MTS Systemtechnik

Innovation Meets Precision:
Electronics Manufacturer for Radio Technology

Premium Partner for Tailored Test Solutions
Meeting the Highest Requirements in
Mobile Communications, Automotive, and Defence
— Development – Manufacturing – Service —
Made in Germany



MTS Radio Field Emulation: Realistic Testing of Military Communications

// Realistic radio scenarios – controlled, scalable, ready for deployment

The MTS HF radio field emulation system provides armed forces with a high-precision solution for realistically simulating complex high-frequency environments.

Wireless radio transmission in a free-field environment is converted into a fully wired network. This enables tactical communication scenarios to be emulated reliably, reproducibly and in a manner close to real-world operations under controlled laboratory conditions.

Whether for system verification, training or operational preparation – the MTS RF field emulation system offers measurable benefits for robust, interoperable and future-proof communication systems.

// Interoperability

Securely connected – today and tomorrow

The MTS HF radio field emulation system enables the comprehensive testing and validation of tactical communication systems with regard to their interoperability.

A wide variety of radio standards, protocols and network configurations can be simulated in a controlled environment – realistically, reproducibly and in a manner that reflects real-world conditions.

This ensures that systems from a wide range of sources work together reliably – in a networked environment, in the field and in an emergency.



Field Testing Possible On Site

// AIAD Radio Field Emulation System

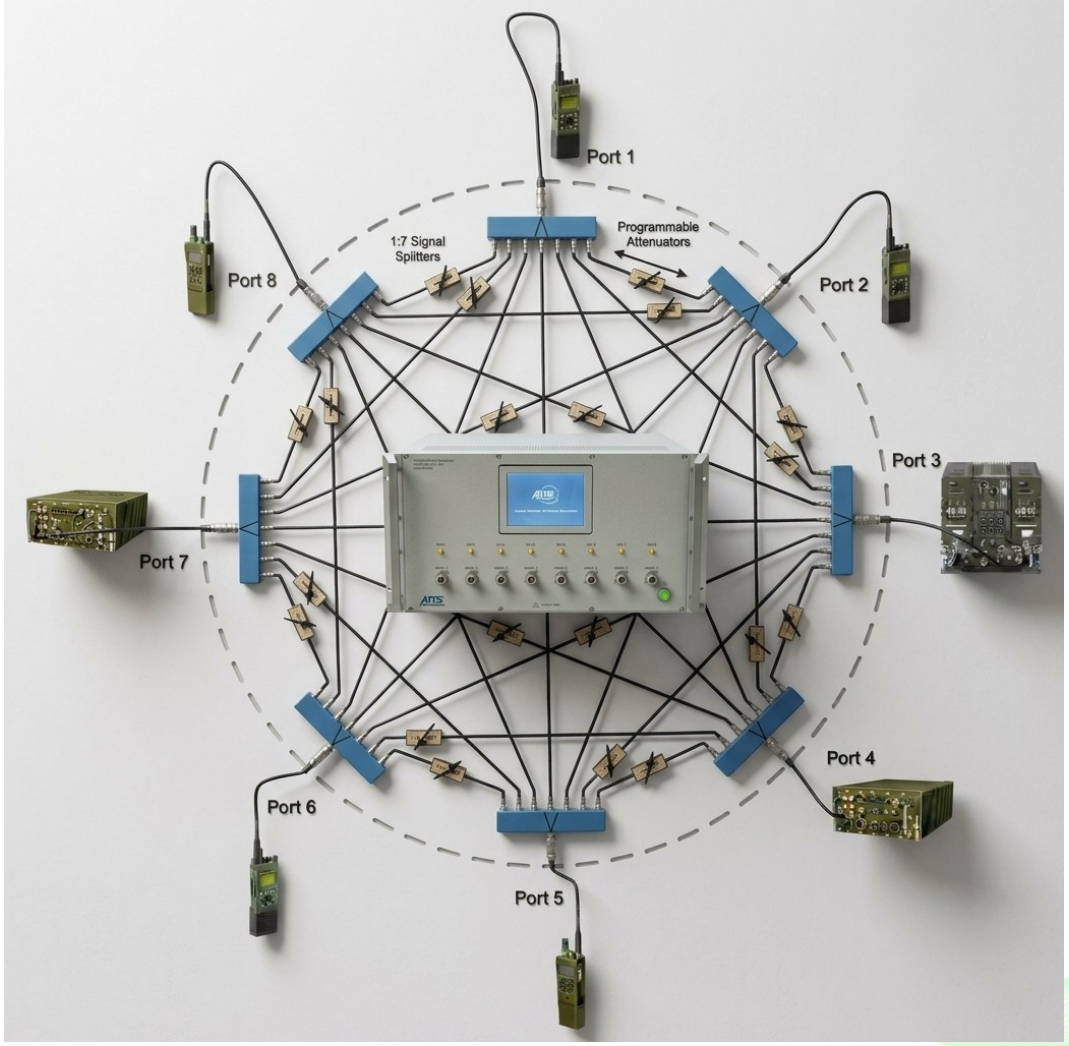


Development and Integration of Tactical Communication Systems

Current Testing Standard: Over-the-Air (OTA) Testing

The basic development and initial functional tests are carried out by the manufacturer in accordance with applicable specifications and standards. System integration and testing in an operational environment are carried out as part of OTA field tests. Only there can key aspects such as range, handover, interoperability, dynamic movement and multi-user scenarios be reliably tested under realistic conditions.
