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

Field Testing Possible On Site

// AIAD Radio Field Emulation System

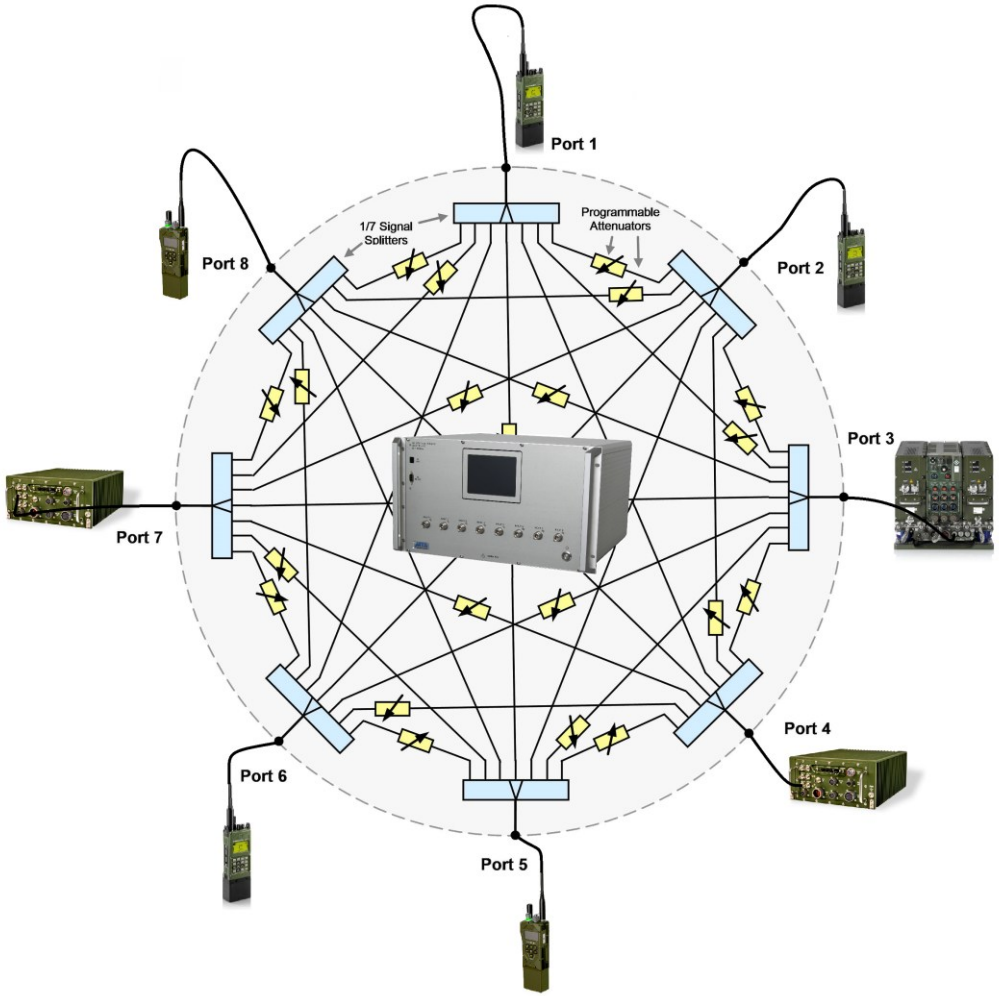
Development and Integration of Tactical Communication Systems

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

Fundamental development and initial functional testing are performed by the manufacturer according to relevant guidelines and standards. System integration and operational-environment testing occur via OTA field trials. Only these trials reliably verify aspects like range, handover, interoperability, dynamic movement, and multi-user scenarios under realistic conditions.

However, they involve substantial costs – for equipment, personnel, and test sites – as well as significant time investments.

// AIAD Radio Field Emulation System



Development and Integration of Tactical Communication Systems

Method Using the MTS AIAD Series:

With our AIAD systems, any transmission scenarios, conditions, or interference typical of field trials can be realistically simulated in advance. Unlike traditional Over-the-Air (OTA) testing, our approach uses fully wired radio transmission.
The transmission characteristics of a radio link are precisely reproduced by a network of RF components. To the systems under test, the environment behaves – from a radio perspective – exactly like a real open-field scenario, bringing true realism into the laboratory.

"Realistic radio environments – controlled, reproducible, and independent of location."

