



YOUR GLOBAL AND
INDEPENDENT PROVIDER FOR

**TESTING &
CERTIFICATION**



DETAILED CONSULTING

TESTING & TIME SLOTS

PERSONAL CONTACT PERSON

PROJECT ASSISTANCE

RECEIPT OF DUT

TEST CONDUCTION

TEST REPORT

APPROVAL MANAGEMENT

CERT

INTERNATIONAL TYPE APPROVAL



Convincing service competence from one source

cetecom advanced stands for the testing and certification of electronic products. We master the worldwide approval regulations and apply them professionally for a fast, industry independent approval and market launch of our customers' devices.

As part of the RWTÜV Group, we have an international presence with locations in Europe, the USA and Asia. We are fully committed to supporting you and your project from planning and development through to market readiness.

From consulting during the development phase, to testing services in our accredited test laboratories, to international market approval with final certificate management. As a pioneer and companion to our customers, we have been ensuring rapid market access for more than 30 years.

We have made it our business to support every single task along its individual process chain, to understand the needs of our customers.

Our portfolio of services and the range of products, tested in our ISO 17025 accredited is broad: from automotive components, contactless credit cards and consumer electronics to medical ultrasound equipment. Our services make us the ideal partner for your projects - competent, reliable, transparent and at eye level.



Regulatory radio testing

Many commercial and consumer products today are equipped with radio interfaces. The widespread use of wireless technologies requires product developers to seek out accredited testing labs who offer a variety of radio testing services.

At [cetecom advanced](#), we hold globally valid accreditations for the testing of various telecommunication products and perform relevant tests based on currently valid norms and standards. Our test reports are recognized worldwide, which provides the foundation for efficient approvals in all the markets we serve.

We test these wireless technologies and more:

- Bluetooth® (incl. Bluetooth SIG certification)
- WLAN (incl. Wi-Fi Alliance certification)
- Radar
- Ultra-Wideband (UWB)
- NFC
- RFID
- Wireless Charging technologies (incl. Qi certification)

We can also test combinations of radio technologies to determine whether devices and systems based on different technologies can communicate smoothly with each other – essential for products used in medical or automotive environments.





Cellular Testing (incl. 5G)

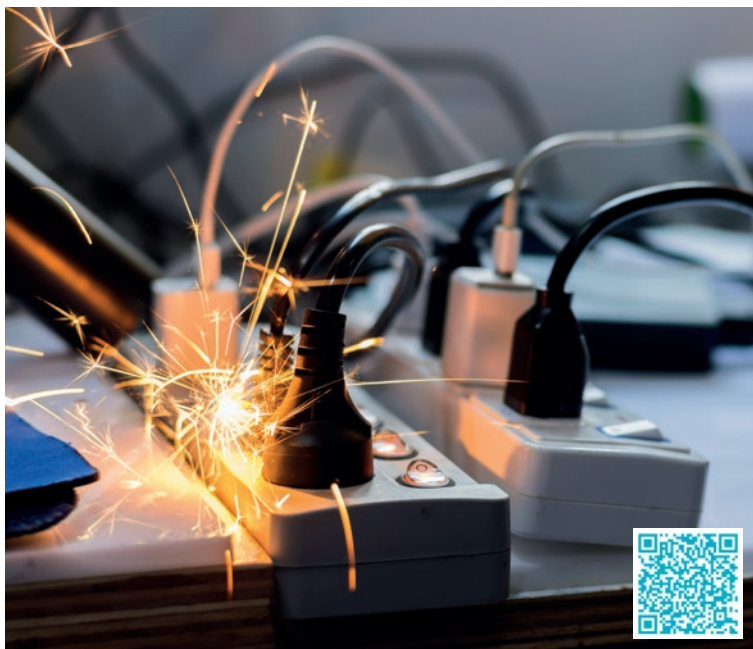
All new products with cellular technology have to be approved by the regulatory authorities in the country where they will be launched. But approvals don't end there. Unlike Bluetooth® and WLAN wireless technologies, products with cellular technology must also meet the requirements of network operators.

