GENEX Probe Wireless Air Interface Testing Software User Manual

V100R003

GENEX Probe Wireless Air Interface Testing Software

User Manual

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About This Manual

Release Notes

The manual applies to GENEX Air Interface Testing Software V100R003.

Organization

The manual consists of 12 chapters and two appendixes.

Chapter 1 Introduction to GENEX Probe, **Chapter 2 Quick Start**, and **Chapter 3 New Functions** mainly introduce the basic functions, quick start, and new functions of the system.

Chapter 4 Installing the Probe mainly introduces the hardware requirements and the installation method.

Chapter 5 User Interface gives a fully description of system interface and parameter windows. Users can get familiar with the system interface after reading this chapter.

Chapter 6 Managing the Project describes the test project management of Probe system. Users can get acquainted with the concept of test project and some basic operations.

Chapter 7 Connecting the Devices introduces the connection and configuration of test devices, such as UE, GPS, Scanner. This part is the essential for the test preparation, and should be attached with enough attention.

Chapter 8 Configuring Test Plan gives a panoramic view on how to configure a test plan.

Chapter 9 Controlling the Test and Playing the Log File Back introduces the test control and log play during and after the test.

Chapter 10 Continuous Wave Test emphasizes on the CW test.

Chapter 11 File Exporting Function describes how to export the data.

Chapter 12 FAQ uses the FAQ format to give solutions to problems commonly encountered during the operation.

Appendix A Common Parameters describes the common parameters in Probe and some equipment.

Appendix B Acronyms and Abbreviations describes the full name of the abbreviations in the manual.

Intended Audience

The manual is intended for the following readers:

- Marketing staff
- Installation engineers & technicians
- Operation & maintenance personnel

Conventions

This document uses the following conventions:

I. General conventions

Convention	Description
Arial	Normal paragraphs are in Arial.
Arial Narrow	Warnings, Cautions, Notes and Tips are in Arial Narrow.
Bold	Headings, Command, Command Description are in boldface.
`Terminal Display`	Terminal Display is in Courier New; message input by the user via the terminal is in boldface.

II. Symbols

Eye-catching symbols are also used in the manual to highlight the points worthy of special attention during the operation. They are defined as follows:

⚠ **Caution**, **Warning**, **Danger**: Means reader be extremely careful during the operation.

🕮 **Note**, **Comment**, **Tip**, **Knowhow**, **Thought**: Means a complementary description.

Table of Contents

Chapter 1 Introduction to the GENEX Probe

1.1 Overview

As an excellent tool for air interface tests in the WCDMA, HSDPA, GSM or GPRS systems, the GENEX Probe is used to verify the results of radio network planning and optimization, and give guidance to troubleshooting. The Probe supports the Scanner and test UEs. Table 1-1 lists the features of the Probe.

Table 1-1 Features of the Probe

Feature	Description
Conducting continuous wave (CW) test	The Probe averages and exports the measured data.
Measuring signal strength and quality	The Probe measures the signal strength and quality, and combines the measurement data with the geographic data.
Parsing messages on the air interface	The Probe parses the messages on the layer 2 and layer 3 in the WCDMA system and those on the layer 3 in the GSM system. The Probe collects the wireless parameters on layer 1.
Initiating CS and PS services automatically	The manual configuration of functions and QoS parameters makes the testing easier. Real-time voice prompts and other icon prompts make the testing more user-friendly.
Locating network faults more easily	The stable and reliable data records, automatic reconnection with the devices, controllable log playback, and the co-activated information display make the network problem searching much easier.
Providing automatic and extendable event list	The automatic and extendable event list can assistant you in analyzing calling performance.
Test data saving, exporting, combing, playbacking	These functions realize the playback of the test process and offer original test data for other post-processing tools.

1.2 Main Functions

Table 1-2 lists the main functions of the Probe.

Table 1-2 Main functions

Function	Description
Dual-mode test in WCDMA/HSDPA/GSM/GPRS	The Probe collects wireless measurement parameters and signaling. By using different UEs, the Probe measures the parameters and messages of the system. In addition, the Probe supports the coversion among different modes.
CS and PS measurement	The Probe conducts various service tests, including the CS and PS tests. For the CS service, the Probe tests: • Continuous call • Call by call • Video phone measurement For the PS service, the Probe tests: • PING • FTP • HTTP • Video Streaming The Probe also conducts the simultaneous test of SMS, CS services, and PS services. The Probe reports the progress of the process in real time and gives the statistic report after the test. For the Scanner, the Probe conducts: • CW measurement • Pilot Scan • Spectrum Analysis
Multi-UE test	The Probe can conduct simultaneous test on the UEs (eight at most), the Scanner, and the GPS. Each UE executes different measurement tasks.

Function	Description
Scanner measurement	The Probe supports: • Anritsu Scanner • DTI Scanner
Indoor measurement	In addition to the outdoor measurement, the Probe also supports walking measurement and vertical measurement. • Walking measurement: Refers to an indoor plane test. It measures and displays the inside signal distribution of a building. • Vertical measurement: Measures the vertically-distributed signals in the elevators.
Preset of test plan	The Probe can preset, import, and export the test plan. Moreover, the Probe is capable of displaying the execution result. The preset of test plan means that the Probe sets down the test plan for test device. Take the UE for an example. Set such test plans as calling test, FTP sending or loading, or concurrent service tests. After the test begins, the Probe automatically executes the test plan items one by one.

Function	Description
Judgment of predefined events	The Probe gives the judgment and the statistics of the key events as follows: • Call setup event • Channel connection event • Channel release event • Call drop • Handover • PDP context activation The Probe offers two display modes for the events mentioned previously: • On the map window • In the event list ***Note:*** *The display of the events with special icons on the map window enables you to have a panoramic view of the network performance, while the event list facilitates the calculation of the times and frequency of event occurrence.*
Hardware alarm	The Probe supports alarms under special situations. For instance, when a device is unexpectedly disconnected or the GPS signal is inadequate, the Probe warns you of the alarms in the form of either dialog box or sound. You can perceive the change of the connection status in real time.
Measure parameter filtering	The log mask filtering supports selective reception of parameters. In case of GSM service test, select it to report the associated parameters.

Function	Description
Sampling rate setting	In the Probe, you can set the sampling rate for certain parameters. ***Note:*** *In the Probe, some of the parameters are read at a high frequency level, which results in heavy data volume and system resource consumption. Therefore, Huawei recommends setting the sampling rate for some special parameters, such as List Search and Finger Info for TA.*
Log recording, playbacking, combining, exporting function	The Probe saves the test data into the LOG file in the manner of real-time refresh to enhance the security. The LOG data can be exported to a .bin, .text, or .xls file. The exported log file can be analyzed by the post-processing tools such as the GENEX Assistant, the ACTIX Analyzer, and the U-Net. The LOG data that conforms to certain constrains can be combined together.
Co-activated information display	The co-activated information is displayed if you click a record in a window like a signaling, map, or event window. The display of co-activated information helps you to locate and analyze the network troubles.
Geographic display of wireless measurement parameter	The Probe displays the following on the map: • Measurement track • Parameter value • Legend • Switchable data • Base station • Pilot line The Probe supports the import of raster maps.

Function	Description
Dynamic and static adjustment to GPS information	The inaccurate GPS information caused by map error or dense building has great influence on the correctness of geographic display. Therefore, the Probe corrects the test track by the dynamic adjustment (shifting and angle adjustment) or the static adjustment (dragging or rotating).
Display of air interface messages	The Probe is capable of parsing the following messages: • MAC/RLC signal • NAS signal • RRC signal • GSM RR signal
Display of RLC and APP throughput	Display of uplink and downlink thoughputs of the RLC and APP.
Display of custom parameters	You can add, delete, or configure the parameters as required.
GPS time synchronization	The Probe synchronizes with GPS standard time. If a high level of time precision is required, apply the GPS standard time to the operating system. When searching for GPS or DTI Scanner, the system sets the local time as GPS standard time automatically so long as the system is connected to the GPS and sets to synchronize with the GPS standard time.
QoS	The Probe gives the information statistics on the service layer.
Comparison test	The Probe conducts comparison tests for different UEs in the different networks.

1.3 How to Use This Manual

This section contains the following parts:

- About the Manual

- Intended Reader

1.3.1 About the Manual

This manual details the basic functions, the installation and running environments, the system interfaces, and the basic operations in the GENEX Probe. The chapters in this manual follow the natural process flow, and emphasize on the essential functions.

The main contents of the chapters are as follows:

- Chapter 1 "Introduction to the GENEX Probe", Chapter 2 "Quick Start", and Chapter 3 "New Functions" mainly describes the basic functions, quick start, and new functions of the system.
- Chapter 4 "Installing the Probe" details the hardware requirements and the installation methods.
- Chapter 5 "Graphical User Interface" gives a fully description of system interfaces and parameter windows. You can get familiar with the system interfaces after reading this chapter.
- Chapter 6 "Managing the Project" describes the test project management in the Probe. You can get acquainted with the concept of test project and some basic operations.
- Chapter 7 "Connecting the Devices" profiles the connection and configuration of test devices, such as UE, GPS, and Scanner. This part is the essential for the test preparation, and should be attached with enough attention.
- Chapter 8 "Configuring Test Plan" gives a panoramic view on how to configure a test plan.
- Chapter 9 "Controlling the Test and Playing the Log File Back" describes the test control and log play during and after the test.
- Chapter 10 "Continuous Wave Test" emphasizes on the CW test.
- Chapter 11 "File Exporting Funtion" describes how to export the data.
- Chapter 12 "FAQ" gives solutions to problems commonly encountered during the operation.
- Appendix A “Common Parameters and Shortcuts” describes the common parameters and shortcut keys frequenctly used in the Probe.
- Appendix B “Acronyms and Abbreviations” lists the explanations for the abbreviations and acronyms occurred in the manual.

1.3.2 Intended Reader

This manual is designed for new users to learn how to use the system step by step, and for the users who familize themselves with the system to investigate further about their concerned functions.

Chapter 2 Quick Start

2.1 Overview

This chapter contains the following contents:

- Installing the Probe
- Creating or Opening a Project
- Testing the Terminal Configuration
- Setting a Test Plan
- Opening the Parameter Window
- Saving the Test Project
- Beginning a Test
- Ending a Test

2.2 Installing the Probe

Before running the Probe, ensure that the Probe is properly installed. For details, refer to Chapter 4 "Installing the Probe."

2.3 Creating or Opening a Project

To create or open a project, perform the following steps:

1) Run the Probe.
2) Choose **New Project** on the **File** menu. Alternatively, choose **Open Project** to open an existing project.

2.4 Testing the Terminal Configuration

The Probe supports the following test devices:

- UE
- Scanner
- GPS

Connect and set the test device before test. Take the UE (Qualcomm 6250) for an example. For details, refer to Chapter 7 "Connecting the Devices."

To test the terminal configuration, perform the following steps:

1) Connect the UE to the USB of the PC through the data line.
2) Open the UE and keep it active.
3) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **Port Map** > **Diag** on the UE main menu.

4) Select **UART1 (COM1)** or **UART (COM3)** based on the number of the port that connects UE with the local PC.
5) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **DS Baud** on the UE main menu.
6) Set the baud rate to **115200**.
7) Choose **Configuration** > **Hardware Config** > **ManualConfig** on the Probe main menu.
   A dialog box is displayed, as shown in Figure 2-1.

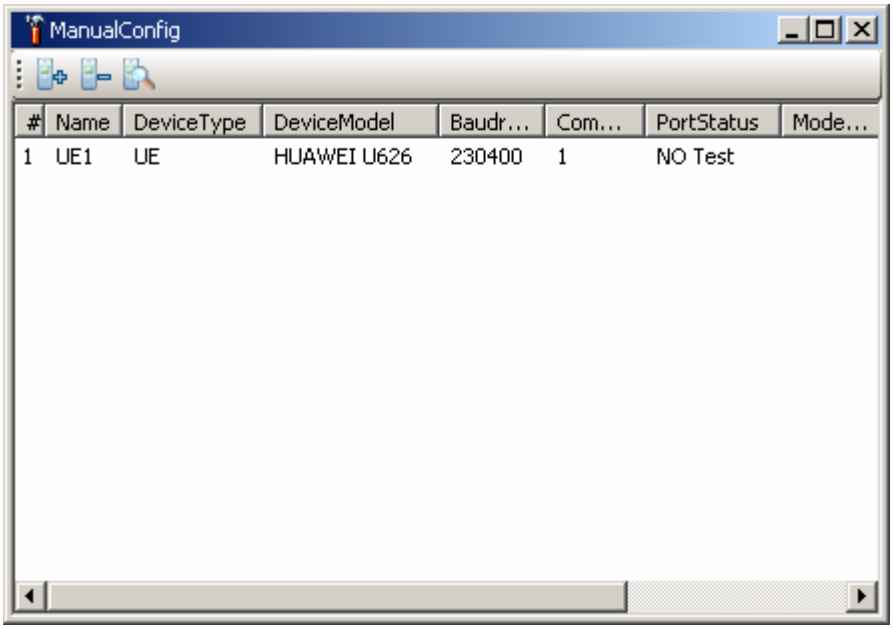

Figure 2-1 ManualConfig dialog box

8) Click  to add the device.
   The system displays the **Device Config** dialog box, as shown in Figure 2-2.
9) Set as shown in Figure 2-2 and click **OK**.
10) Click  to search the device.
    The device can be found only when it is correctly connected.

