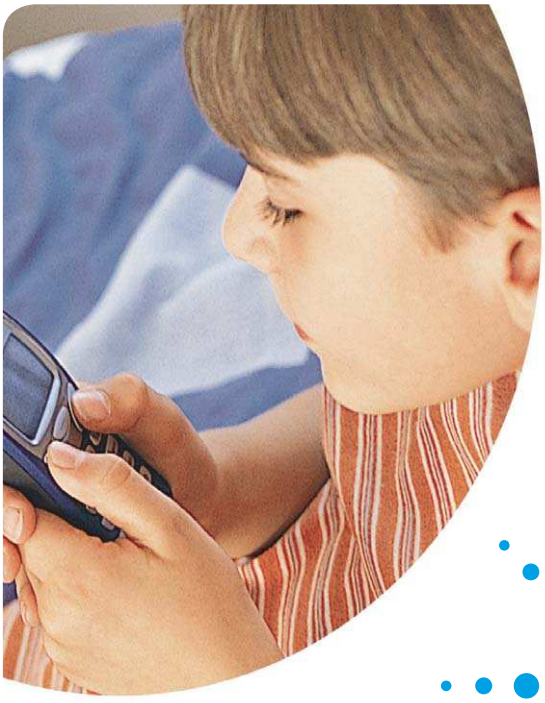

# Agilent GS-8000 Lite Wireless Functional Test System

Data Sheet

## Key Features

- Multi-format test capabilities supporting GSM, GPRS, EGPRS and W-CDMA
- Two shielded fixture to reduce handling time
- Semi-automatic shielded fixture with pneumatic control
- Easy-to-use software featuring one-button auto-test

## Applications

- Low to medium cost handset manufacturing test
- Handset troubleshooting

Agilent Technologies

## Overview

*A desired cost-effective test system...*

**The Agilent GS-8000 Lite Wireless Functional Test System is a streamlined test system intended for low to medium cost handset manufacturers who require "just enough" test and want to reduce the cost of test and handling time.**

*Slim design that gives you just what you need...*

**The GS-8000 Lite is designed to incorporate the essential test capabilities excluding more advanced and complex features that are not always be required. This design philosophy ensures the GS-8000 Lite provides a cost-effective test platform with just enough tests to evaluate the handset's performance.**

*Supports multiple wireless protocols...*

**With its multi-format test capabilities, the GS-8000 Lite supports various UMTS wireless communication standards such as GSM, GPRS, EGPRS and W-CDMA. Agilent's roadmap for future enhancements include CDMA2000, 1xEV-DO and HSDPA, ensuring that the system will be able to test any wireless device from 2G to 3.5G in the future.**

*One button does all...*

**Automated test is enabled through the GS-8000 Lite's software that features one-button auto-tests and a library of pre-defined test.**

*Two sheilded fixture accelerating speed of test...*

**The standard platform comes with two semi-automated RF shielded fixture with pneumatic control. This feature maximizes system utilization by reducing handling time.**

*It does service & repair too...*

**As an additional feature, the GS-8000 Lite uses the Agilent N9360A Multi UE Tester, which offers the capability to perform handset inspection and repair test.**

## Hardware Architecture

The Agilent GS-8000 Lite consists of:

a. N9360A Multi UE Tester
b. Industrial PC
c. GPIB controller
d. GS-8000 Lite software

Optional components:

- 34980A multi-function switch/measure unit
- Power Supply & Controller
- Semi-automatic RF shielded fixture without nest*
- Semi-automatic RF shielded fixture with nest*

** The option includes power supply, controller and 34980A multi-function switch/measure unit; refer to the ordering information for details.*

