

# EMC Test Lab Boeblingen, Germany

Keysight Test-as-a-Service

# EMC Test Challenges

Your EMC test requires environmental simulation, debugging, and compliance with up to 50 global standards and regulations. As a result, you may face many EMC test challenges such as:

- Lack of test capacity or a test facility
- Risk of redesign and product recall
- Increasing test complexity
- Staying current on test standards and regulations
- Shortage of budget and technical resources

Keysight's accredited EMC Test Lab, in Boeblingen, Germany, offers Test-as-a-Service to solve these test challenges.

The test lab provides simulation, and debugging, and ensures your equipment complies with a choice of over 50 global standards and regulations.

Partner with Keysight Test-as-a-Service for any of these four offerings:

- Design and test consultation
- Custom test
- Pre-compliance test
- Compliance test

## EMC Test Lab Measurement Capability

- Conducted emissions test site
- Wireless test site
- Safety test site
- Radiated emissions chamber
- Radiated immunity chamber
- Environmental test chambers



#### Design and Test Consulting

Simulate and debug your EUT



#### Custom Test

Validate your EUT to internal requirements



#### Pre-compliance Test

Validate your EUT to standards and regulations



#### Compliance Test

Validate your EUT to standards and regulations

## Partnership

### You know your equipment under test (EUT). We know test.

Keysight's technology leadership helps enterprises, service providers, and governments accelerate innovation as they connect to and secure the world. Twenty-four of the top 25 technologies choose Keysight products and services, and 78 of the Fortune 100 companies are Keysight customers as well. Keysight is the first to market with 5G wireless solutions including the pre-standard 5G protocol test solution selected by Qualcomm. Additionally, Keysight has executed over 20,000 next-generation wireless technology, 2G to 5G, test scripts

Keysight leads the software-as-a-service-based visibility-as-a-service for cloud and data center industries providing the most comprehensive public and private cloud visibility solutions. With more than 1,700 United States and foreign patents, Keysight engineers continue to innovate breakthrough test technology. Additionally, Keysight metrologists participate in multiple governing bodies around the world as they codevelop new standards and regulations. Keeping abreast of existing and emerging standards is a Keysight priority and our engineers participate in many standards, regulatory bodies, and consortiums, including ANSI, SISPR, OMNIAIR, PTCRB, and more.

When you make the decision to partner with Keysight, you gain access to vast test knowledge and experience including access to the expertise of the engineering designers of your hardware and software test solutions.

## Keysight's market leadership

- 75+ years of test expertise
- #1 in wireless communications test
- #1 in cloud and data center test
- Codevelopment of global Standards and regulations by our metrologists
- Access to hardware and software designers' expertise

## Design and test consulting

Keysight provides the following tools and services as solutions to your test challenges:

- EMC design and 3D simulation software
- Development of test strategies to achieve compliance
- EMC consultants troubleshoot to root cause
- Regression test
- Access to an accredited lab with the latest test equipment
- Convenient location in Boeblingen, Germany

## Benefits of partnering with Keysight test labs

- Minimize design iterations with simulations
- Gain better insight into EMC performance
- Solve design roadblocks with Keysight EMC consultants

Keysight's test labs help you uncover compliance challenges before they occur with simulation software and expert advice. Evaluate your designs using Keysight's PathWave three-dimensional design simulation software to gain better insights into your EMC performance and achieve your goal of improved product design. By simulating various design aspects, we can uncover possible weak spots in your design before you invest in building a prototype. Your engineers partner with Keysight experts to simulate circuits, block diagrams, and RF paths achieving an accelerated setup, simulation, and debug process. When you partner with our Keysight experts, using integrated design and test software, the results are a shortened design time, fewer prototypes, and a faster time to market.

Keysight EMC experts help you develop test strategies, perform tests, and run regression testing in our accredited, state-of-the-art EMC Test Lab. As design challenges arise, our engineers are ready to assist with debugging and recommendations to resolve design roadblocks faster. Our experts understand why and how to perform measurements with their deep domain knowledge of test equipment, software, standards, and regulations enabling them to quickly troubleshoot the EUT to root cause. Your design engineers receive guidance and support throughout the process, helping you achieve design compliance from the start.

## Custom Testing

Keysight provides the following tools and services as solutions to your test challenges:

- Experienced EMC test engineers
- Access to an accredited lab with the latest equipment
- Tests that follow existing and emerging standards
- Secure test reports and measurement data delivered within 2-business days of test completion
- Convenient location in Boeblingen, Germany

### Benefits of partnering with Keysight test labs

- Validate your EUT without the need to learn the intricacies of standards and regulations
- Speed time-to-market and reduce cost
- Reduce the risk of redesign and product recall

Keysight experts help you to validate your EUT to internal test requirements, so you don't have to come up to speed on the standards and regulations details. For test purposes, your designers may specify your EUT performance to either more stringent tolerances or much lower tolerances than those found in standards and regulations. Using the appropriate test tolerances ensures optimal test margins and reduces the risk of EUT failure and product recall liability. Keysight's experienced EMC test experts create a custom test plan that meets the necessary standards and regulations requirements for your EUT as well as your internal test requirements, so your team gains better insight into measurements and results.

Keysight's Test Plan Execution Service helps your team reduce the risk of redesign and product recall. By partnering with our EMC test experts, tests are developed based on Keysight's experts' deep measurement knowledge, and experience with the best test techniques and procedures that accelerate tests and reduce overall schedule and costs.