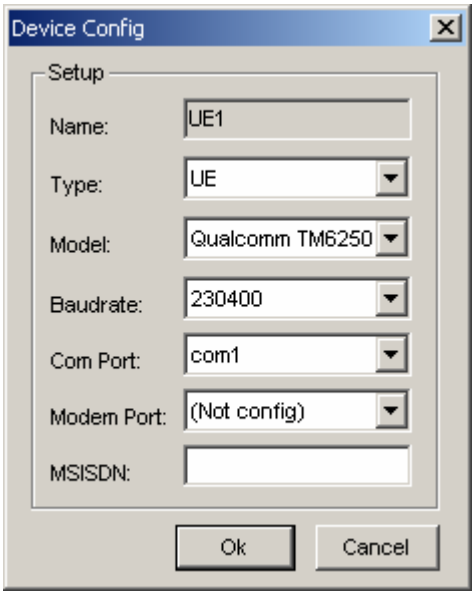

Figure 2-2 Device Config dialog box

Note:

The **Com Port** is configured based on the **Diag Port** mapped by the UE. If the data service is tested, the **Modem Port** needs to be configured, for the Probe conducts the dialup and observes the throughput on the application layer.

2.5 Setting a Test Plan

Note:

The custom test plan is used for automatic test. An example is listed below. For details, refer to Chapter 8 "Configuring Test Plan."

To set the test plan, perform the following steps:

1) Choose **Configuration** > **System Config** on the main menu.
   The system displays a screen, as shown in Figure 2-3.

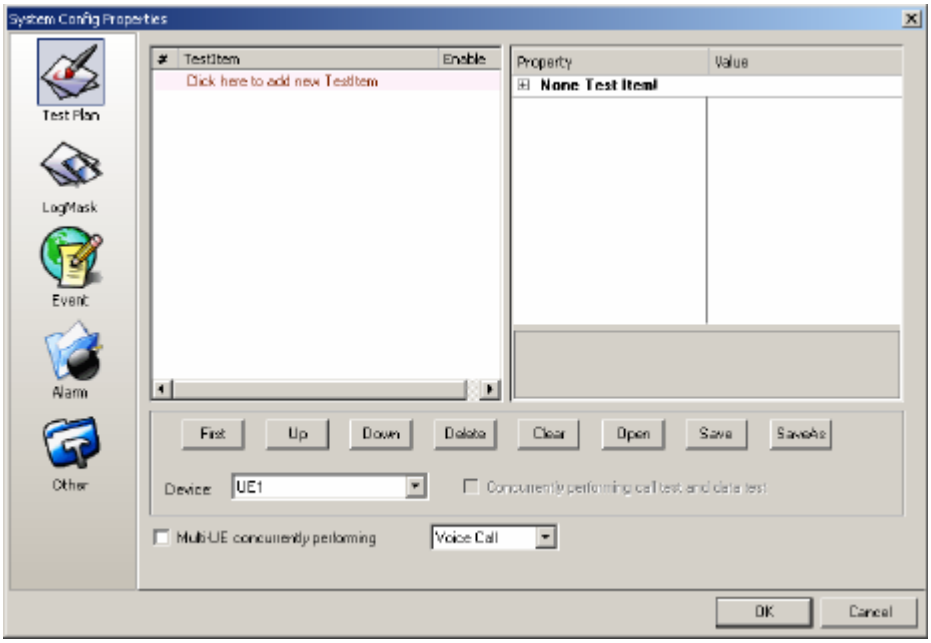

Figure 2-3 System ConfigProperties

2) Click **Test Item** and choose **Voice Call**.
3) Set the voice call parameters, such as, call number and calling time, as shown in Figure 2-4.

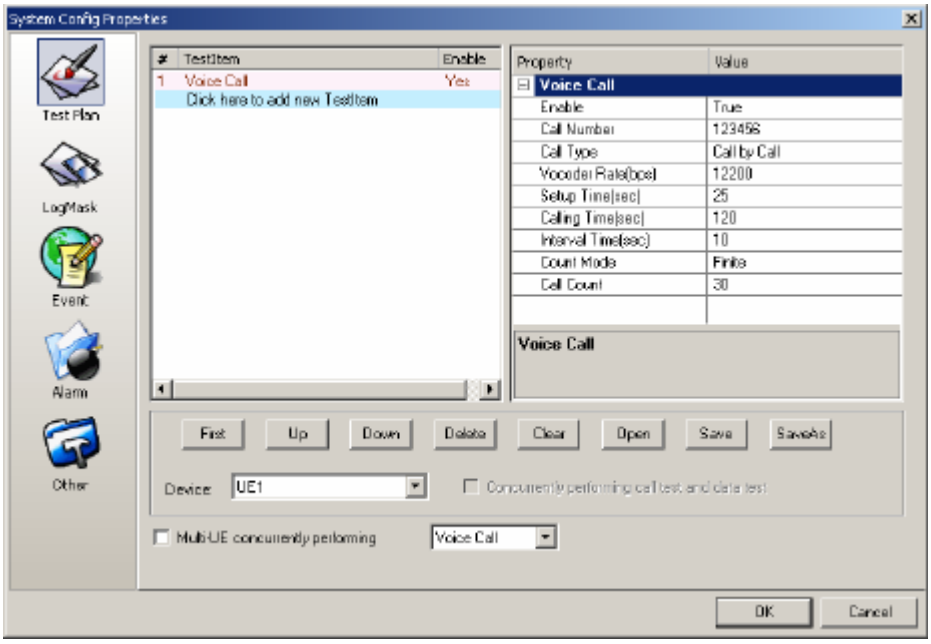

Figure 2-4 Setting parameters

4) Click **OK**.

2.6 Importing the BS Engineering Parameters

For the outdoor drive test, the import of the BS engineering parameters facilitates the observation of the information about the BS and cell distribution around the test points. For details, refer to section 6.5 "Importing the Engineering Parameter."

2.7 Opening the Parameter Window

To open the parameter window, double-click each node in the **View** navigator to query the associated data. For details about each window, refer to section 5.4 "View Window."

For the outdoor drive test in which the test tracks need to be checked, you can open the **Map** window and import the map. For details, refer to section 6.6 "Importing a Map."

2.8 Saving the Test Project

To save the test project, choose **File** > **Save** on the main menu. The engineering file is saved in .xml format.

The test plan can be saved either in the engineering file, or individually. For details about saving the test plan individually, refer to part 6.7.1 "Setting a Test Plan."

2.9 Beginning a Test

Click  in the toolbar to begin the test. You can control the test process and observe the data changes in the signaling window. For details, refer to Chapter 9 "Controlling the Test and Playing the Log File Back."

2.10 Ending a Test

Click  in the toolbar to end the test. Playback the Log file created during the drive test or export the data.

For details about the playback of the log file, refer to section 9.6 "Controlling the Log File Playback."

For details about the export of the test data, refer to Chapter 11 "File Exporting Funtion."

Chapter 3 New Functions

3.1 Overview

The following functions are added in the GENEX Probe 1.3:

- Analyzing the HSDPA Parameter Statistics
- Giving the QoS Statistics
- Conducting Comparative Tests with Different UEs in Different Networks
- Predefining the Intra- or Inter-Frequency Handover Events
- Providing More Test Devices
- Combing and Exporting the Files
- Displaying the GSM Parameters in the Chart Window
- Configuring the DTI Scanner Gain Parameter
- Conducting the Tests on Commercial UEs
- Displaying the DTI Scanner Multi-Frequency Data in the Map Window
- Adding the LogMask Dynamically
- Opening the Most-Recently-Used Log File
- Displaying and Scaling the Chart with Multiple Y-Axes
- Selecting the Device in the Chart or Sheet Window
- Adding Wait Option in Test UEs

3.2 Analyzing the HSDPA Parameter Statistics

The following information about HSDPA parameter is added in the Probe:

- Collecting the HSDPA data
- Decoding and giving the statistics of the HSDPA data packet
- Giving the statistics of throughput on the radio link layer

3.2.1 Displaying the HSDPA Physical Channel Data

The data of HSDPA physical channel in the Probe is the configuration parameters of the following channels:

- HS-DSCH
- HS-SCCH
- HS-DPCCH

3.2.2 Providing the HSDPA Decoding Statistics

The function of HSDPA decoding refers to the decoding statistics on the HS-SCCH and HS-DSCH channels.

The Probe provides the following statistics:

- HS-SCCH schedule success rate
- Block error rate (BLER) on the MAC layer
- BLER on the RLC layer

3.2.3 Distinguishing the HSDPA Channels

The Probe counts how many radio links are available on the downlink, and tells whether the service is carried on the DCH or HS-DSCH.

3.2.4 Providing Statistics on HSDPA Rates

The HSDPA rates in the HSDPA rate statistics consists of

- Scheduling rate of the physical layer
- HSDPA rate on the MAC layer (including the retransmission rate)

3.2.5 Providing Statistics on HSDPA Channel Quality

The HSDPA channel quality statistics consists of:

- BLER on MAC layer
- BLER on RLC layer
- Retransmission rate on the HS-DSCH channel
- CQI
- Channel utilization
- Code occupancy

3.2.6 Displaying HSDPA Parameters in the Map Window

The Probe displays the HSDPA parameters in the map window.

3.3 Giving the QoS Statistics

The Probe provides the QoS statistics on the application layer by offering the KPI statistics and throughput of the HTTP and FTP. The QoS statistics is detailed as follows:

- KPI statistics of PING service
  For example, the display of packet loss ratio and time interval between single tests.
- KPI statistics and HTTP throughput
  The KPI statistics and HTTP throughput include the statistics of page access time, page download time, and average rate.
- KPI statistics and FTP throughput
  The KPI statistics and FTP throughput include the statistics of login time, time for

forward and download, average rate of forward and download, and the display of actual transmission duration.

- PDP statistics
  The PDP statistics includes the statistics of the minimum, maximum, and average rate of the PDP context activation time.

3.4 Conducting Comparative Tests with Different UEs in Different Networks

The Probe can conduct comparative tests of CS service in different networks.

The comparison test items consist of

- Voice call test items
- Video phone test items

3.5 Predefining the Intra- or Inter-Frequency Handover Events

The Probe predefines the success and failure events of the intra- or inter-frequency handover handovers. These handover events consist of:

- IntraFreqHHOSuc
- IntraFreqHHOFail
- InterFreqHHOSuc
- InterFreqHHOFail

3.6 Providing More Test Devices

The Probe V1.3 supports more test UEs than the ealier version. The new test UEs are:

- Huawei U526
- Huawei U636
- Huawei E600 data card
- Huawei E620 data card
- Qualcomm TM6275
- DTI Scanner 1800M
- DTI Scanner 1900M

3.7 Combing and Exporting the Files

The Probe V1.3 log file post-processing can:

- Export .log files in the format of QXDM.
- Export UE measurement data.
- Export UE signaling list.
- Export original data of different devices.

- Combine .log files.
- Export the orginal data or separate the DTI Scanner information from the GPS information during the log combination.

3.8 Displaying the GSM Parameters in the Chart Window

The Probe V1.3 is applicable to the GSM network. The system adds more windows for parameter display.

The windows are used to:

- Display the signal strength of serving cell under GSM idle state
- Display the cell selection and parameter re-selection in the GSM network

3.9 Configuring the DTI Scanner Gain Parameters

The gaining parameters configurable on the DTI Scanner include the antenna gain and cable loss. The configuration result influences the display and the export of DTI Scanner data.

This DTI Scanner gaining parameter enables the complete cancellation of antenna gain and cable loss.

3.10 Conducting the Tests on Commercial UEs

The Probe opens the tests with commercial UEs by removing the existing bugs in AT command edition module.

The commercial UEs take the place of test UEs to conduct the automatic dialing test. By this means, the disadvantages of test UEs at the early stage of network construction can be avoided.

3.11 Displaying the DTI Scanner Multi-Frequency Data in the Map Window

The Probe displays the multi-frequency data of the DTI Scanner in the map window.

3.12 Adding the LogMask Dynamically

The Probe adds the LogMask dynamically. For the unlisted LogCode on the layer 1 and layer 2, if they are required, you can add them manually during LogMask configuration.

3.13 Opening the Most-Recently-Used Log File

The Probe records the paths and names of the .log files recently used. Five records are the maximum. You can open the .log file on the **LogFile** menu.

The system refreshes the records each time when the file is open.

3.14 Displaying and Scaling the Chart with Multiple Y-Axes

With this function, you can zoom in or zoom out the multiple Y-axes of the chart.

3.15 Selecting the Device in the Chart or Sheet Window

To select the device in the chart or list window, perform the following steps:

1) Right-click in the **Chart** or **Sheet** window.
   The system lists the configured test device in the current system.
2) Choose a device to replace the one displayed.

🕮 **Note:**

The device that the current chart does not support is in unvailable status (grey).

3.16 Adding Wait Option in Test UEs

Added in the test UEs in the configuration plan, the **Wait** is used to set the time interval between two test items.

Chapter 4 Installing the Probe

4.1 Overview

This chapter describes how to install the Probe.

It contains the following contents:

- Hardware Requirements
- Installation Procedure
- Installation Directory
- Measures for Software Copyright Protection

4.2 Hardware Requirements

To run the Probe smoothly, ensure that the configuration of the PC meets the requirements listed in Table 4-1.

Table 4-1 Hardware requirements

Item	Description
CPU	Pentium III 750 MHz at least
Monitor	VGA (1024 x 768, 16 bit color or higher)
Memory	256 MB at least
Hard disk	1 GB at least
PC port	• In the Probe, there should be at least one serial port, one parallel port, and one USB port. • A serial port connects to the GPS or Scanner, while a parallel port and an USB connect to the hard dongle and UE respectively.
Operating system	Windows 2000 or Windows XP

4.3 Hardware Equipment

Table 4-2 Hardware equipment supported by the Probe

Hardware Equipment	Type
UE	• QUALCOMM TM6200 • QUALCOMM TM6250 • QUALCOMM TM6275 • Huawei U626 • Huawei U636 • Huawei E600 data card • Huawei E620 data card • Commerical handset
GPS antenna	GPS complying with TAIP or NEMA0183 protocols
Scanner	• Anritsu's Scanner • DTI Scanner 1800 M • DTI Scanner 1900 M • DTI Scanner 2100 M

4.4 Installation Procedure

For the Probe, the installation procedure contains:

- Installing the Probe
- Installing the GENEX Shared

4.4.1 Installing the Probe

To install the Probe, perform the following steps:

1) Double-click setup.exe.
   The **Preparing Setup** dialog box is displayed, as shown in Figure 4-1.

