

# LIGHTLAB®

## EEE Light® UVB/UVC Light Sources

### Technology Brief

THIS NEW UV TECHNOLOGY BY LIGHTLAB Sweden offers large benefits as compared to other UV sources. The products are uniquely suited for intermittent applications where secure levels of disinfection are of importance.

Available as groundbreaking true UVC chips as well as traditional tube lamps, most consumer near applications can benefit from the implementation of EEE Light®.

#### KEY BENEFITS

- ✓ Sustainable - 100% Mercury free
- ✓ Immediate turn-on – no delay
- ✓ High germicidal efficiency
- ✓ Reduced cost of ownership
- ✓ Simplifies system design
- ✓ -20°C – +100°C operating range
- ✓ No need for heat sinks or thermal management
- ✓ Excellent spectral properties
- ✓ Intelligent driver / ballast

#### APPLICATION EXAMPLES

- White goods
- PoU and PoE water disinfection systems
- Air conditioners
- Drinking fountains
- Surface disinfection systems

THE ALREADY EXISTING AND NEW EMERGING NEEDS FOR CLEAN AND SAFE AIR, WATER AND FOOD TOGETHER WITH AN RISING ENVIRONMENTAL CONSCIOUSNESS AND DRIVE FOR SUSTAINABLE TECHNOLOGIES ARE PUSHING A PARADIGM.

THIS SUSTAINABLE **UVB/UVC** TECHNOLOGY is completely free of toxic materials such as Mercury, removing significant barriers and cost adders when used in systems where water, beverages, food etc. would risk contamination associated with a possible system failure. Its outstanding spectral properties ensure that no nitrite is formed.

WITH A PROVEN ABILITY TO REACH FULL **UVC** OUTPUT WITHIN **MILLISECONDS**, the EEE Light® technology is ideal for applications where intermittent operation is used, saving system power and effectively extending lifetime, reducing service needs and cost of ownership.

THE SUPERIOR GERMICIDAL EFFECTIVENESS - ACHIEVING **99.999999%** BACTERIAL REDUCTION (“log8”) owing to the absence of tailing

open up applications where highest disinfecting performance is required.







THE **EEE LIGHT®** TECHNOLOGY OFFERS EXTREMELY **LOW TEMPERATURE DEPENDENCY**, facilitating applications from subzero temperatures to 100°C, without any significant deterioration of performance.

AS **NO HEAT SINKS NOR THERMAL MANAGEMENT IS NEEDED** the integration into the final application is swift, smooth and no additional cost or design effort is required

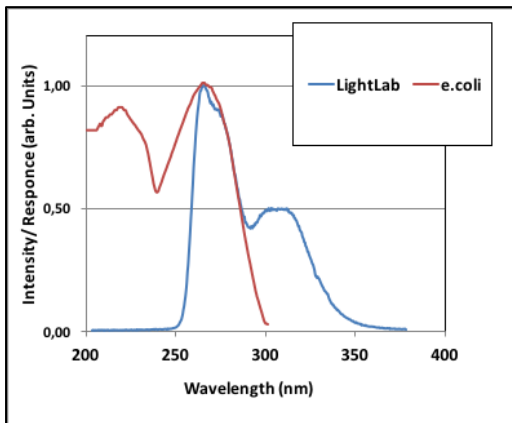
THE **SPECTRAL PROPERTIES – EXHIBITING TRUE UVC RADIATION - ARE SELECTED TO GIVE AN EXCELLENT FIT** towards the bacterial/ response- and DNA absorption-curves, reducing or even eliminating re-activation while exhibiting no emission below 240nm.

THE **UVB/UVC LIGHT SOURCES ARE SUPPORTED BY INTELLIGENT DRIVE UNITS**, including precise constant power control and an optional Bluetooth enabled control app.

## BENEFIT – PERFORMANCE

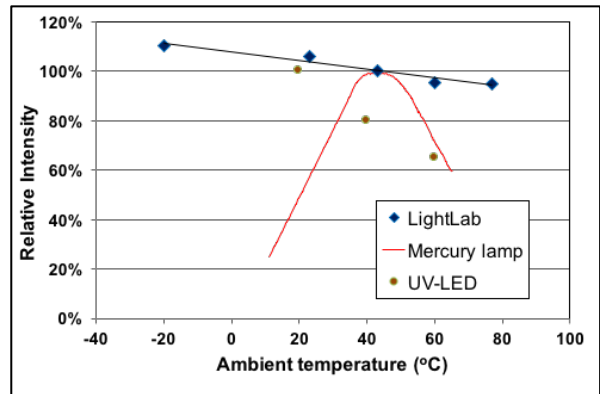
- |  |   |  |
|--|---|--|
| ✓ 100% mercury free  |  | <b>SUSTAINABLE</b>                                   |
| ✓ Immediate turn-on/turn-off (<1ms)                              |  | <b>LOWER operational costs<br/>LONGER life</b>       |
| ✓ Higher energy efficiency and higher output power than UVC-LEDs |  | <b>Dramatically reduced system cost</b>              |
| ✓ Extremely low temperature variation from -20°C – +100 °C       |  | <b>ONE solution for all applications</b>             |
| ✓ No need for heat sinks   |  | <b>EASY smooth integration</b>                       |
| ✓ No Tailing, 99.999999% bacterial reduction                     |  | <b>Intermittent low dose =&gt; no / low regrowth</b> |

