



**Fraunhofer**

**TESTED<sup>®</sup>  
DEVICE**

PHILIPS LIGHTING B. V.  
Luminaire series TBS  
**Report No. PH 1011-536**

DUPLICATE

Statement of  
Qualification

# Statement of Qualification

**Customer:** PHILIPS LIGHTING B. V.  
Mathildelaan 1  
5611 Eindhoven  
The Netherlands

## Component tested:

**Category:** Cleanroom Facilities  
**Subcategory:** Lighting Systems  
**Type:** Luminaire series TBS  
• TBS426 2xTL5-28-54W/830 HFP C5-H  
• TBS424 4xTL5-14-24W/830 HFP C5-H  
• TBS424 2xTL5-35-49-49W/830 HFP C5-H

## Random check measurements of particle emission (airborne) at representative points

**Test procedure:** According to VDI 2083 Part 9.1  
**Measuring instruments being used:** Optical Particle Counter:  
Model LasAir II 110 manufactured by PMS with measuring channels of  
 $\geq 0.1 \mu\text{m}$ ,  $\geq 0.2 \mu\text{m}$ ,  $\geq 0.3 \mu\text{m}$ ,  $\geq 0.5 \mu\text{m}$ ,  $\geq 1.0 \mu\text{m}$  and  $\geq 5.0 \mu\text{m}$   
**Test parameters of the test environment:**  
• Cleanroom of Air Cleanliness Class: .....ISO Class 1  
..... (according to ISO 14644-1)  
• Air flow velocity: ..... 0.45 m/s  
• Air flow guidance: ..... vertical unidirectional air flow from ceiling to floor  
• Temperature: .....  $22^\circ\text{C} \pm 0.5^\circ\text{C}$  ( $71.6^\circ\text{F} \pm 0.9^\circ\text{F}$ )  
• Relative humidity: .....  $45\% \pm 5\%$   
**Test parameters of the test execution:**  
The lighting system was stressed as follows:  
• Impact sound: ..... between approx. 5 Hz and 50 Hz  
• Average oscillation velocity: .....  $v = 0.0717 \text{ mm/s}$   
• Average oscillation acceleration: .....  $a = 0.0553 \text{ m/s}^2$   
• Average oscillation of the system: .....  $s = 0.000269 \text{ mm}$   
**Test results:**  
(according to ISO 14644-1) The luminaire series TBS is suitable for use in cleanrooms fulfilling the  
Air Cleanliness Class 2.

## Assessment of conformity with GMP regulations and EHEDG conception and design recommendations

**Test procedure:** According to EU GMP Annex 1; EHEDG Doc. 8; DIN EN 1672-2; ISO 14159  
**Test results:**  
(according to EU GMP Annex 1) A principle recommendation can be made for use in hygienic areas up to  
a maximum of GMP Cleanliness Class C. However, this only applies for the  
assessed operating utility in a resting state and the luminaire series TBS  
would need to be reassessed after assembly in a manufacturing environ-  
ment.

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The measuring equipment used for the qualification is regularly calibrated and is based on national and international standards. In the case where no national standards exist, the measuring procedure used corresponds with technical regulations and norms valid at the time of the measurement. The documents drawn up for this procedure are available for viewing.

The validity of this certificate applies only to the mentioned product in this particular condition for a duration of 5 years.  
Further information: [www.tested-device.com](http://www.tested-device.com).