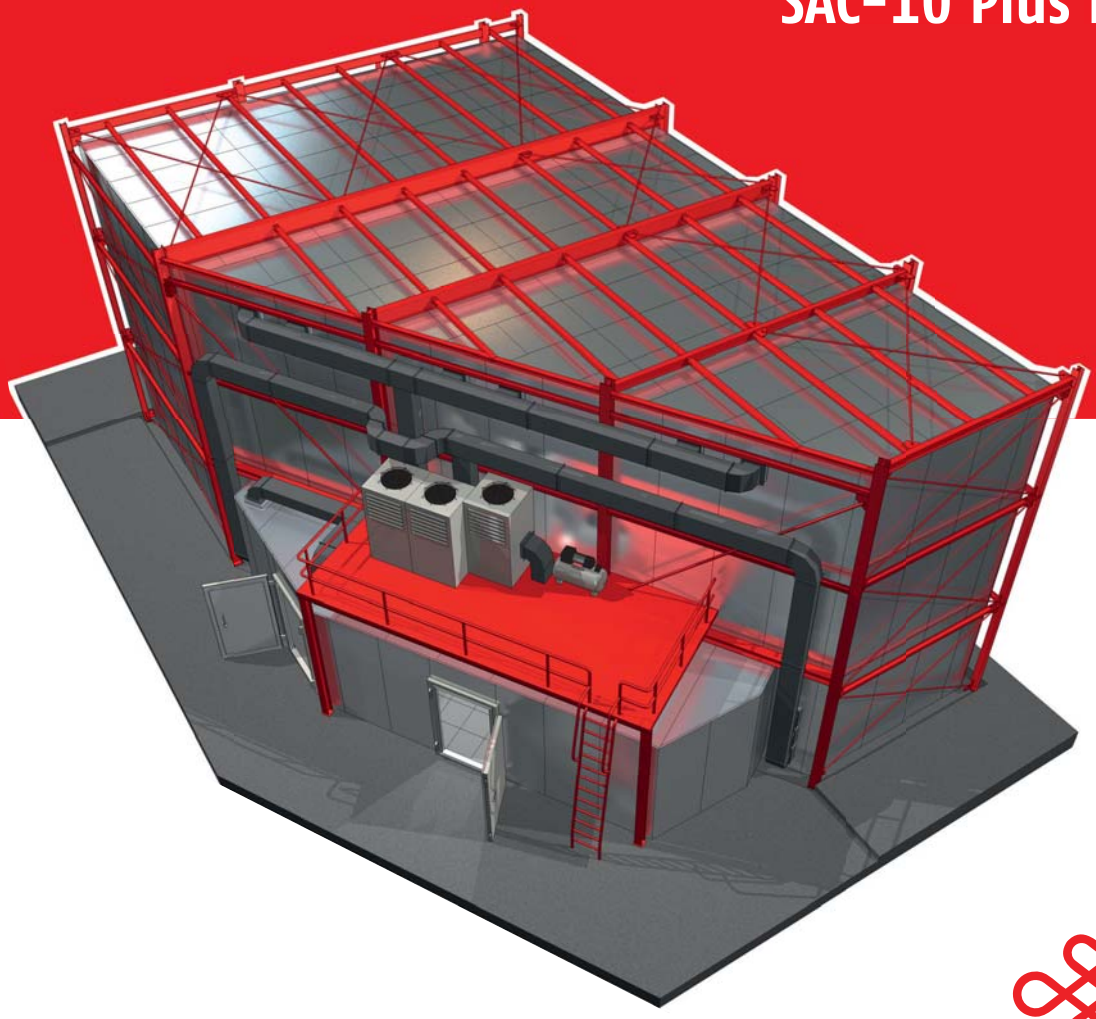
Anechoic Chamber
SAC-10 Plus Triton Class



SAC-10 Plus Triton Class

Frankonia's anechoic chamber for 10.0 & 3.0 m measuring distance with triple test axes

FRANKONIA

CONCEPT

SAC-10 Plus Triton Class

Frankonia's anechoic chamber for 10.0 & 3.0 m measuring distance with triple test axes

The SAC-10 Plus Triton Class is Frankonia's new fully compliant EMC testing solution. The semi-anechoic chamber is designed for measuring distances of 10.0 and 3.0 metres on a Quiet Zone of ø 3.0 m. The innovative shape with its optimized absorber layout allows a simultaneous use of three axes for emission and immunity tests and superior minimized reflections.

