30 years MTS Systemtechnik

Innovation Meets Precision:
Electronics Manufacturer for Radio Technology

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

MTS Radio Field Emulation for Realistic Testing of Military Communications

Field Testing Possible On Site

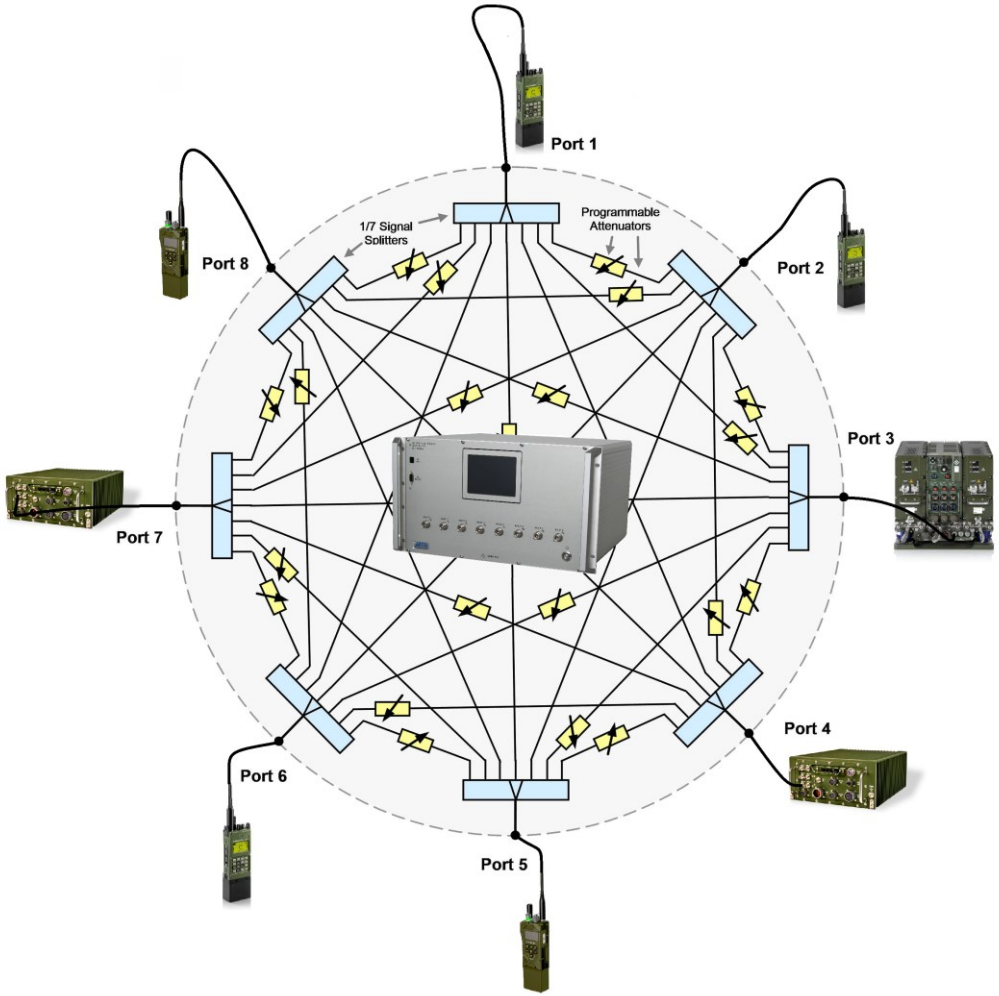
// AIAD Radio Field Emulation System

Development or Integration of Tactical Communication Systems

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

The fundamental development and initial functional testing are carried out by the manufacturer in accordance with the relevant guidelines or standards. System integration and testing in the operational environment are conducted through OTA field trials. Only such trials enable the reliable verification of aspects such as range, handover, interoperability, dynamic movement, and multi-user scenarios under realistic conditions.
However, these trials are associated with considerable costs – including equipment, personnel, and access to suitable testing environments. The time investment required for this testing method is also significant.

