Keysight Test-as-a-Service

EMC, Radio, and Wireless Testing

Regulatory test lab – Penang, Malaysia
Simulate, Debug, Comply, and Certify to Global Standards and Regulation

Do you face these electromagnetic compatibility (EMC) test challenges?

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

Keysight has four offerings to help you test your equipment under test (EUT) including components, assemblies, vehicles, and other electronic products with:

- Pre-compliance test
- Compliance testing and certifications
- Simulation and design test
- Custom test

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**Pre-Compliance Test**
Validate your EUT to standards and regulations

**Compliance Test and Certifications**
Certify your EUT to standards and regulations

**Simulation and Design Test**
Simulate and debug your EUT

**Custom Test**
Validate your EUT to internal requirements
You Know your EUT. We Know Test.

Keysight test features and capabilities include:

- 10 m semi-anechoic EMC chamber for oversized EUT
- EMI testing ranges up to 40 GHz
- Radiated emissions at a 10 m distance in full compliance with ANSI C63.4, CISPR 16, CISPR 11, CISPR 32, and more
- Radiated immunity in full compliance with IEC 61000-4-3 standard in the EMS frequency range from 80 MHz to 6 GHz
- UNECE Regulation 10 testing for E-Mark certification
- Automotive component testing in full compliance with CISPR 25, ISO 11452, IS 7637, and ISO 10605
- Radio standards test
- Wireless compliance testing in full compliance with EN 300 328 and EN 301 893
- FCC test

**Key test capabilities**

- State-of-the-art 10 m chamber
- Latest EMI receiver (PXE) for quick emissions test
- EMC
- Automotive
- IoT
- RF and wireless
- Radiated emissions
- Conducted emissions
- Harmonics and flicker
- Immunity standards
- Radio standards
- Land mobile service
- Land mobile radios
## Test methods

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| **Emissions** | • Radiated emission  
• Conducted emission  
• Disturbance power  
• Harmonic current emission  
• Voltage changes, voltage fluctuations, and flicker  
• Radiated spurious emission – radio standards | | | |
| **Immunity** | • Electrostatic discharge (ESD)  
• Radiated Immunity (RI)  
• Electrical fast transient/ burst (EFT/B)  
• Surge  
• Conducted Immunity (CI)  
• Power frequency magnetic immunity (MI)  
• Voltage dips, short interruptions, and voltage variations (VDI) | | | |
| **Automotive** | • Radiate emission – ALSE method  
• Conducted emission -voltage & current method  
• Radiated immunity – Absorber-lined shielded enclosure (ALSE)  
• Bulk current injection (BCI)  
• Transients and surge in vehicular environment  
• Electrostatic discharge (ESD) – road vehicles | | | |
| **Wireless** | • RF output power  
• Duty cycle, Tx-sequence, Tx-gap  
• Medium utilization  
• Accumulated transmit time, frequency occupation & Hopping sequence  
• Hopping frequency separation  
• Power spectral density  
• Occupied channel bandwidth  
• Transmit power control (TPC) for RLAN 5 GHz  
• Carrier frequencies for RLAN 5 GHz  
• Dynamic frequency selection (DFS) for RLAN 5 GHz  
• Transmitter unwanted emissions  
• Receiver spurious emissions  
• Adaptivity  
• Receiver blocking | | | |
## Test standards

<table>
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| **EMC** | • CISPR 11 / EN 55011  
• CISPR 13 / EN 55013  
• CISPR 14-1 / EN 55014-1  
• CISPR 14-2 / EN 55014-2  
• CISPR 15 / EN 55015  
• CISPR 22 / EN 55022 (replaced by CISPR 32 / EN 55032)  
• CISPR 24 / EN 55024 (replaced by CISPR 35 / EN 55035)  
• CISPR 32 / EN 55032  
• CISPR 35 / EN 55035  
• IEC/EN 61000-3-2, -3-3  
• IEC/EN 61000-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11  
• IEC/EN 61000-6-1, -6-2, -6-3, -6-4  
• IEC/EN 61326-1, -2-1, -2-2, -2-6  
• IEC/EN 60601-1-2 (Edition 4)  
• IEC/EN 61547  
• EN 50121-3-2  
• FCC Part 15, Subpart B (using ANSI C63.4)  
• ICES-003 |
| **Automotive EMC** | • CISPR 25 / EN 55025  
• ISO 7637-1, -2, -3  
• ISO 11452-1, -2, -3, -4, -5, -8, -9  
• ISO 10605  
• UN ECE R10 Rev.6  
• ISO 16750-2  
• Aftermarket ESA: EN 50498 |
| **Radio** | • ETSI EN 301 489-1 (general requirement)  
• ETSI EN 301 489-3, -5, -17, -18 (special conditions)  
• ETSI EN 300 086 (Clauses 7.3, 7.6, 8.8)  
• ETSI EN 300 394-1 (Clauses 7.1.6, 7.2.9, 8.6, 9.9)  
• ETSI EN 300 219 (Clauses 8.5.3, 9.9.3)  
• ETSI EN 300 113 (Clauses 7.5.3, 8.10.3)  
• ETSI EN 300 296 (Clauses 7.5, 8.2)  
• ETSI EN 302 561 (Clauses 7.4.2.3, 7.4.2.4, 8.5.2.2, 8.5.2.3)  
• ETSI EN 303 035-1  
• ETSI EN 303 035-2 |
| **Telecommunication – Wireless regulatory** | • ETSI EN 300 328 (excluding Geo-location testing)  
• ETSI EN 301 893 (excluding Geo-location testing) |
| **FCC radio** | • FCC Part 15, Subpart B (using ANSI C63.4)  
• FCC Part 15, Subpart C, E (using ANSI C63.10)  
• FCC Part 73, 74, 80, 87, 90, 95, 97, 101 (using ANSI C63.26 & ANSI TIA-603) |
Get Test Data in Minutes

Don’t spend weeks waiting for test data and months verifying results. With Keysight’s automated test reporting, you get results the same day.

Conclusion

Partner with Keysight’s accredited EMC test Lab in Penang, Malaysia today to simulate and debug your products and ensure they comply with the latest global standards, regulations, and certifications.

For more information, visit www.keysight.com/find/TestasaService.