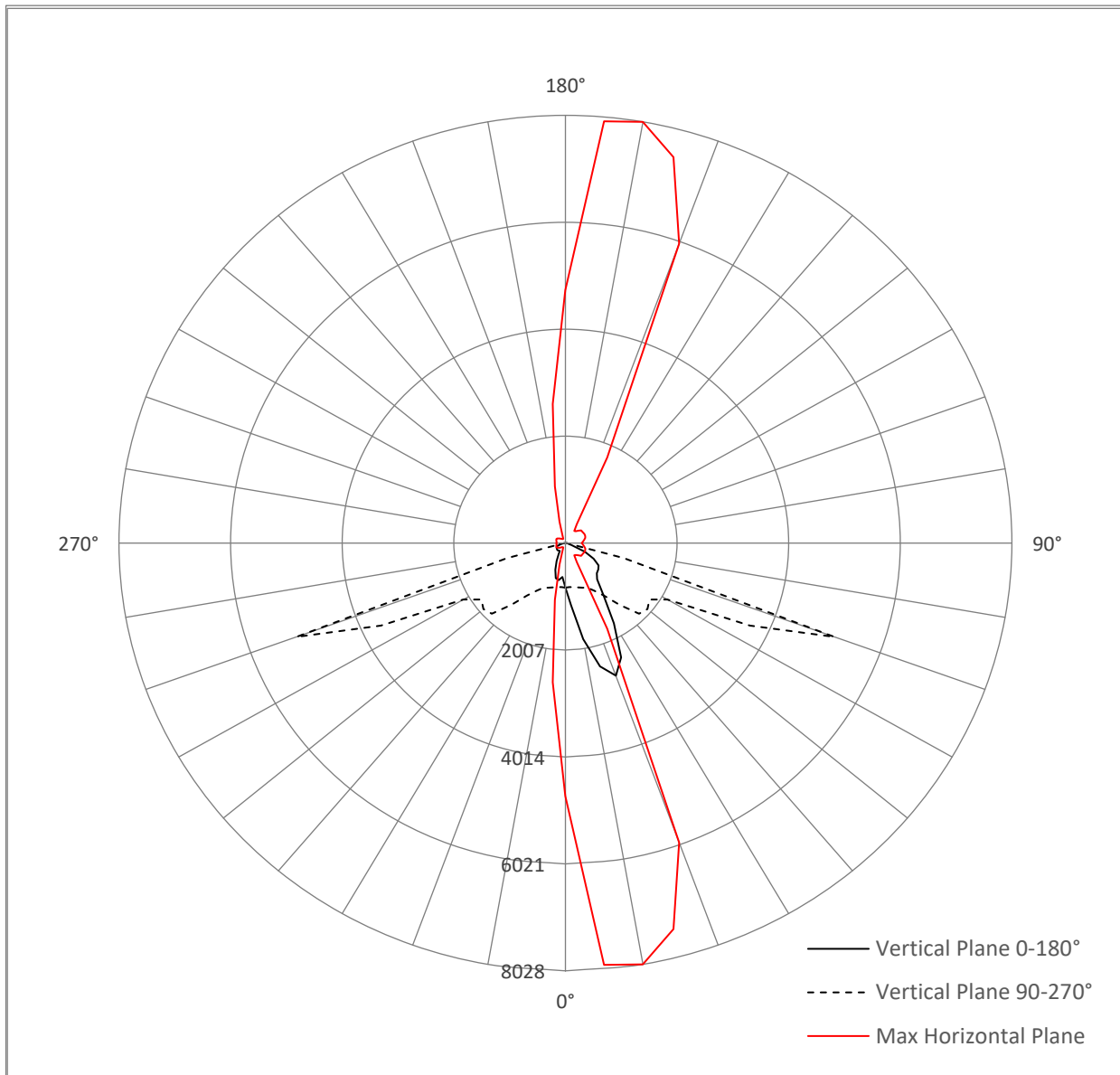
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Isolines



