

ATC Solutions

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ROHDE & SCHWARZ

Agenda

- | **Company Presentation**
- | R&S ATC system competences
- | R&S Test & Measurement
- | References
- | Q&A



The company group at a glance

| History

Established 1933 in Munich, Germany

| Type of enterprise

Independent family-owned company

| Global presence

In over 70 countries, approx. 60 subsidiaries

| Net revenue

EUR 1.83 billion (FY 14/15, July through June)

| Export share

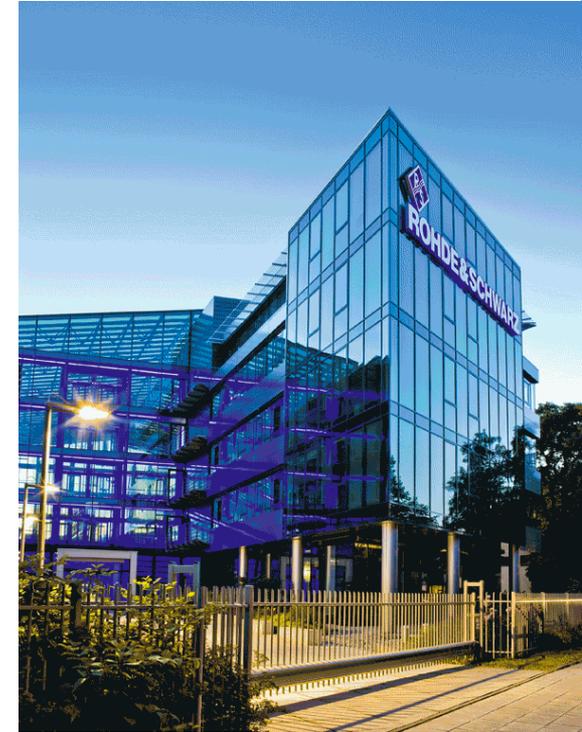
90 percent

| Employees

9900 worldwide, with approx. 5900 in Germany

| Success

A leading international supplier in all of its fields of business



Business fields

Test and Measurement	Broadcast and Media	Secure Communications	Cybersecurity	Radiomonitoring & Radiolocation
<p>T&M instruments and systems for</p> <ul style="list-style-type: none">▪ Wireless communications▪ General purpose electronics▪ Aerospace & defense applications	<p>Broadcast, T&M and studio equipment for</p> <ul style="list-style-type: none">▪ Network operators▪ Broadcasters▪ Studios▪ Film industry▪ Manufacturers of entertainment equipment	<p>Communications systems for</p> <ul style="list-style-type: none">▪ Air traffic control▪ Armed forces <p>Encryption technology for</p> <ul style="list-style-type: none">▪ Armed forces▪ Government authorities▪ Critical infrastructures	<p>IT security products for</p> <ul style="list-style-type: none">▪ Economy▪ Authorities	<p>Radiomonitoring equipment for</p> <ul style="list-style-type: none">▪ Regulatory authorities▪ Homeland and external security▪ Network operators <p>Radar intelligence systems</p>
Service				



Customers and markets



Manufacturers of mobile radio and other wireless terminal equipment



Operators of wireless communications and broadcast networks



Electronics manufacturers



Electronics service providers



Aerospace and defense



Studios and broadcasters



Government authorities and other public sector customers



Companies of all types and sizes

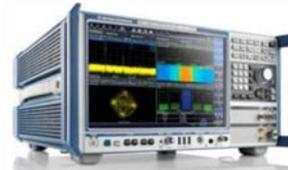
Leading-edge solutions



R&S®CMW500
Universal test platform for all common mobile radio and wireless technologies



R&S®RTO
Fastest oscilloscope on the market with the world's first digital trigger



R&S®FSW
Signal and spectrum analyzer with outstanding performance



R&S®ESMD
Compact high-end receiver for all radiomonitoring tasks



R&S®SDTR
Military radio based on state-of-the-art software defined radio (SDR) technology



R&S®SITLine ETH40G
Fastest Ethernet encryptor (40 GBit/s)



R&S®THU9
The first TV transmitter with energy-saving Doherty technology

Rohde & Schwarz around the world



Beijing



Singapore



Madrid



London



Kuala Lumpur



São Paulo



Paris



Vienna

Rohde & Schwarz in Germany



Munich



Teisnach



Memmingen



Berlin



Cologne



Hanover



Production plants with high manufacturing depth

I **Quality made by Rohde & Schwarz**

Most products are manufactured in Germany;
additional plants in the Czech Republic, Singapore and Malaysia

I **High manufacturing depth**

To maintain independence, flexibility and quality

I **Maximum production flexibility**

To handle a wide variety of products and changing batch sizes and to quickly respond to changing market requirements

I **Short delivery times**

Maximum of four weeks for off-the-shelf products

I **Development and production hand in hand**

Short paths and close collaboration between production sites and development centers



Test and measurement

- | **Largest manufacturer of electronic test and measurement equipment in Europe and second largest in the world**
- | **Leading manufacturer of wireless communications and EMC test and measurement equipment, technologically leading in all areas of RF test and measurement**
- | **Key partner and enabler of industry and network operators for wireless technologies**



