

30 years MTS
Systemtechnik

Electronics manufacturer specialising in radio

Premium partner for customised test solutions in the fields of
mobile communications, automotive and defence technology

– Development – Production – Service –

// Competence Quality Reliability



“Your partner company for bespoke solutions - development, production, and service all from a single source.”

- // High-frequency technology
- // EMC technology
- // CNC milling technology



// *The Company*

Development and manufacture of customised products

Telecommunications and Mobile Communications Sector

The telecommunications industry is an important sector for us. We manufacture shielding boxes, relay switch panels, coupling fields, and air interface adapters (air interface emulation) for 2G, 4G, 5G, IoT, WiFi, and TETRA. We also provide software solutions for controlling our devices and systems, integrating customised programme sequences as required.

High-frequency and Measurement Technology

Our high-frequency components include programmable attenuators, semiconductor switches, hybrid couplers, power dividers, RF filters, coaxial relays, and more.

For EMC measurement technology, we offer relay switching units and other accessories.

CNC Milling Technology

We manufacture high-precision milled parts in our modern CNC production centres, from prototypes to series production, tailored to customer specifications. Our mechanical product range also includes standard aluminium enclosures, such as profile enclosures, milling cassettes, and 19-inch racks.

// The Company

The company's history at a glance

Foundation of
MTS Mikrotechnik
as a developing and
producing company
in the field of EW

1980

Change of the company name
MTS Mikrotechnik to
MTS Systemtechnik with
new shareholders

1995

Relocation of the company
into a new company building
in Mertingen

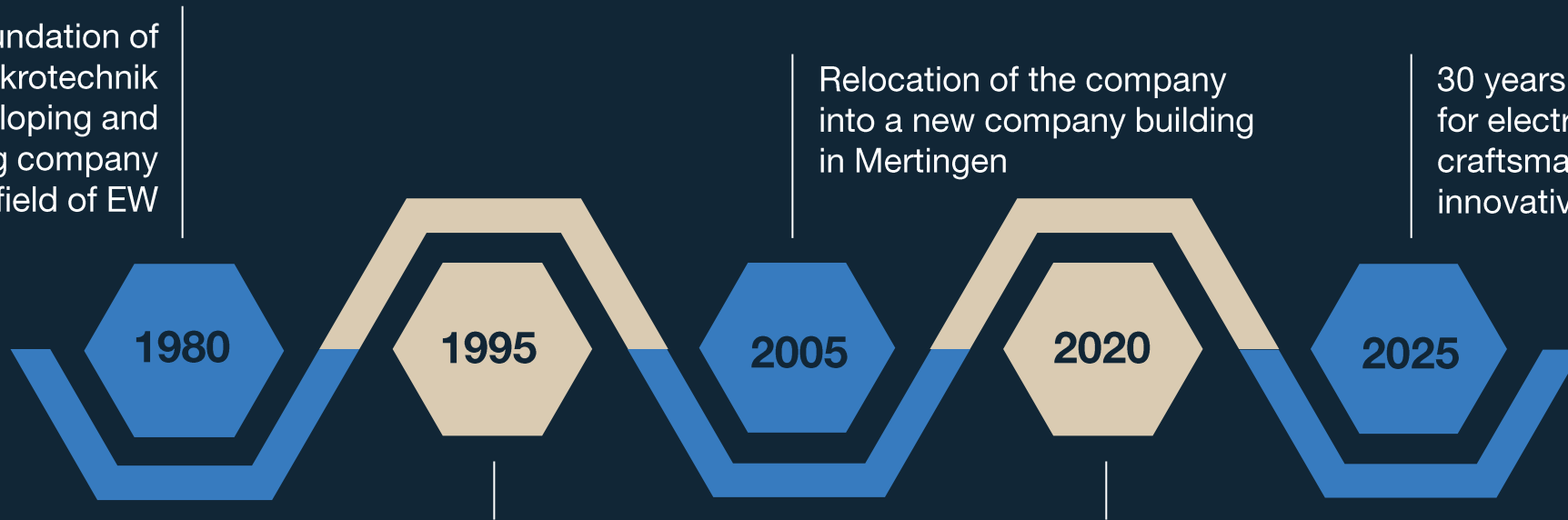
2005

25 years of MTS Systemtechnik

2020

30 years of passion
for electronics, precise
craftsmanship, and
innovative solutions.