However, such tests involve considerable effort – particularly in terms of equipment, personnel and suitable test sites.
The time required for OTA field tests is also considerable.

// AIAD Radio Field Emulation System



Development and Integration of Tactical Communication Systems

Method Using the MTS AIAD Series:

MTS's AIAD systems enable any transmission situations, operating conditions and interference scenarios – such as those typically encountered in field tests – to be simulated realistically in advance. Unlike traditional over-the-air tests, the radio transmission is carried out entirely via a wired connection.
The transmission characteristics of a radio link are faithfully replicated by a network of precisely tuned RF components. From a radio technology perspective, the environment behaves like a real free-space field for the systems under test – thus creating a truly realistic environment in the test laboratory.

"Realistic radio environments – controlled, reproducible, location-independent."

// AIAD Radio Field Emulation System

Development and Integration of Tactical Communication Systems

Our solution – a realistic and efficient test environment entirely within the laboratory

- **Simulation of any applications, scenarios and interference** – practical, flexible and controlled.
- **Scalable system architecture** – with a variable number of participants (ports) and freely configurable network topologies.
- **Field trials reduced to a minimum** – with significant savings in time, effort and resources.
- **Direct connection of high-performance systems** – also suitable for devices with more than 10 W transmit power (AIAD+).
- **Manufacturer-neutral, reproducible results** – guaranteed objective comparability.
- **Wide frequency range** – multiple radio technologies can be used simultaneously.

// System Verification

Validation at the highest level

The MTS RF radio field emulation system provides a laboratory environment in which tactical radio systems can be tested and qualified under realistic conditions.

The emulation of dynamic RF scenarios enables the objective assessment of performance parameters, robustness and operational limits prior to roll-out, during version upgrades or as part of multinational certification procedures.

