E6703I W-CDMA/HSPA Lab Application

For the E5515C/E (8960) Wireless Communications Test Set

Technical Overview

Combining the benefits of W-CDMA/HSPA network emulation with Agilent’s global leadership in analysis technologies, the E5515C/E wireless communications test set and the E6703I lab application provide mobile development engineers with a single desktop instrument—helping you accelerate development and get better devices to market sooner.
Develop, integrate, and validate devices at data rates up to:

- 42 Mbps (HSDPA-MIMO with 64QAM)
- 42 Mbps (DB-DC-HSDPA)
- 42 Mbps (DC-HSDPA)
- 28 Mbps (HSDPA-MIMO with 16QAM)
- 21 Mbps (HSPA+)
- 14.4 Mbps (HSDPA)
- 11.5 Mbps (HSUPA)

With the Agilent Technologies E6703I W-CDMA/HSPA lab application, developers have the only instrument available that provides a systematic approach to root-cause analysis of high throughput issues in the mobile protocol stack; from MAC to IP.

Get to RF conformance faster

The E6703I is the only solution available providing both signaling variables and measurements for testing 3GPP TS34.121 Sections 5, 6, 7, and 9. Others can emulate HSPA, but only the Agilent solution drives the mobile into the correct state for the latest HSPA testing required by 3GPP.

Quickly test any design change

With support for voice, video, short message service (SMS), multi-media messaging service (MMS), cell broadcast SMS (CBSMS), circuit-switched data, and packet data call connections, design changes in anything from RF to TCP can be quickly validated with a complete regression test of mobile functions right at your desk.
Helping You Get Your Job Done Faster

Fast and flexible signaling—with you in control of network operations

Our network emulation is designed to make connecting calls fast and simple—and give you choices. We have pulled some of the most commonly requested parameters up from the protocol stack, providing many different connection scenarios without requiring you to fully understand the 3GPP stack and a complex scripting language. The E6703I delivers the control you need to get your job done faster.

The world’s wireless applications brought right to your fingertips

Agilent lab applications bring testing and tuning end-user applications right to your desk—without limiting how far your device may search when looking for real content. With our industry-leading SMS/MMS/cell broadcast messaging capabilities, live end-to-end video conferencing, and blazing fast packet connections to the Internet over RF, you have the capability to test most mobile applications fully without leaving your office.

Developing more than just W-CDMA/HSPA devices?

Just hook it up and go!

If your development needs go beyond W-CDMA/HSPA, with additional firmware that same box on your desk can connect calls from GSM to EDGE Evolution and everything in between. Agilent leads the industry in support of 2G, 3G, and 3.5G solutions for cdma2000® , 1xEV-DO, TD-HSUPA, HSDPA-MIMO, DB-DC-HSDPA, and DC-HSDPA. Contact your Agilent sales engineer to learn how the E5515C/E test set gives you the flexibility to adapt quickly to emerging standards and technologies.

Get started with the W-CDMA/HSPA lab applications today at:
http://wireless.agilent.com/rfcomms/refdocs/wcdma/wcdma_getting_started.html
Functional test analysis

Reduce development and verification cycle time by systematically engaging mobile device layers “up the stack” to find design problems early—before they are found by your customers.

Validate a phone’s data throughput capability while using SMS, MMS, data transfer, video, or other 3G services, all in the presence of realistic network impairments.

Drive down defect resolution cost by finding complex hardware, protocol, and application related issues that are specific to how the phone will function on the network, early in the design cycle. All this for a price that is significantly less than traditional script-based test equipment.

Base station emulation

From basic network settings like country code and cell ID, lab application variables for network emulation extend into such things as network operating mode, TMSI assignment, authentication, neighbor list management, and PDP context rejection; giving you the flexibility you need.

The pulse of mobile/network interactions

Wireless Protocol Advisor software gives you all messages for the mobile and network from MAC layer all the way to IP. And, with triggering and filtering functionality, you can set up troublesome scenarios that fail intermittently on Friday and come back Monday morning with a bounded and focused protocol log of exactly what happened surrounding the particular issue. The latest protocol logging for DC-HSDPA and HSDPA-MIMO can help you find and resolve problems early in the design life cycle.

