Agilent Z2255A

GS-9000 A-GPS Design Verification Test System

Data Sheet

Z2255A Test System Overview

The Agilent Technologies Z2255A test system is part of the GS-9000 Series of test solutions and is designed for assisted-GPS (A-GPS) mobile device design verification and pre-conformance testing. In the design verification environment, tests can be easily configured or modified to suit your specific test requirements. In the pre-conformance environment, tests have been pre-configured according to industry-standard test specifications:

- A-GPS GSM: 3GPP TS 51.010-01 section testing
- A-GPS W-CDMA: 3GPP TS 34.171-1 section testing
- cdma2000®: 3GPP2 C.S0036

The Z2255A test system includes both hardware and software. The scalable system is built on the 8960 Series 10 wireless communications test set and the N5106A PXB baseband generator and channel emulator.

Z2255A effectively tests A-GPS capabilities in mobile devices and chipsets—ensuring A-GPS devices operate as expected in cellular networks and without interfering with other existing network operations.

Agilent also is partnering with ETS and Satimo in over-the-air (OTA) testing for CTIA qualification test. The 8960 and ESG combined with the GS-9000 dynamic link measurement library offer the industry's most extensive range of A-GPS OTA solutions that enable testing antennas of mobile devices.

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System Features

The low-cost Z2255A bench-top test system provides:

- Easy-to-use user interface
  Quickly change test parameters and run design verification test.

- Scalability and upgradability
  Easily adapt a design verification test system for pre-conformance testing, or scale down to a bench-top test system to support manufacturing and quality assurance testing. Add new functionality and features simply by adding the necessary software options on to your existing hardware platform.

- Accuracy and repeatability
  Confidently test—with equipment stability and complete system calibration as the cornerstones of Agilent products, you can rely on measurement speed and accuracy.

Hardware Architecture

The Z2255A test system is comprised of a 1.6 m single rack with integrated test equipment and test software. The standard components of a typical base system include:

- 8960 Series 10 (E5515C) wireles communications test set
- E4438C vector signal generator
- N5106A PXB baseband generator and channel emulator
- RF accessories
- Industrial PC
- GS-9000 measurement software
- GS-9000 calibration software
- GS-9000 data viewer software

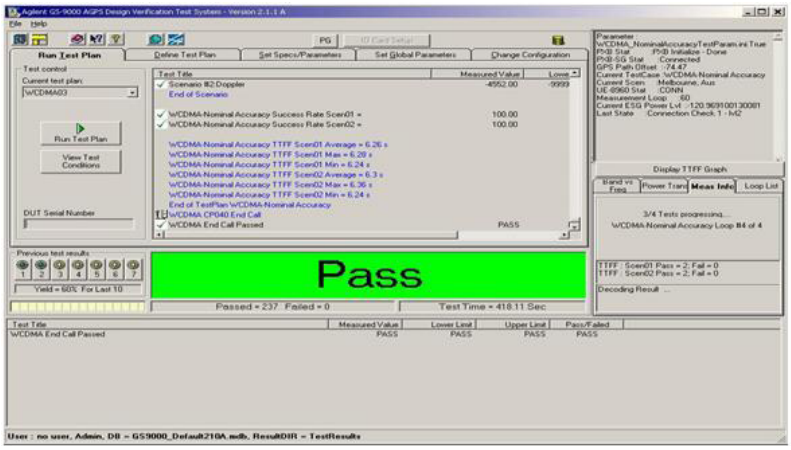

Figure 1. GS-9000 software GUI overview

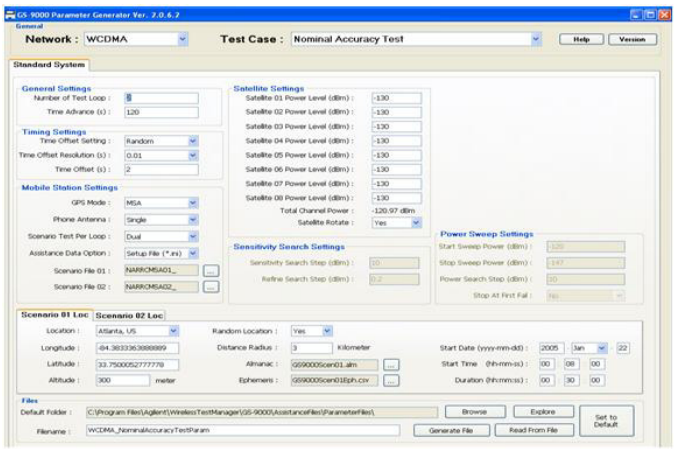

Figure 2. GS-9000 parameter generator overview

GS-9000 Software Architecture

The GS-9000 software is based on the Agilent wireless test manager (WTM) platform. The GS-9000 automates RF parametric tests by creating default test cases in accordance with 3GPP TS 51.010-1, 3GPP TS 34.171-1, and 3GPP2 C.S0036 specifications. These default test cases provide a convenient means of design verification and pre-conformance testing.