// AIAD Radio Field Emulation System

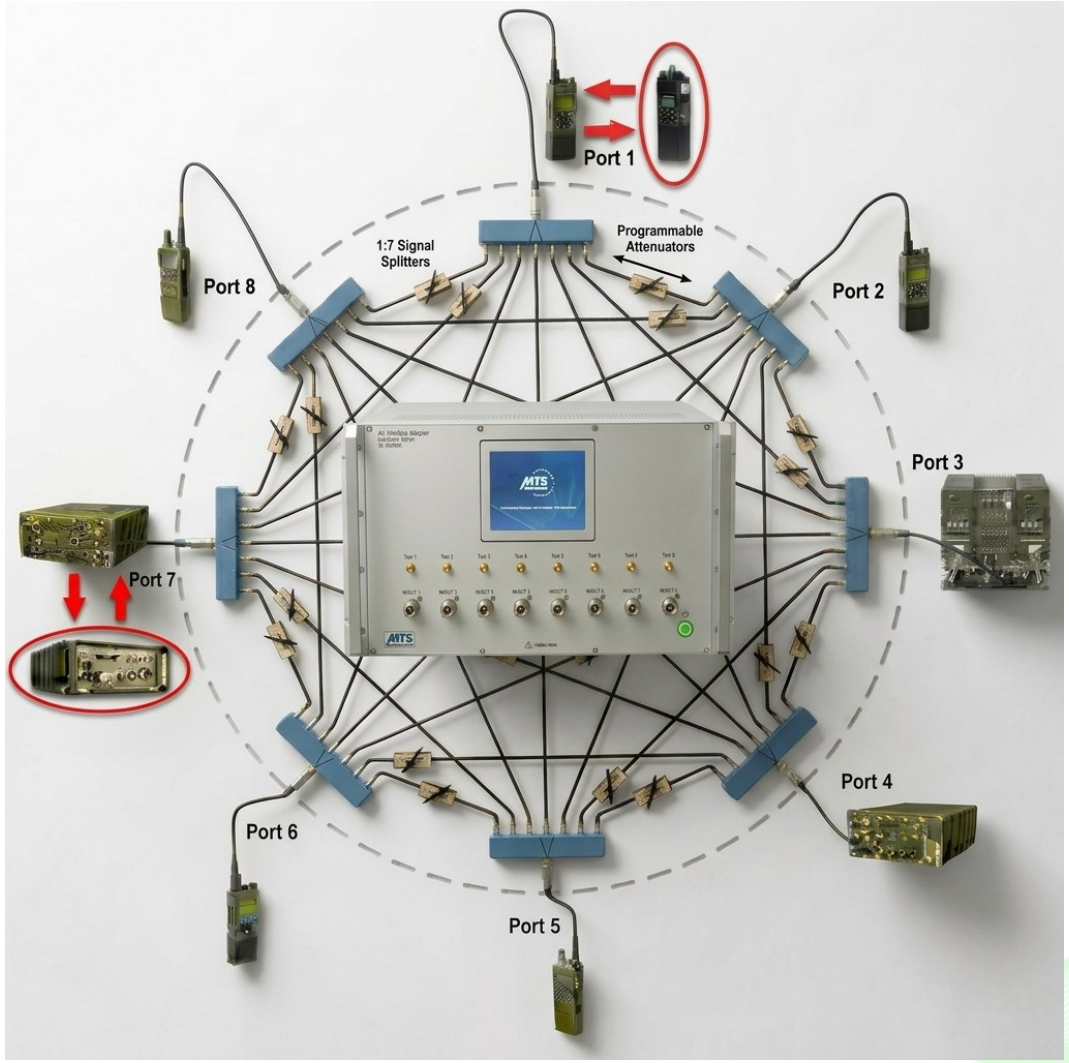


Replacement of Obsolete Systems or Certification of New Products

Current approach: Over-the-Air (OTA) Testing:

The MTS AIAD series enables the realistic simulation of scenarios, operating conditions and fault situations directly in the laboratory. New and existing systems are connected to the network via RF cables and can be quickly swapped between different brands and devices.
Device specifications can be measured with the highest precision, regardless of the manufacturer.

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Replacement of Obsolete Systems or Certification of New Products

Solution Approach Using the MTS AIAD Series:

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Replacement of Obsolete Systems or Certification of New Products

- Critical scenarios and known problem cases can be replicated in a targeted and reproducible manner in the laboratory.
- The performance of new systems can be comprehensively tested under realistic conditions using genuine equipment.
- Manufacturer-independent tests ensure objective and comparable results.
- Field trials are now only required for mechanical stresses.
- The validation process is significantly shortened.
- The time to operational readiness of new systems is considerably accelerated.

// Training

Training with maximum relevance

The MTS HF radio field emulation system brings the reality of tactical radio communications directly into the training laboratory.

The emulation of real-world electromagnetic environments and threat scenarios prepares operational personnel for real-world communication scenarios, interference and evasion strategies – risk-free yet fully effective.

Thanks to the scalable platform, both individual training sessions and complex joint exercises are possible.