## SPECTRAL PROPERTIES



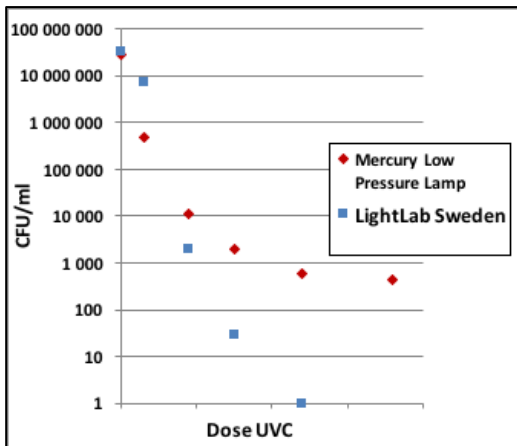
Light Source spectrum and absorption for E.coli

## TEMPERATURE CHARACTERISTICS

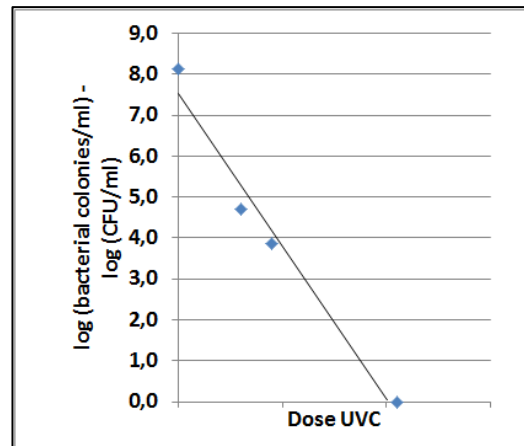


Measured intensity variation as a function of temperature, demonstrating the outstanding performance of the technology

## GERMICIDAL PERFORMANCE



Measured deactivation of E.coli demonstrating the absence of tailing



Measured deactivation of E.coli demonstrating 99.99999% reduction



LightLab's Bluetooth® enabled tube lamp HV-driver with precise power output control enabling accurate evaluation in real applications



LightLabs groundbreaking UVC chip

## EEE LIGHT® UVB/UVC – PRODUCTS

### *UVC Chips*

The EEE LIGHT® UVC chip technology represent a new and game changing way in its view on UVC sources for consumer volume applications and its ability to serve mass market applications. With its ultra-low cost, ease of integration, proven germicidal performance and attractive form factor, they are the primary choice for integration into white goods, water taps, air conditioners etc.

### *Tubular lamps*

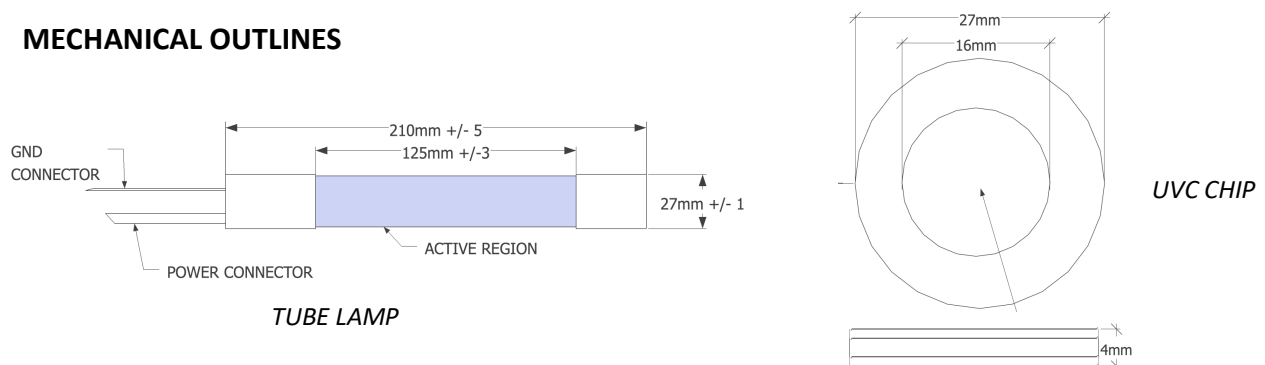
Our tubular lamps typically serve consumer near applications oriented towards traditional applications and find high usefulness when a toxic free product is required, leveraging on its instant turn on, higher dose rates and low cost. Designed to last the end applications useful life, the system can be built without replacement considerations.

### PRODUCT SELECTION

When requiring a high dose rate (such as PoU water disinfection) a tubular lamp may be a good choice, depending on system requirement.

UVC Chips are typically chosen for applications such as hygienic maintenance of surfaces and disinfection in white goods - ideally suited for consumer products such as airconditioners, fridges, dishwashers, washing machines and vacuum cleaners, etc.

### MECHANICAL OUTLINES



**FOR INFORMATION AND ORDERING CONTACT [info@lightlab.se](mailto:info@lightlab.se)**

### DISCLAIMER

Samples are provided “as is”. LightLab Sweden AB disclaims all warranties, expressed or implied. Samples are solely intended to be used for evaluation and testing purposes. The customer must ensure that any samples are handled complying with all relevant requirements (legal and others) and standards in whichever country it is used. The customer accepts any and entire risk arising out of the use of the samples. In no event shall LightLab be liable to any loss, damage related to the use of the samples. This document is for information purposes only and any information given herein shall in no event be regarded as a warranty, guarantee or description of any functionality, conditions and/or quality of the evaluation boards & kits or any suitability for a particular purpose. We reserve the right to change this document and/or the information given herein at any time without notice.