Data viewer software

The GS-9000 software has a user-friendly graphical user interface (GUI) and parameter generator to easily configure test cases and automate re-testing of failed test cases (see Figures 1 and 2).

Measurement software

The GS-9000 software automates test execution, enabling a large number of test cases to run in a relatively short time frame. The GS-9000 measurement software provides integrated data collection. Result reporting, saved in a comma-separated value (.csv) format, makes sharing data with other applications easy. The viewer software application allows you to perform offline graphical analysis on measurement data.

Calibration software

The GS-9000 calibration software provides measurement points to collect path frequency characteristics, ensuring system measurements are within designated accuracy. The operation is simplified with clear instructions displayed on the screen. Calibration results are stored in calibration files and used for all subsequent measurements. Frequent system calibration helps prevent bad cables or worn calibration equipment from jeopardizing the accuracy and repeatability of your measurement results.

System Comparison

	GS-9000 Lite system (Bench-top)	GS-9000 design verification and pre-conformance test system
Target application	• R&D entry-level evaluation • R&D light-users • Manufacturing • Quality assurance test	• R&D design verification • Pre-conformance test
Supported technology format	• GSM • W-CDMA • cdma2000	• GSM • W-CDMA • cdma2000
Supported standard specification	• 3GPP TS 51.010 • 3GPP TS 34.171 • 3GPP2 C.S0036	• 3GPP TS 51.010 • 3GPP TS 34.171 • 3GPP2 C.S0036
Test capabilities	• 3GPP defined test cases (2G/3G) • Sensitivity coarse time assistance • Nominal accuracy • Dynamic range • Mobile-based and mobile-assisted reporting • TTFF (time to first fix) • Raw satellite data (Sat ID, C/No, pseudo range, Doppler...) • Report latitude and longitude (position server) • 2D error calculation • Multiple GPS scenarios • Individual satellite power control • Sensitivity search	Capabilities of the GS-9000 Lite system plus the following: • Sensitivity fine time assistance • Multi-path performance • Moving scenario and periodic update • SUPL server • User-defined GPS scenario generation • Assistance data generator (RRC/RRLP) location server
Suitable for	• Wireless handset OEM/ODMs • Chipset vendors • Wireless handset manufacturers/CMs • NEMs	• Wireless handset OEM/ODMs • Chipset vendors • NEMs
Typical configuration	• GS-9000 Lite software • Test set (8960/E5515C) • ESG vector signal generator (E4438C) • ESG (E4438C) • Power supply optional (66311B) • Industrial PC	• GS-9000 standard software test set (8960/E5515C) • ESG vector signal generator (E4438C) • PXB base band generator(N5106A) • Power supply optional (66311B) • SUPL server optional • Industrial PC

Specifications

Input and output

RF input/output

DUT RF IN/OUT	Maximum input: 5 W Maximum output: Typically -50 dBm, actual maximum output level depends on use Input impedance: 50 Ω nominal
CAL RF OUT	Maximum output: -80 dBm Typical power: -120 dBm Nominal impedance: 50 Ω

External reference input

EXT REF IN	Input frequency: 10 MHz (±5 ppm) Input level range: 0 to +13 dBm Input impedance: 50 Ω nominal

PC/peripheral input/output

USB	Six auxiliary ports available on industrial PC: • Two on the front panel • Four on the rear panel
Serial (RS-232)	Two on front I/O panel of the rack, DB9 male connector
LAN	One on front I/O panel of the rack, one on rear I/O panel (for intra/internet connection) 100 Base-T Ethernet, RJ-45 connector
GPIB	One on the front I/O panel of the rack for additional instrument connection

Recommended system path loss calibration interval

Nominal	Three months
Exception	System path loss calibration must be performed when any of the following events occur to the signal path: • Any instrument RF interconnect cable is replaced • Any instrument is calibrated • Any instrument is repaired and re-calibrated

General specifications

Operating conditions

General	Indoor
Storage temperature	-20 to +70 °C (-4 to 158 °F)
Operating temperature	+10 to +30 °C (50 to 86 °F)
Accuracy specified temperature	+20 to +30 °C (68 to 86 °F)
Humidity (relative)	5 to 80% relative humidity (non-condensing)
Altitude	0 to 2 km (0 to 1.2 miles)
Power requirement	90 to 254 VAC, 50 to 60 Hz, 4,118 VA maximum

Rack dimensions

1.6 m rack (EIA: 32 RU) (H x W x D)	1,620 mm x 1,200 mm x 905 mm (63.8 in x 47.2 in x 35.6 in) When mounting work surfaces, maximum extra-depth is 500 mm (19.7 in)

Weight

1.6 m rack	150 kg maximum (331 lb)

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