



Fraunhofer

**TESTED[®]
DEVICE**

Mazinoor Lighting Industries, Inc.
STERILUX M550WESG336TCL
Report No. MA 1408-721

DUPLICATE

Statement of
Qualification

Particle Emission

Statement of Qualification

Customer: Mazinoor Lighting Industries, Inc.
9th Km, Babol to Babolsar Road
47451-8311 Babol
Iran

Component tested

Category: Cleanroom Facilities

Subcategory: Lighting Systems

Product name: STERILUX M550WESG336TCL
(manufacturing date: 09/03/2014; color: white; batch number: 1403090601)

Test result / Classification:
(in acc. with ISO 14644-1)

The luminaire STERILUX M550WESG336TCL is suitable for use in cleanrooms fulfilling the specifications of Air Cleanliness Class 1.

It must be pointed out, that according to ISO 14644-1 cleanrooms classes 1 to 5 have a high number of filters, which makes the use of luminaires partly impossible. Cleanrooms with horizontal laminar flow are an exception.

The test result may be influenced by the surrounding ceiling system and other mounting accessories. The particle emission behaviour should be re-assessed in individual mounting situations.

Random sampling of particle emissions (airborne) at representative sites

Standards/Guidelines: VDI 2083-9.1; ISO 14644-1
The norms stated refer to the relevant editions applicable at the time of the tests.

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

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 luminaire was stressed as follows:

- Impact sound:between 5 Hz and 50 Hz
- Average oscillation velocity:..... $v = 0.201 \text{ mm/s}$
- Average oscillation acceleration:..... $a = 0.094 \text{ m/s}^2$
- Average oscillation of the system:..... $s = 0.00039 \text{ mm}$

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.

For further information about the test environment and parameters, please refer to the Fraunhofer IPA test report.

Fraunhofer Institute for
Manufacturing Engineering and Automation IPA

Department of Ultraclean Technology
and Micromanufacturing

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Stuttgart, July 18, 2014

Place, date of first document issued

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Place, current date

i. A. 
Frank Bürger, Project Manager Fraunhofer IPA