



Fraunhofer

**TESTED[®]
DEVICE**

Hilti
SID4 A-22
Report No. HI 1708-941

DUPLICATE

Statement of
Qualification

Particle Emission

Statement of Qualification

Customer
 Hilti Entwicklungsgesellschaft mbH
 Hiltistrasse 6
 86916 Kaufering
 Germany

Component tested

Category: Working Place and Operator
 Subcategory: Work Equipment
 Product name: Compact class cordless 22V impact driver SID A-22 with Li-Ion battery (manufacturing date: 7/2016; color: red; serial number: 170050395)

Test result / Classification

When operated under the specified test conditions, the compact class cordless 22V impact driver SID A-22 with Li-Ion battery 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
Installation position: horizontal, battery on Type of load: no load Torque setting: setting III (range: 0 rpm - 2700 rpm) Capacity: 100 % of setting III = 2700 rpm	8
Overall result	8

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 $\geq 5.0 \mu\text{m}$
 • Airnet 310 with measuring ranges $\geq 0.3 \mu\text{m}$, $\geq 0.5 \mu\text{m}$, $\geq 1.0 \mu\text{m}$ 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 °C \pm 0.5 °C
 • Relative humidity: 45 % \pm 5 %

Test procedure parameters:
 • Installation position: horizontal, battery on
 • Type of load:.....no load
 • Torque setting: setting III (range: 0 rpm - 2700 rpm)
 • Capacity:100 % of setting III = 2700 rpm

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

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 Place, date of first document issued

Department of Ultraclean Technology and Micromanufacturing

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on behalf of 
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