



RF Test System TS8950G for GSM/GPRS/EDGE Mobiles

Reliable RF testing all the way from development to conformance testing

- ◆ Platform for RF tests according to 3GPP TS51.010-1
- ◆ Freely configurable RF test methods for R&D
- ◆ Supports GSM Ph2/Ph2+, GPRS, and EDGE
- ◆ Upgradable to WCDMA
- ◆ Open interfaces for easy integration into individual lab concept
- ◆ Control of custom equipment
- ◆ Full remote access
- ◆ Online measurement accuracy control



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Reliable RF testing

Characteristics

The TS8950 G is designed to perform RF tests of the transmitter and receiver of GSM mobile phones. These tests cover, for instance, measurements of the output spectrum produced by the mobile to evaluate the signal quality and to check possible interference with other services.

For the receiver tests, interfering signals are added and signal propagation conditions are simulated using a fading simulator. In this case, the TS8950 G measures the receiver sensitivity to these disturbances by calculating the information loss (BER, BLER, FER).

The test functionality of the TS8950 G is implemented as test methods. Each test method provides a generic test application and is fully configurable. Test cases are described by parameter sets. This provides significant benefits:

- ◆ Easy variation of test parameters for testing above and below the predefined test limits
- ◆ Fast definition of new tests (for development)
- ◆ Consistency between development tests and conformance tests
- ◆ Clearer view on the real performance of the mobile phone

Applications

The TS8950 G provides three test application packages:

- ◆ Transmitter tests
- ◆ Receiver tests
- ◆ Transceiver tests

Development of GSM mobile phones

Each of these test packages includes a fully configurable test method and example parameter sets.

All parameters can be freely varied through the graphical user interface. The measurement results can be analyzed either with the TS8950 G control center or with other customer-specific software tools.

Conformance testing of GSM mobile phones

Together with the test methods, the parameter sets for the relevant test cases to 3GPP TS51.010-1 are supplied as write-protected, frozen files. All test cases will be validated by independent test houses.

Platform concept

The TS8950 G test system has been developed as a true platform to cover the full range of mobile phone RF tests. The test philosophy of the TS8950 G is to have one core system for all extension levels.

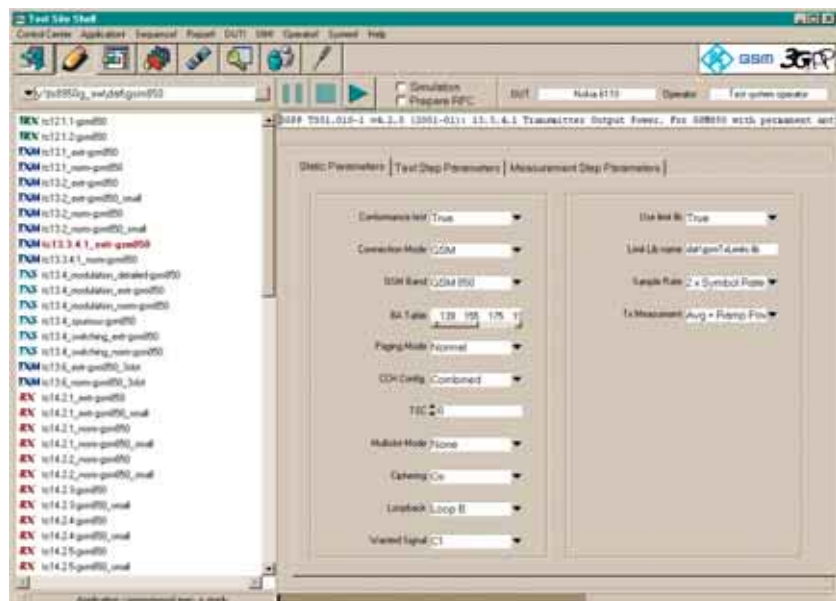
This core system ensures measurement accuracy and provides appropriate interfaces at the hardware and software level, allowing user friendly system configuration.

The TS8950 G is available with different extension levels:

Receiver performance test system

The lowest extension level of the TS8950 G includes a Universal Radio Communication Tester CMU200 as the signalling unit and BER tester, with one or more signal generators to produce interfering signals and with a baseband fading simulator. The purpose of this minimum configuration is to evaluate the performance of a mobile receiver.

If more detailed protocol functionality is required, a Universal Protocol Tester CRTU-G for GSM can be installed instead of the CMU200.