For 5G and other cellular technologies (2G/3G/4G), all requirements – from both regulators and network operators – are well defined. At [cetecom advanced](https://www.cetecomadvanced.com), we have over 25 years of experience with cellular testing requirements all over the world.

Our labs are equipped to handle all:

- regulatory product testing and approvals for 5G and all other wireless technologies and
- cellular testing and approvals according to international operator specifications.





Electrical Safety Testing

Testing the electrical safety of wireless products is subject to a series of requirements that have been standardized within the EU and, to a large extent, internationally.

We are familiar with these requirements and are accredited by the German Accreditation Body (DAkkS) to perform regulatory electrical safety testing according to the following standards:

- IEC/EN 62368-1
(Audio/Video, IT and communication equipment)
- IEC/EN 60601-x (Medical electrical devices)
- IEC/EN 61010-x (Electrical devices for laboratory use)
- IEC/EN 62133-x (Batteries)

As an added benefit to using our testing lab, our test reports meet the requirements of the IECEE CB Scheme. The CB Scheme provides a simplified way for manufacturers to secure Certificates of Conformity. More than 50 countries inside and outside the EU currently participate.

Testing of electromagnetic compatibility (EMC)

Electromagnetic compatibility (EMC) plays an important role in electrical engineering. The term is used to describe the ability of a technical device to prevent other devices from being influenced or disturbed by electrical or electromagnetic effects. With our global accreditations and recognitions (e.g., DAkkS, ZLG, KBA, SNCH, NSAI), we are able to offer a wide range of services for testing electromagnetic compatibility in new wireless devices.

As part of the testing process, customers receive an internationally recognized test report, which documents the results based on various legal requirements and internationally established EMC standards. These include:

- RED / Radio Equipment Directive (2014/53/EU)
- EMC directive (2014/30/EU)
- Machine directive (2006/42/EG)
- Medical devices according to regulation (EU) 2017/745
- Automotive EMC services:
 - Automotive testing according to UN ECE specifications for electronic subassemblies (ESAs)
 - EMC tests according to manufacturer's specifications (e.g. TL81000 (VW), MBN 10284 (Mercedes Benz), GS95002 (BMW))
- Technical service of KBA
(German Federal Office for Motor Traffic)





OTA Testing

Inside our over-the-air (OTA) test labs, we test and verify the performance and reliability of wireless devices, their antennas and other components. In two critical OTA tests, we measure Total Radiated Power (TRP) and Total Isotropic Sensitivity (TIS), performed under a product's operating conditions, to validate its compliance with specified standards.

We use state-of-the-art OTA testing equipment in our laboratories. Our capacity and flexibility allow us to serve our customers faster and minimize test times. We provide OTA testing for wireless products in several industries. These include:

- **Smartphones**
- **Consumer electronics**
- **Network devices**
- **Medical Technology**
- **Telematics systems for automotive and aviation use**