// AIAD Radio Field Emulation System

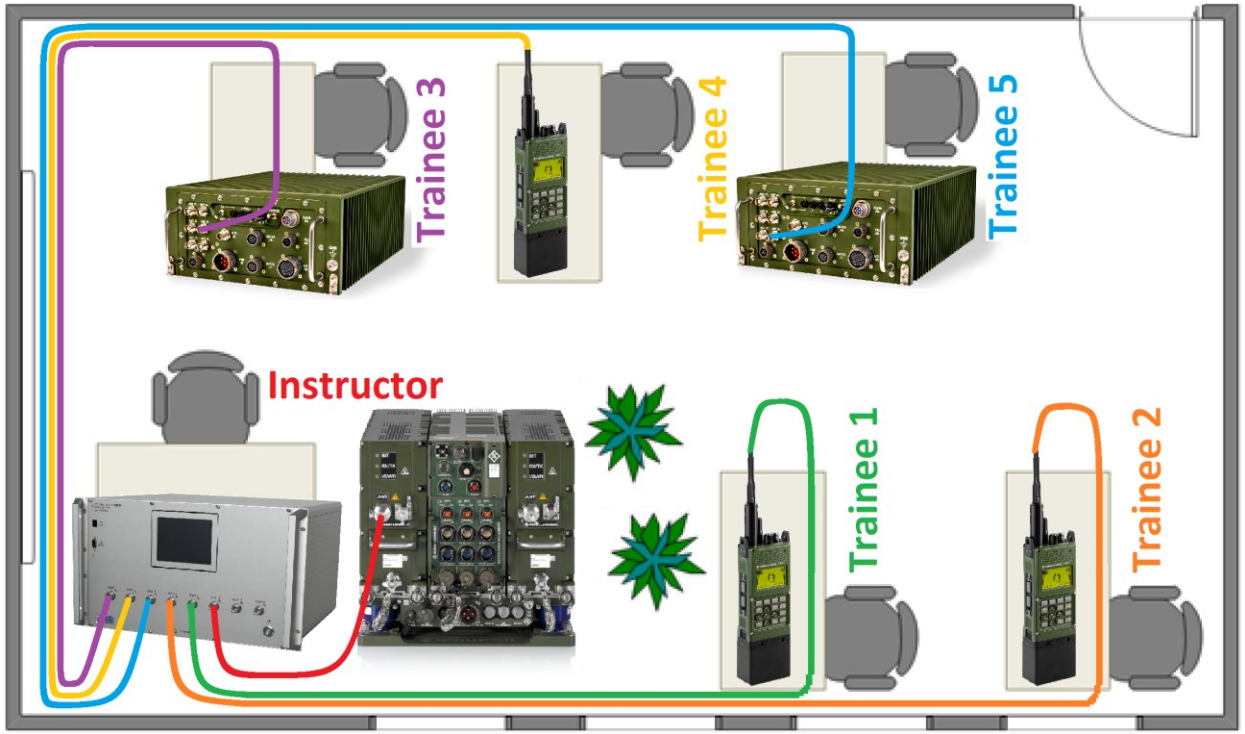


Education and Training

Modern teaching methodology for maximum practical relevance:

Theoretical and practical fundamentals are taught in lectures and using training models. However, lasting learning success is only achieved through regular practice and repetition. Extreme situations and rare events can only be simulated to a limited extent in traditional training formats, as realistic operational conditions are usually lacking. Confidence in taking action is developed through practical exercises involving the coordinated efforts of all units involved.

// AIAD Radio Field Emulation System



Education and Training

Use of the MTS AIAD Series in Training:

The MTS AIAD series enables any scenario, operating condition or extreme situation to be simulated realistically in the training room.
The technical structure corresponds exactly to that of operational applications, thereby ensuring a practical and lasting learning experience.
All participants are connected via the AIAD network, whilst the instructor can flexibly generate different configurations and operational scenarios in real time.
Knowledge levels can be assessed in a targeted manner, learning assessments carried out efficiently and even complex operational or combat simulations implemented – without having to leave the training room.

// AIAD Radio Field Emulation System

Education and Training – Efficient Training with the MTS AIAD Series

- Instructors can quickly and effectively simulate real-life situations in the training room.
- Training objectives are achieved in no time at all – through scenarios that can be repeated as often as required.
- Learning outcomes can be assessed in a flexible and versatile manner.
- Time-consuming field trials are virtually unnecessary.
- The intuitive interface makes it easy for trainers to use.
- This results in a training programme that saves time and resources.
- New scenarios and problem situations can be integrated with ease.

// Preparation for operations

Communication that’s ready for operation

The MTS RF radio field emulation system enables critical communication systems to be tested and optimised under realistic conditions even before they are deployed.

