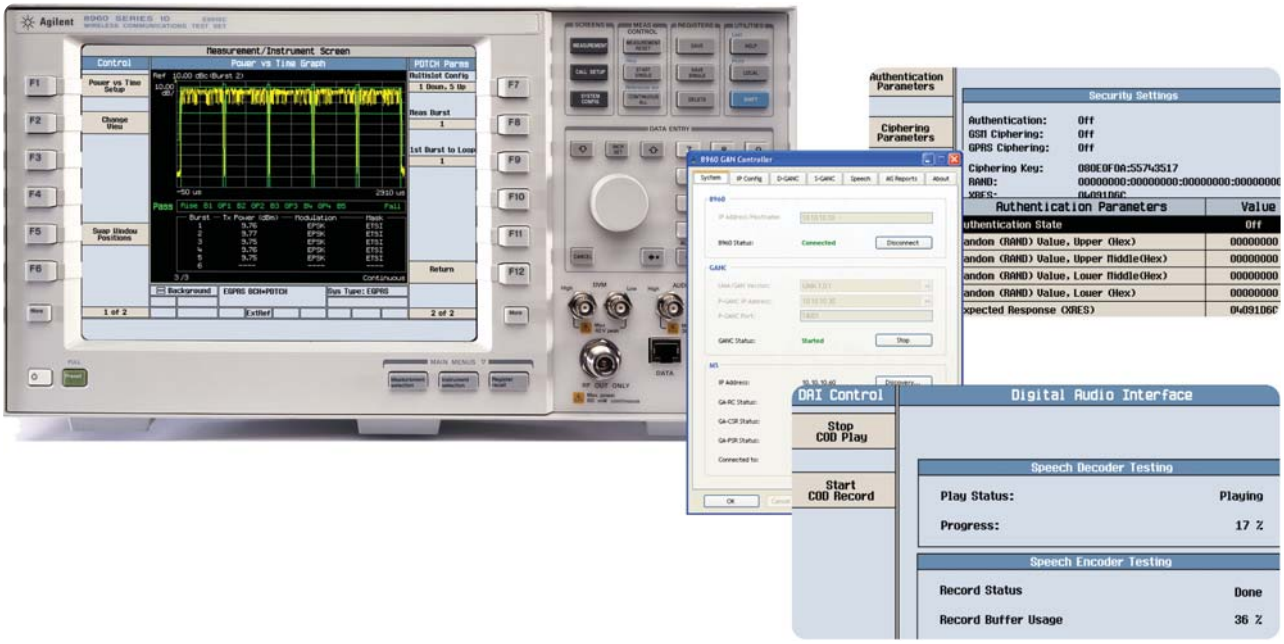
Agilent E6701I GSM/GPRS and E6704A EGPRS Lab Applications

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

Technical Overview

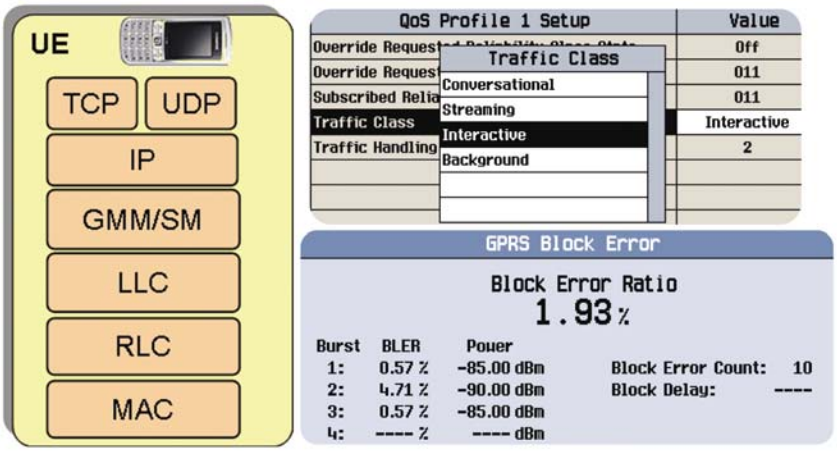


Combining the benefits of GSM/GPRS/EGPRS network emulation with Agilent's global leadership in analysis technologies, the E5515C/E test set and the E6701I lab application provide mobile development engineers with a single desktop instrument – helping you get better devices to market sooner.