// AIAD Radio Field Emulation System

Development and Integration of Tactical Communication Systems

Our solution provides a realistic and efficient testing environment – entirely within the laboratory:

- **Simulation of any applications, scenarios, and interference** – practical, flexible, and controlled
- **Scalable system architecture** – variable number of nodes (ports) and freely configurable network topologies
- **Minimisation of field trials** – significantly reduces time, effort, and resource requirements
- **Direct connection of high-performance systems** – supports devices with transmission power > 10 W (AIAD+)
- **Vendor-independent and reproducible results** – ensuring objective comparability
- **Extremely wide frequency range** – enables simultaneous operation of multiple radio technologies

// AIAD Radio Field Emulation System

Replacement of Obsolete Systems or Certification of New Products

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

Functionality testing is currently performed on demonstrators or within highly simplified test environments, which are often customised and cover only a limited range of functions.
Testing under real-world conditions using existing technology generally does not take place – or is only feasible with considerable personnel and material resources.
The challenge are comparable to those encountered during development or system integration.

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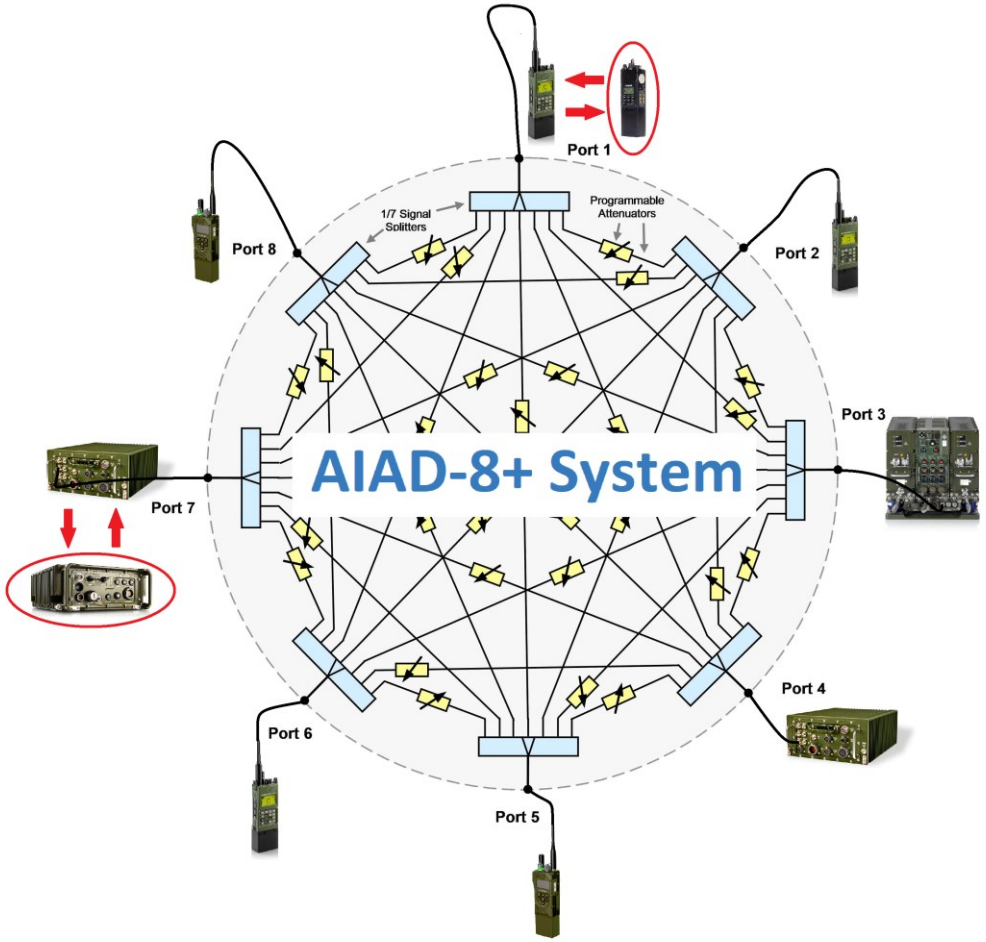


Replacement of Obsolete Systems or Certification of New Products

Solution Approach Using the MTS AIAD Series:

The radio field emulation capabilities of the MTS AIAD series allow for the realistic simulation of any scenario, operating condition, or fault situation – entirely within the laboratory.
Newly developed or legacy systems are connected directly to the network via RF cabling.
The quick and seamless exchange of different brands or device types can be achieved with ease.
In addition, device specifications can be measured with high precision and independently of the manufacturer.

// AIAD Radio Field Emulation System

Replacement of Obsolete Systems or Certification of New Products

- Critical scenarios and known issues can be specifically and reproducibly recreated in the laboratory.
- The performance of new systems can be thoroughly evaluated under realistic conditions using actual hardware.
- Manufacturer-independent testing ensures objective and comparable results.
- Field trials are required only for mechanical stress testing.
- The validation process is significantly shortened.
- System readiness is considerably accelerated.

