



valid until: July 1, 2027

**Fraunhofer**  
TESTED<sup>®</sup>  
DEVICE  
Luceco plc  
Cleanroom LED panel light  
**Report No. LU 2512-1701**

DUPPLICATE

Statement of  
Qualification

Single product  
Particle Emission

# Statement of Qualification • Single product

## Customer

Luceco plc  
Building E, Stafford Park 1,  
Telford, Shropshire TF3 3BD,  
United Kingdom

## Test result / Classification

When operated under the specified test conditions, the Cleanroom LED panel light is suitable for use in cleanrooms fulfilling the specifications of the following Air Cleanliness Class according to ISO 14644-1:

Test parameter(s)	Air Cleanliness Class
Structure-borne noise = approx. 5 to 50Hz	1
<b>Overall result</b>	

## Component tested

Category: Cleanroom Facilities  
Subcategory: Lighting Systems  
Product name: Cleanroom LED panel light  
(manufacturing date: 11/5/2022; color: white; article number: LPCR14W75D3K-MX, LPCR24W75D3K-MX, LPCR22W75D3K-MX; serial number: 28.10.N00053; batch number: SPYF0327)

It must be pointed out, that according to ISO 14644-1 cleanrooms classes 1 to 5 have a high filter occupancy, with the result that large-surface lighting/ ceiling systems cannot be used in some cases. Cleanrooms with a horizontal displacement flow form an exception to this.

Please note: Transport damages, incorrect installation, aging behavior, corrosion etc. can influence the test result.

## Random sampling of particle emissions (airborne) at representative sites

Standards/Guidelines: ISO 14644-1, -14  
The norms stated generally refer to the version valid at the time of the tests.

Test devices: Optical particle counter:  
LasAir II 110 and LasAir III 110 with measuring ranges  $\geq 0.1 \mu\text{m}$ ,  $\geq 0.2 \mu\text{m}$ ,  $\geq 0.3 \mu\text{m}$ ,  $\geq 0.5 \mu\text{m}$ ,  $\geq 1.0 \mu\text{m}$  and  $\geq 5.0 \mu\text{m}$

Test environment parameters:

- Cleanroom Air Cleanliness Class (according to ISO 14644-1): ISO 1
- Airflow velocity: ..... 0.45 m/s
- Airflow pattern: ..... vertical laminar flow
- Temperature: .....  $22^\circ\text{C} \pm 0.5^\circ\text{C}$
- Relative humidity: ..... 45 %  $\pm 5$  %

Test procedure parameters:  
The lighting system was subjected to stress as follows:

- Structure-borne noise: ..... approx. 50Hz
- Oscillation velocity ( $\dot{\theta}$ ): .....  $v = 0.5144 \text{ mm/s}$
- Oscillation acceleration ( $\ddot{\theta}$ ): .....  $a = 0.0184 \text{ m/s}^2$
- Oscillation of the system ( $\theta$ ): .....  $s = 0.0986 \text{ mm}$

The measuring devices used for the qualification tests are calibrated at regular intervals; their results can be traced back to national and international standards. In cases where no national standards exist, the test procedure implemented complies with the technical regulations and norms applicable at the time of the test. The relevant documentation can be viewed on request at any time.

Detailed information and parameters of the test environment can be found in the Fraunhofer IPA test report.

Fraunhofer Institute for Manufacturing  
Engineering and Automation IPA

Department of Ultraclean Technology  
and Micromanufacturing

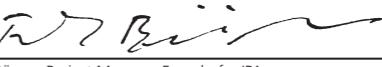
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Place, current date

on behalf of   
Dr.-Ing. Frank Bürger, Project Manager Fraunhofer IPA

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