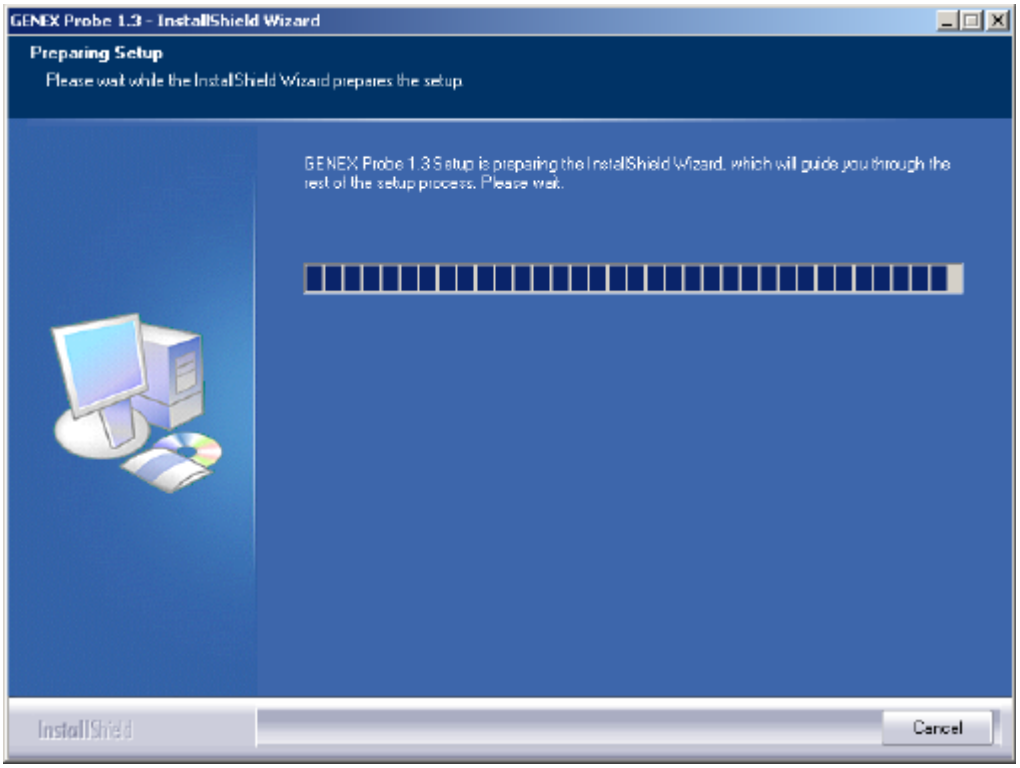

Figure 4-1 Preparing Setup dialog box

Note:

Click **Cancel** to exit.

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2) Enter the customer information in the **Customer Information** dialog box.
3) Click **Next**, as shown in Figure 4-2.

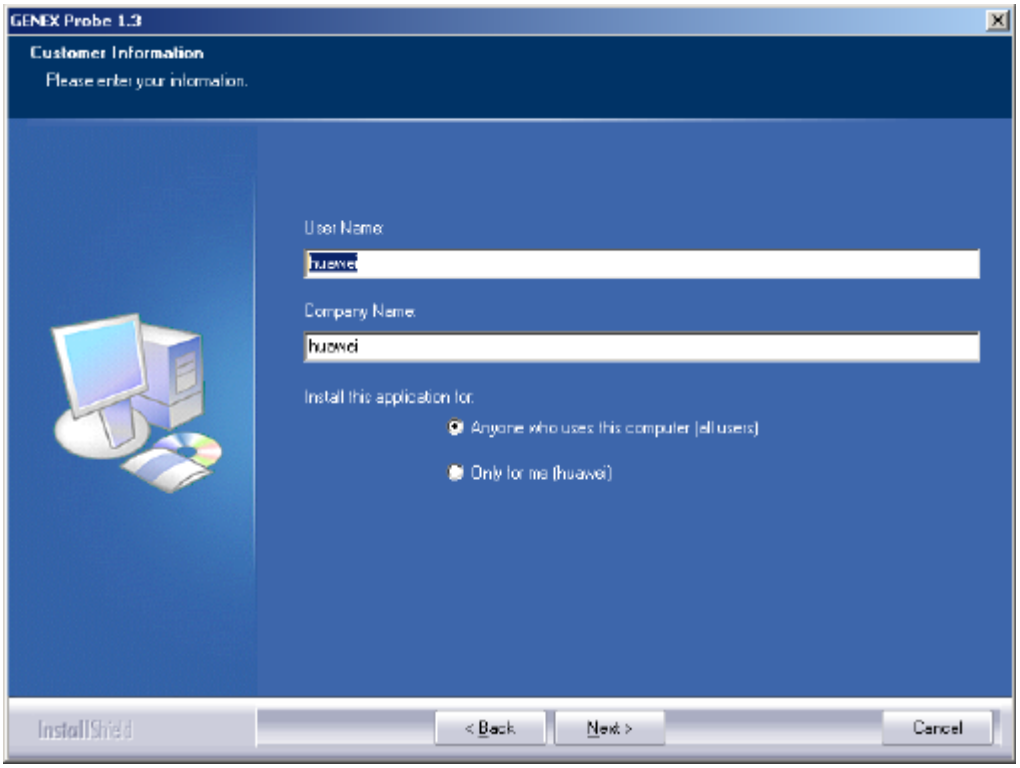


Figure 4-2 Customer Information dialog box

Note:

Click **Back** to return to the previous step.

---

4) Choose the destination location in the **Choose Destination Location** dialog box, as shown in Figure 4-3.

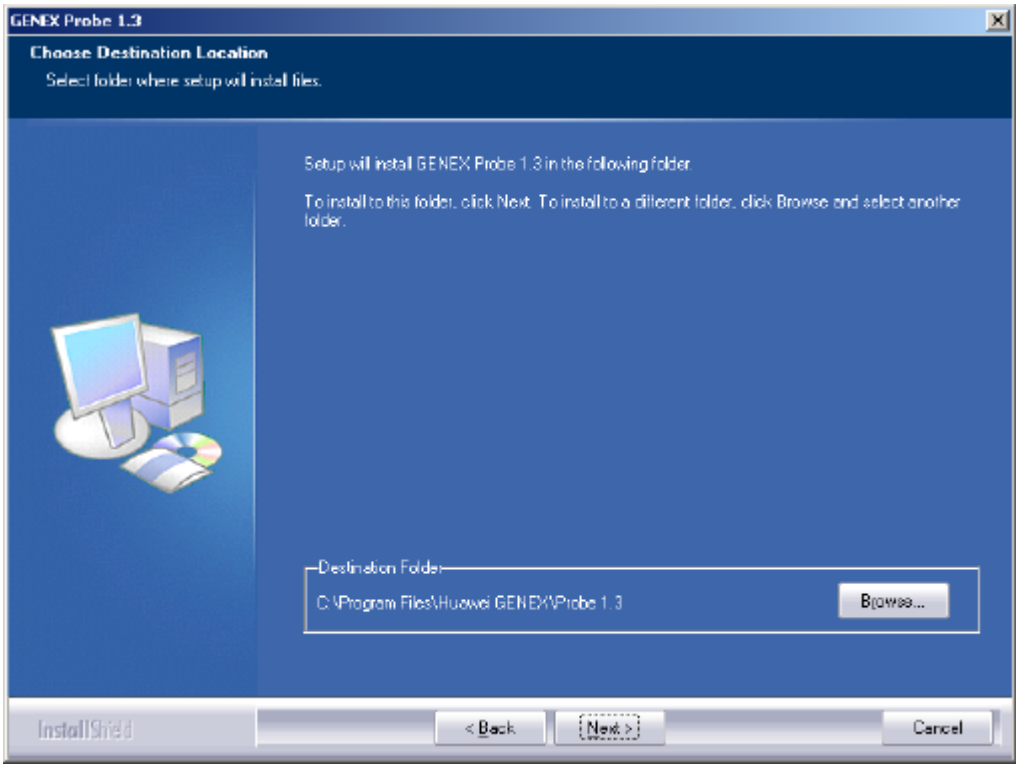


Figure 4-3 Choose Destination Location dialog box

5) Click **Browse** to choose the installation directory.
6) Click **Next**.
   The **Setup Status** dialog box is displayed, as shown in Figure 4-4.

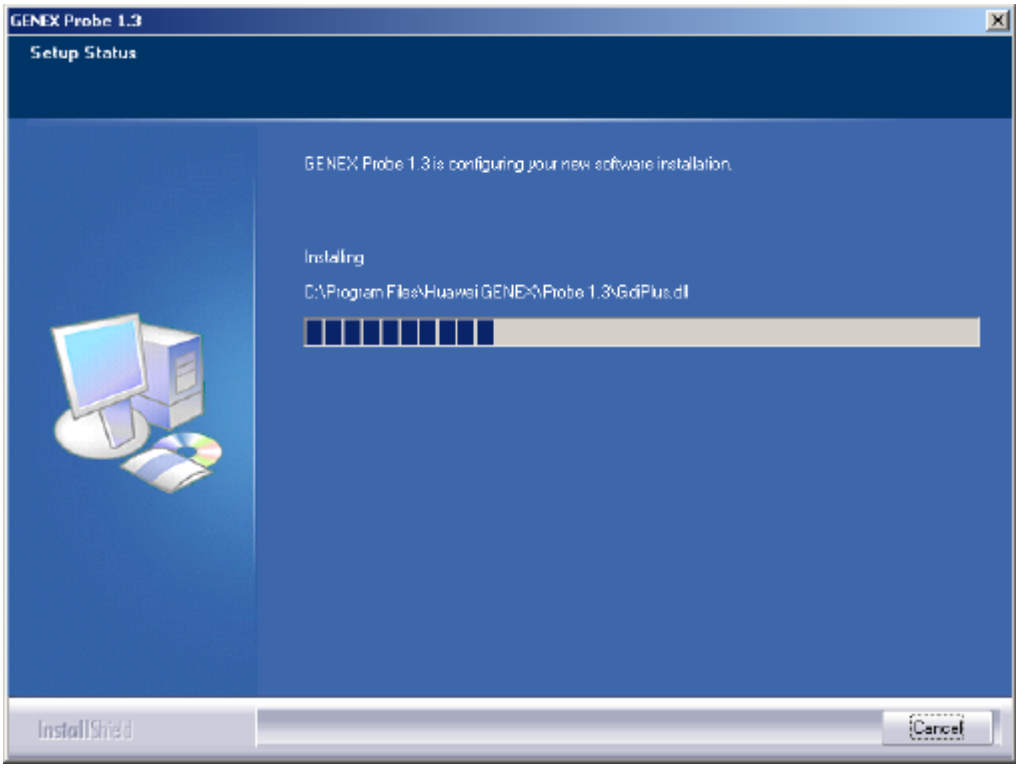


Figure 4-4 Setup Status dialog box

7) Click **Finish** in the **InstallShield Wizard Complete** dialog box, as shown in Figure 4-5.

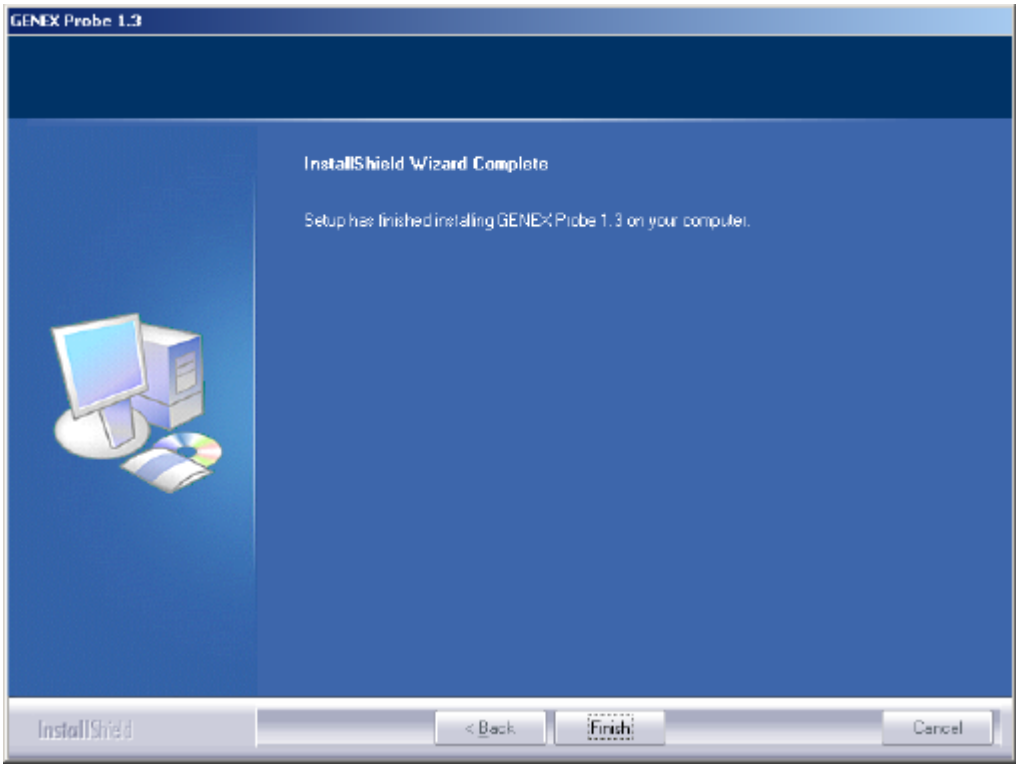


Figure 4-5 Completing the installation

4.4.2 Installing the GENEX Shared

As a public component package used for all the GEXEX series products, the GENEX Shared package contains the hard dongle driver, and several configuration components.