Battery Safety Testing

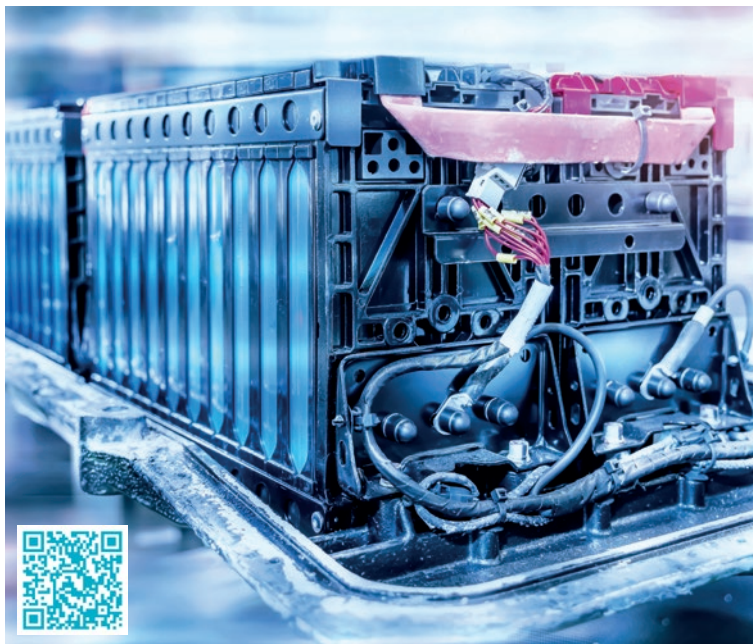
We support battery and automotive manufacturers in the safety qualifications of high-power lithium-ion battery systems.

The safety of these batteries, especially for use in electric vehicles and stationary energy storage systems, is critical. In particular, the high energy density due to the chemical elements used and the exceptionally high electrical charge must be controlled, especially in extreme situations, in order to avoid hazards.

Through extensive battery testing in our laboratories, we can professionally test and demonstrate the level of battery safety required for market access.

Our lithium-ion battery testing services include:

- UN Transport Test UN 38.3
- Abuse & Propagation Testing
- Safety tests according to customer requirements
- Testing according to ECE-R 100 / ECE-R 136
- Technical service of KBA
- Safety tests on home and industrial storages





Environmental Simulation

During transportation or operation, many wireless products are exposed to environmental conditions, such as vibrations and mechanical shock. Often, these products must also withstand thermal influences, humidity or excessive solar radiation. A professionally designed environmental or climatic test can help to identify potential weak areas that could be subject to fail.

Our environmental simulation laboratory is widely accredited to DIN EN ISO/IEC 17025 and offers state-of-the-art equipment to test the durability, long-term performance and aging effects of a product under various simulated conditions.

We can test within these environmental simulations:

- Temperature & climate
- Ice water shock
- Mechanical vibration and shock
- Mechanical crash test bench
- Corrosion
- Altitude simulation / vacuum tests
- Tests of different IP protection classes (Dust and waterproof)
- Sun Simulation (artificial weathering)
- Chemical resistance
- Tailor-made environmental simulation tests



Approval of Emergency Call (eCall) Systems

Since 2017, **cetecom advanced** has been actively involved in the testing and approval of emergency call systems. As part of the introduction of the eCall in-vehicle emergency call system in the European Union, we played an early role in the establishment and standardization of requirements needed for market approvals.

We also provide testing services and certification for ERA-GLONASS, the counterpart to eCall for the Eurasian Customs Union.

Approvals for eCall systems in the automotive industry was just the start. We then moved to developing a certification process for emergency call systems for cell phones (the E112) in the EU.

eCall services

Services for EU/UNECE eCall as technical services (KBA and NSAI):

- **EU eCall - Regulation (EU) 2017/79 incl. ITU-T P.1140**
- **UNECE eCall - UN-R 144**
- **EMC - UN-R 10 (Annex 7-10 and 17-22)**

Services for NG eCall

SO/IEC 17025 accredited by the German Accreditation Body (DAKKS) for all NG eCall specifications

- **DoC Testing: Testing services for all test specifications**
- **Consulting and training services**

ERA-GLONASS services

- **Testing according to several GOST standards**
- **Pre-certification for GOST Standard 33468 (Audio Quality)**
- **Certification processing**
- **Consulting and project management**

E112 services

Since we established our E112 testing capabilities early on, we have become the world's leading laboratory for E112 testing. Thus, we are perfectly positioned to test the emergency call function acc. to ETSI TS 103 825 specifications and to provide testing and approval for emergency calls on cell phones.



Cybersecurity Testing

With our IoT Cybersecurity Services, we verify the current security status of our customers' connected devices – a critical milestone in bringing new products to market.