The SAC-10 Plus Triton Class for EMC testing is a revolution in its class. The benefits of its triple test axes allow our customers to measure all required EMI/EMS procedures without the need to modify the test environment or the test setup. This also includes the test equipment and instruments that can remain connected in the chamber. The antenna and absorber area for each procedure specifically moves to the test scenario either in manual, semi-automatized or full-automatized mode controlled by Frankonia software. Thus, the quality of EMC testing remains at a constant high level, the testing time decreases, and malfunction and damage is almost impossible. The frequency range of the all-new SAC-10 Plus is from 30 MHz to 18 GHz (40 GHz option) and offers outstanding performance for NSA, SVSWR and FU.

Considered performance validation

Test axis 1 for EMI (30 MHz to 1 GHz):
Normalized Site Attenuation (NSA) acc. to CISPR 16-1-4/EN 55016-1-4 and ANSI C63.4 (30 MHz to 1 GHz) at 10.0 m & 3.0 m distance

Test axis 2 for EMI/EMS (1 GHz to 18 GHz):
Site Voltage Standing Wave Ratio (SVSWR) acc. to CISPR 16-1-4/EN 55016-1-4 (1 GHz to 18 GHz)
Field Uniformity (FU) acc. to EN 61000-4-3 (1 GHz to 18 GHz)

Test axis 3 for EMS (80 MHz to 1 GHz):
Field Uniformity (FU) acc. to EN 61000-4-3 (80 MHz to 1 GHz)

SAC-10 Plus - Hybrid Chamber	
Technical specification	
External dimension (L x W x H)	19.205 m x 12.080 m x 8.325 m (polygonal shape)
Turntable	ø 3.0 m with a load of 2.0 tons or 3.0 tons
Frequency range	30 MHz to 18 GHz (option 40 GHz)
Absorber lining	
Walls and ceiling	Partial lining with ferrite absorbers; mix of long and short Frankosorb® pyramid/hybrid absorbers
Floor	Sliding absorber area for immunity and emission test, individual configured for each test axis

Frankonia solutions

Frankonia as a turnkey solution provider and manufacturer offers a complete range of test equipment, instruments, software and accessories. The SAC-10 Plus is available in several configurations that allow the axial movement of absorbers and antennas in manual, semi-automatic or fully automatic mode. Additionally, our broad range of doors, gates, turntables, monitoring equipment, software, and positioning devices can be easily integrated to meet our customers' needs.

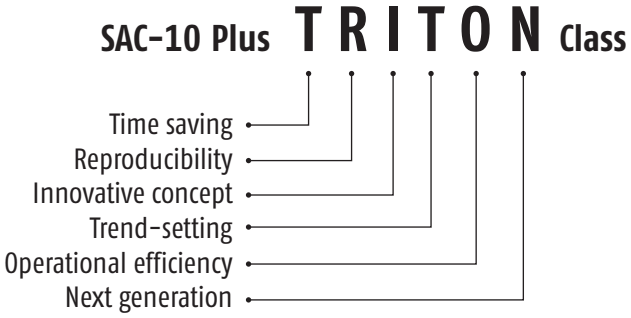
Standard configuration and options

Standard: customized SAC-10 Plus prepared for manual absorber and antenna movement
Option 1: customized SAC-10 Plus prepared for semi-automatized absorber and antenna movement
Option 2: customized SAC-10 Plus prepared for full automatized absorber and antenna movement

BENEFITS

Frankonia's authenticity

Frankonia stands for latest technologies, highest quality, innovative concepts and materials, and reliable solutions. Due to its easy and efficient usability along with its time-saving configuration, Frankonia's SAC-10 Plus sets new standards in its class for innovative EMC testing solutions and offers a real added value to our customers.



Key facts and benefits

Frankonia's SAC-10 Plus Triton Class is a revolution in EMC testing that shifts the focus to simplify the testing procedures for engineers and institutes. Its optimized layout and arrangement of absorbers and antennas allows an efficient use, reduces costs and time, ensures a stable quality level, and guarantees a future-proofed solution for any kind of EMI/EMS testing at the highest performance level.