Ensure that the GENEX Shared is correctly installed before running the Probe. The GENEX Shared is automatically installed after the installation of the Probe.

If the GENEX Shared already exists, skip the GENEX Shared installation.

🕮 **Note:**

- After Probe installation, the system will automatically start GENEX Shared component package installation.
- If you uninstall the Probe, the GENEX Shared component package will not be uninstalled to ensure that other GENEX products can still work. You can, thus, skip GENEX Shared component package installation if it is already in the PCs.
- However, if you upgrade the Probe, Huawei recommends that the GENEX Shared component package be installed again because GENEX Shared component may be upgraded at the same time.

4.5 Installation Directory

After the installation of the Probe, the system forms an installation directory, as listed in Table 4-3.

Table 4-3 Directory structure

Directory	Description
Capture	Saves captured images.
Config	Saves system configuration files
Data	Saves test data
Log	Saves system logs
Voice	Saves voice files
Template project	Saves project templates
Documents	Saves associated documents for the Probe

🕮 **Note:**

Among all these directories, the **\Capture**, **\Data**, and **\Log** are automatically created during the first running of the system.

4.6 Measures for Software Copyright Protection

The hard dongle protects the Probe. Connect the hard dongle before using the Probe. The system checks the connection during the startup.

Connect several hard dongles in series to use the GENEX series.

Once the connection does not work or the license is invalid, the system prompts you to connect the hard dongle correctly or to update the license.

🕮 **Note:**

When updating the license of the hard dongle, connect the hard dongle that needs updating rather than connect several dongles simultaneously. After updating the license, connect the rest hard dongles.

4.6.1 Viewing the License

To view the license, perform the following steps:

1) Choose **Help** > **License Info…** on the main menu.
   The **License Info** dialog box is displayed.
2) View the license information.

Note:

You can apply for the licenses based on the modules that you are to use. For example, the license for the HSDPA module can be applied for individually.

4.6.2 Updating the License

To update the license, perform the following steps:

1) Check the license of hard dongle.
2) Send the ESN in the license to the Huawei Customer Service Center to obtain the Probe license file.
3) Enable the update license function, as shown in Figure 4-6.

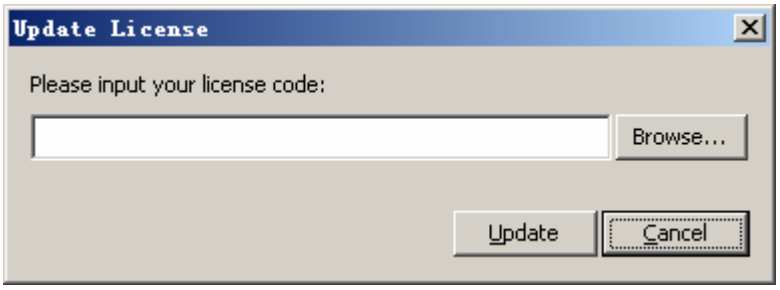


Figure 4-6 Update License dialog box

4) Click **Browse…** and choose the directory of the update file.
5) Click **Update**.
6) Reboot the Probe to validate the updated license.

Chapter 5 Graphical User Interface

5.1 Overview

This chapter describes the user interface in the Probe.

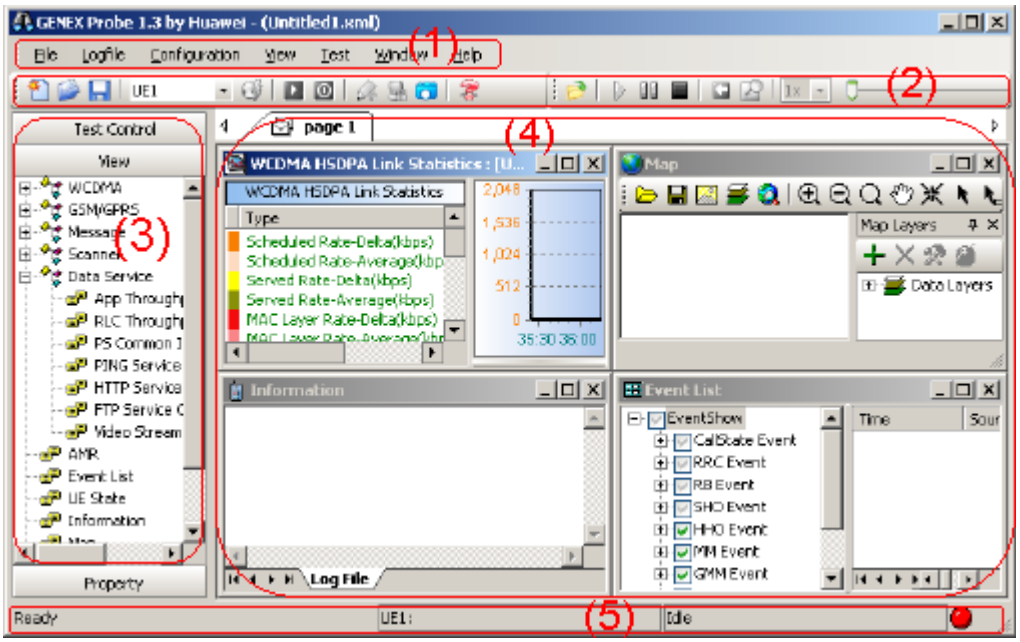
It contains the following contents:

- Main Interface
- System Configuration
- View Window

5.2 Main Interface

The Graphical User Interface (GUI) in the Probe facilitates your operation.

The main interface is displayed after the Probe is started, as shown in Figure 5-1.



(1) Menu bar (2) Toolbar (3) Navigation tree

(4) Work space (5) Status bar

Figure 5-1 Main interface of the Probe

5.2.1 Menu Bar

I. File Menu

The **File** menu enables operations on the project, as shown in Figure 5-2.

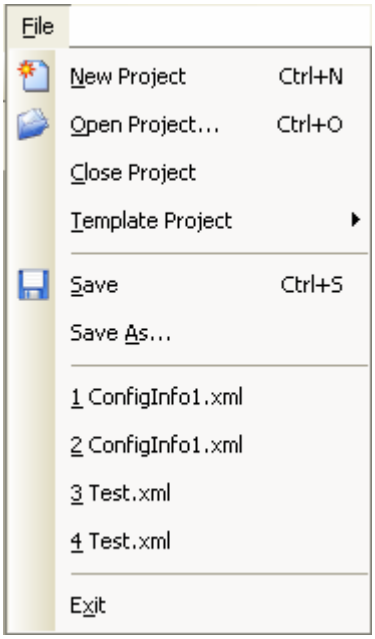


Figure 5-2 File menu

For details about operations in **File** menu, refer to section 6.2 "Managing the Project Files."

II. Logfile Menu

The **Logfile** menu provides the operations on the drive test files, as shown in Figure 5-3.

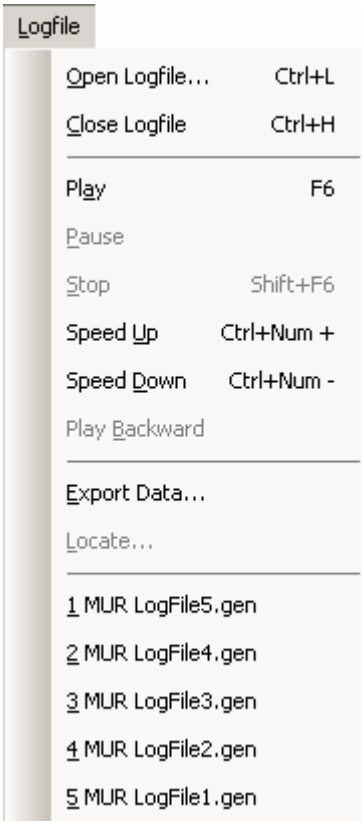


Figure 5-3 Logfile menu

- For the playback of the logfile, refer to section 9.6 "Controlling the Log File Playback."
- For the export of the logfile, refer to Chapter 11 "File Exporting Funtion."
- For the shortcut keys, refer to Appendix A."Common Parameters and Shortcuts."

The logfiles opened recently are listed on the menu. In this way, you can choose several drive test files recently used as your data source.

III. Configuration Menu

The **Configuration** menu provides the preparation operations for the Probe test, as shown in Figure 5-4.

Figure 5-4 Configuration menu

To facilitate information searching, you can refer to the following suggestions:

- For details about the hardware configuration, refer to section 6.4 "Configuring ."
- For details about the information of Base Transceiver Station (BTS), refer to section 6.5 "Importing the Engineering Parameter."
- For details about the Map Mark, refer to section 9.2 "Conducting a Test."
- For details about the system configuration, refer to section 5.3 "System Configuration Window."

IV. View Menu

Figure 5-5 shows the items listed in the **View** menu.

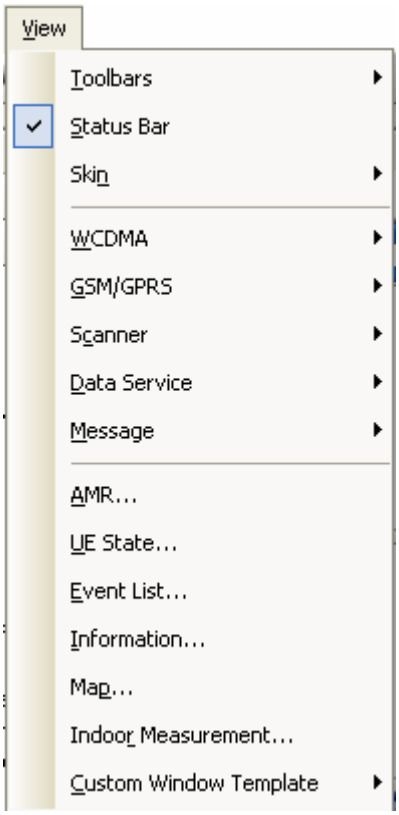


Figure 5-5 View menu

For details about the **View** menu, refer to section 5.4 "View Window."

V. Test Menu

The **Test** menu provides controls on the drive test process, as shown in Figure 5-6.

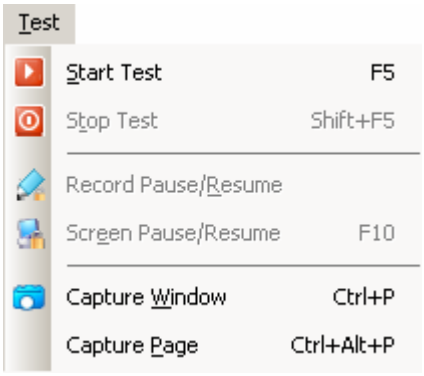


Figure 5-6 Test menu

For details about the **Test** menu, refer to section 9.2 "Conducting a Test."

VI. Window Menu

The **Window** menu enables window arranging and window opening, as shown in Figure 5-7.

Figure 5-7 Window menu

VII. Help Menu

The **Help** menu provides the help information, as shown in Figure 5-8.

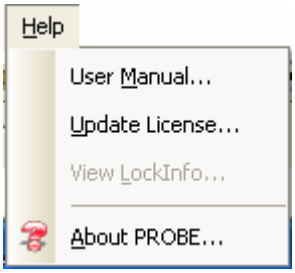


Figure 5-8 Help menu

5.2.2 Toolbar

The toolbar provides the buttons for system operations.

I. Standard Toolbar

Figure 5-9 shows the standard toolbar.

Figure 5-9 Standard toolbar

The standard toolbar contains some buttons for routine operations, as listed in Table 5-1.

Table 5-1 Buttons on the standard toolbar

Button	Description
	To create a project
	To open a project
	To save a project
	To choose a device ***Note:*** *Ensure that a device is selected before checking the parameter windows.*

Button	Description
	To search a device ***Note:*** *The system searches a device and connects it to the COM port based on the hardware configuration of the project.*
	To begin a test ***Note:*** *The function takes effect only when the test device is available.*
	To end a test ***Note:*** *The function takes effect only when the test mode is in use.*
	To pause or continue recording ***Note:*** *The function takes effect only when the system records the logfile at the beginning of the drive test and the test mode is in use.*
	To pause or recover screen display
	To capture a window
	About the Probe

II. Logfile Toolbar

The logfile toolbar contains some common operations during the log file playback, as shown in Figure 5-10.

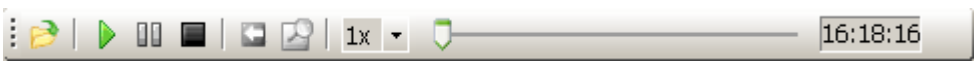
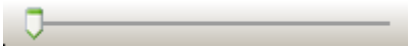
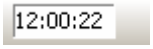


Figure 5-10 Logfile toolbar

Table 5-2 describes the buttons on the logfile toolbar.