Agilent Technologies

Develop, integrate, and validate high data rate EGPRS UE's

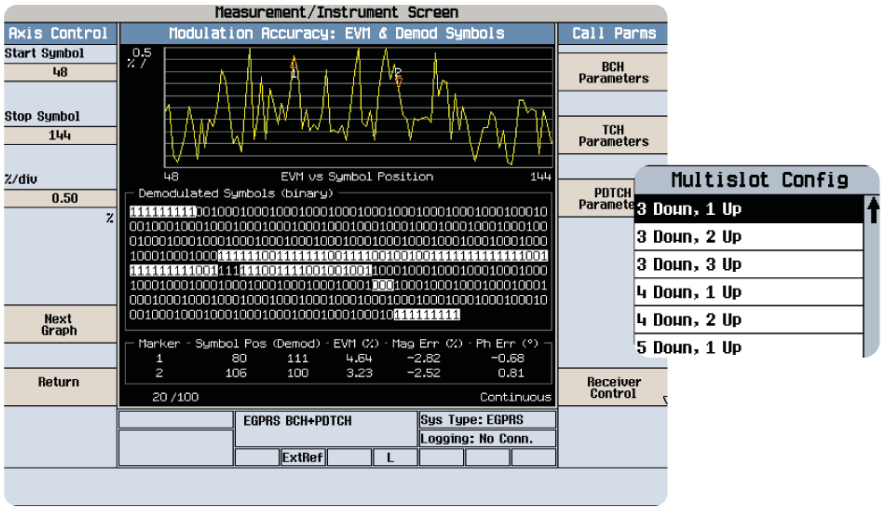
With the E6701I/E6704A GSM/GPRS/EGPRS lab application, developers have the only instrument available providing a systematic approach to root-cause analysis of high throughput issues in the mobile protocol stack; from decoded L1 to IP.



Test all the critical RF parameters

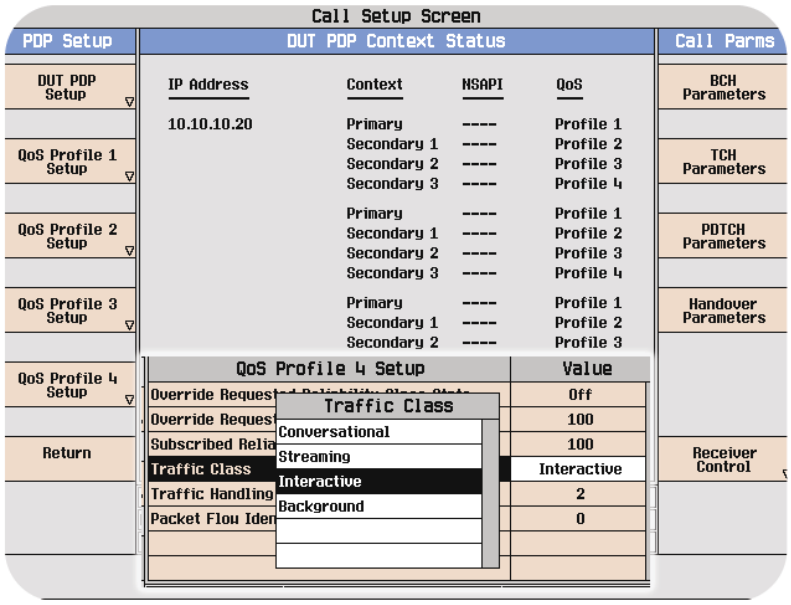
The E6701I provides flexible measurements including:

- Transmit power (TxP)
- Power vs time (PvT),
- Phase and amplitude vs time (PAvT)
- RF output spectrum (ORFS)
- Error vector magnitude (EVM)
- Bad frame indicator (BFI)
- FACCH frame erasure rate (FER)
- All the connections types required to fully analyze and debug your mobile device RF characteristics



Quick-turn just about any design change

With support for voice, video, short message service (SMS), multi-media messaging service (MMS), cell broadcast SMS (CBSMS), circuit-switched data, packet data call connections, DTM, multiple and secondary PDP contexts, 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 E6701I delivers the control you need to get your job done faster.