Broadcast and media

- | **Market leader in terrestrial transmitter systems and broadcast T&M equipment; transmitter systems installed in more than 80 countries**
- | **Unique expertise in the entire transmission chain – from TV and film studios to program distribution and consumer electronics industry**



Secure communications

- | **Comprehensive expertise in professional radio and encryption technology**
- | **Pioneer and technology leader in military software defined radio systems**
- | **Leading supplier of ATC radio solutions with systems installed at more than 200 airports and ATC centers**



Cybersecurity

- | **Certified security solutions made in Germany – for protected operation of information and communications equipment and confidential data transfer between sites**
 - | Firewalls
 - | Hard disk encryptors
 - | Line encryptors
 - | Secure browsers
 - | Secure smartphones and telephones
 - | Secure integrated IT infrastructures
 - | Hardware security modules



Radiomonitoring and radiolocation

- | **Leading supplier of receivers, direction finders, analyzers and all-in-one systems for regulatory authorities**
- | **State-of-the-art radiomonitoring systems (COMINT) for security authorities and organizations and armed forces**
- | **Radar intelligence systems (ELINT)**
- | **IP analysis solutions**



Service

- | **Global service network with high-quality, standardized service products**
- | **Customized individual services, from application support to project management and manufacturing to order**
- | **24-hour hotline with qualified advice and problem solving**

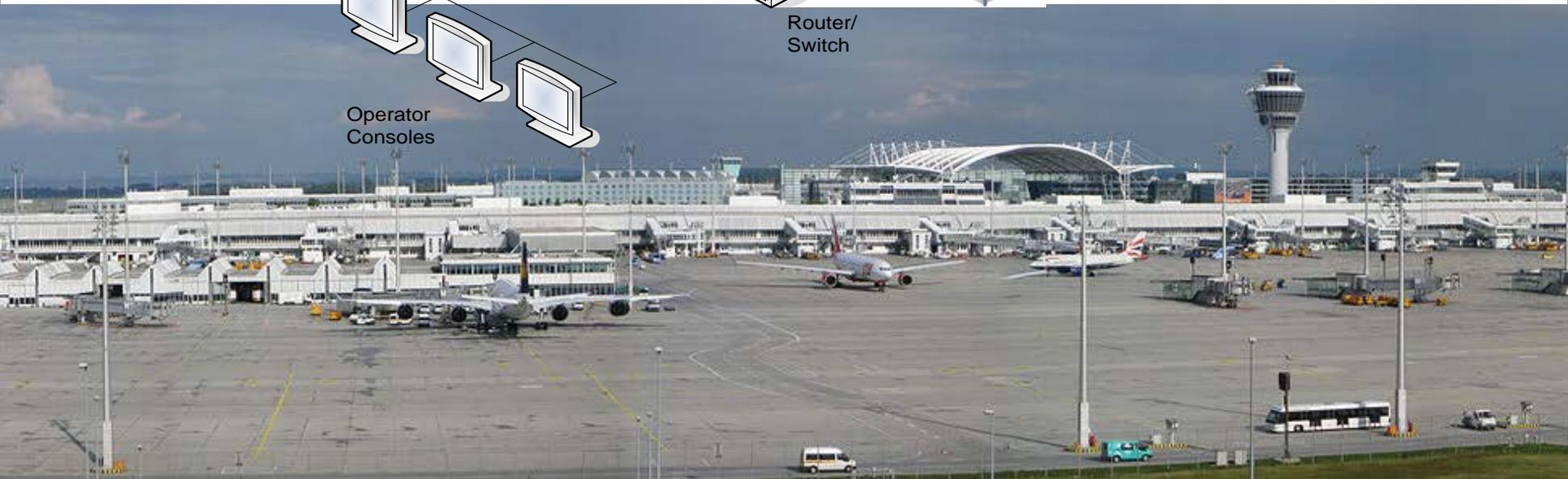
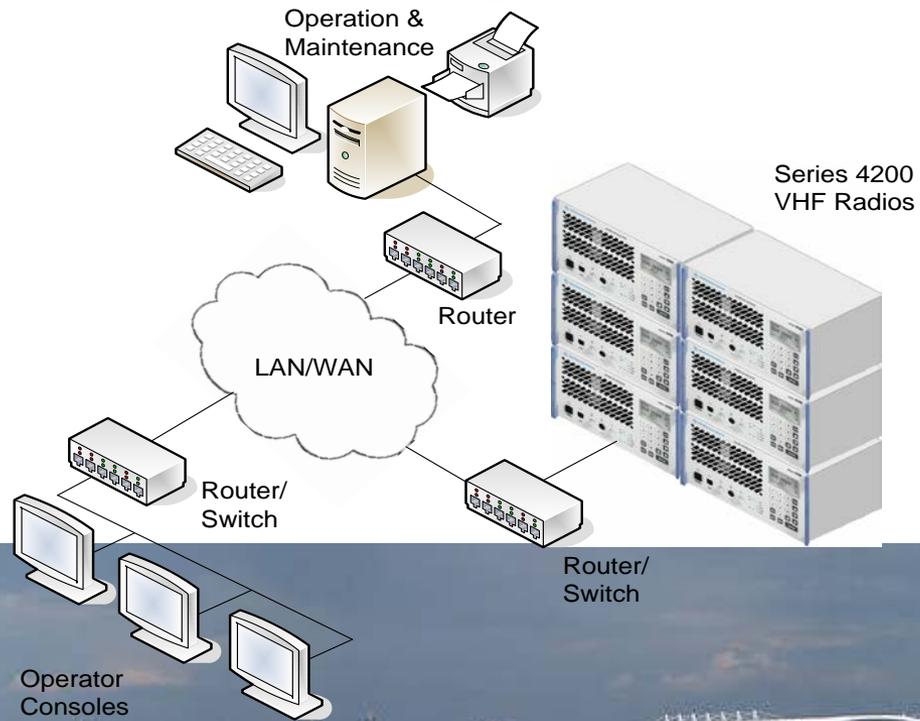


