



Biuro Naukowo-Techniczne  
SIGMA

Laboratory compliant  
with ISO 17025

Testing environment  
ISO Class 2

Active member of:

Polish Committee  
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- Technical Committee no 161  
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Polish Committee  
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- Technical Committee no 317  
for Ventilation and Air Conditioning

Biuro Naukowo-Techniczne SIGMA  
Jezycka 44A/5 Street  
60-865, Poznan, Poland  
Phone: 0048 61 624 27 22  
E-mail: info@bnt-sigma.pl

# QUALIFICATION CERTIFICATE

ISO 14644-14 CLEANROOM SUITABILITY TEST: PARTICLE EMISSION TEST

**Product under test:** MEDICA 2.0 LED 600x600 p/t ED DALI 3700lm/930

**Customer name:** LLF Sp. z o.o.

**Customer address:** Gorzowska 11, 65-127 Zielona Góra, Polska



## Test results:

When operated under below specified test conditions, lighting fixture **MEDICA 2.0 LED 600x600 p/t** is suitable for use in cleanrooms fulfilling the specification of air cleanliness **ISO Class 3 - 9** according to ISO 14644-1:2015.

**Test method:** ISO 14644-14:2015

**Test device:** Laser Particle Counter TSI 9110; s/n: 91101102001

**Particles size channels:**  $\geq 0.1\mu\text{m}$ ;  $\geq 0.2\mu\text{m}$ ;  $\geq 0.3\mu\text{m}$ ;  $\geq 0.5\mu\text{m}$ ;  $\geq 1.0\mu\text{m}$ ;  $5.0\mu\text{m}$

## Test environment:

- Cleanroom Air Cleanliness: ISO Class 2 (according to ISO 14644-1:2015)
- Airflow velocity and pattern:  $0,45\text{m/s} \pm 20\%$ ; vertical laminar flow
- Temperature and relative humidity:  $20^\circ\text{C} \pm 2^\circ\text{C}$ ;  $50\% \pm 10\%$

## Stress conditions applied:

- Structure-bore noise: 50Hz
- Oscillation of the object, velocity and accel.: 0.71 mm; 20.1 mm/s; 2.1 m/s<sup>2</sup>

Detailed test results can be found in the BNT SIGMA test report no. E-2219-1-1. This document, as well as full test report, applies only to the product named above.

Laboratory: BNT SIGMA, Section of Cleanroom Technology

Operator: Krzysztof Zarczynski, Validation Engineer

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