EMC

ACCREDITED TEST LABORATORY

Forschungsgesellschaft
der FH Kärnten mbH

KÄRNTEN
University of
Applied Sciences

ACCREDITATION SCOPE

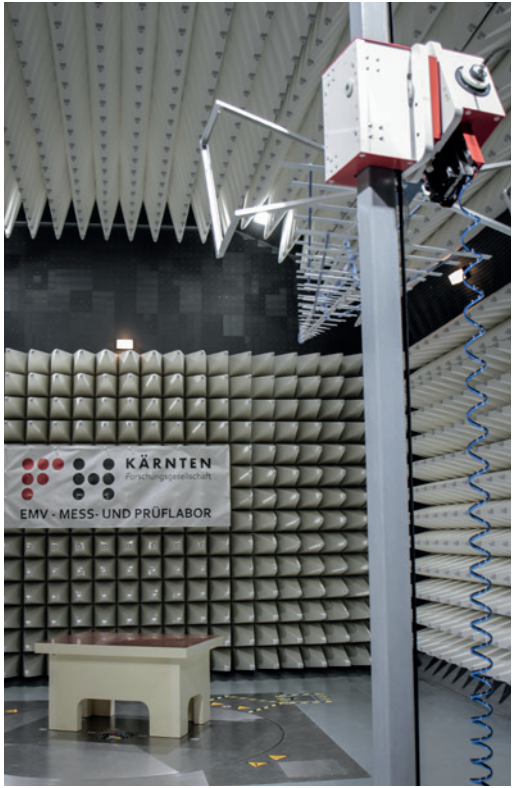
FCC 47 CFR (ANSI/IEEE 63.4) tests

- Federal Communications Commission - Title 47: Telecommunication
  - » **Part 15:** Radio Frequency Devices - Subpart A: General; Subpart B: Unintentional Radiators; Subpart C: Intentional Radiators
- Federal Communications Commission - Title 47: Telecommunication
  - » **Part 18:** Industrial, Scientific and Medical Equipment

EMC tests according to RED directive, article 3.1(b)

ElectroMagnetic Compatibility (EMC)
standards for radio equipment and services

- **ETSI EN 301 489-1** Common technical requirements Harmonised Standard for ElectroMagnetic Compatibility
- **ETSI EN 301 489-3** Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 246 GHz, e.g. RFID
- **ETSI EN 301 489-17** Specific conditions for Broadband Data Transmission Systems; Harmonised Standard for ElectroMagnetic Compatibility, e.g. Bluetooth, WLAN, ...
- **ETSI EN 301 489-x series** (actual list on request)



ACCREDITATION SCOPE

Accreditation scope*

accredited test laboratory No. 185

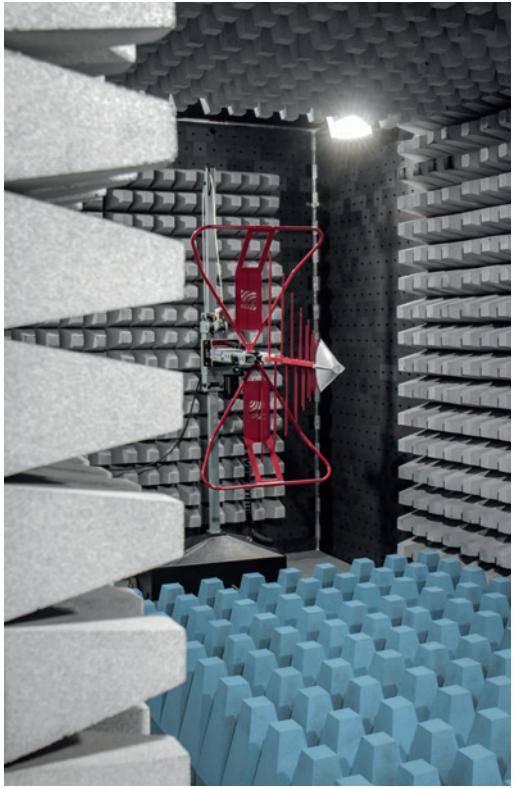
- 2014/30/EU EMC directive (CE-sign)
- IEC/EN 60601-1-2 Medical electrical equipment (EMC)
- ETSI EN 301489-x according RED directive 2014/53/EU, article 3.1(b)
- IEC/EN 50121-x Railway applications (EMC)
- IEC/EN 62233 EMF Tests
- FCC 47 CFR Part 15 / Part 18 (ANSI/IEEE 63.4)

* includes more than 50 accredited test standards

Tests and measurements

accredited test laboratory No. 185

- in the test laboratory and IN SITU at customer's site
- for residential and industrial environments
- Automotive devices (Components and EUBs)
- Medical electrical equipment
- Semiconductor Devices and Materials International (SEMI)
- Railway applications
- Radio Equipment Devices (RED, ETS, ETSI)
- Devices for mining industry
- for the North American market (USA/Canada)