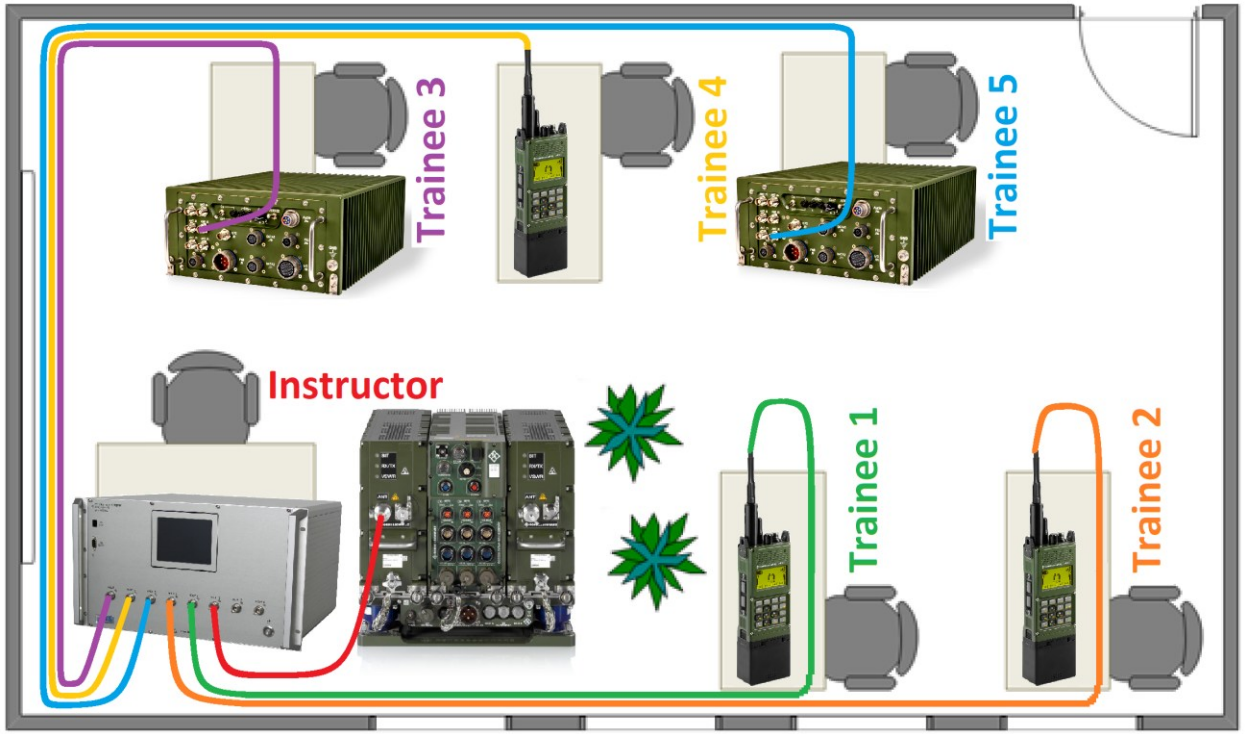
// AIAD Radio Field Emulation System

Education and Training

Modern teaching methodology for maximum practical relevance:

Core theoretical and practical content is traditionally delivered through lectures or basic training modules.
However, lasting learning outcomes can only be achieved through continuous application and repetition. Extreme situations or rare events are difficult to convey using conventional training formats, as a realistic operational environment is typically absent. Genuine routine and operational confidence can only be developed through hands-on exercises involving all participating units.

// AIAD Radio Field Emulation System



Education and Training

Use of the MTS AIAD Series in Training:

The MTS AIAD Series enables the realistic simulation of a wide range of scenarios, operating conditions, and extreme situations – all within the training environment.
The technical setup replicates that of real operational deployments, ensuring a highly practical and enduring learning experience.
All participants are connected via the AIAD network, while the instructor can dynamically configure a variety of operational scenarios in real time.
Knowledge can be imparted in a targeted manner, learning outcomes assessed efficiently, and even complex operational or combat simulations conducted – all without leaving the training room.