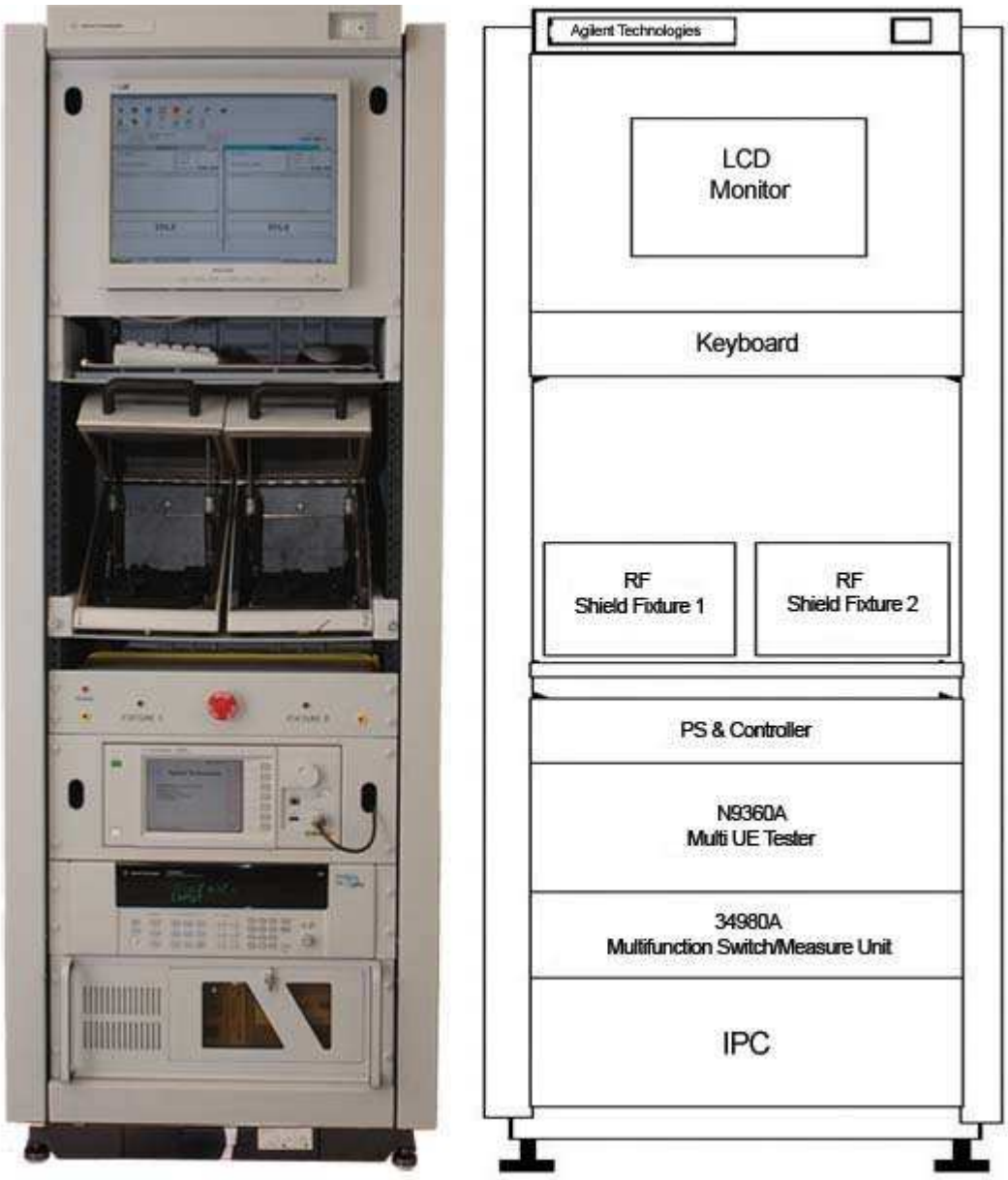


***Figure 1: Agilent GS-8000 Lite Hardware Architecture***

## Software Architecture

Agilent GS-8000 Lite test software is designed for manufacturing environment. The software architecture is shown in figure 2. The software features:

- Dual fixture switching capability
- Automatic fixture state sensing to accelerate the test operation.
- System Test Executive back-end that provides tools for test plan creation, sequencing, removal and recovery.
- Multi-format test report in Microsoft Access, SQL, Comma Separated Value (CSV) and eXtensible Markup Language (XML) format.
- Two-window display in one screen to show two fixtures' test result
- Test yield and test failure report generation tool to allow monitoring of quality data.