NCC (Network Colour Code)	1
BCC (Base Station Colour Code)	5
Get IMEI at Call Setup	On
Mobile DTX State	Off
Paging Mode	Normal
Paging Multiframes	2
Repeat Paging	Off
Tx Level FACCH Signaling	On
Uplink Frame Segmentation	Asymmetric
IMSI Attach State	Off
Call Originate Timeout	10 s
Persistent Attach State	Off
Dual Transfer Mode	On
Extended Uplink TBF State	Off
Cell Identity	0
CS Paging Identity Type	IMSI
TMSI	21430000

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, push-to-talk over cellular, and blazing fast packet connections to the Internet over RF, you have the capability to test most mobile applications fully without leaving your office.

Cell Broadcast Message 3 Setup	Value
Geographical Sc	Cell / Normal
Message Code	0
Update Number	0
Message Identifi	0
Data Coding Sche	Language
Data Coding Sche	English
Data Coding Sch	1
Content	Text1

Content
- Text1
- Text2
- Custom Text
- Custom Data

Developing more than just GSM/GPRS/EGPRS devices? Just hook it up and go!

If your development needs go beyond GSM/GPRS/EGPRS, with additional firmware that same box on your desk can connect calls from AMPS to HSPA+ and everything in between. What's more, Agilent leads the industry in support of 2G and 3G solutions for 1xEV-DO and W-CDMA/HSPA. 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 GSM/GPRS/EGPRS lab applications today at;
www.agilent.com/find/8960manuals

Find Design Issues Earlier, Resolve Them Faster

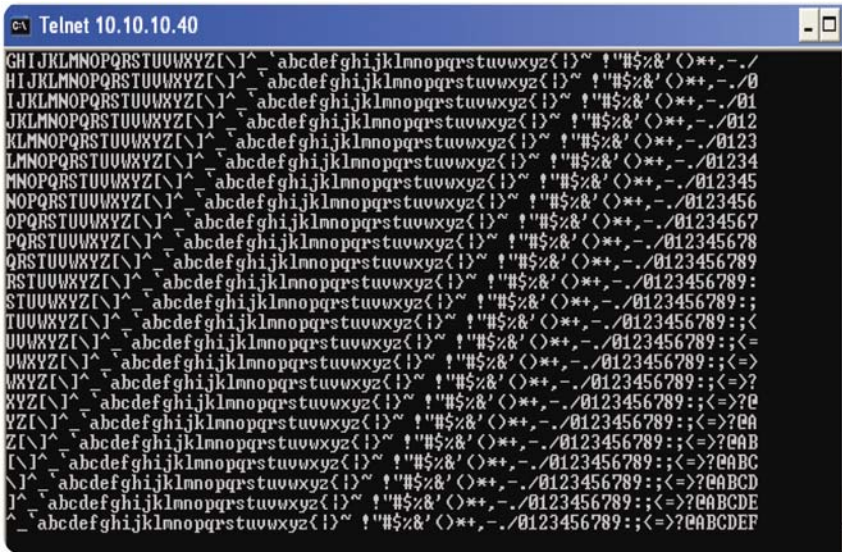
Functional test analysis

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, PoC, WAP, email, or other services.

