

Bring Real-World Wireless Environments into the Lab

Capture. Analyze. Reproduce. Validate.

Field Simulation Test

Universal RF Unit MD8190A

IQ Control Hub Software MX819040PC

Anritsu Field Simulation Test (FST) and Software-Defined Radio (SDR) test solutions connect real-world RF measurement with laboratory testing and algorithm development.

Capture actual wireless conditions in the field, analyze the acquired data, and use the results for repeatable evaluation.

Representative Applications



Mobile Networks

Evaluate devices, chipsets, antennas, and firmware using conditions captured from real mobile networks.



Automotive

Compare vehicle antennas and wireless performance under consistent propagation conditions.



UAV

Capture aerial wireless conditions to understand the effects of altitude, location, and interference.



Non-Terrestrial Networks

Analyze Direct-to-Cell propagation for terminal and network-side evaluation.

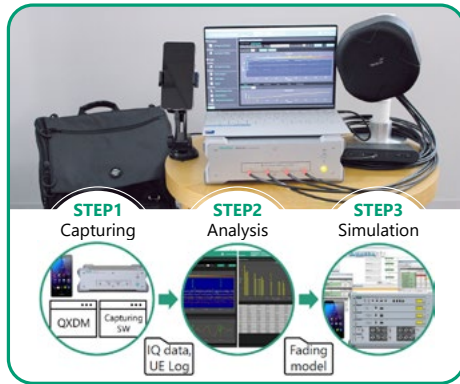
Field Testing is Realistic, But Not Repeatable.

Wireless conditions continuously change with location, mobility, traffic, interference, and the surrounding environment. Devices, antennas, and algorithms tested at different times therefore cannot be compared under the same conditions.

By capturing actual RF conditions and using the acquired data in the laboratory, engineers can repeat evaluations under controlled conditions and identify performance differences more objectively.

FST and SDR at a Glance

FST

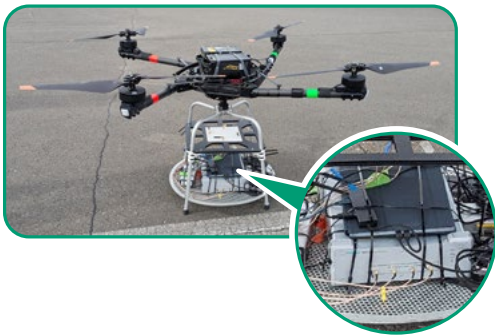


Capture, Analyze, Reproduce and Validate Real-World Network Conditions

FST captures real-world RF and IQ data using a compact field-ready configuration. It analyzes propagation characteristics and communication quality, and reproduces them in the laboratory as real-world fading models based on Channel State Information (CSI). This enables repeatable comparison of devices, antennas, firmware, and other test conditions.

FST & SDR Use Cases

Use Case 1: UAV Wireless Measurement



Challenge

Wireless conditions above the ground differ significantly from those experienced by terrestrial devices. Base-station antenna patterns, altitude, line-of-sight conditions, and interference can affect aerial communication quality.

Measurement

A compact MD8190A configuration can be mounted on a UAV to capture wireless signals at different locations and altitudes. The acquired data can be analyzed using RSRP, SINR, and throughput.

Customer Value

Identify how altitude and location affect wireless performance and use the results to support UAV communication design and operational evaluation.

Real-World RF into Your Development Workflow
Explore Anritsu FST and SDR solutions for field capture, laboratory validation, PoC, and next-generation wireless research.

SDR



Generate, Capture, and Analyze RF-IQ Signals

The Anritsu SDR solution combines the Universal RF Unit MD8190A, the IQ Control Hub Software MX819040PC, and MATLAB® integration. Engineers can transmit generated IQ waveforms, capture real RF-IQ data, and analyze the acquired data in a flexible development workflow.

* MATLAB is a registered trademark of The MathWorks, Inc.

Use Case 2: In-Vehicle Antenna Evaluation



Challenge

Conventional drive testing cannot guarantee identical wireless conditions for every prototype antenna. Differences in time, route, traffic, and propagation make objective comparison difficult.

Measurement

Multiple vehicle antennas can be measured simultaneously under the same environment. Signal strength, signal quality, and throughput can then be compared with the measured propagation conditions.

Customer Value

Compare antenna designs more objectively while reducing repeated drive tests and uncertainty caused by changing field conditions.



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