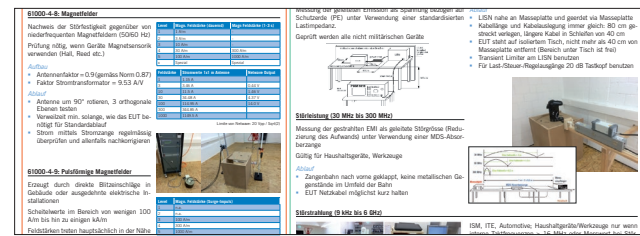


Our capabilities – your benefits

Electromagnetic compatibility (EMC) is a critical factor in the design of commercial products. Both the high level of integration density in electronics and the rising number of electronic devices using wire-less communication technologies increase the risk of interference between each other.

You can rely on a trusted partner with extensive experience in the development of complex, multidisciplinary systems. Professional laboratory infrastructure enhances our capabilities as an engineering service provider to support you during the full product life cycle.



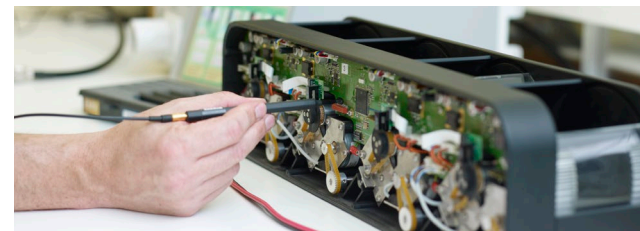
Support in EMC related standards

We support our customers in the interpretation and application of EMC standards, in the extraction of the relevant technical requirements and in the corresponding tests.



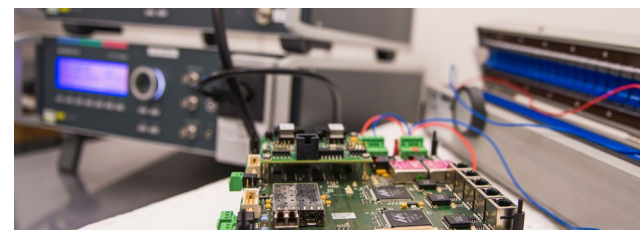
Agile and holistic development

The in-house infrastructure and broad knowledge allow us to perform prototyping and test iterations time efficiently. Modifications in all disciplines can be addressed with flexibility.



Sustainable projects

By considering EMC early in the project and across disciplines, components and overall usage of energy and resources are optimized.



Pre-compliant measurements

We address potential EMC and RF challenges during functional model and prototype phases. Pre-compliant measurements help to avoid unexpected issues and lower risks.



We help you to develop your product to ensure safe and reliable functionality in accordance with current standards in the area of electromagnetic compatibility and radiation.