Performance and quality

- Outstanding performance for NSA, SVSWR, and FU
- Triple test axes in 10.0 m & 3.0 m measuring distance in one chamber
- Quiet Zone of ø 3.0 m with a load of 2.0 tons or 3.0 tons, or customized
- Low construction height of turntables
- Customizable and optimized chamber concept
- Space-saving compact chamber size
- Possible integration of additional shielded rooms (e.g., Control Room, Amplifier Room) in the same space as traditional chambers require
- Space-saving positioning of Air Conditioning (AC), sprinkler system, and other external equipment
- Frankosorb® long-lasting performance absorbers

Frankonia's absorber technology (Frankosorb®)

- Long-lasting absorber performance and stability
- Non-combustible acc. to DIN 4102 Class A2, or
- Non-flammable acc. to DIN 4102 Class B2
- High power handling minimum 1 kW/m² or 600 V/m (continuous duty) 2.6 kW/m² or 1000 V/m (intermediate power)
- High absorption capability
- Humidity proof
- Damage proof
- No dirt, carbon smell or dust
- Easy to clean
- Clean room classification acc. to ISO 14644-1 class 5
- No aging or drooping
- Easily removable, fixation either by screw or hanging

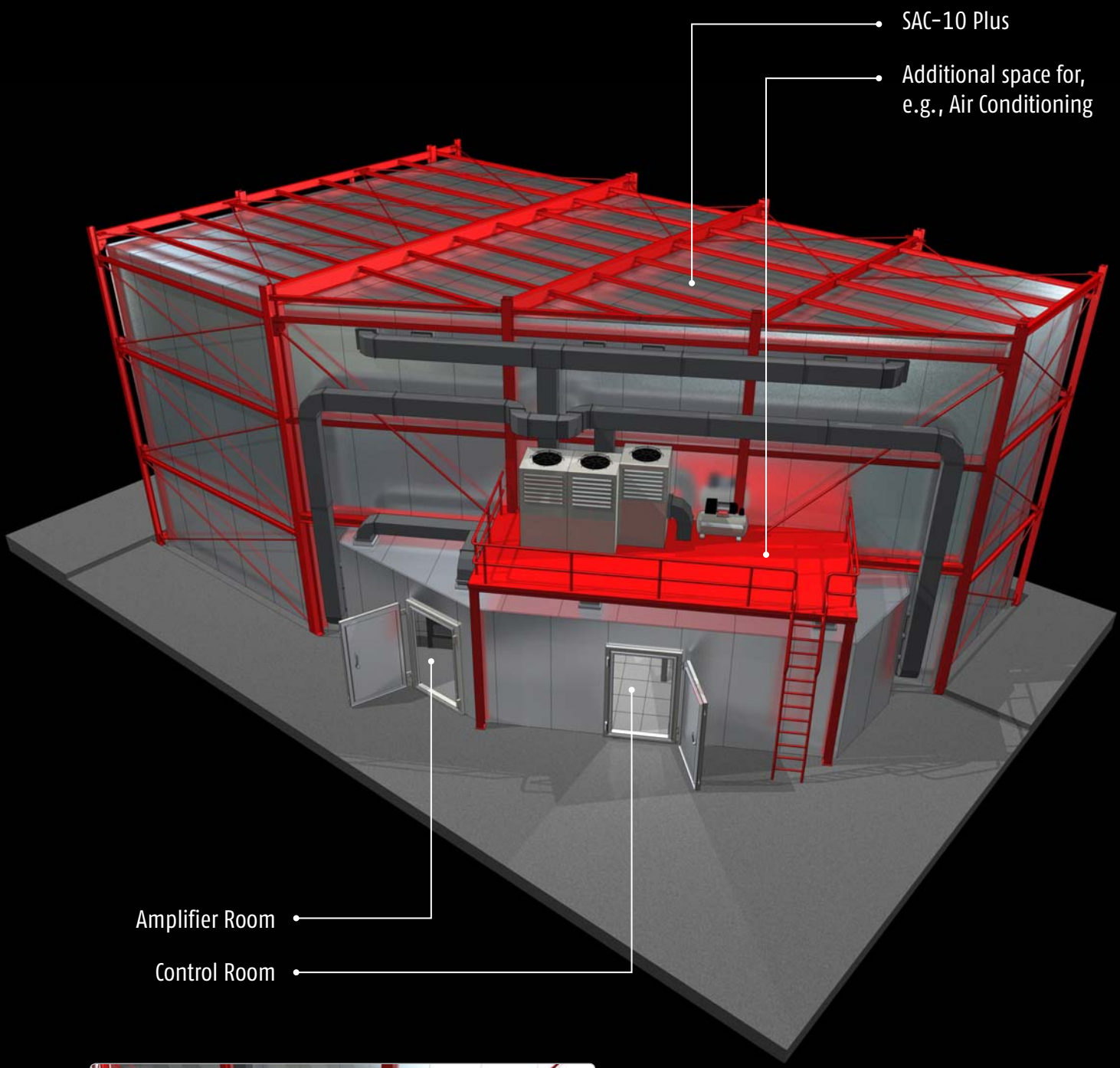
Time

- No need to modify the test environment or the test setup during the complete test procedure
- No need to carry absorbers or antennas
- No need for an external storage area for absorbers and antennas
- Due to the multiple use of test axes, the testing time for each EUT considerably decreases and therefore offers economical advantages
- Several configurations for antenna and absorber movement are available in manual, semi-automatic and fully automatic mode
- Optimized workflow

Efficiency and costs

- Complete range of EMI/EMS test procedures combined in one chamber
- All test equipment and instruments can remain connected in the chamber
- Quality and performance level of testing remain at a constant high level
- Reproducibility of test procedure due to an automatized test setup
- Easy and efficient use for test engineers
- Malfunction and damage is almost impossible
- Low investment costs
- Fast return on investment