// AIAD Radio Field Emulation System



Development or 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 accurately reproduced through a network of RF components. For the systems, under test, the environment behaves – from a radio perspective – like a real open-field scenario, effectively bringing true realism into the laboratory.

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

// AIAD Radio Field Emulation System

Development or 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

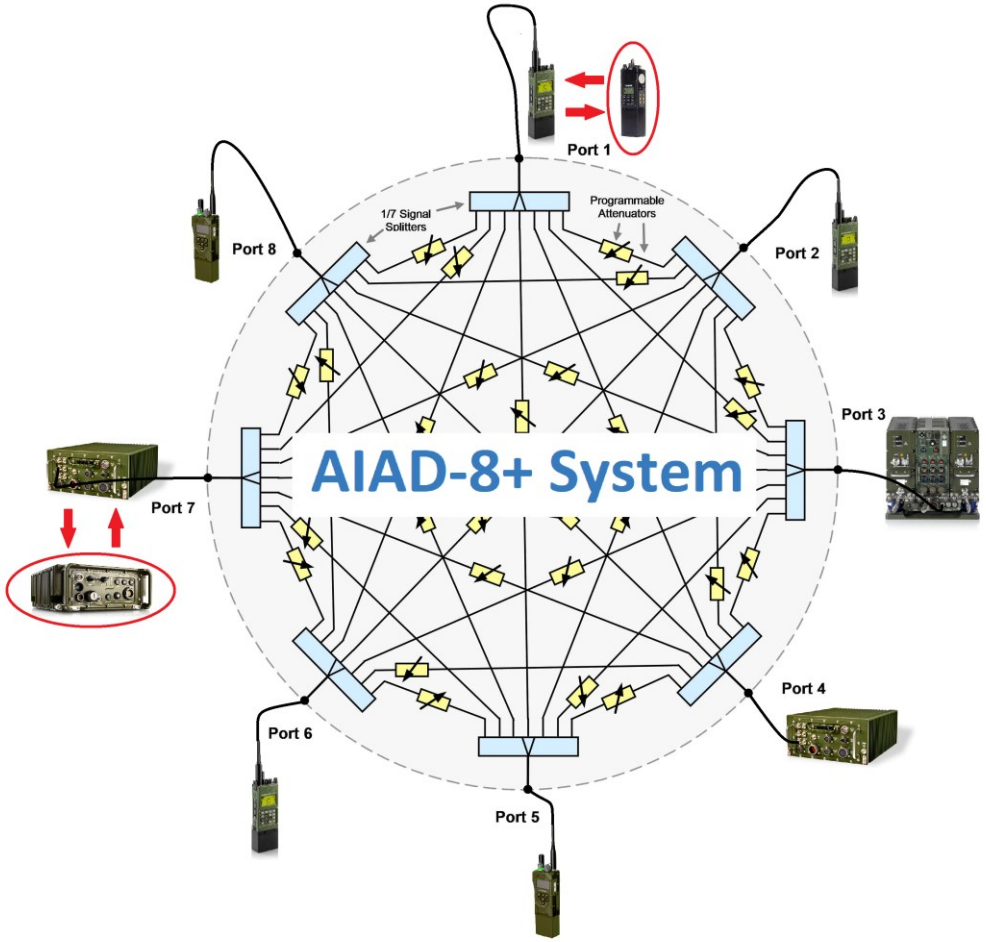
// AIAD Radio Field Emulation System

Replacement of Obsolete Systems or Certification of New Products

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

Functionality testing is currently carried out 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 occur – or is only feasible with considerable personnel and material resources.
The challenge are comparable to those encountered during development or system integration.

// AIAD Radio Field Emulation System



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 is easily achievable.
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.

