valid until: June 6, 2030

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DEVICE

THORN Lighting Limited
INV 5800-840 OP GL HF
Report No. TH 2505-1629

Statement of
Qualification

Single product
Particle Emission
in Cleanroom
(atmospheric)

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Statement of Qualification · Single product

Customer

THORN Lighting Limited
Durhamgate Spennymoor
County Durham DL16 6HL
United Kingdom

Tested product

Category: Cleanroom Facilities

Subcategory: Lighting Systems

Product name: INV 5800-840 OP GL HF Q600
(manufacturing date: 3/24/2025; color: white; size: 600 x 600 mm; article number: 96638271)

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: ..... approx. 50 Hz
- Oscillation velocity (Ø): ..... v = 8.1820 mm/s
- Oscillation acceleration (Ø): ..... a = 0.3258 m/s²
- Deflection of the system (Ø): ..... s = 3.2740 mm

Test result / Classification

The luminaire INV 5800-840 OP GL HF Q600 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 Class according to ISO 14644-1:

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

It should be noted that cleanrooms of class 1 to 5 according to ISO 14644-1 have a higher filter occupancy, which may restrict the use of panel lighting systems. Cleanrooms with a horizontal displacement flow form an exception to this.
The test result may be affected by the surrounding ceiling system, in particular the material pairing between lights and ceiling frames, as well as other mounting accessories. Particle emission behavior should be reassessed in each 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

Business unit
Testing and Certification

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-- — 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**.