EMC SERVICES – TECHNICAL DATA

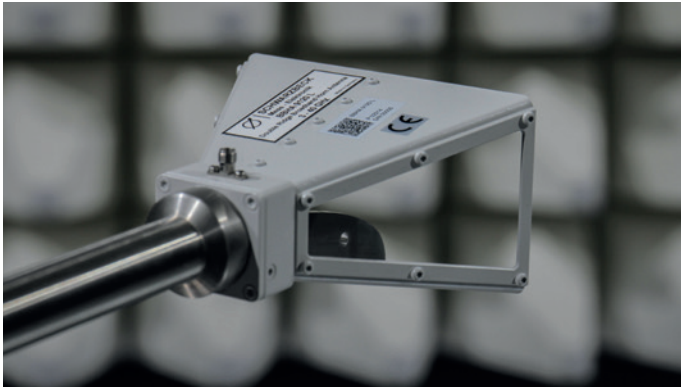
Emission

FREQUENCY RANGE EXTENSION UP TO 40 GHz

Anechoic chamber 1	SAC 5 m (door 3 m x 3 m), max. 2,5 t
Anechoic chamber 2	FAR 3 m (door 1,5 m x 2 m)
Shielded room 1	5 m x 7 m x 4 m (door 3 m x 2.5 m)
Shielded room 2	5 m x 8 m x 3 m (door 1.5 m x 2.1 m)
Radiated emission	30 MHz – 40 GHz (Magnetic field 9 kHz - 30 MHz) according to CISPR, EN, IEC, FCC
Conducted emission	9 kHz – 30 MHz (300 MHz) according to CISPR, EN, IEC, FCC

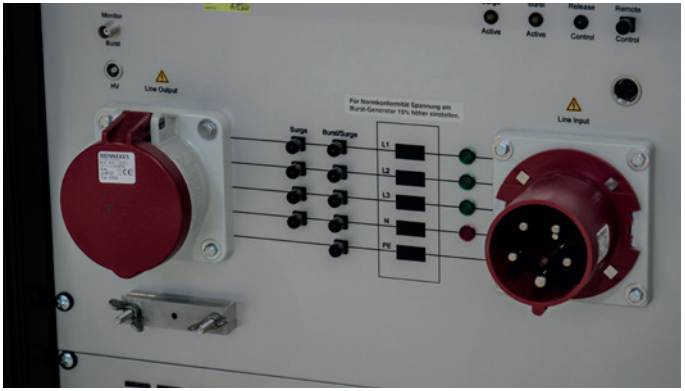
LOW VOLTAGE SYSTEMS

IEC/EN 61000-3-2 IEC/EN 61000-3-12 IEC/EN 61000-3-3 IEC/EN 61000-3-11	Harmonic current emissions, voltage changes, voltage fluctuations and flicker (single-phase/three-phase)



Immunity tests (single-phase/three-phase)

IEC/EN 61000-4-2	Electrostatic discharges (ESD), up to 30 kV
IEC/EN 61000-4-3	Radiated radio-frequency electromagnetic fields 80 MHz to 6 GHz, up to 20 V/m (CW, AM, PM)
IEC/EN 61000-4-4	Electrical fast transients (BURST), up to 4,5 kV
IEC/EN 61000-4-5	Surge up to 4,5 kV
IEC/EN 61000-4-6	Conducted disturbances, induced by radio-frequency fields, up to 50 V
IEC/EN 61000-4-8	Power frequency magnetic fields up to 300 A/m
IEC/EN 61000-4-11	Voltage dips, short interruptions and voltage variations
IEC/EN 61000-4-13	Harmonics and interharmonics



EMC SERVICES – TECHNICAL DATA

EMC – special tests and measurements

- **Measurements on planes**
  e.g. Antenna measurements: calibration and measurement setups to determine the directional radio pattern of antennas on aircraft
- **IN SITU at customer's site**
  Industrial areas, charging stations (e-mobility), mining areas, etc.

EMC-trainings / -support / -standard inquiries

- Speech, lectures and trainings
- Layout guidance and technical support (EMC)
- Guidance for the CE-conformity and international approvals

CE

ÖVE/ÖNORM EN 62233 / IEC 62233

Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure

- Frequency range from 1 Hz to 400 kHz

Automotive tests and measurements

- **Emission (components/modules):**
  Rod antenna, ALSE, LISN, Current clamps, Stripline, TEM cell according to EN 55025 (CISPR 25), EN 55012 (CISPR 12), ECE-R10 and OEM standards: ECE-R10 and many automotive OEM specifications
- **Immunity tests (components/modules):**
  ALSE, BCI-clamp, Stripline, TEM cell, direct injection method according to ISO 11452-x and OEM standards: ECE-R10 and many automotive OEM specifications
- **ESD immunity tests:**
  Discharge modules: 150pF/330Ω, 330pF/330Ω, 150pF/2000Ω, 330pF/2000Ω according to ISO 10605 and OEM standards: ECE-R10 and many automotive OEM specifications

Automotive test pulses

- **Microsecond Generator for ISO pulse 1, 1a, 2 and 6**
  Test voltage up to 600 V, coupling clamp ACC, ISO 7637 / DIN 40839
- **Burst Simulator for ISO pulse 3a / 3b**
  Test voltage up to 1500 V, coupling clamp ACC, ISO 7637 / DIN 40839
- **Load Dump Generator for ISO pulse 5 and 7**
  Test voltage up to bis 200 V, ISO 7637 / DIN 40839
- **Voltage Drop Simulator for ISO pulse 2b and 4, Jaso-Test 1, 2**
  Test voltage up to 30 V, ISO 7637 / DIN 40839, Jump-start impulse, mains power failure, etc.

CONTACT

FORSCHUNGSGESELLSCHAFT DER FH KÄRNTEN MBH

EMC TEST LABORATORY
Accredited test laboratory No. 185
Europastraße 3a (Gateway B)
A-9524 Villach – St. Magdalen

Phone: +43 5 90500-2644
E-Mail: emc@fh-kaernten.at
Web: www.fhk-emc.at

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