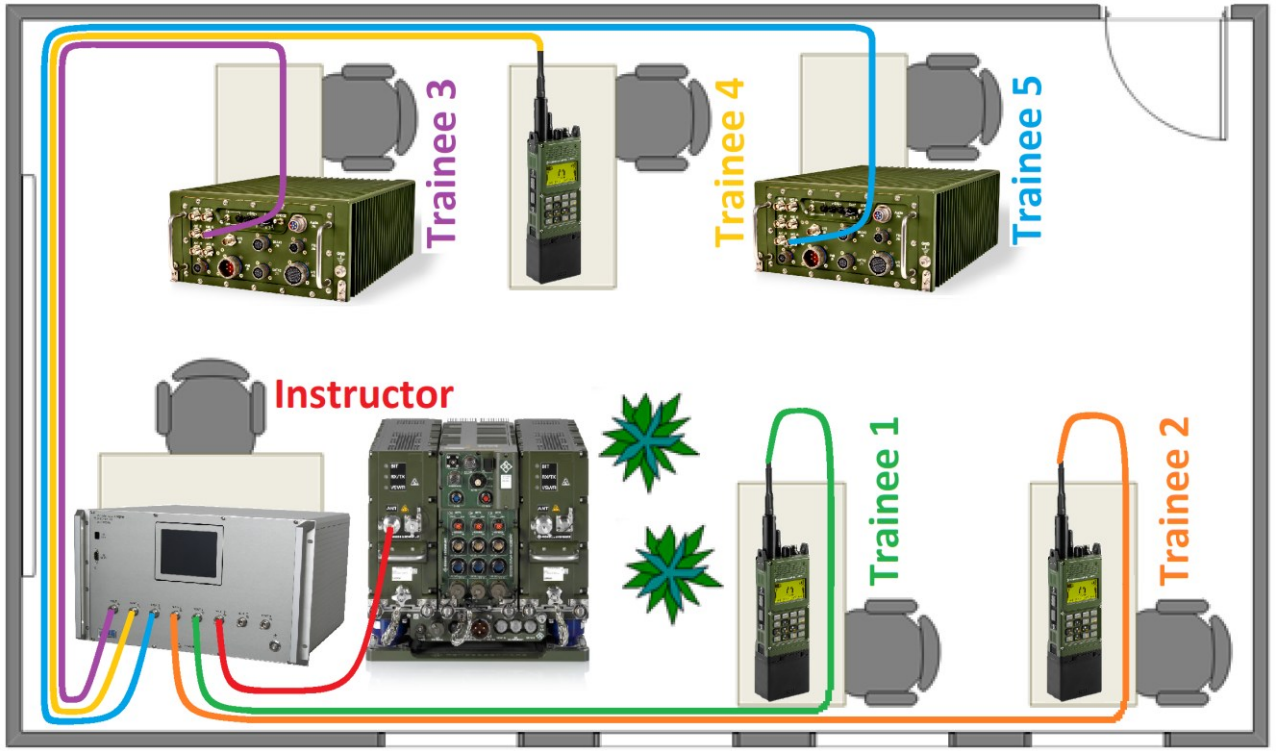
// AIAD Radio Field Emulation System

Education and Training

Modern teaching methodology for maximum practical relevance:

Core theoretical and practical content is traditionally delivered through lectures or basic training models.
However, lasting learning outcomes are only 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 lacking. 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 mirrors 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 delivered in a targeted manner, learning outcomes assessed efficiently, and even complex operational or combat simulations can be carried out – 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 necessary.
- Learning outcomes can be assessed flexibly and comprehensively.
- Extensive field trials are rendered nearly redundant.
- Intuitive operation simplifies use for instructors.
- Training sessions are 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 full control.
This enables you to test your systems under realistic conditions – reliably, repeatably, and on site.

We bring the radio environment to you.

// Accessory

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

Other configuration possible on request!

MTS Systemtechnik

// *Together towards the right solution – Contact us*

Gewerbepark Ost 8
86690 Mertingen
Germany

info@mts-systemtechnik.de

Tel.: +49 9078 91294-0

www.mts-systemtechnik.de