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ATC Communication System Solutions



R&S® Communications Equipment Portfolio

for ATC and mil. G-A-G applications



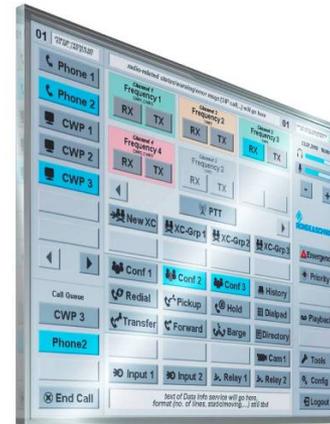
R&S® Series 4200
transceiver/ transmitter/ receiver



R&S® MMC3000



R&S® M3SR Series 4400 (V/UHF)
R&S® M3SR Series 4100 (HF)



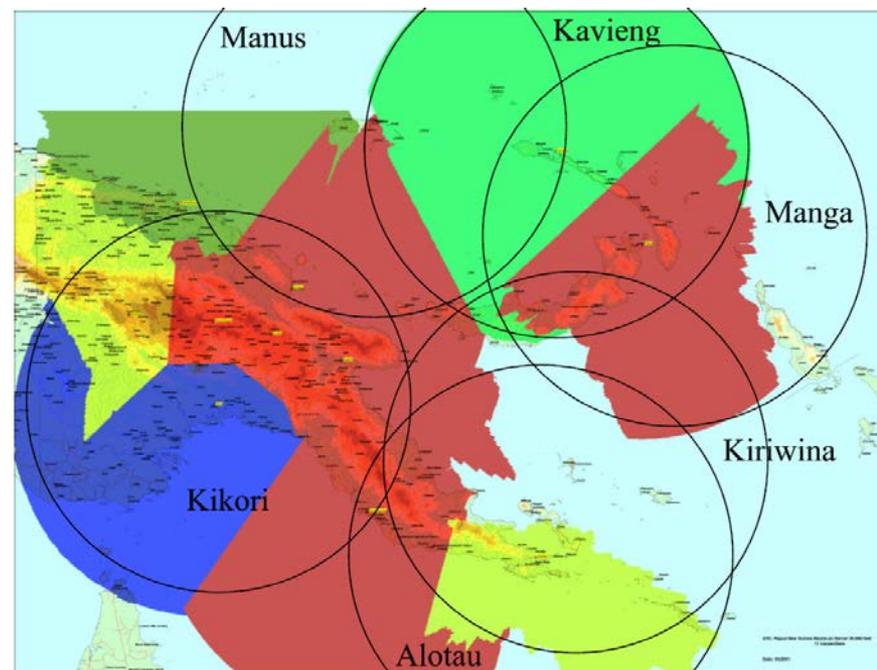
R&S® VCS-4G

R&S ATC system competence

Turn Key ATC-Systems (1)

Our services:

- | Site survey
- | Engineering and design review
- | Construction and configuration
- | System integration
- | FAT & installation
- | Commissioning
- | SAT & taking over
- | Training
- | Repair and maintenance support
- | Measuring and optimizing of communication networks
- | Coverage and collocation calculation
- | **Frequency planning and intermodulation calculation**



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Test and Measurement

ATC relevant Products



EVS 300 VOR/ILS analyser



Spectrum analysers



Signal generators



R&S*FSH

handheld spectrum analyzer

The R&S*FSH is a rugged, compact spectrum analyzer designed for highly mobile use. Its low weight, its ease of use and the large number of measurement functions make it an indispensable tool for anyone needing an efficient measuring instrument for outdoor use.

FSH handheld spectrum analyser



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References

- | **ENANA: Angola**
- | **National Airports Corporation: Zambia**
- | **Kenya Civil Aviation Authority: Kenya**
- | **Zimbabwe Civil Aviation Authority: Zimbabwe**
- | **Airport Djibouti: Djibouti**
- | ...



Thank you

Systems...



Designed by ...

ROHDE & SCHWARZ