## Pre-compliance testing

Keysight provides the following tools and services as solutions to your test challenges:

- Access to an accredited lab with the latest equipment
- Tests that follow existing and emerging standards
- Experienced EMC test engineers make measurements on your safeguarded EUT
- Secure test reports and measurement data delivered within 2-business days of test completion
- Convenient location in Boeblingen, Germany

### Benefits of partnering with Keysight test labs

- Increase your confidence that your EUT to pass future compliance tests
- Accurate and repeatable results the first time
- Reduced test cost with pay-for-use pricing

Partnering with Keysight eliminates the hassle of renting equipment, assigning resources, and designing and setting up your own test lab. There is no need for expensive equipment and valuable resources when you can take advantage of Keysight's test labs, saving both capital and operating expenses. With Keysight, you can focus on your product designs and confidently pass future compliance tests the first time.

The test industry average tells us that 40% of first-time compliance tests fail. The failure to pass a compliance test takes a minimum of three to four weeks for redesign and retest causing expensive delays. With Keysight's state-of-the-art EMC Test Lab and EMC test experts, you can accelerate your test schedule by validating your EUT to standards and regulations earlier in the EUT design process. Keysight experts know why and how measurements are made as they apply measurement principles to established automated test lab processes. Established tests and expertise prevent test errors that could result in a need for redesign in a later phase of the EUT product lifecycle. Keysight's Test Lab helps you achieve accurate results the first time.

# Compliance Testing

Keysight provides the following tools and services as solutions to your test challenges:

- Access to an accredited lab with the latest equipment
- Tests that follow existing and emerging standards
- Experienced EMC test engineers make measurements on your safeguarded EUT
- Secure test reports and measurement data delivered within 2-business days of test completion
- Convenient location in Boeblingen, Germany

## Benefits of partnering with Keysight test labs

- Increase your confidence that your EUT to pass future compliance tests
- Accurate and repeatable results the first time
- Reduced test cost with pay-for-use pricing

Avoid spending time learning the intricacies of standards and regulations and becoming an industry statistic, where 40% of compliance testing fails the first time. Choose to work with Keysight experts who have deep domain knowledge of test equipment, software, and industry standards and regulations. Keysight's automated tests and established processes reduce the risk of test errors. Our metrologists and engineers actively participate in governing bodies to establish emerging standards and regulations providing unmatched insight into test requirements to ensure your EUT will successfully pass compliance tests. Keysight's accredited state-of-the-art test lab and experience EMC test engineers ensure your EUT conforms to regulations and standards.

Keysight's electromagnetic compatibility (EMC) testing helps you reduce the possible effects of environmental interference on your EUT design, reducing the risk of redesign and product recall liability by increasing the product's reliability in the field.

Keysight's compliance testing helps your EUT quickly get to market by preventing the cost of long schedules that include test delays. The Keysight Test Lab's EMC experts are experienced with multiple technologies and over 50 global standards and regulations. Save time and achieve accurate results with one stop at Keysight Test Lab, where the tests you need are expertly covered.



# Keysight Test Lab test services

Keysight's Boblingen, Germany accredited state-of-the-art offers simulation, debugging, and compliance with over 50 global standards and regulations.

## EMC Test Methods

### Emissions

- Radiated emissions
- Conducted emissions
- Conducted emissions (Telecom Port)
- Harmonics and flicker



### Immunity

- ESD
- Radiated immunity
- EFT/B
- Surge
- Conducted immunity
- Magnetic immunity
- Voltage dips and interrupts



## EMC Test Standards

- IEC/ EN 61326
- IEC/ EN 60601-1-2 (Edition 4 only)
- IEC/ EN 61000-6-1, -2, -3, -4
- IEC/ EN 61000-4-X, -2, -3, -4, -5, -6, -8, -9, -11
- EN55011
- CISPR 32/ DIN EN 55032/ VDE 0878-32:2016-02
- CISPR 35/ DIN EN 55035/ VDE 0878-35:2018-04



## Product Safety Standards

- IEC 62010-1
- IEC 60825-1 (laser safety)

## Environment Safety Standards

- Temperature
- Humidity
- Shock
- Vibration

## Key Standards

- EN 60068-2 (environmental testing of electronic equipment)
- EN 60068-2-1 (Test A. Cold)
- EN 60068-2-2 (Test B. Dry Heat)
- EN 60068-2-14 (Test N. Temperature Variations)
- EN 60068-2-6 (Vibration (sinusoidal))
- EN 60068-2-64 (Vibration, broadband random)
- EN 60068-2-27 (Shock)
- EN 60068-2-31 (Rough handling shocks)
- EN 60068-2-32 (ENV. Test procedures)
- MIL-PRF-28800F – military shock/vibration/bench drop requirements

### **Keysight Certifications and Accreditations for the EMC Test Lab in Boeblingen, Germany**

- ISO/IEC 17025:2017(DAKkS) – for EMC, Electrical Safety & Environmental Testing
- ISO 9001:2015 (DEKRA)

# Conclusion

Partner with Keysight Test Lab in Boeblingen, Germany for a one-stop, high-performance test experience as you simulate, debug and test your EUT for compliance with any of over 50 global standards and regulations.

For more information, visit [www.keysight.com/find/TestasaService](http://www.keysight.com/find/TestasaService).



Keysight enables innovators to push the boundaries of engineering by quickly solving design, emulation, and test challenges to create the best product experiences. Start your innovation journey at [www.keysight.com](http://www.keysight.com).

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