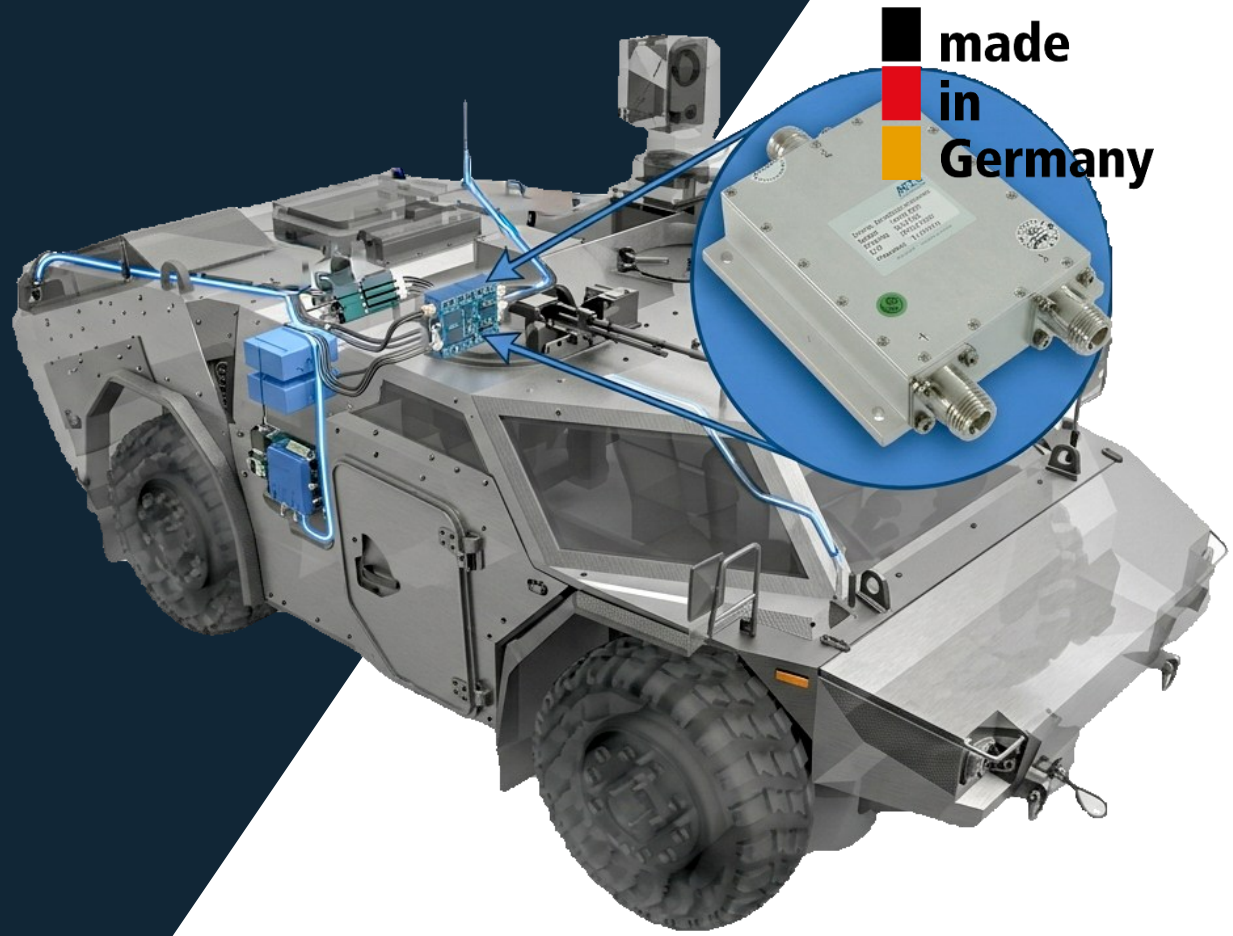
The emulation of complex RF environments – including interference, spoofing and traffic load – allows for precise adaptation to the specific operational scenario.

This ensures reliability even before the first radio transmission is sent.

Reality in the Lab – with the MTS AIAD Series

Our AIAD systems simulate every conceivable radio environment – dynamically, precisely and under complete control.
This allows you to test your systems under realistic conditions – reliably, reproducibly and right on site.

We bring the radio environment to you.



High Power Signal Combiner

// MTS Antenna Signal Combiner



RF Combiner/Splitter for Digital Radio

When uncompromising quality and reliability are essential, the MTS Antenna Combiner is the ideal solution for military applications. Whether in the laboratory or under the harshest environmental conditions, our signal combiner impresses with its high output power, robust construction and exceptional fault tolerance.
It connects two communication lines or systems to a broadband antenna. Compact, easy to install and ready for use – manufactured in Europe / Germany.

// MTS Antenna Signal Combiner

Maximum performance – maximum reliability.
For digital radio in the NATO communications network.

- // Optimised for vehicle installation.
- // Broadband range: 30-600 MHz.
- // High output power: up to 200 watts.
- // Reliable signal distribution (two radio systems connected to a single broadband antenna).
- // Robust construction: for continuous operation under the toughest conditions.
- // Fault tolerant: tolerates impedance errors and open connections.
- // Made in Germany – developed and manufactured in Germany. Future-proof and ready for use.

// Accessory

- // RF components
- // Shielding boxes series MSB
- // Shielded racks series SRK
- // Installation service
- // RF cable assembly
- // Mechanics











Other configuration possible on request!

MTS Systemtechnik

// *Let's find the right solution together – contact us*

Gewerbepark Ost 8
86690 Mertingen
Germany

info@mts-systemtechnik.de

Tel.: +49 9078 91294-0

www.mts-systemtechnik.de