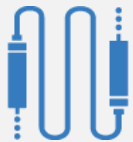
2025



// *Main products*



Systems for the distribution of LF, video and RF signals in the fields of tele- and satellite communication, and radio surveillance.



Development and production of active and passive components for high-frequency technology



Manufacture of mechanical components for the aerospace, high-frequency and optical industries

// *Company facts*

Company

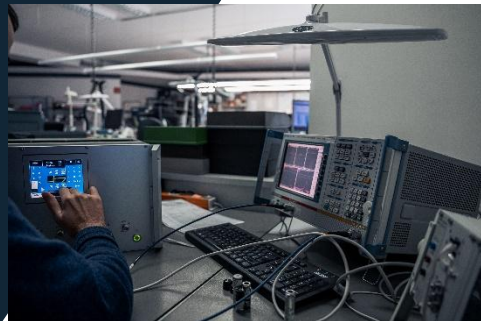
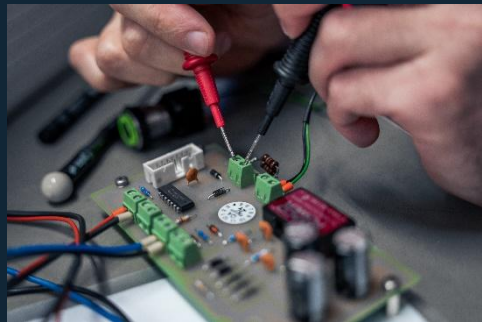
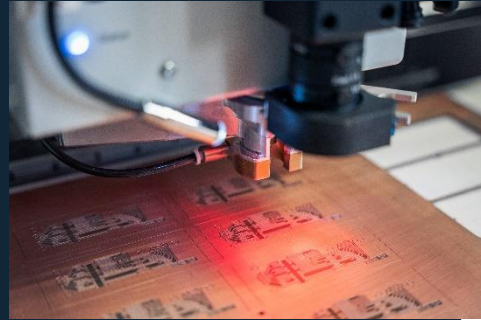
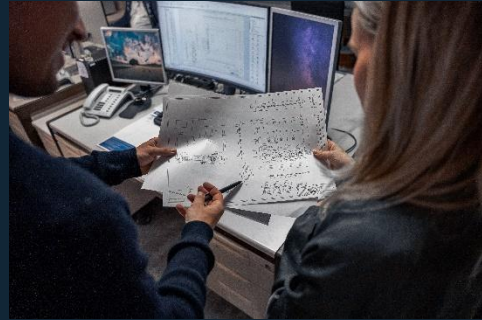
Administration, sales and production - all under one roof. Worldwide representatives for the marketing of MTS products.

Employees

50 employees in full and part time, consisting of engineers, technicians, skilled workers and trainees

Training

- Electronics technician (m/f/d) for devices and systems
- CNC cutting machine operator (m/f/d)
- Industrial clerk (m/f/d)



// Competences

- // In-house development, simulation and production of high-frequency components and systems
- // Software and hardware laboratory
- // System integration
- // EMC absorber chamber
- // CAD services
- // CNC machining centre
- // Modern production processes
- // Quality standard DIN EN ISO 9001



// *Our markets*



Our customers include developers and manufacturers of highly sensitive equipment in the mobile communications, telecommunications, aerospace, defence, medical, automotive, and electronics sectors. MTS Systemtechnik is synonymous with cutting-edge technology, absolute reliability, discretion, transparent processes, and certified quality.