We offer testing and approvals to the following standards and specifications:

- Regulation (EU) 2022/30 – RED Article 3.3 (d), (e) and (f)
- ETSI EN 303 645, ETSI TS 103 701 and ETSI TR 103 621
- CTIA Cybersecurity Certification Test Plan for IoT-Devices
- CSC – “Cybersecurity-Certified” Label





SAR Testing

Measuring the specific absorption rate (SAR) of a product ensures that human exposure to electromagnetic fields discharged by wireless devices is within specified limits. The requirements of various international regulatory authorities guarantee SAR-tested products are not harmful to consumers' health – which is a basic requirement to gain market access.

In our test facility, we perform SAR tests in the spectrum from 10 MHz to 10 GHz, covering global requirements:

- Europe (i.e., EN 50360, EN 50383, EN 50385, EN 50566, EN/IEC 62209-1, EN/IEC 62311, EN 62479)
- USA (i.e., IEEE C 95.1, IEEE C 95.3, IEEE 1528)
- Canada (RSS-102 2015-03)
- Australian Radio Communications Standard (Electromagnetic Radiation — Human Exposure)



SmartCard & Identification Testing

SmartCard technology shows up everywhere in our daily lives, whether in banking, identification, transportation, healthcare, security, or other areas.

As a leading independent, full-service provider for the testing and certification of SmartCard, RFID and NFC solutions, we created a dedicated SmartCard & Identification division that offers pre-approval and type approval testing services.

Our internationally recognized services include testing for ePayment projects, as well as advanced tests and certifications for eHealth, eTicketing, ePassport and biometrics. Well-known payment platforms like Mastercard, Visa, American Express, Discover, UPI, JCB, Die Deutsche Kreditwirtschaft, NEXO, KLSC and EMVCo all trust our services for contact and contactless payment products. For biometric services, we perform fingerprint and facial recognition tests, like those used by Google.

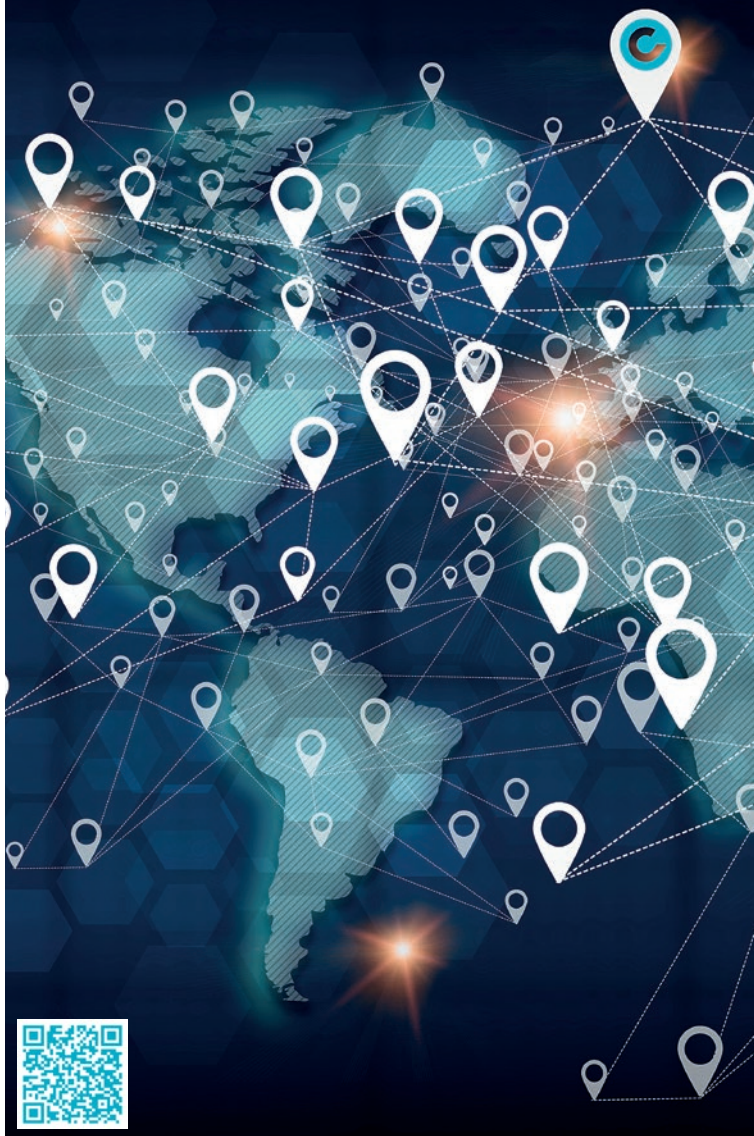
We also test eTicketing systems for the Association of German Transport Companies (VDV) and are the only test lab in the world accredited by the German Federal Office for Information Security (BSI) to test RF interfaces of electronic travel documents.