Table 5-2 Buttons on the logfile toolbar

Button	Description
	To open a log file
	To play a log file ***Note:*** *The function takes effect only when the log file to be played is open.*
	To pause or continue playing
	To stop a play
	To change the play direction ***Note:*** *The Probe can play forward or backward.*
	To lock a position ***Note:*** *This function takes effect only when **Event Browsing** is selected.*
	To adjust the play rate ***Note:*** *The available range is from 1/8 to 8 times of rate.*
	To adjust the play progress ***Note:*** *The slider enables you to locate at any position of the log file. The function takes effect only when the log file is open.*
	To set the play time ***Note:*** *You can enter the time and press the blank key to set the broadcast time. The function takes effect only when the log file is open.*

III. Map Toolbar

The map toolbar, as shown in Figure 5-11, contains the icons for routine map operations and is available only when the Map window is open.

Figure 5-11 Map toolbar

Table 5-3 lists the descriptions of the buttons on the map toolbar.

Table 5-3 Buttons on the map toolbar

Button	Description
	To open a map
	To save a map
	To import a raster map
	To set the map layer
	To search for a cell
	To zoom in a map
	To zoom out a map
	To select the zoom scale of map area
	To span a map
	To center a map
	To select a map

Button	Description
	To select a map in rectangle
	Map scale
	To lock an area ***Note:*** *Choose the current position during correction.*
	To undo the current dots
	To rotate the selected points during static correction

IV. Indoor Measurement Toolbar

The indoor measurement toolbar is used for routine operations on the indoor measurement map, as shown in Figure 5-12.

Figure 5-12 Indoor measurement toolbar

Table 5-4 describes the buttons on the indoor measurement toolbar.

Table 5-4 Buttons on the indoor measurement toolbar

Button	Description
	To import a raster map
	To dot a map ***Note:*** *The drive test route is generated by dotting the map during the indoor test.*
	To zoom in a map
	To zoom out a map

Button	Description
	To span a map
	To select an area
	To undo the previous step

V. BTS Information Toolbar

The BTS information toolbar is used to edit the BTS information, as shown in Figure 5-13.

Figure 5-13 BTS information toolbar

Table 5-5 describes the buttons on the BTS information toolbar.

Table 5-5 Buttons on the BTS information toolbar

Button	Description
	To open the BTS information list
	To save the BTS information
	To apply the edited BTS information to the system and save the project in the project files.

VI. Device List Toolbar

The device list toolbar is used for the operations on the device configuration, as shown in Figure 5-14.

Figure 5-14 Device list toolbar

Table 5-6 describes the buttons on the device list toolbar.

Table 5-6 Buttons on the device list toolbar

Button	Description
	To add a device
	To remove a device
	To search for a device

5.2.3 Navigation Tree

I. Test Control Tab

The **Test Control** tab contains some routine operation buttons used in the test, as shown in Figure 5-15.

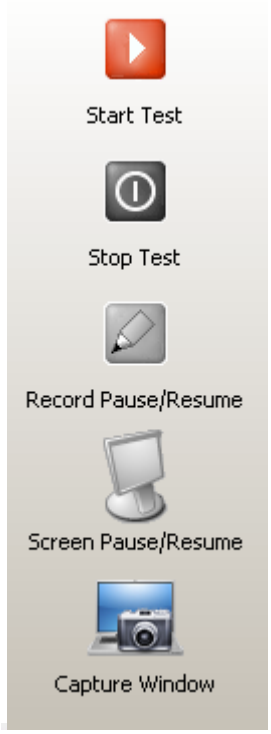


Figure 5-15 Test Control tab

II. View Tab

The **View** tab provides the function of system viewing. To view the items, double-click the items, as shown in Figure 5-16.

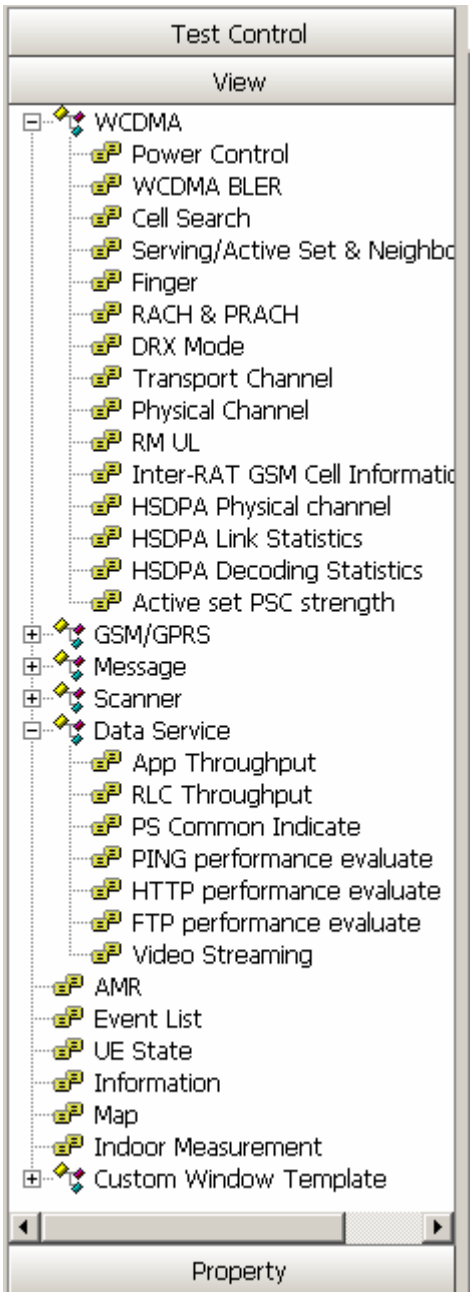


Figure 5-16 View tab

III. Property Tab

The **Property** tab displays the information about the current device in the device check box, as shown in Figure 5-17.

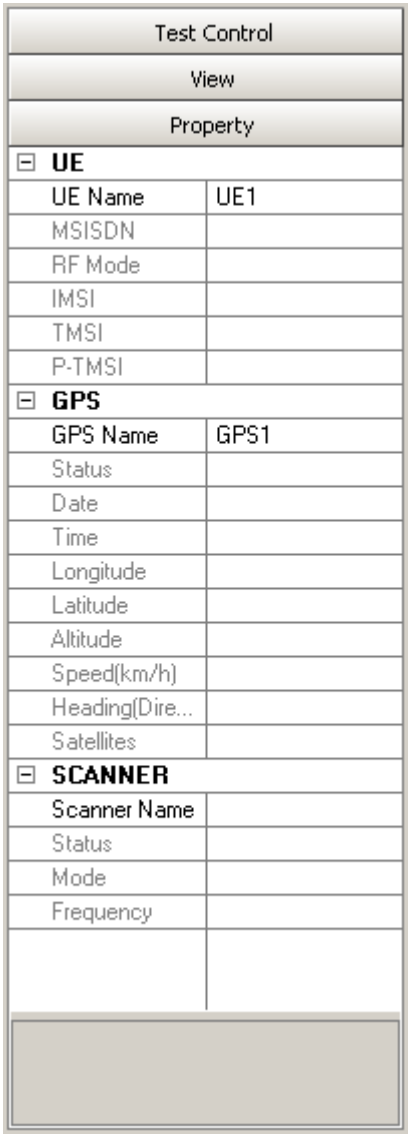


Figure 5-17 Property tab

🕮 **Note:**

- If more than one device of the same type is connected to the Probe, choose the device you want on the **Device** list on the toolbar. Alternatively, choose the device in the device name drop-down list in the **Property** tab.
- The system displays the associated parameters of the selected device in the **Property** window.

5.2.4 Work Space

The work space contains all the open view windows. You can customize several work pages in the work space:

- Press **Alt**+**Z** to define the window layout.
- Press **Alt**+**1**, **Alt**+**2**, or **Alt**+**3** to define the work space.

For details about main interface operations, refer to section 6.3 "Managing the Workspace."

5.2.5 Status Bar

I. System Status Bar

The system status bar contains four parts, as shown in Figure 5-18. The four parts are as follows:

- Menu prompt
- UE Radio Frequency (RF) mode
- Probe status
- Device status

Figure 5-18 System status bar

Table 5-7 describes the four parts on the system status bar.

Table 5-7 Four parts on the system status bar

Part	Description
Menu prompt	To display the information about the current selected menu
UE RF mode	To display the current UE RF mode The UE RF mode contains: • GSM • WCDMA • Unknown

Part	Description
Probe status	To display the current Probe status The status may be: • Idle • Real-time test • Log file playback ***Note:*** *The system tells you the current status you are in. If you place the mouse on the Probe status bar, the system shows the name of the open log file.*
Device status	To display the status of device connection • Red light indicates that the device is disconnected or faulty. • Green light indicates that the device is connected properly. • Yellow light indicates that the satellites are not enough. ***Note:*** *Put the mouse on the device status, the system shows what the current light stands for. Double-click the indicator to open a tab.*

II. Legend Status Bar

The legend status bar displays the layer information currently used in the Probe, as shown in Figure 5-19.

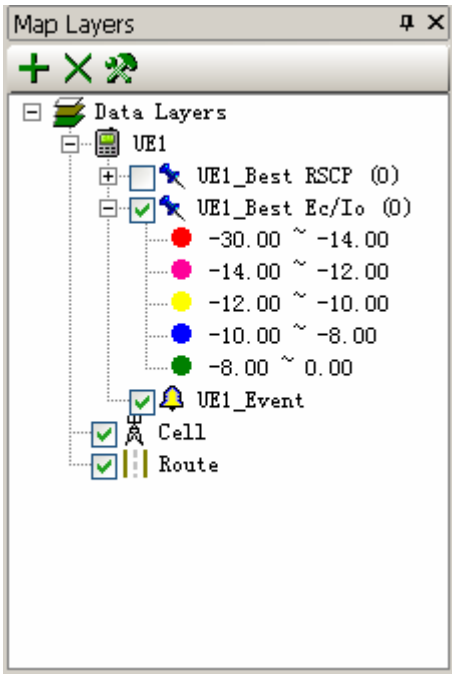


Figure 5-19 Legend status bar

III. Map Status Bar

The map status bar displays the related map information, as shown in Figure 5-20.

The map status bar consists of the following parts:

- Map ruler
- Correction status
- Map scale
- Longitude and latitude

Figure 5-20 Map status bar

Table 5-8 describes each part on the map status bar.

Table 5-8 Parts on the map status bar

Part	Description
Map ruler	To display the distance between two points
Correction status	To display if it is in correction state
Map scale	To display the map scale

Part	Description
Longitude and latitude	To display the longitude and latitude of a position in the map window

5.3 System Configuration Window

To open the system configuration window, choose **Configuration** > **System Config**. The **System Configuration Properties** window consists of the following tabs:

- Test Plan
- LogMask
- Event
- Alarm
- Other

5.3.1 Test Plan

The **Test Plan** tab contains the test items and parameters triggered by the UE and the Scanner, as shown in Figure 5-21.

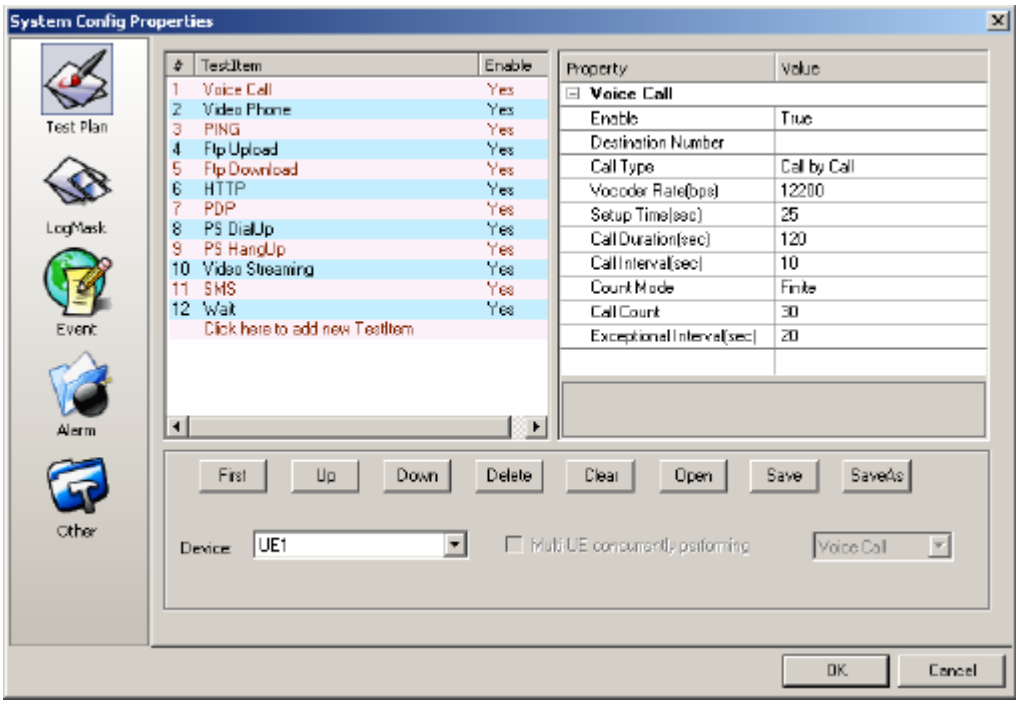


Figure 5-21 Test Plan dialog box

Note:

For details about the operations in the **Test Plan** window, refer to part 6.7.1 "Setting a Test Plan."

5.3.2 LogMask

The **LogMask** tab sets the filtering configuration for the data collected during the drive test, as shown in Figure 5-22.