2G

3G

4G

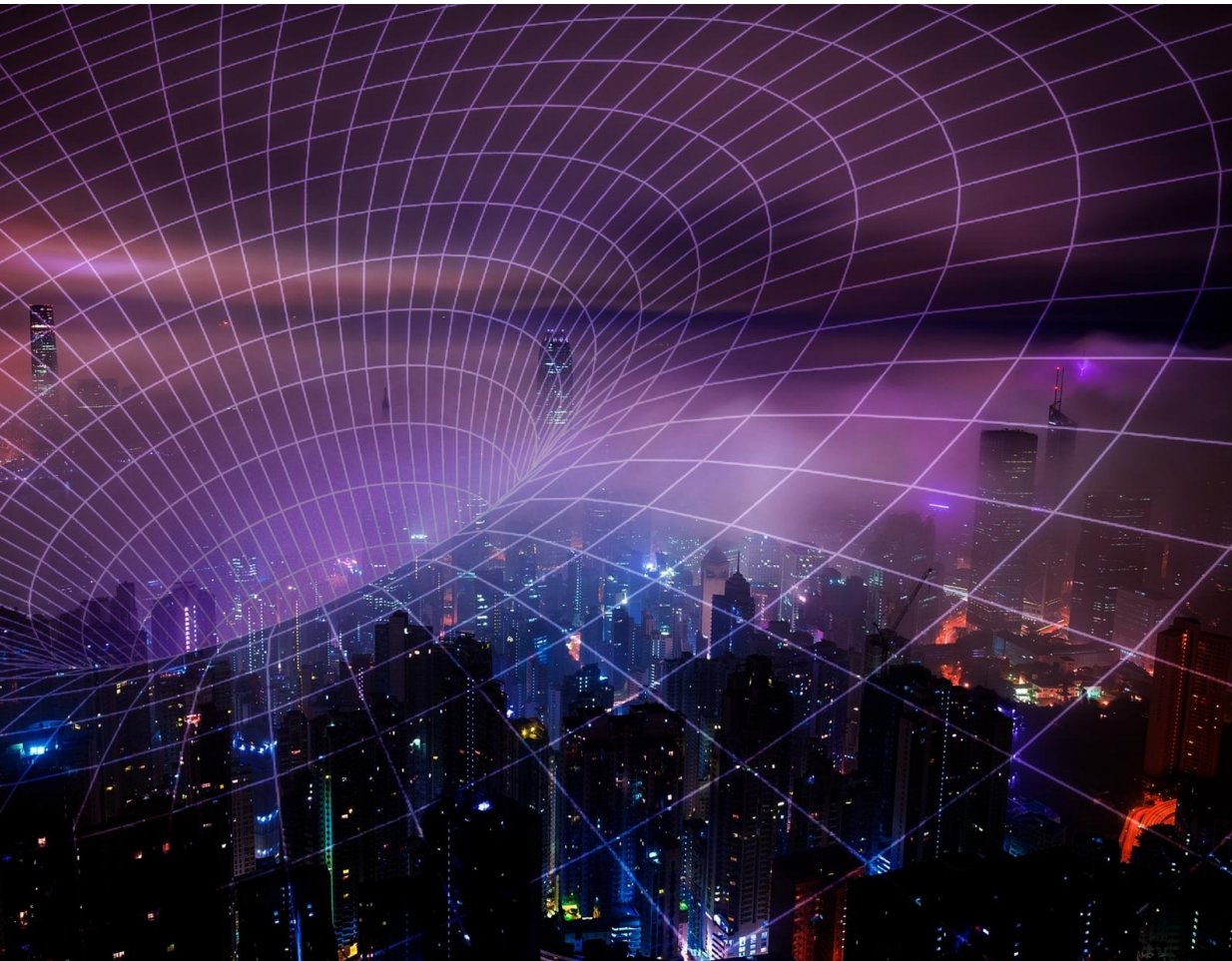
5G

**MTS radio field
emulations for
mobile communication**



**Enables
field tests
on side**

// Radio Field Emulation



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

The basic development and functional testing are carried out by the manufacturer in accordance with the relevant specifications or standards. The integration and operation in active use take place during OTA field tests. Only here can range tests, cell changes, interoperability, dynamic movements, multi-user operation, etc., be tested under real conditions. This process involves considerable costs due to the provision of equipment, personnel, and space. The time required for these tests is also significant.

// Radio Field Emulation AIAD



Procedure with MTS AIAD series:

With our AIAD systems, any transmission situations, conditions, or problem cases that occur during field tests can be generated in advance. This is possible because we do not operate the radio ‘over the air’ but exclusively by wire. The transmission characteristics of a radio link are simulated using a network of RF components. From a radio technology perspective, all objects appear as if they are in an open field. This brings genuine reality into the test laboratory.