SAC-10 Plus Illustration



Control Room

Ferrite absorbers 30 MHz to 1 GHz

Hybrid absorbers up to 40 GHz

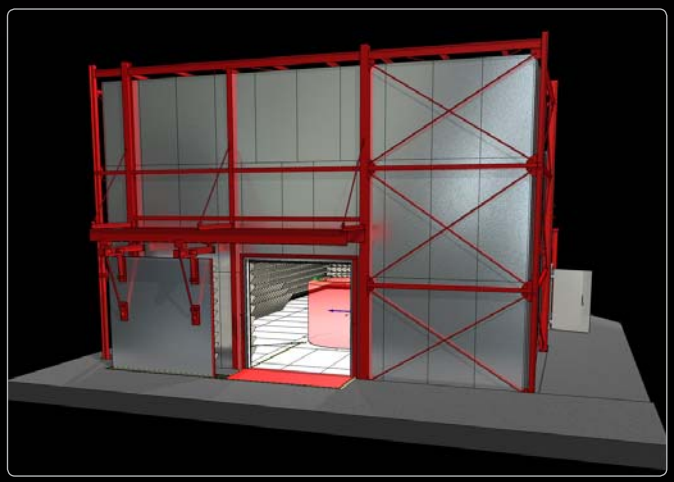
Adapted steel structure

Optimized RF-shielding

Quiet Zone ø 3.0 m

Ground plane

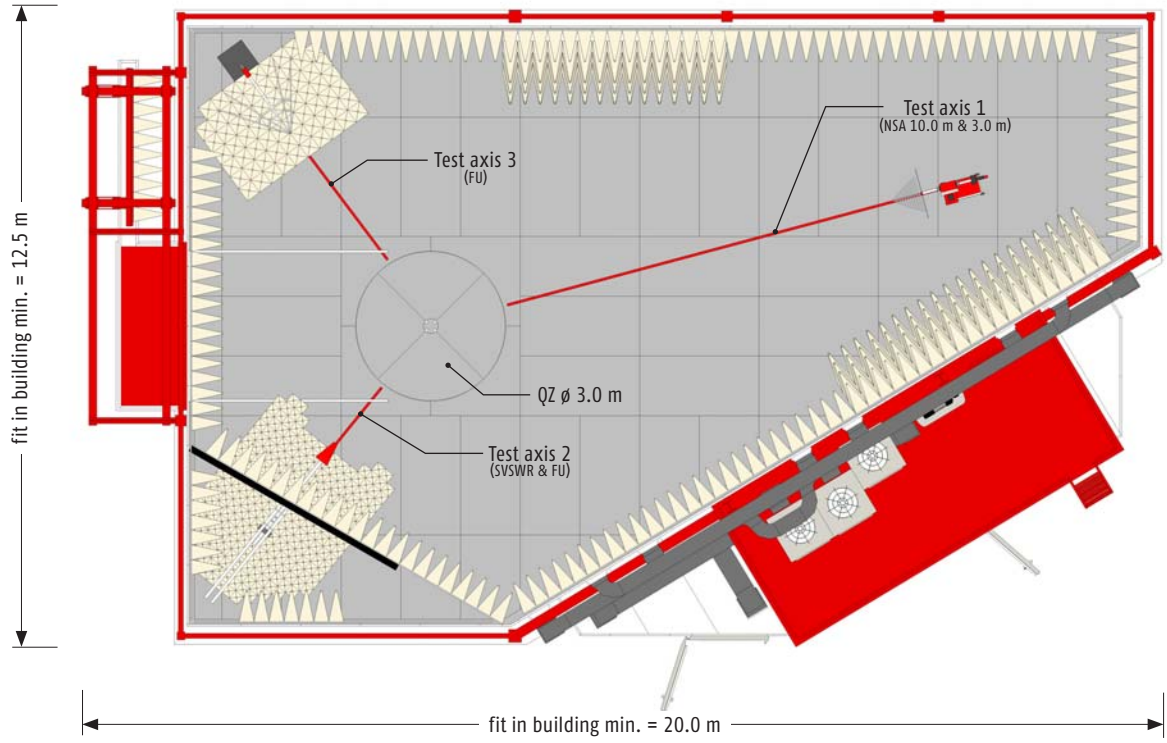
Antenna mast



EUT entrance

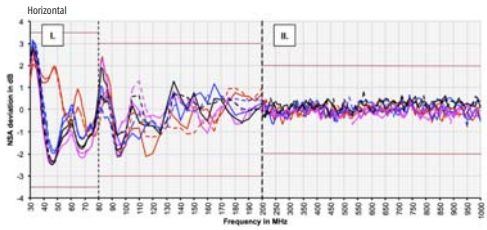