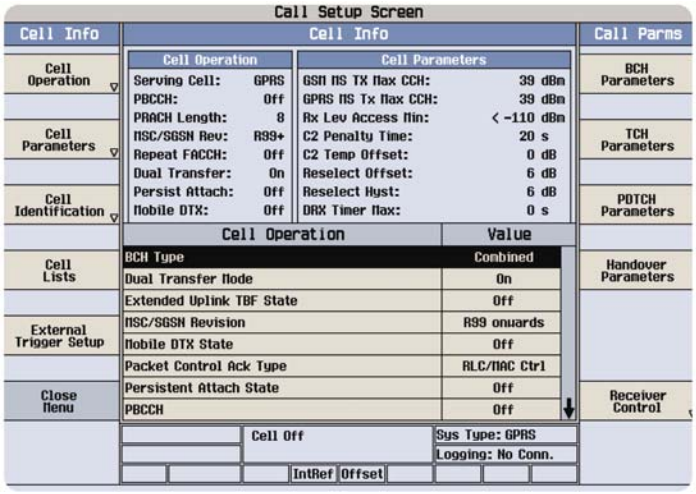
Drive down defect resolution cost by finding complex hardware, protocol, and application related issues that are specific to how the phone will function on the network, early in the design cycle.

All this for a price that is significantly less than traditional script-based test equipment.



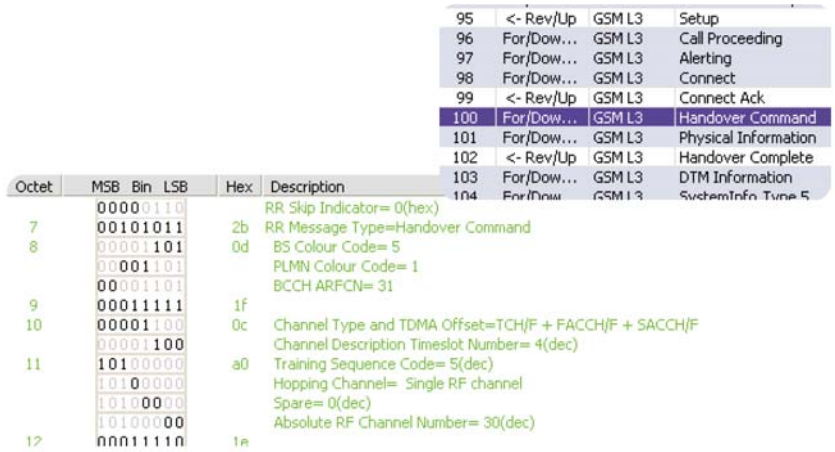
Base station emulation

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! Triggering and filtering functionality lets you set up troublesome scenarios, such as intermittent failures. That means you can begin the scenario on Friday and come back Monday morning to a bounded and focused protocol log of exactly what happened surrounding the particular issue.



E6701 Family of Lab Applications

E6701I 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 E6701I added several new capabilities including LTE/2G interRAT handover.

E6701I with E6720A-001 is our emerging high-performance application. This is designed for engineers who need early access to leading-edge technologies.

This application also supports baseband fading with the N5106A PXB baseband generator and channel emulator. This functionality requires hardware options E5515E-004, or E5515C-003 and 004.

For a complete comparison of our 8960 GSM/GPRS/EGPRS products please see http://wireless.agilent.com/rfcomms/news/files/E1968A_E6701x_Feature%20Comparison-current.pdf

Technical Specifications

These specifications apply to an E5515 mainframe with Option 002 installed when used with the latest shipping version of the E6701I lab application.

The above application also includes functionality described within the latest shipping version of E1968A GSM/GPRS/EGPRS test application with firmware. Please refer to the E1968A data sheet for details and specifications for all functionality covered within the E1968A at

http://www.agilent.com/find/E1968A

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 form the factory meet these typical numbers at +25 °C ambient temperature without including measurement uncertainty.

General Specifications

Dimensions:
(H x W x D): 8.75 x 16.75 x 24.63 inches (222 x 426 x 625 mm), 7 rack spaces high

Weight:
66 lbs (30 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 (local area network) 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/m^3 absolute humidity (95%/+32 °C, 28%/+55 °C relative humidity)

Storage conditions:
-20 to +70 °C, 50 g/m^3 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

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

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

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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Product specifications and descriptions in this document subject to change without notice.

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