// *Radio Field Emulation AIAD*

Advantages

- // Any application, situation, or problem case can be simulated in the laboratory.
- // Scalable number of participants (ports) and configuration possible.
- // Field tests are minimized, reducing test times.
- // Even wireless devices with extreme transmitting powers of 10 W and above can be connected directly to the AIAD solution.
- // It is easily possible to attenuate signal levels below the UE's sensitivity threshold.
- // Vendor-independent and reproducible results.
- // Extremely wide frequency range of 50 - 8000 MHz (other frequencies available on request) for the simultaneous use of all radio technologies.
- // Wireless devices without an RF connection can simply be placed in shielding boxes, which are available customised.

// Radio Field Emulation

Replace obsolete systems or certify new ones

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

Functional tests are carried out on a demonstrator or scaled-down test environments, which are usually customised or only cover a limited range of functions. Tests under real conditions with the existing technology are typically not conducted or can only be realised with significant expenditure on personnel and materials. This is similar to challenges faced during development or integration.

Procedure with MTS AIAD series:

The MTS radio field simulations can be used to reproduce any situation, condition, or problem in the laboratory. New developments or obsolete systems are connected to the network via RF cables. The quick exchange of different brands or types is straightforward. Independent measurement of the specifications of the devices and systems is also possible.

// *Radio Field Emulation AIAD*

Replace obsolete systems or certify new ones

- // Any situation or known critical case can be easily reproduced.
- // The performance of the new systems can be comprehensively tested in conjunction with real equipment.
- // Manufacturer-independent testing.
- // Field tests are only required for mechanical loads.
- // Shortening of the validation process.
- // Acceleration of operational readiness.

// *Radio Field Emulation AIAD*

What AIAD devices are used for

- // For the functional test of mobile radio systems in product development.
- // For certification of mobile radio components by network operators.
- // To reproduce critical cases in development and integration.

Possible radio standards include

- // Mobile radio (2G, 3G, 4G, **5G**), IoT, C2X, Wi-Fi, TETRA or even
- // Military radio technology in the range of 30 - 1000 MHz