Basic RX/TX test system

This system is equipped with the basic RF equipment including a vector signal analyzer. The signalling unit in the basic RX/TX test system is either a Universal Radio Communication Tester CMU 200 or a CRTU-G protocol tester.

Full-performance RF test system

The full system with CRTU-G protocol tester and band-specific signal conditioning units (ASCUs) for each GSM band is the solution for conformance testing. It allows full comparison with measurement results obtained by means of one of the low-extension versions.

Customizing the system configuration

The TS8950 G control center allows flexible device handling: Instruments can be easily integrated into the system or removed from it without downtime. The instruments' capabilities are abstracted in a logical device layer, making the system widely independent of the individual instruments.

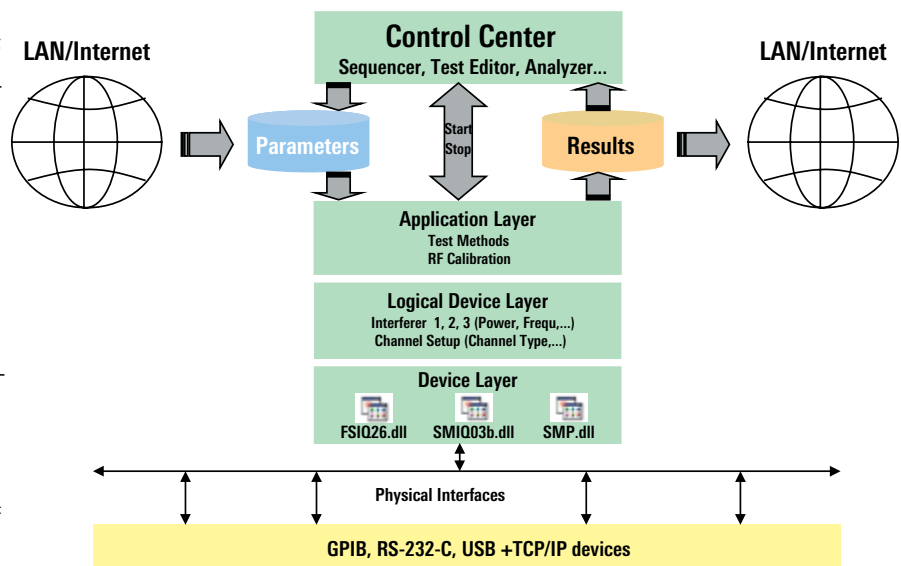
Custom control/analysis

The test methods in the TS8950 G are single executable files. This allows also the use of other software tools for system control, so that existing lab automation software can be extended to control the TS8950 G.

Parameter files and result files can be accessed from anywhere within the company network so that test design and analysis can be performed offline allowing optimum utilization of human and test resources.

Access to the signal path

The TS8950 G switch unit provides access to both transmit and receive signal paths. Multiple RF connectors at the rear of the switch unit allow the introduction of customer-specific signal conditioning elements whenever required.



TS8950 software structure

Measurement accuracy

RF Path Calibration

A very important parameter of an RF test system is the accuracy of the measurement results, because it determines the reproducibility of the results e.g. of the final conformance test that is decisive for the market introduction of the mobile phone.

The signals within the TS8950 G system are routed through a signal switching and conditioning unit. So no manual changes of the measurement setup, which can cause unpredictable path losses and phase shifts, are required. The switch unit has been optimized for reliability and accuracy. All signals paths used by the test applications are automatically calibrated for frequency-dependent losses. This includes connectors and different DUT (device under test) cables. The fixed internal cabling makes the switch unit insensitive to phase shifts.

The TS8950 G system monitors the performance of the RF paths to ensure optimum consistency and reproducibility of measurement results, which leads to a maximum confidence level.

Temperature monitoring

To further increase the information obtained by the tests executed, it is possible to monitor and record the temperature of the test site and the DUT with up to 3 PT100 probes.

Extensions/upgradability

The TS8950 G is designed for RF testing of GSM/GPRS/EDGE mobiles operating in the GSM850/900/1800 or GSM1900 frequency band. Extensions for other frequencies are easily possible. In the future, the TS8950 G will evolve to a dual-mode GSM/WCDMA test system.

Summary

The TS8950 G test system allows consistent testing from development to conformance level and thus improves the confidence level and reduces the time to market.

The hardware and software flexibility allows adaptive planning of test resources which helps to reduce the overall test time and cost.

Certified Environmental System
ISO 14001
REG. NO 1954

Certified Quality System
ISO 9001
DQS REG. NO 1954



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