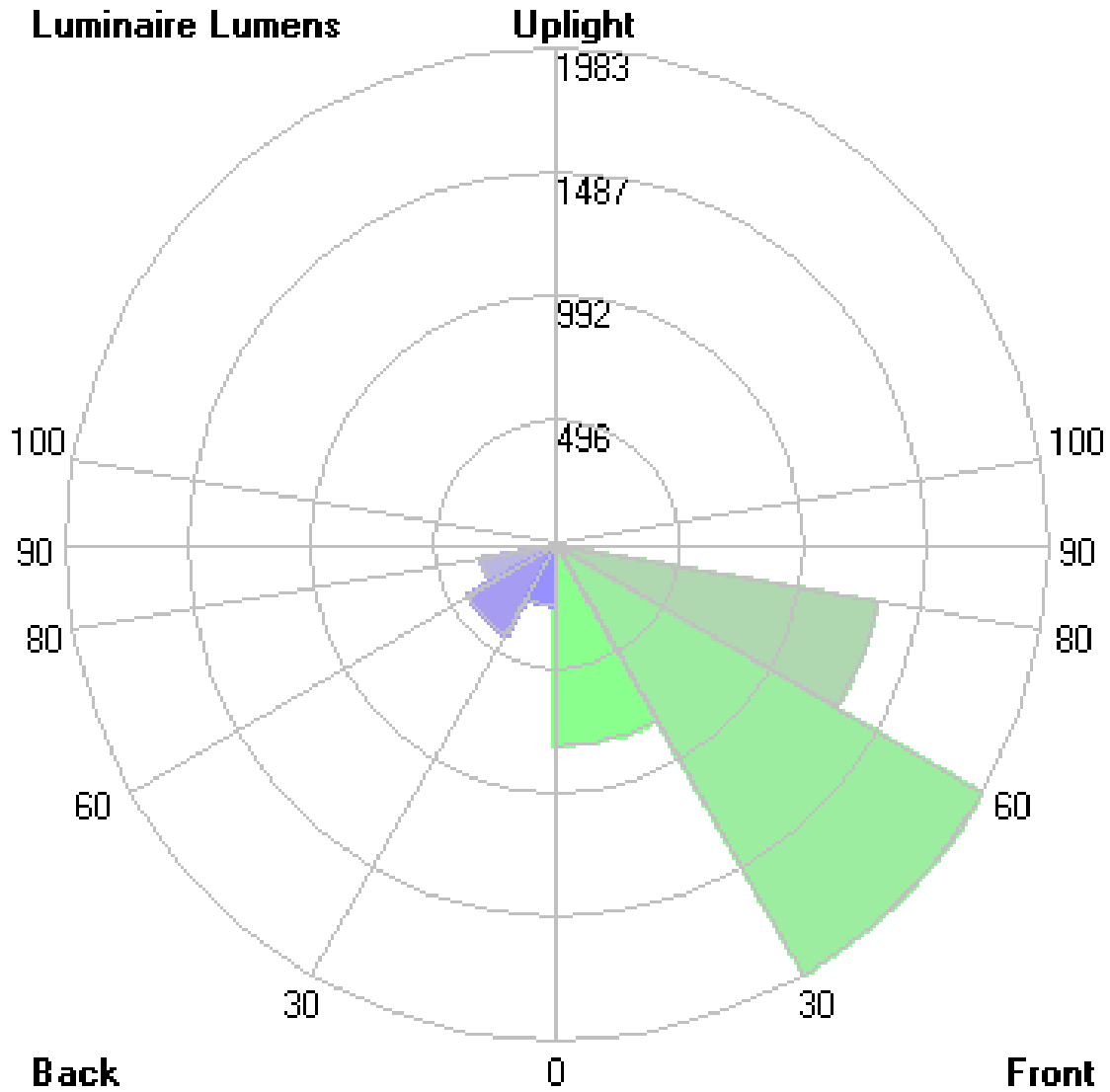
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Polar Graph



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LCS Graph



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Photometric Testing Information

The sample was evaluated for photometric and electrical characteristics using a goniophotometer, located in purpose-built, temperature and humidity-controlled, draft free environments

Luminaire Stabilization.

The results were measured after stabilization of the sample in the Goniophotometer (unless otherwise stated). Stability shall be achieved when the variation (Maximum to minimum) of at least three readings of the light output and electrical power consumption, taken at a maximum of 10-minute intervals over a period of 20 minutes and divided by the last of these measurements chronologically, is less than 0.5%.

The goniophotometer Mayer Engineering Type C is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

The goniophotometer Mayer Engineering Type C is calibrated using a frosted tungsten filament FDS/DZE lamp with the following specifications:

Manufacturer: GE
Part Number: DZE
Bulb Number: 106-A
Voltage: 16.93 Volts DC reference
Calibration Current: 4.863 Amperes
Luminous Intensity: 168.8 Candelas
Calibration Date: 4/25/12 (NIST traceable)

Manufacturer: GE
Part Number: DZE
Bulb Number: 106-B
Voltage: 16.45 Volts DC reference
Calibration Current: 4.79 Amperes
Luminous Intensity: 145.3 Candelas
Calibration Date: 4/25/12(NIST traceable)


Manufacturer: GE
Part Number: DZE
Bulb Number: 106-C
Voltage: 16.57 Volts DC reference
Calibration Current: 4.829 Amperes
Luminous Intensity: 157.0 Candelas
Calibration Date: 4/25/12 (NIST traceable)

A Yokogawa WT310 Power Analyzer was used to measure all electrical characteristics of the sample.

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| Equipment List: Goniophotometer Type C (Mirror 2) | | | |
|---|---------------------------------|---------------------------------|----------------------|
| Description | Manufacturer and Model Number | CSA Instrument Reference Number | Calibration Due Date |
| Optometer | Gigahertz Optik P9801 | OPT400 | N/A |
| Programmable DC Power Supply | Chroma Instruments 62012P-80-60 | DCP300 | N/A |
| Regulated Power Supply | Chroma Instruments 61602 | AC301 | N/A |
| Power Analyzer | Yokogawa WT310-E | POA400 | 6/27/2023 |

* All equipment is calibrated to ISO / IEC 17025-2017 guidelines.

| Accreditation |
|--|
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