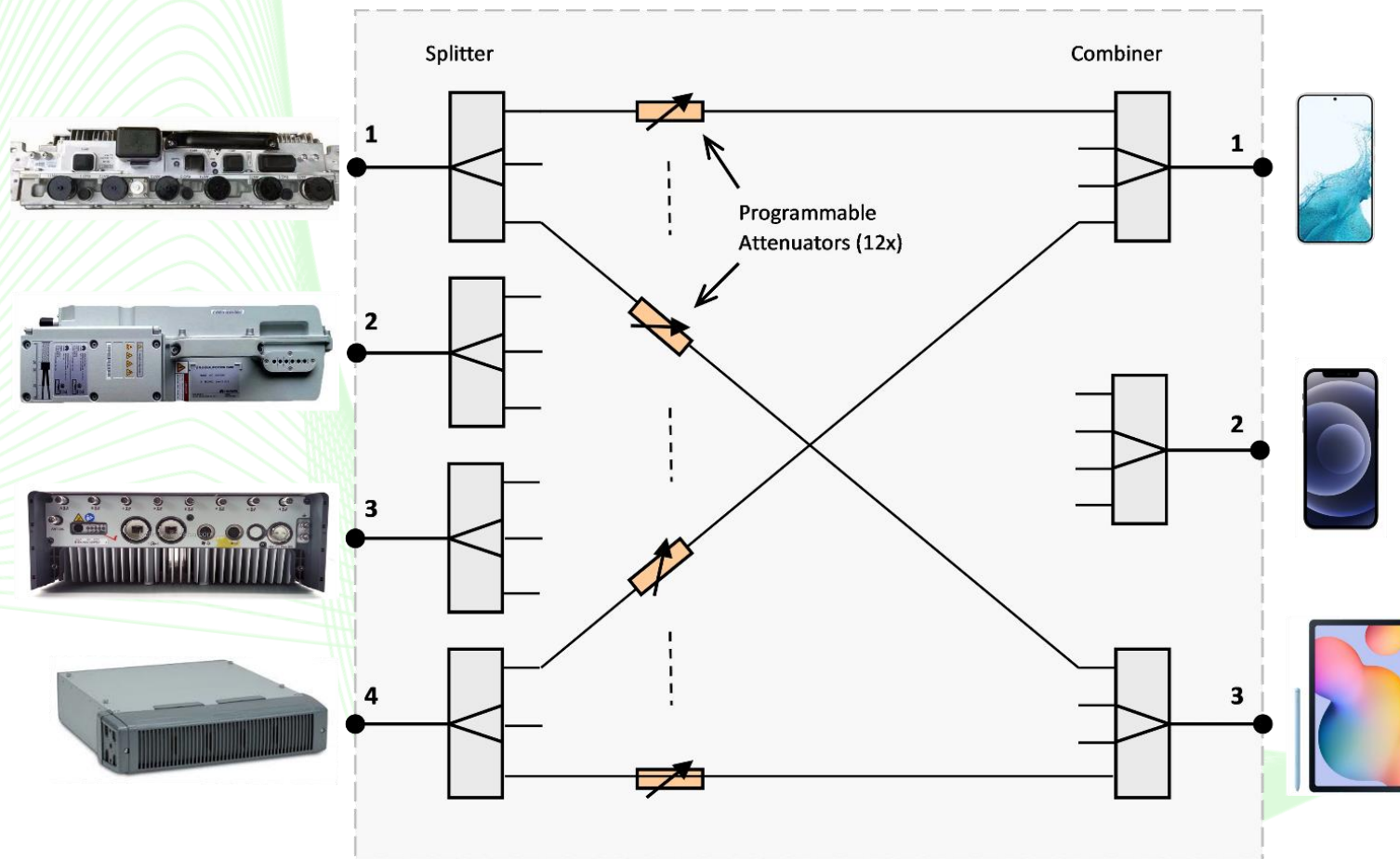
// *Radio Field Emulation AIAD*

Specifics of AIAD devices

- // A programmable attenuator is available in each path of the radio field emulation.
- // Attenuation setting from 0 to 95 dB in 1 dB steps is possible as standard.
- // Extended range from 0 to 122 dB possible for e.g. IoT applications.
- // Switching of the attenuation levels takes place continuously and without interruption.
- // The selected attenuation is the same in the uplink and downlink directions.
- // Alternatively, partially meshed or unbalanced networks are also possible (e.g. only 2 neighboring cells can be addressed at a time or only 2 ports are connected to all others).