RF conformance—mandatory in GCF

Today, with the availability of more competitive mobile devices, network operators are becoming very selective, and demanding validation. With the largest and most compliant set of RF measurements available among one-box-testers, the E5515C/E can get you into validation sooner. http://wireless.agilent.com/rfcomms/refdocs/wcdma/wcdma_meas_navigation.html
E6703 Family of Lab Applications

**E6703I** is our latest application release for the industry leading call box and the right choice for R&D engineers needing world class functionality in a single instrument. The E6703I added several capabilities including:

- HSDPA-MIMO test modes and IP data support both for 28 Mpps with 16QAM, and 42 Mbps with 64QAM downlink
- DB-DC-HSDPA test modes and IP data support for 42 Mbps downlink
- Baseband fading for DC-HSDPA and HSDPA MIMO with PXB
- LTE/3G interRAT handover such as SRVCC, 3G redirect to LTE, and SMS over SGs
- Enhanced CPC to work simultaneously with MAC-ehs

**E6703I with E6720A-003** is our emerging high-performance application. The Annual Contract is designed for engineers who need early access to leading-edge functionality such as CELL_PCH and URA_PCH transitions.

For a complete comparison of our 8960 W-CDMA/HSPA products, please see: [http://www.home.agilent.com/upload/cmc_upload/All/E1963a_E6703x_FeatureComparison.pdf](http://www.home.agilent.com/upload/cmc_upload/All/E1963a_E6703x_FeatureComparison.pdf)

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Technical Specifications

These specifications apply to an E5515C/E mainframe with Option 003 installed when used with the latest shipping version of the E6703I lab application.


Specifications describe the test set’s warranted performance and are valid for the unit’s operation within the stated environmental ranges unless otherwise noted.

**Supplemental characteristics are intended to provide typical, but non-warranted, performance parameters that may be useful in applying the instrument. These characteristics are shown in italics and labeled as “typical” or “supplemental.” All units shipped from the factory meet these typical numbers at +25 °C ambient temperature without including measurement uncertainty.**

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W-CDMA RF analyzer (measurements only)

**Change of TFC**

**Measurement method:**
The measured results include the step-down and step-up relative power, along with the step-down and step-up error, for all symmetric reference measurement channels supported

**Input center frequency ranges:**
- 800 to 1000 MHz
- 1700 to 1990 MHz

**Input power level range:**
- –61 to +28 dBm

**Change of TFC relative measurement accuracy:**
- < +3.0 dB for power range < 26 dB

**Measurement interval:**
617 μs (= 1 timeslot (667 μs) – 25 μs transient periods at either side of the nominal timeslot boundaries)

**Measurement triggers:**
- Protocol and external

**Temperature range:**
+2 to +55 °C

**Concurrency capabilities:**
- Change of TFC measurements cannot be made concurrently with other measurements

**Out of sync handling of output power**

**Measurement method:**
The E6703I provides signaling and parameter configuration for this measurement, but requires use of an external analyzer to perform the required measurement

**Input center frequency ranges:**
- 800 to 1000 MHz
- 1700 to 1990 MHz

**Input power level range:**
- –61 to +28 dBm

**Temperature range:**
+20 to +55 °C

**Concurrency capabilities:**
- Out of sync handling of output power measurements cannot be made concurrently with other measurements
Additional text.
General Specifications

Dimensions:
(H x W x D): 235 mm x 425 mm x 629 mm

Weight:
31.8 kg

Display:
10.5 inches (26.7 cm), active matrix, color, liquid crystal

Manual user interface:
Traditional front panel type or remote computer driven with graphical UI

LAN port:
LAN 1 port (for firmware upgrades only): RJ-45 connector, 100 Mbps
LAN 2 port (for high data throughput): RJ-45 connector, 100 Mbps (for E5515C) or 1000 Mbps (for E5515E)
LAN 3 port (for future use): RJ-45 connector, 1000 Mbps

Operating conditions:
0 to +55 °C, 30 g/m³ absolute humidity (95%/+32 °C, 28 percent/+55 °C relative humidity)

Storage conditions:
−20 to +70 °C, 50 g/m³ absolute humidity, non-condensing (90%/+65 °C relative humidity)

Power:
88 to 135 Vac, 193 to 269 Vac,
50 to 60 Hz, typically 550 VA maximum

Calibration interval:
2 years

EMI:
Conducted and radiated interference meets CISPR-11, susceptibility meets IEC 1000-4-2, 1000-4-3, and 1000-4-4

Electrical safety:
Complies with CAN/CSA 22.2 No.
61010-1-04, UL Std. 61010-1 (2nd Edition), and IEC 61010-1 (2nd Edition)

Radiated leakage due to RF generator:
Typically < 2.5 μV induced in a resonant dipole antenna one inch from any surface except the underside and rear panel at set RF generator output frequency and output level of −40 dBm

Spurious leakage:
Typically < 5 μV induced in a resonant dipole antenna one inch from any surface except the underside and rear panel at frequencies other than the RF generator output frequency and output level of −40 dBm

Power consumption:
Typically 400 to 450 W continuous
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