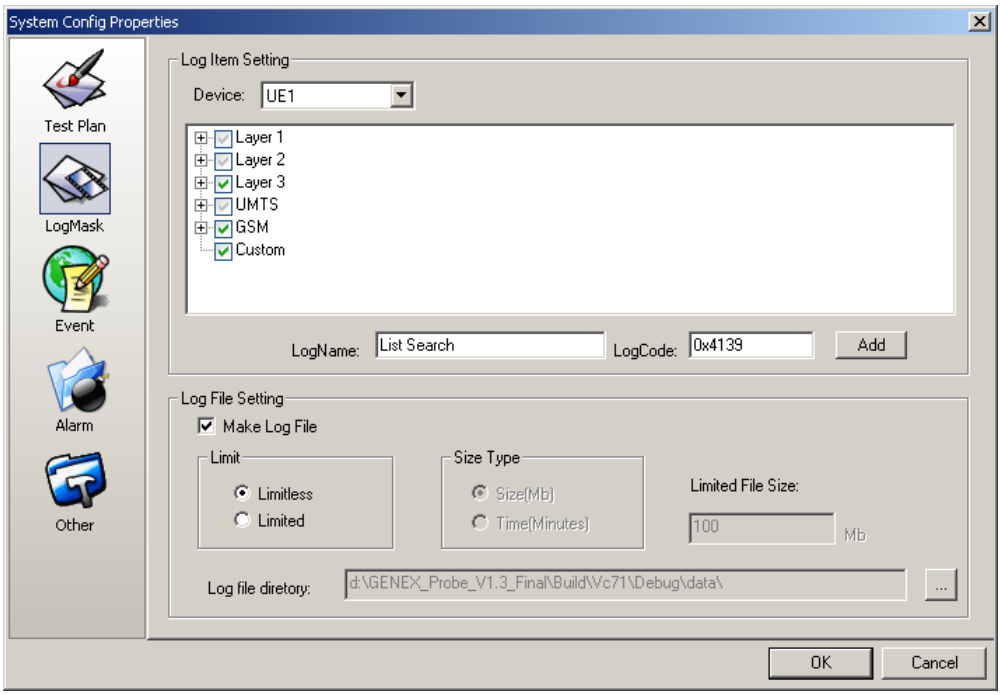


Figure 5-22 LogMask dialog box

Note:

- Do not change the default settings if you are not familiar with the Probe.
- For details about the operations in the **LogMask** window, refer to part 6.7.2 "Setting the Log Mask."

5.3.3 Event

The **Event** tab is used for the display, prompts, icons, voices, and configurations of all the events occurred in the radio network, as shown in Figure 5-23.

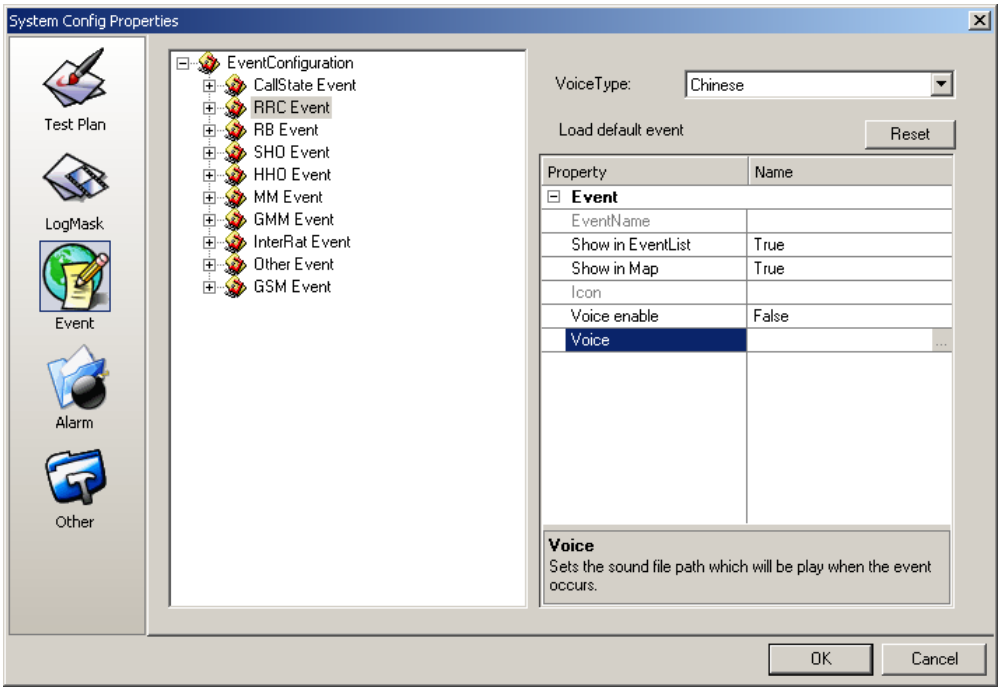


Figure 5-23 Event dialog box

🕮 **Note:**

For details about the operations in the **Event** window, refer to part 6.7.3 "Setting the Event."

5.3.4 Alarm

The **Alarm** tab is used to give prompts if errors occur, as shown in Figure 5-24.

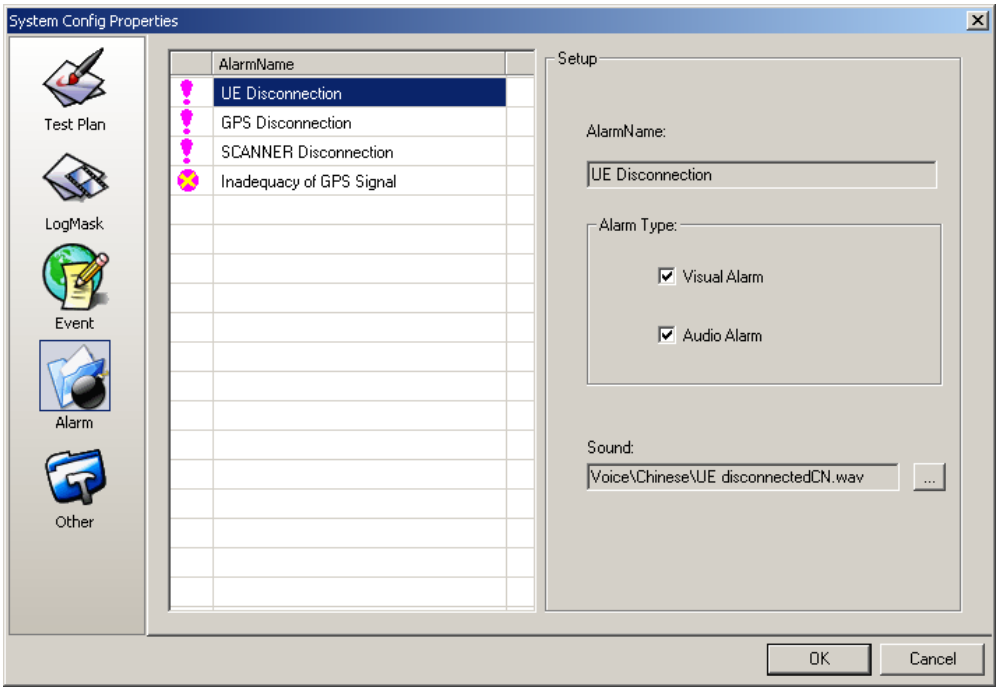


Figure 5-24 Alarm dialog box

Note:

For details about the operations in the **Alarm** window, refer to part 6.7.4 "Setting the Alarm."

5.3.5 Other

Figure 5-25 shows the **Other** tab. For details about the operations in the **Other** window, refer to part 6.7.5 "Setting Other."

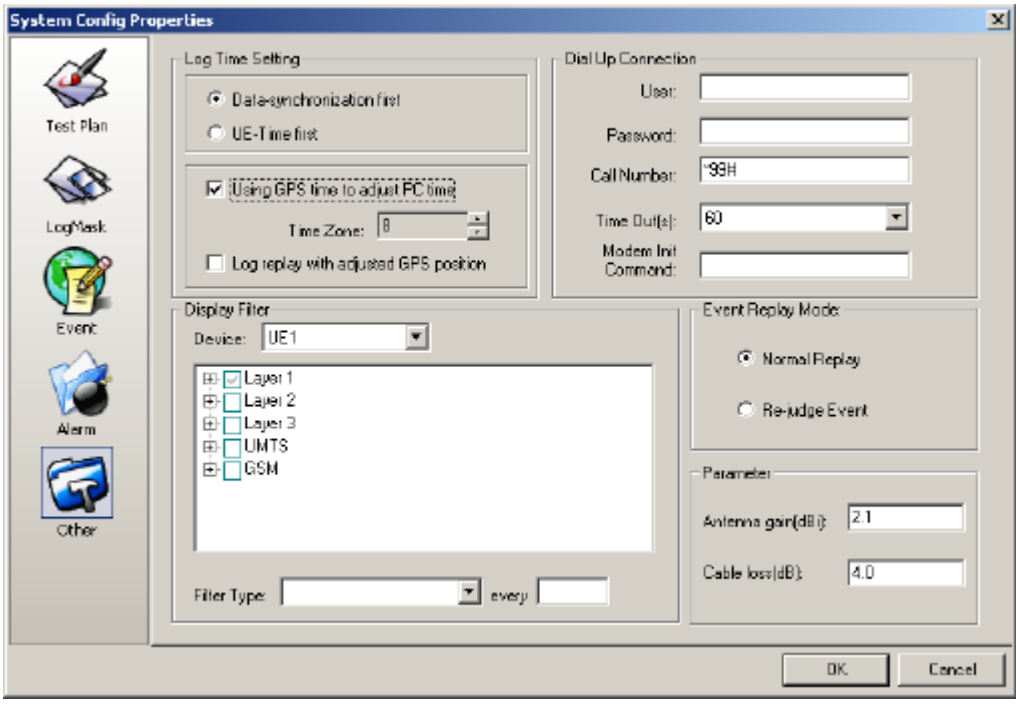


Figure 5-25 Other dialog box

5.4 View Window

The **View** window consists of

- Parameter Window
- WCDMA Parameter Chart
- GSM/GPRS Parameter Chart
- Message Parameter Chart
- Anritsu Scanner Parameter Chart
- DTI Scanner Parameter Chart
- Data Service Parameter Chart
- AMR Window
- Event List Window
- UE State Window
- Information Window
- Map Window
- Indoor Measurement Window
- Window Templates

5.4.1 Parameter Window

The Probe **Parameter** window displays all the information about the selected device. For details about operations in the Probe **Parameter** window, refer to part 6.3.2 "Adding a Pane to a Tab."

I. Chart

Caution:

If the chart view is changed to the list view, all the information and settings in the chart view are lost.

The **Chart** window shows the trends of data. Many kinds of charts are available, including:

- Active set chart
- Power chart
- HSDPA physical link chart
- HSDPA rate chart

Some routine operations in the chart are as follows:

- Click and drag the box to zoom in or restore the scale of the chart.
- Right-click and drag the chart to move the chart up, down, left, and right.
- Right-click the chart and choose a certain option to move the chart.

Table 5-9 lists the options on the shortcut menu of the chart.

Table 5-9 Options on the shortcut menu of the chart

Option	Description
Device	To display the parameters of the current chart. Those devices that are not supported by the current chart are in gray, indicating unavailability, as shown in Figure 5-26.
Legend	To select or clear some legend boxes, as shown in Figure 5-27.
Color	To set the color and font of each parameter, as shown in Figure 5-28 and Figure 5-29.
SetTitle	To set the title for a custom window.
Custom	To display the **ChartView Custom Properties** dialog box. You can change the properties of the chart display by adjusting the values in the dialog box, as shown in Figure 5-30.
List view	To convert the chart view into the list view.