// Radio Field Emulation AIAD

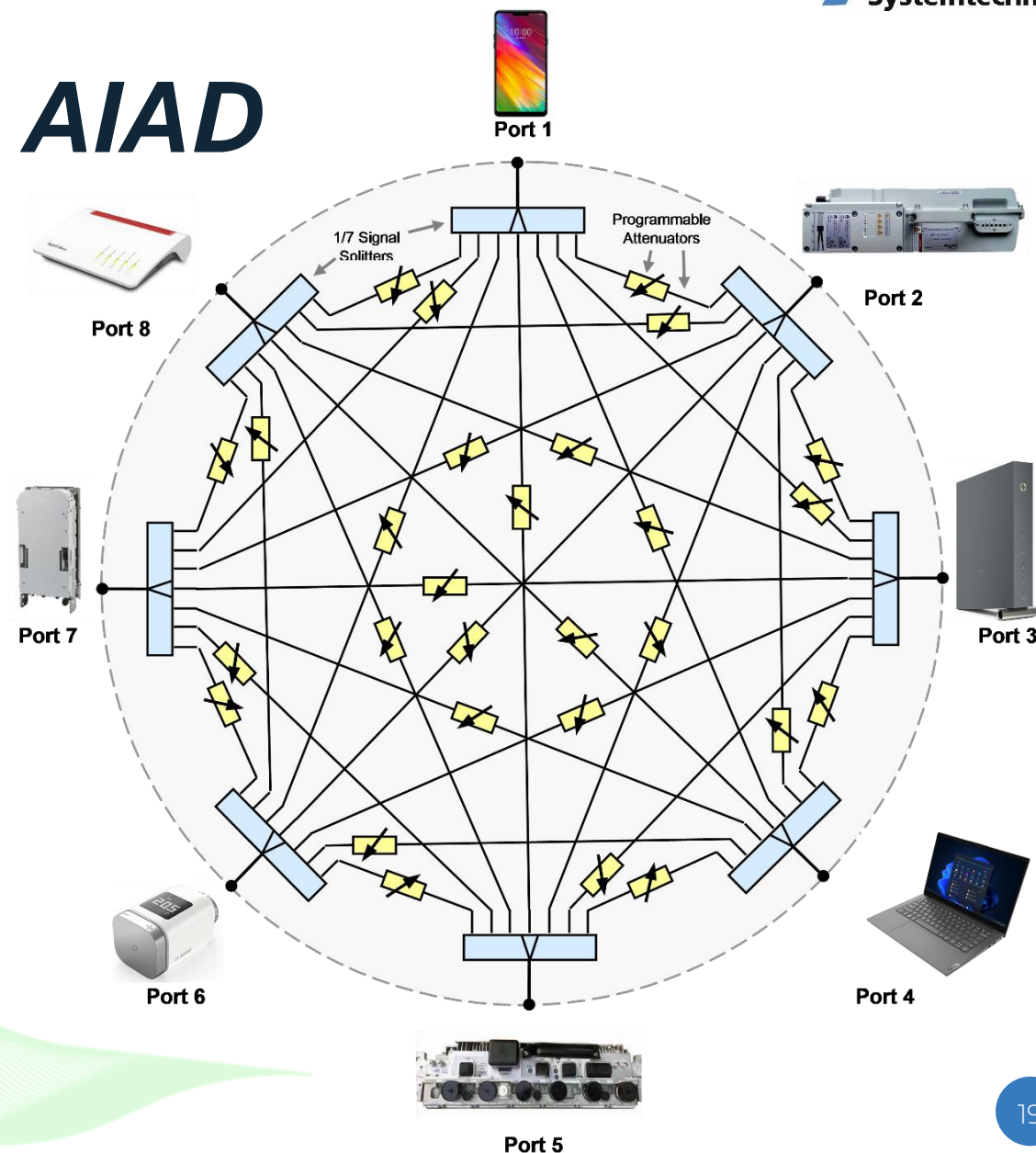
Example AIAD configured with 4 inputs and 3 outputs



// Radio Field Emulation AIAD

Example AIAD+ configured with 8 ports

- // Ring system according to block diagram.
- // The inputs are fully meshed in all directions.
- // Communication also possible between UEs.
- // Number of connections according to customer requirements.



// *Radio Field Emulation AIAD*

Summary

With AIAD system solutions, any state of a radio link can be dynamically modelled. This enables realistic testing of the performance of radio systems or components during live operation - reliable, reproducible, and on-site.



**We bring the wireless environment to
your home**

// 19" Rack Solutions



MTS Rack Solutions

The sensitivity of mobile devices has increased dramatically over the past year. 4G and 5G devices can detect signals as low as -130 dBm, while NB-IoT applications can reach even lower, up to -145 dBm. Testing these technologies under defined conditions requires a very high level of RF shielding. The MTS SRK rack system series offers a solution, providing approximately 120 dB of shielding.

Key features include a box-in-shell system, filtered interfaces with customised RF cabling, and complete installation both internally and externally.

// 19" Rack Solutions



MTS Rack Solutions

- // 19" Rack system, Height up to 47 U
- // Width 600 or 800 mm, depth 600 or 800 mm
- // Integrated fans in the roof
- // Connection panel in the roof for HF connections (N, SMA or 4.3-10)
- // Connection panel on the rear for e.g. LAN, USB, fiber optic, 230V, DC etc.

// Accessory

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



Other configuration possible on request!

5G

// **Autonomous solution
for radio measurements,
monitoring, Jammer,
Drone Defense and
Wiretaps**



// *Measuring vehicle*

The autonomous solution for mobile, measuring, monitoring and communication vehicles

S
T
H
G
L
H
G
H

Universal equipment carrier

5G Testing (First vehicle for 5G test!)

All types of radio measurements

Radio optimization

Benchmarking

Troubleshooting / Debugging

IMSI Catcher

Optional radio direction finder

authorities and organizations with security tasks applications

Self-sufficient power supply, can be used almost anywhere

// **Measuring vehicle**

Further application possibilities:

- // Jammer Technology
- // Drone defense
- // Monitoring
- // Wiretaps



// Main customers





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