With our in-house software department, we develop our own test tools and offer a variety of testing services. These range from customized software solutions to the design and construction of hardware, like robotic systems.





**cetecom advanced – Your partner
for successful market access**



International Type Approval

We help you navigate the international certification jungle and support you in the development of a target-oriented strategy for market approval. As a recognized contact for regulatory authorities in over 180 countries, we handle the complete project management process for successful market access. We also ensure direct market approvals in Europe, Japan, Canada and the USA using our own internal certification bodies.

Our complete package for your certification needs includes:

- Country-specific and market-specific analysis of regulatory requirements
- Compliance evaluations
- Translations
- Regulatory planning and management
- Preparation and delivery of test and regulatory submissions
- Local technical support and guidance for on-site testing (required in some countries)



CERT — Approval management software

Our proprietary approval management software **CERT** gives you on-going visibility into the status of your project and streamlines coordination throughout the approval process.

CERT offers:

- 2-way communication for efficient exchange of project information
- Presentation of project milestones at country level
- Transparent information on the actions to be completed, including an automated notification system
- Detailed reporting function, including download option
- Availability around the clock

A simple traffic light system automatically notifies you when there is an urgent need for action. With this user-friendly software, customers will always know the status of their projects including automatic notifications to enable timely renewal of the certificates.





Why cetecom advanced?

Our service portfolio and advanced equipment are second to none and offer every possibility for efficient testing and certification of your products.

But why choose **cetecom advanced**? Because after decades in this business, we know what matters: your goals and needs – throughout every stage of your project.

For us, a successful project starts with preparation. We emphasize open collaboration (even before the first test) and comprehensive project support. We'll create a transparent proposal structure that ensures a clear balance between expectations and satisfaction on the way to the final goal.

Why work with us?

Project Management

In addition to our technical equipment, accreditations and capabilities, it is our talented people who make sure that your project is in good hands. We'll assign a dedicated project manager who guarantees transparency and achievement. Open communication, clear proposals and personal support are our way. It's the only way.

Technical exchange at eye level

Our engineers are experts in the standards that apply to your product. In our experience, collaboration, active listening and customer involvement lead to successful projects. Visit our lab and witness an eye-to-eye exchange for yourself.

Internal collaboration for the benefit of your project

Our team relies on close collaboration. Seamless cooperation between departments ensures rapid project progress and successful approvals. The close connection between lab, project management and certification bodies defines the requirements for the project and sets the course for efficient progress.

Contemporary solutions for a digitized world

We value face-to-face interaction, yet our digital tools provide a constant, transparent view of the current status, outstanding tasks, and any challenges to the completion of your project.

Our global presence: A bridge to world markets

Our global offices in Europe, the U.S. and Asia are key to our success. They provide rapid market intelligence across time zones and geographic distances. Our international presence underscores our commitment to global customer support and cross-border collaboration.





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