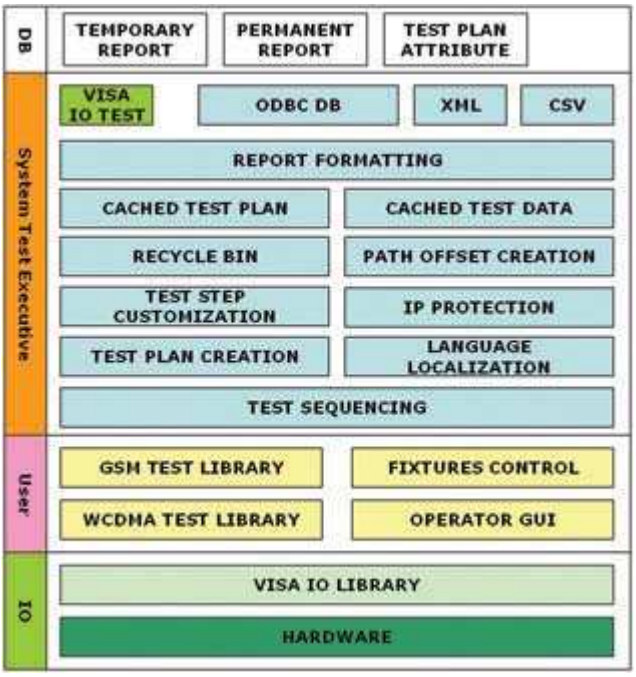


*Figure 2: Test Software Architecture*

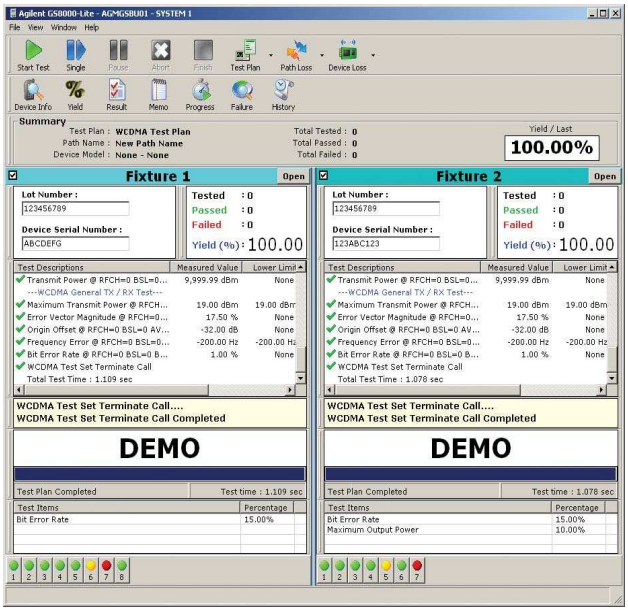


*Figure 3: Software GUI shows split-screen to display test results in two fixtures*

## Technical Specification

### Test Feature

#### GSM/GPRS/EGPRS/W-CDMA Test Features

| GSM |
|---|
| Location Update |
| MS Call |
| BS Call |
| MS Release |
| BS Release |
| TCH Loop |
| Voice Loop Back |
| Emergency Call |
| Handover |
| Short Message Service |
| **GPRS** |
| Attach |
| Detach |
| Handover |
| **EGPRS** |
| Attach |
| Detach |
| Handover |
| **W-CDMA** |
| Registration |
| UE Origination Call |
| UE Termination Call |
| BS Call (RMC) |
| BS Call (AMR) |
| BS Release |
| Voice (AMR) Loop Back |
| RMC Test Loop Back |
| Handover |

#### Frequency Bands for GSM/GPRS/EGPRS

| Band | Frequency (MHz) | |
|---|---|---|
| | Up Link | Down Link |
| GSM850 | 824 – 849 | 869 – 894 |
| GSM900 | 876 – 915 | 921 – 960 |
| DCS1800 | 1710 – 1785 | 1805 – 1880 |
| PCS1900 | 1850 – 1910 | 1930 – 1990 |

#### Frequency Bands for W-CDMA

| Band | Frequency (MHz) | |
|---|---|---|
| | Up Link | Down Link |
| Band I | 1920 – 1980 | 2110 – 2170 |
| Band II | 1850 – 1910 | 1930 – 1990 |
| Band III | 1710 – 1785 | 1805 – 1880 |
| Band IV | 1710 – 1770 | 2110 – 2170 |
| Band V | 824 – 849 | 869 – 894 |
| Band VI | 830 – 840 | 875 – 885 |

### Test Coverage

#### GSM/GPRS/EGPRS Test Coverage

| GSM Transmitter Tests |
|---|
| Phase & Frequency Error |
| T x Output Power (Normal Burst) |
| Power vs. Time (Burst Timing) (Normal Burst) |
| **GPRS Transmitter Tests** |
| Phase & Frequency Error in GPRS multislot configuration |
| T x Output Power in GPRS multislot configuration (Normal Burst) |
| Power vs. Time (Burst Timing) in GPRS configuration (Normal Burst) |
| **EGPRS Transmitter Tests** |
| Frequency error in EGPRS configuration |
| Modulation accuracy in EGPRS configuration |
| EGPRS Transmitter output power |
| ORFS due to Modulation in EGPRS configuration |
| ORFS due to Switching in EGPRS configuration |
| **GSM Receiver Tests** |
| Reference Sensitivity, TCH/FS |
| **GPRS Receiver Tests** |
| Minimum Input Level for Reference Performance for GPRS operation |
| **EGPRS Receiver Tests** |
| Minimum Input Level for Reference Performance for EGPRS operation |
| Incremental redundancy performance |
| **Receiver Signal Reporting** |
| Signal Strength |
| Signal Quality under static conditions TCH/FS no DTX |
| **Short Message Service (SMS)** |
| SMS mobile terminated |
| SMS mobile originated |
| SMS cell broadcast |

