



valid until: October 1, 2030

**Fraunhofer**

**TESTED<sup>®</sup>  
DEVICE**

PULS GmbH  
CW1000

**Report No. PU 2507-1644**

DUPLICATE

Statement of  
Qualification

Single product  
Particle Emission  
in Cleanroom  
(atmospheric)

Customer

PULS GmbH  
Elektrastrasse 6  
81925 Munich  
Germany

Tested product

Category:

Working Place and Operator

Subcategory:

Work Equipment

Product name:

CW1000  
consisting of:

- CW1000.WALL (manufacturing date: 4/2025; article number: 101528; serial number: 01154890)
- CW1000.SEPA (manufacturing date: 7/2025; serial number: 1100238432)
- CW1000.MOCHA (manufacturing date: 7/2025; serial number: 1100230353)

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  $\geq 0.1\text{ }\mu\text{m}$ ,  $\geq 0.2\text{ }\mu\text{m}$ ,  $\geq 0.3\text{ }\mu\text{m}$ ,  $\geq 0.5\text{ }\mu\text{m}$ ,  $\geq 1.0\text{ }\mu\text{m}$  and  $\geq 5.0\text{ }\mu\text{m}$

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
- Room temperature: .....22 °C  $\pm$  0.5 °C
- Relative humidity: ..... 45 %  $\pm$  5 %

Test procedure parameters:

- Installation position: .....vertical
- Load:
  - $U_{min}$ : .....20 V
  - $U_{max}$ : .....31 V
  - $U_{charge}$ : .....29 V
  - $U_{restart}$ : .....24 V
  - $I_{min}$ : .....1 A
  - $I_{charge}$ : .....42 A

Test result / Classification

The inductive charger system CW1000 consisting of CW1000.WALL, CW1000.SEPA and CW1000.MOCHA is suitable for use under the specified test parameters (room temperature: 22 °C  $\pm$  0.5 °C; relative humidity: 45 %  $\pm$  5 %) in cleanrooms of the following Air Cleanliness Classes according to ISO 14644-1:

Test parameter(s)	Air Cleanlines Class
CW1000.WALL ( $U_{charge} = 29\text{ V}$ ; $I_{charge} = 42\text{ A}$ )	4
CW1000.SEPA in combination with CW1000.MOCHA	6
Overall result	6

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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Germany

PU 2507-1644

Report No. first document

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Report No. current document


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

Stuttgart, October 1, 2025


Place, date of first document issued

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Place, current date

  
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](http://www.tested-device.com).

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