LAYOUT & PERFORMANCE

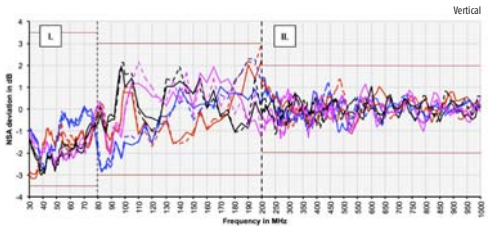
LAYOUT



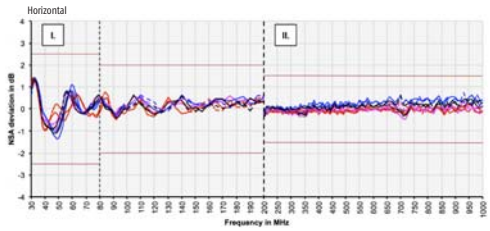
TEST AXIS 1

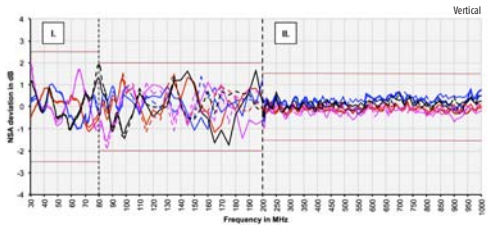
Normalized Site Attenuation (NSA) (30 MHz to 1 GHz) at 10.0 m test distance





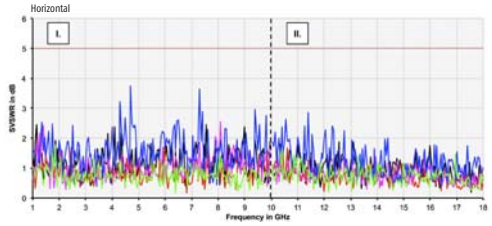
Normalized Site Attenuation (NSA) (30 MHz to 1 GHz) at 3.0 m test distance