// AIAD Radio Field Emulation System

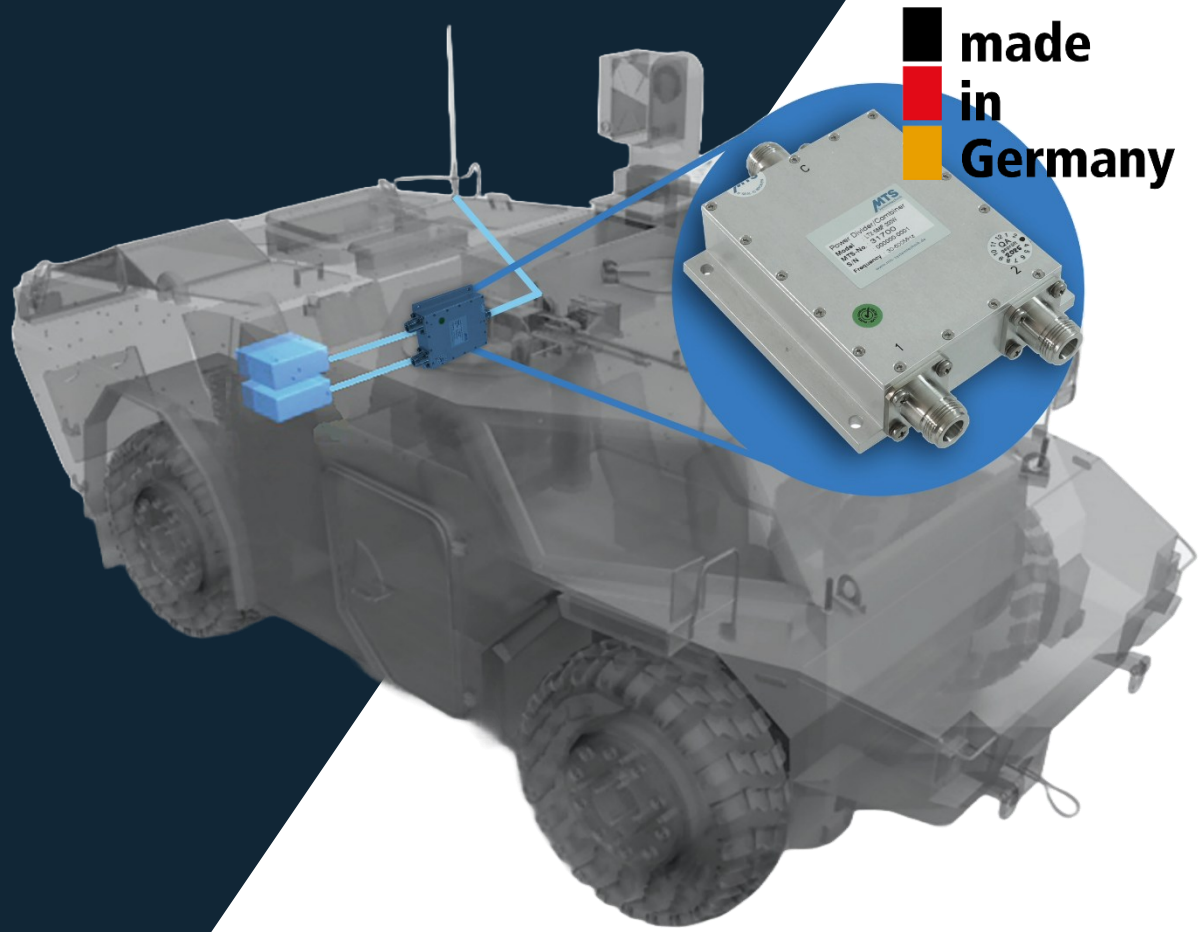
Education and Training – Efficient Training with the MTS AIAD Series

- Real situations can be quickly and accurately recreated in the training room by the instructor.
- Training objectives are achieved in the shortest time through scenarios that can be repeated as often as required.
- Learning outcomes can be assessed flexibly and comprehensively.
- Extensive field trials are rendered largely redundant.
- Intuitive operation simplifies use for instructors.
- Training sessions are both time- and resource-efficient.
- New scenarios and challenges can be easily integrated.

Reality in the Lab – with the MTS AIAD Series

Our AIAD systems simulate any conceivable radio environment – dynamically, precisely, and with complete control.
This enables you to test your systems under realistic conditions – reliably, repeatably, and on site.

We bring the radio environment to you.



High Power Signal Combiner

// MTS Antenna Signal Combiner

RF Combiner/Splitter for the Digital Radio

When it comes to uncompromising quality and reliability, the MTS antenna combiner is the ideal solution for military applications. Whether used in the laboratory or under the harshest environmental conditions, our signal combiner impresses with its high output power, robust design, and exceptional fault tolerance.
It combines two communication lines (systems) into one broadband antenna. Compact, easy to install, and ready for operation – manufactured in Europe/Germany.

// MTS Antenna Signal Combiner

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

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

// 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*

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