

Engineering  
Test/Programming  
Supply Chain Service

► **Qualification**

Failure analysis  
Consultancy



# QUALIFICATION

## according to standards or customized

### Quality and reliability



The correct selection of components and PBAs is critical for every development engineer. To guarantee reliability of components and PBAs a thoroughly performed qualification prior to production is essential.

#### Minimizing failure costs

Qualifications and accelerated stress tests allow conclusions about the long-life performance of components. Thus, qualifications reduce high consequential costs that occur due to failures under real conditions.

#### International standards and customer specific requirements

As a certified test lab we perform climatical tests, component and board qualifications according to international standards and customer specific requirements. The standards include AEC-Q 100/101/200, ESCC 9020/20100/ 20400, JEDEC O20, MIL 883/202, TELCORDIA, IEC, DIN.

### From concepts to results



#### Reducing field returns by reliable components

High follow-up costs due to necessary redesign and subsequent field-returns can be avoided if qualifications are performed during development phase.

#### Qualification of components and modules

**RoodMicrotec** performs qualifications for the following components:

- Active components like ASICs, ICs, transistors, diodes, sensors
- Passive components (R, C, I)
- Optoelectronic components for transmission systems, sensors, image sensors, LEDs and displays
- Electromechanical components i.e. relays, engines, PCBs and PBAs
- Connectors, cables and assembled cables

#### Surface Mounting Technology (SMT)

We analyze selected materials and evaluate process flows for dry-press-fit-technology, glueing and crimping methods during assembly.

Solder joint evaluation and solderability tests complete the qualification.

#### Solder profile qualifications

We carry out solder profiles, e.g. in accordance with the standard IPC/

JEDEC J-STD-020D as well as for automotive applications.

#### Test environments for extreme climatical stress tests

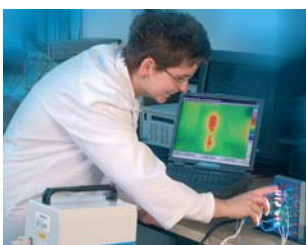
Components and modules are stored under extreme temperatures and humidity or they get shocked by temperature or humidity cycles:

- Temperature/climatic storage and cycling air/air, liquid/liquid  
max. temperature range = -70 °C... +300 °C  
max. humidity range = 10 % ... 98 %
- Pressure Cooker and HAST®

**RoodMicrotec** performs shock and vibration tests and constant acceleration according to customer specific requirements and international standards. Shock in half-sine, vibration in sine and random mode:

- IEC 60 068-2-6 (Vibration sinus)
- IEC 60 068-2-64 (random)
- IEC 60 068-2-27 (Shock)
- IEC 60 068-2-29 (Bump)
- MIL 883, method 2001 (constant acceleration)

These tests check the mechanical stability of modules.



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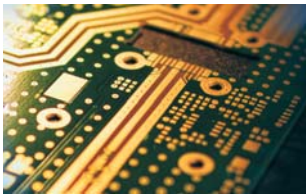
according to standards or customized



## State-of-the-art equipment



## Longtime experience and know-how



DAT-P-025/92-03  
DAT-PL-287/09-00

## Competence through experience

DIN EN ISO/IEC 17025  
ISO TS 16949  
DIN EN ISO 9001  
DIN EN ISO 14001

**Definition of qualification programs**  
Support during preparation and performance.

### Electrical measurements

- Definition of test concepts and qualification schemes
- Electrical and optoelectronic characterization
- Functional test
- Lot acceptance test

### Environment testing

- Life-tests, burn-in and run-in
- HAST/Pressure Cooker
- Climatic and mechanic stress tests
- ESD test and audits

### Material assessment

- Physical layout analysis
- Examination of processes like solderability
- Solder profile development

### RoHS-compliance

- Qualification for RoHS compliance
- Definition and check of moisture sensitivity level (MSL)

**RoodMicrotec** examinations are performed according to ISO/IEC 17025. **RoodMicrotec** test labs are accredited by DAR (German accreditation body).

### Know-how and expertise

Our lab equipment includes:

- Various microscopes such as optical light, X-ray, scanning acoustic
- Scanning electron microscope with EDX
- Infrared cameras
- Reflow tracker to produce soldering profiles
- LED and laser life test rack
- Interferometer measurement system for optical surfaces

Our environmental test equipment consists of:

- Climatic chambers, biased
- Temperature chambers, biased
- Burn-In chambers, e.g. HTOL, ELFR Monitored Burn-In
- HAST chambers/Pressure Cooker
- Mechanical environment tests: shock, bump and vibration
- Centrifuge (constant acceleration)

### Reliability by quality assurance

Quality is our key competence. Our services are based on professional measurements including process definition and documentation.

**RoodMicrotec** is an acknowledged service provider in the industry for quality assurance of electronics and optoelectronics.

We stand for certified and independent results in test, qualification and failure analysis and therefore provide reliable technical consulting.

### Rely on our experience

**RoodMicrotec** performed a large number of successful national and international projects and plays an active role in various standardization committees.

Our mission is to provide our customers with one-stop quality service.

### Challenge us!

We look forward to your inquiry.

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