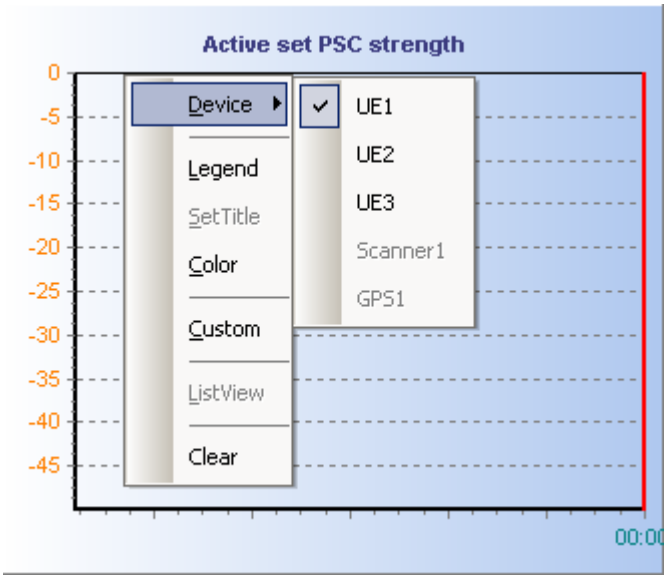


Figure 5-26 Device option

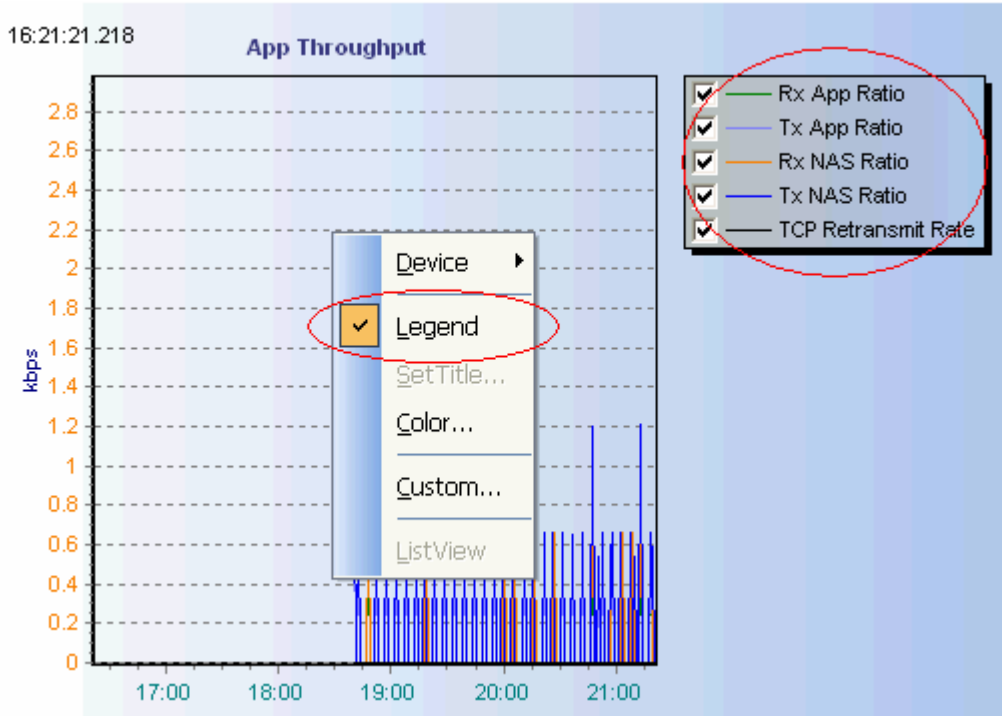


Figure 5-27 Legend option

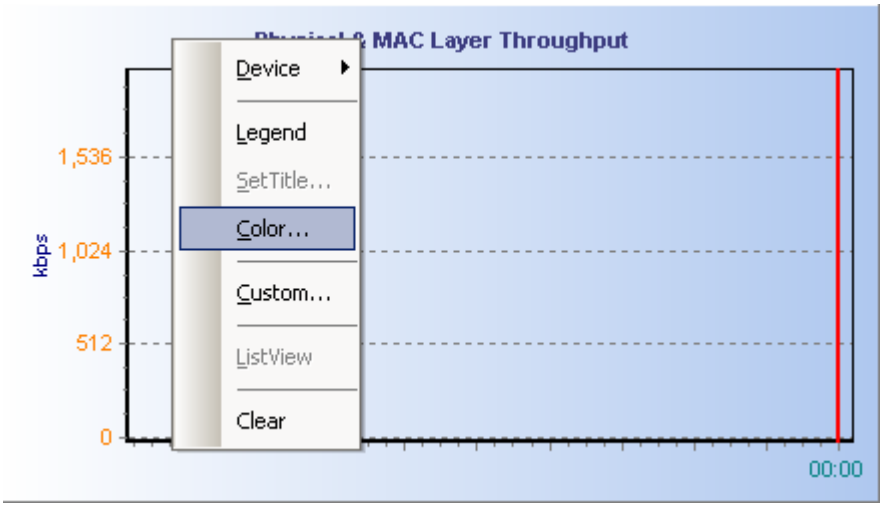


Figure 5-28 Color option

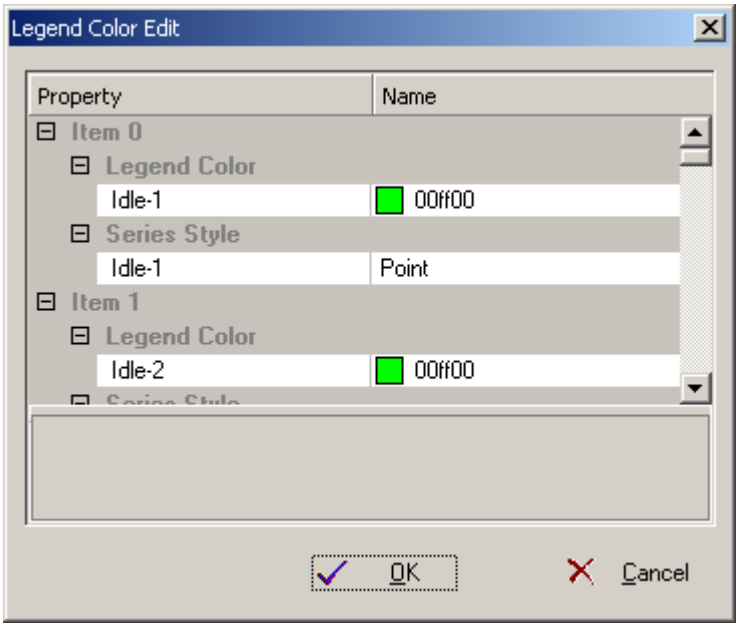


Figure 5-29 Legend Color Edit dialog box

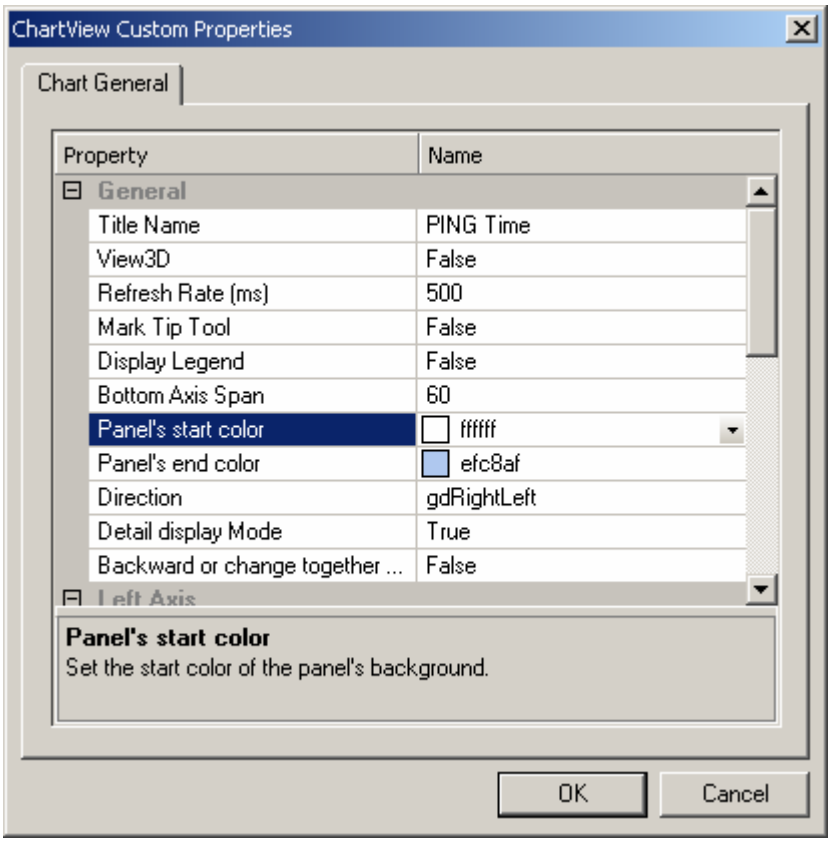


Figure 5-30 ChartView Custom Properties dialog box

II. List

The list window shows the real-time change of certain parameters in text. These parameters are as follows:

- Network parameter
- Cell parameter
- HSDPA physical channel parameter

🕮 **Note:**

The legend color depends on the color of the parameter displayed in the **Chart** window. That is, the Probe applies the parameter color to the legend in the window.

III. Chart and List

The list can display the accurate values of each indicator in numbers or characters directly, while the chart reflects the trend of the changes in the indicator vividly, as shown in Figure 5-31.

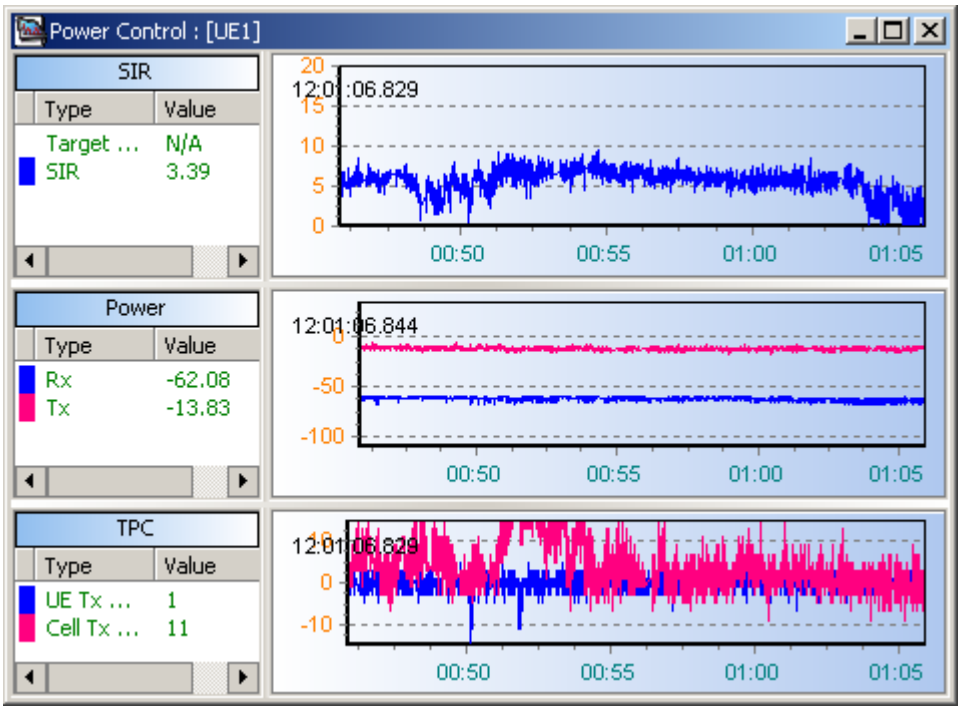


Figure 5-31 Chart and list

5.4.2 WCDMA Parameter Chart

I. Power Control

As shown in Figure 5-32, this **Power Control** window displays the following information:

- UE reception power
- UE transmission power
- Signal-to-Interference Ratio (SIR)
- Transmit Power Control (TPC)

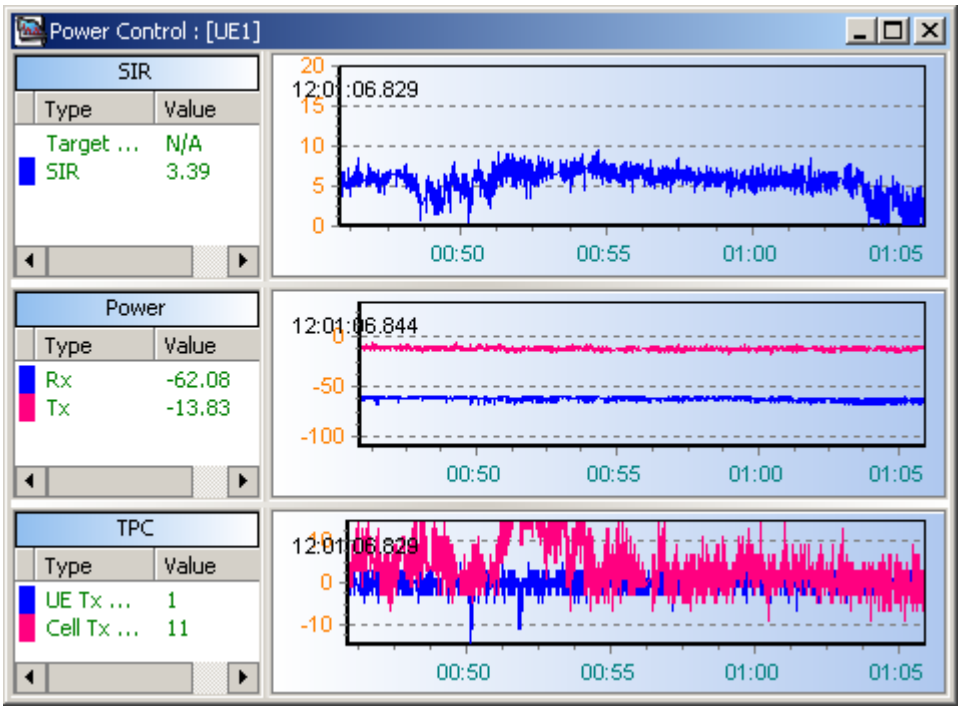


Figure 5-32 Power Control window

Note:

- The UE Tx TPC refers to the command of power control on the NodeB by the UE. The command consists of two bytes (one frame), with 15 effective bits corresponding to power control value of each time slot. 0 stands for lowering a step, while 1 represents enhancing a step. The Probe summarizes the values of the 15 bits and displays the final results as final power control value. (0 equals to –1 during the value addition).
- The Cell Tx TPC refers to the command of power control on the UE by the NodeB. The command consists of two bytes (one frame), with 15 effective bits. The calculation method in Cell Tx TPC is similar to that in UE Tx TPC.

II. WCDMA BLER

The **WCDMA BLER** window displays the downlink Block Error Rate (BLER) based on transport channels. To be specific, the **WCDMA BLER** window mainly displays:

- BLER in the connected state or during the call
- BLER on the Paging Channel (PCH) or Forward Access Channel (FACH) in the disconnected state

The BLER takes effect only during call setup or call connection, as shown in Figure 5-33.