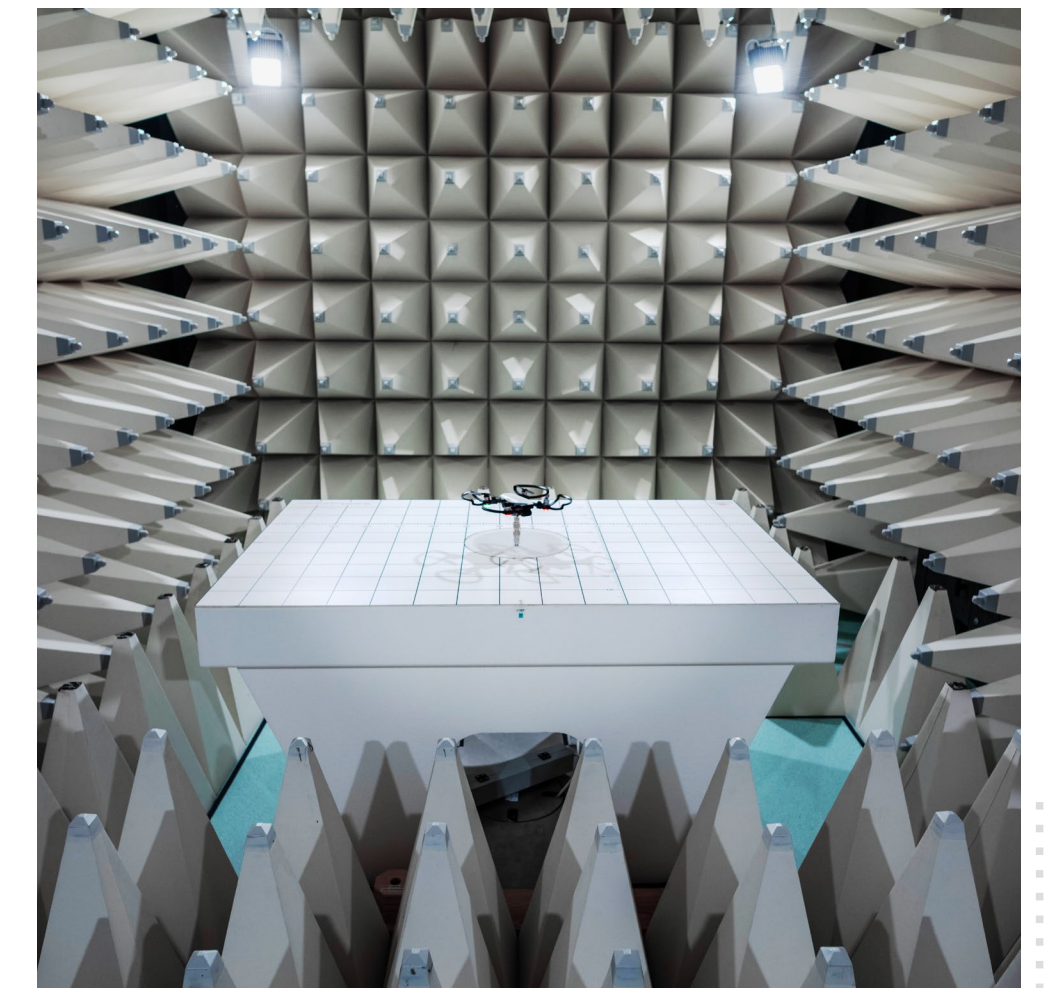
Qualified EMC/RF measurements

Electromagnetic Compatibility (EMC) and Radio Frequency (RF) means that all electronic and electromechanical devices and machines run in their intended environment alongside each other without any interference. Therefore, devices and systems must be tested (immunity and emitted interference) in accordance with the applicable standards.

Engineering service

For all types of device, ranging from household appliances, power tools and industrial machines, all the way through to lab systems and medical devices, we offer advice across the full development iteration covering analysis and conception to design, implementation, production and testing.

Electromagnetic Compatibility & Radio Frequency Testing



Proven approach supports value engineering

Operation method

The testing infrastructure such as EMC and RF laboratories, climate chambers, electronics work-spaces is located in-house. Its use is an integrated part of our daily project practice.

We start with the problem analysis and then simulate the behavior in the laboratory. In this way, we gain further insights and get to know the system. From this we derive options, which – if required – we crosscheck again in the laboratory and come up with the optimal solution.

A team combining creativity, technology and experience

EMC and RF are interdisciplinary topics in all project phases. We work in a solution-oriented manner at system level or focused on a detail section.

Some reference projects include:

- Support of in-house developments of household appliances (e.g. coffee machines, consumer lifestyle products etc.)
- Analysis, simulation and localisation of a random error in printed circuit board
- Optimization of HF interferences in a lab system
- Reduction of motor driver conducted emissions (e.g. power tools)
- Wireless antenna matching (e.g. medical active implants)
- ...

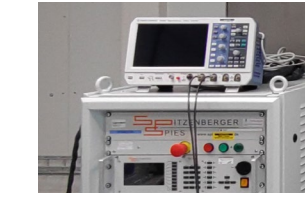
Broad expertise and professional equipment

Our infrastructure enables us to perform almost all single-phase and partly three-phase measurements. For immunity measurements, we have specialized generators and various supporting tools for analysis.

The anechoic chamber also offers the possibility to perform field-based measurements. High-precision measuring equipment is also available for high-frequency applications.

When setting up the measurements, we make sure that they comply with the latest versions of EMC and RF test standards.

- IEC 60335 “Household appliances”
- IEC 61326 “Equipment for measurement, control and laboratory use”
- IEC 60601 “Medical electrical equipment”
- IEC 61800 “Power drive systems”
- UL 1082 “Household coffee makers”
- UL 60601 “Medical electrical equipment”
- CISPR 11 “Industrial, scientific, medical”
- CISPR 14 “Household, electric tools”
- CISPR 32 “Multimedia Emission”
- CISPR 35 “Multimedia Immunity”
- IEC 61000-6 “Generic standards”
- IEC 61000-4-x “Specific test standards”
- and many others



Arbitrary AC/DC power supply



Generators for Surge and Burst



ESD measurement equipment



Calibration setup for HF injection

Specialized generators for

- Surge and burst (EFT) simulation
- Electrostatic discharge (ESD simulation)
- RF Injection
- Magnetic fields (current transformer)
- Audio wave generator (up to 250 kHz)
- Leakage current measurement
- Dielectric strength test
- ...

Coupling/Decoupling networks (CDN)

- For mains and signal ports
- Line impedance stabilization network (LISN)
- Calibration equipment
- Helmholtz dual coil
- ...

Test equipment

- EMI Receivers for conducted and radiated emissions
- Antennas for radiated emissions and immunity
- Anechoic test chamber
- State-of-the-art EMC shielded test laboratories
- Arbitrary AC/DC power supplies with integrated test cases (e.g. for simulation of bad grid) (≤7.5kVA at max. 360 VAC, 9 kW at max. ±500 VDC)
- Vector network analyzers (VNA, 10 Hz up to 6 GHz)
- Spectrum analyzers (up to 7 GHz)
- Vector Signal Generator (9 kHz to 6 GHz incl SW for Bluetooth testing)
- Several field probes for measuring and coupling
- Net filter simulation tools
- ...