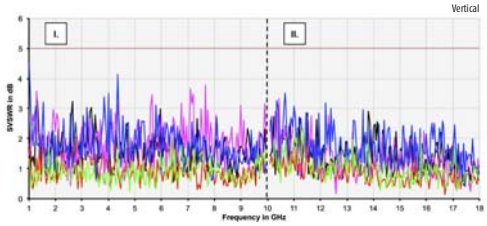




Test axis 1 – EMI	
Emission test (EMI)	Full compliance acc. to CISPR 16-2-3/EN55016-2-3, CISPR 22/EN 55022, CISPR 11/ EN 55011, CISPR 14-1/EN 55014-1, and CISPR 32/EN 55032
Quiet zone	ø 3.0 m; height 2.0 m
Measuring distance	10.0 m & 3.0 m
Chamber validation	acc. to CISPR 16-1-4/EN 55016-1-4 and ANSI C63.4
Deviation NSA at 10.0 m (30 MHz to 1 GHz)	±3.5 dB (30 MHz to 80 MHz), ±3.0 dB (80 MHz to 200 MHz) and ±2.0 dB (200 MHz to 1 GHz)
Deviation NSA at 3.0 m (30 MHz to 1 GHz)	±2.5 dB (30 MHz to 80 MHz), ±2.0 dB (80 MHz to 200 MHz) and ±1.5 dB (200 MHz to 1 GHz)

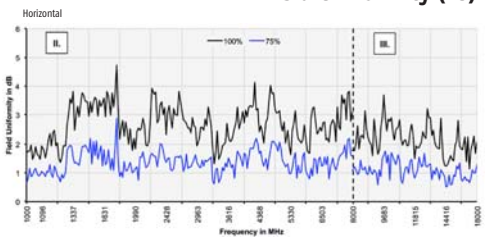
Site Voltage Standing Wave Ratio (SVSWR) (1 GHz to 18 GHz) at 3.0 m test distance

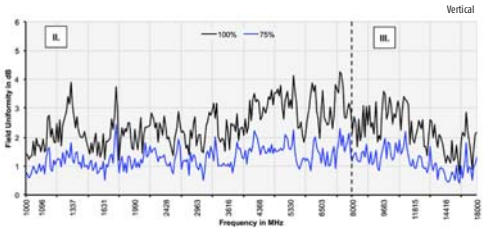




Test axis 2 – EMI	
Emission test (EMI)	Full compliance acc. to CISPR 16-2-3/EN 55016-2-3, CISPR 22/EN 55022, CISPR 11/ EN 55011, and CISPR 32/EN 55032
Quiet zone	ø 3.0 m; height 2.0 m
Measuring distance	3.0 m
Chamber validation	acc. to CISPR 16-1-4/EN 55016-1-4
Deviation SVSWR (1 GHz to 18 GHz)	+5 dB (1 GHz to 18 GHz)

Field Uniformity (FU) (1 GHz to 18 GHz) at 3.0 m test distance

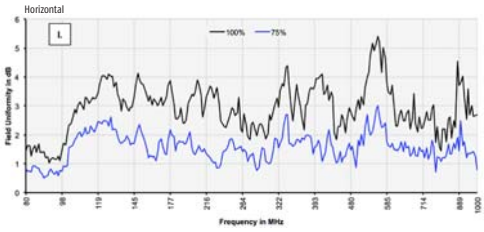


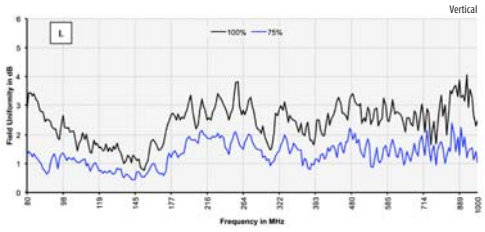


Test axis 2 – EMS	
Immunity test (EMS)	Full compliance acc. to IEC/EN 61000-4-3
Uniform area	1.5 m x 1.5 m
Measuring distance	3.0 m
Chamber validation	acc. to IEC/EN 61000-4-3
Deviation FU (1 GHz to 18 GHz)	0 dB / +6 dB at 100% of 16 measuring points

TEST AXIS 2

Field Uniformity (FU) (80 MHz to 1 GHz) at 3.0 m test distance





Test axis 3 – EMS	
Immunity test (EMS)	Full compliance acc. to IEC/EN 61000-4-3
Uniform area	1.5 m x 1.5 m
Measuring distance	3.0 m
Chamber validation	acc. to IEC/EN 61000-4-3
Deviation FU (80 MHz to 1 GHz)	0 dB / +6 dB at 100% of 16 measuring points

TEST AXIS 3

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