IPA

Cleanroom (atmospheric)

valid until: August 5, 2030

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DEVICE

Fagerhults Belysning AB
Multilume Hydro G3 600x600
Report No. FA 2507-1642

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

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Statement of Qualification · Single product

Customer

Fagerhults Belysning AB
Åvägen 1B
566 80 Habo
Sweden

Tested product

Category: Cleanroom Facilities

Subcategory: Lighting Systems

Product name: Multilume Hydro G3 600x600
(manufacturing date: 4/16/2025; color: white; article number: 23353.0-20000; serial number: 41773152; type: T0195; max. out voltage: 60 V; voltage: 36 V; power: 62 W; current: 1860 mA)

Random sampling of particle emissions (airborne) at representative sites in cleanroom under atmospheric conditions

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

Test equipment: Optical particle counter:
LasAir II 110 and LasAir III 110 with measuring ranges ≥ 0.1 µm, ≥ 0.2 µm, ≥ 0.3 µm, ≥ 0.5 µm, ≥ 1.0 µm and ≥ 5.0 µm

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
- Room temperature: ..... 22 °C ± 0.5 °C
- Relative humidity: ..... 45 % ± 5 %

Test procedure parameters: The luminaire was subjected to stress as follows:

- Structure-borne noise: ..... f = approx. 50 Hz
- Oscillation velocity (Ø): ..... v = 1.8658 mm/s
- Oscillation acceleration (Ø): ..... a = 0.5490 m/s²
- Deflection of the system (Ø): ..... s = 0.1004 mm

Test result / Classification

The luminaire Multilume Hydro G3 600x600 is suitable for use under the specified test parameters (room temperature: 22 °C ± 0.5 °C; relative humidity: 45 % ± 5 %) in cleanrooms of the following Air Cleanliness Classes according to ISO 14644-1:

Test parameter(s)	Air Cleanlines Class
Structure-borne noise: f = approx. 50 Hz	1
Overall result	

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.
The test result may be influenced by the surrounding ceiling system, in particular the material pairing between the light and ceiling frame, as well as other assembly accessories. Particle emission behavior should be re-assessed in the respective assembly situation.

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

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

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FA 2507-1642 — Report No. first document
Stuttgart, August 5, 2025 — Place, date of first document issued

-- — Report No. current document
-- — Place, current date

on behalf of
Dr.-Ing. Frank Bürger, head of business unit Testing and Certification

This document only applies to the named product in its original state and is valid for a period of 5 years from the date the first document was issued. The document can be verified under **www.tested-device.com**.