#### W-CDMA FDD Test Coverage

| W-CDMA Transmitter Characteristics |
|---|
| Maximum Output Power (Thermal and CH Power) |
| Frequency Error |
| Open Loop Power Control in the Uplink |
| Inner Loop Power Control in the Uplink |
| Minimum Output Power |
| Occupied Bandwidth (OBW)* |
| Adjacent Channel Leakage Power Ratio (ACLR)* |
| Error Vector Magnitude (EVM) |
| **W-CDMA Receiver Characteristics** |
| Reference Sensitivity Level |
| Maximum Input Level |
| **Short Message Service (SMS)** |
| SMS mobile terminated |
| SMS mobile originated |

* Test mode only

## General Specification

### Operating Conditions

| | |
|---|---|
| **General** | Indoor |
| **Storage Temperature** | -20 to +70 deg C |
| **Operating Temperature** | +5 to +40 deg C |
| **Accuracy specified Temperature** | +20 to +30 deg C (Refer to measurement accuracy specification of individual radio technology for further information) |
| **Humidity (relative)** | 5 % to 80 % relative humidity (non-condensing) up to 31 deg C Decreasing linearly to 50% at 40 deg C |
| **Altitude** | 0 to 2km |
| **Power Requirement** | 100-120VAC or 200-240VAC, 50 or 60 Hz, 4118 VA maximum |
| **Compress Air Requirement** | Clean filtered compress air pressure: 5 Bar / 0.5 MPa |

### Rack Dimension

| | |
|---|---|
| **1.6m rack (EIA: 32 RU)** | 1620mm (63.8in) Height x 600mm (23.6in) Width x 905mm (35.6in) Depth |

### Weight (including all instruments and other parts)

| | |
|---|---|
| **1.6m rack** | 230 kg maximum (507 lbs) |

### Input and Output

| | |
|---|---|
| **RF Input / Output** | |
| **RF IN/OUT (N9360A Front)** | Maximum Input: 8W/39dBm CW, 0 V DC Maximum Output: Typically -20 dBm for GSM and -18dBm for W-CDMA, Actual maximum output level depends on measurement path and frequency used. Input Impedance: 50 Ohm Nominal |
| **PC / Peripheral Input / Output** | |
| **USB** | 2 aux ports are available at the rear panel of the Industrial PC |
| **Serial (RS-232)** | 2 at rear panel of the Industrial PC, DB9 male Connector |
| **LAN** | 1 at rear panel of the Industrial PC 10/100 Base-T Ethernet, RJ-45 connector |
| **GPIB** | 1 at rear panel of the Industrial PC (required additional GPIB cable) |

### Timebase Specification

| | |
|---|---|
| **Internal Timebase** | Internal timebase for N9360A's specifications are as follows:<br>• Aging rates: < +/- 0.06 ppm per 2 year<br>• Temperature drift: < +/- 0.05 ppm, Frequency variation from +25 deg C over the temperature range 0 to +55 deg C |

### Recommended System Path Loss Calibration Interval

| | |
|---|---|
| **Nominal** | 1 year |
| **Exception** | System path loss calibration must be performed when any of the following event made for related signal path<br>• Any instrument RF interconnect cable is replaced<br>• Any instrument is calibrated<br>• Any instrument is repaired and re-calibrated<br>• Any shielded fixture is changed |

## Ordering Information

**U1030A** GS-8000 lite Wireless Functional Test System
*(standard configuration which comes with IPC, rack N9360A and software)*

| **Options** |
|---|
| **Option 110**† – 110 to 120 VAC system power |
| **Option 220**†† – 220 to 240 VAC system power |
| **Option F01*** – Include shielded fixture installation without nest |
| **Option F02*** – Include shielded fixture installation with nest |
| **Option G01**** – Include power supply, controller & 34980A installations |

† used in America and Europe region
†† used in Asia Pacific region
* Option F01 or F02 – The power supply, controller & 34980A multi-function switch/measure unit will be selected by default if each two shielded fixtures are chosen
** with channel multiplexer & breadboard module installation

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