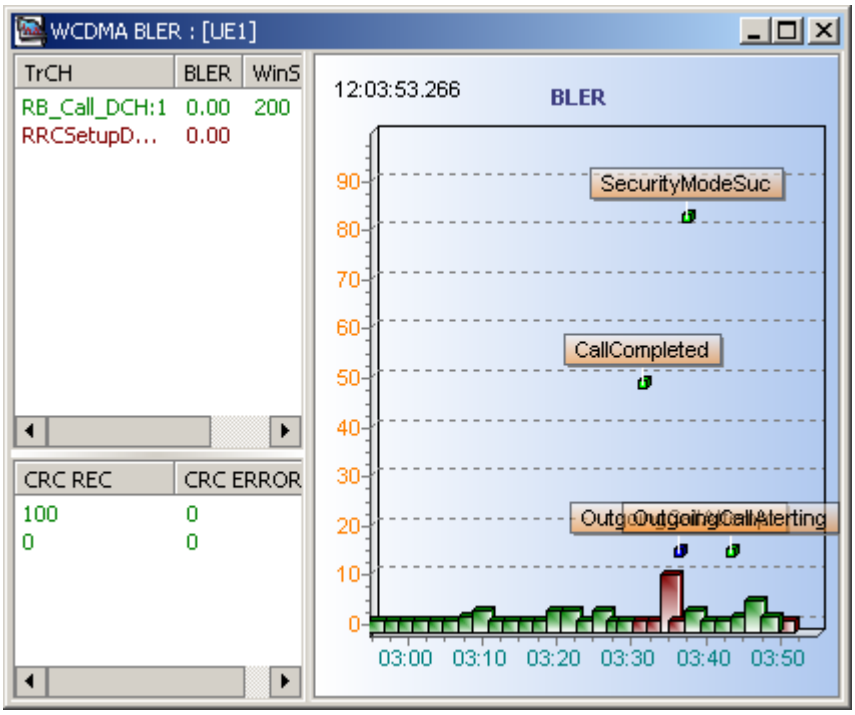


Figure 5-33 WCDMA BLER window

Note:

The **WCDMA BLER** window shows the downlink BLER of the A-DCH channel when the HSDPA is used to bear the service.

III. Cell Search

The **Cell Search** window displays the parameter information of each step during cell search, as shown in Figure 5-34. The information is visible only after the associated item in the LogMask is selected.

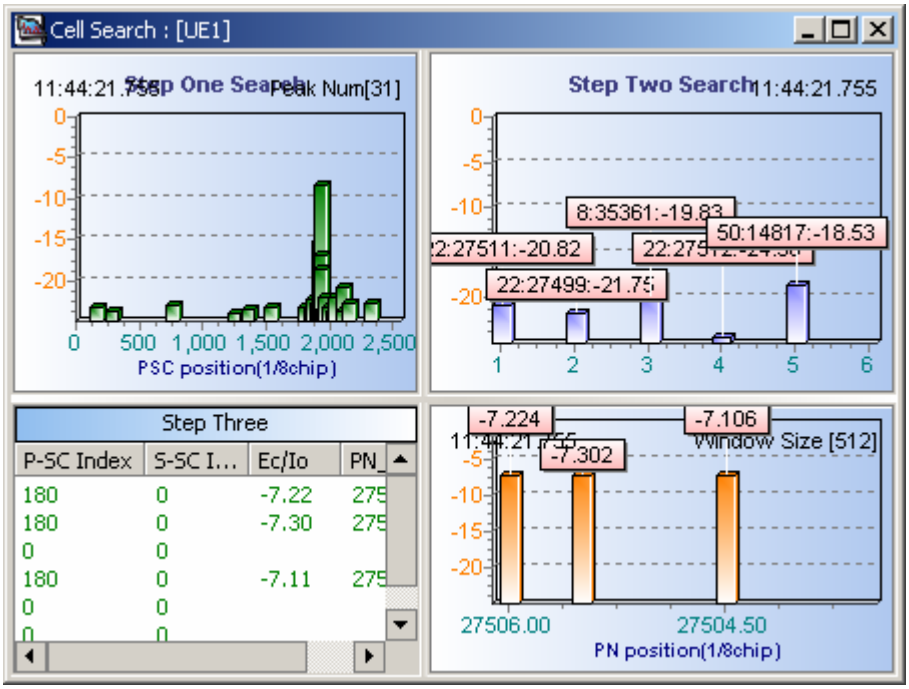


Figure 5-34 Cell Search window

IV. Serving/Active Set & Neighboring Cells

As shown in Figure 5-35, this **Serving/Active Set & Neighboring Cells** window displays the following information of the UE:

- Active set
- Monitor set
- Detected set

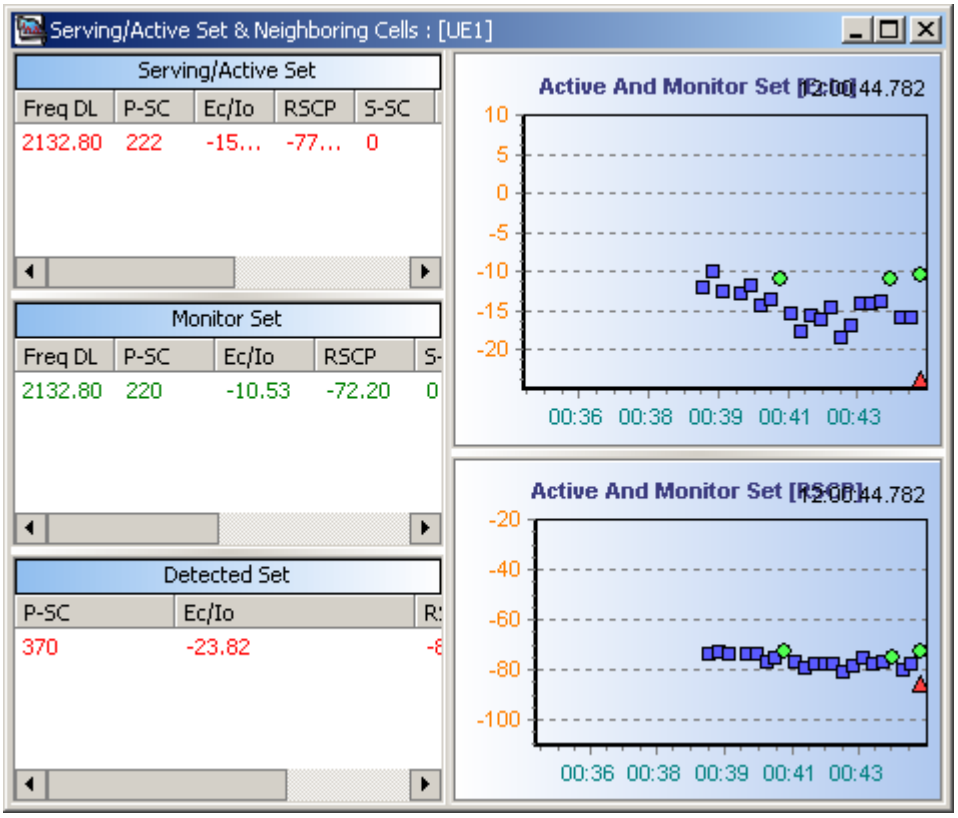


Figure 5-35 Serving/Active Set & Neighboring Cells window

Table 5-10 lists some operations in the **Serving/Active Set & Neighboring Cells** chart.

Table 5-10 Operations in the serving/active set & neighboring cells chart

To…	You can…
Check the Ec/Io trend	Refer to the upper right chart.
Check the real-time Ec/Io	Refer to the lower right chart.
Check what set the scrambling codes belong to	Right-click the chart and choose a legend on the shortcut menu.

Table 5-11 lists the implications of each legend on the shortcut menu.

Table 5-11 Legend implications

Legend	Implication
Rectangle	Active set data

Legend	Implication
Circus	Monitor set data
Triangle	Detected set data

The scrambling codes of the data of the same shape can be distinguished from each other by different colors.

To distinguish scrambling codes by color, perform the following steps:

1) Right-click in the **Serving/Active Set & Neighboring Cells** window.
2) Choose **Custom** on the shortcut menu.
3) Set **Mark Tip Tool** to **True**.
4) Click **OK**.
5) Move the mouse to a place to get the scrambling information of the current point.

Note:

When the UE is in idle state, the first information must be about the cell where the UE resides.

V. Finger

The **Finger** window indicates the finger information of the UE, as shown in Figure 5-36.

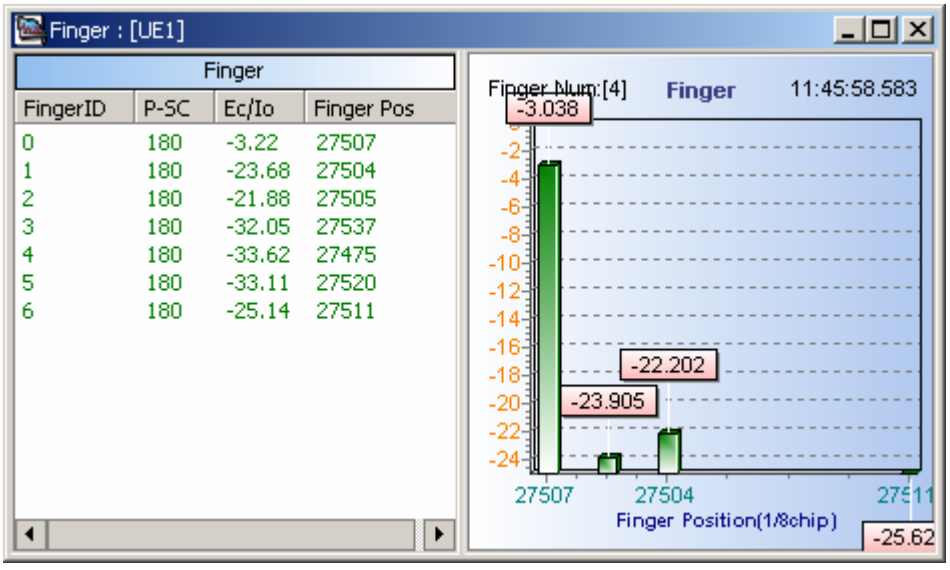


Figure 5-36 Finger window

VI. RACH and PRACH

The **RACH And PRACH** window displays the random access parameters of the UE only when the LogMask is customized, as shown in Figure 5-37.

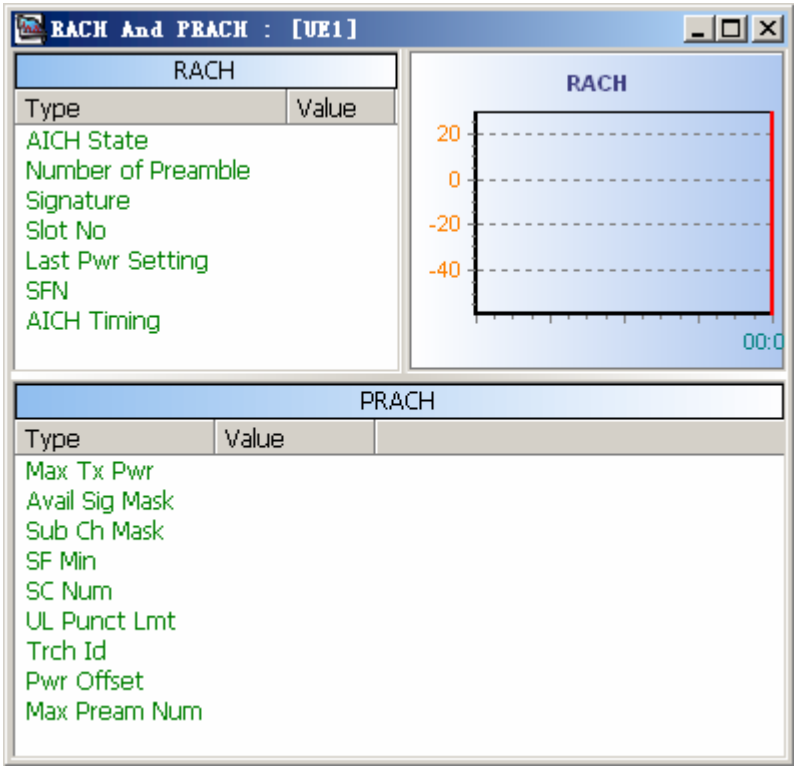


Figure 5-37 RACH And PRACH window

VII. DRX Mode

The **DRX Mode** window displays the discontinuous reception parameters of the UE, as shown in Figure 5-38.

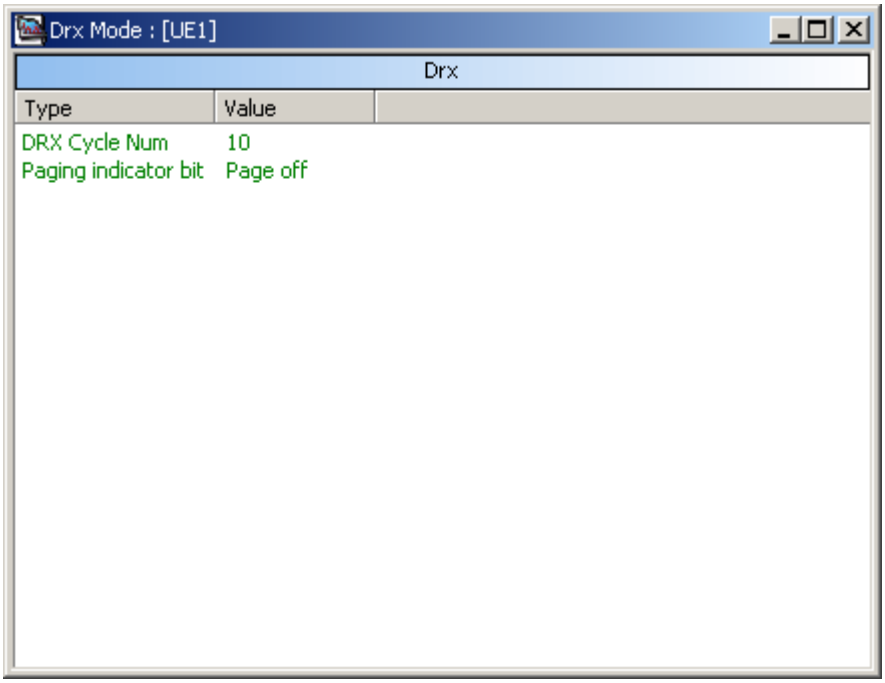


Figure 5-38 DrxMode window

VIII. Transport Channel

The **Transport Channel** window displays the parameters on the transport channel in the uplink and downlink, as shown in Figure 5-39.

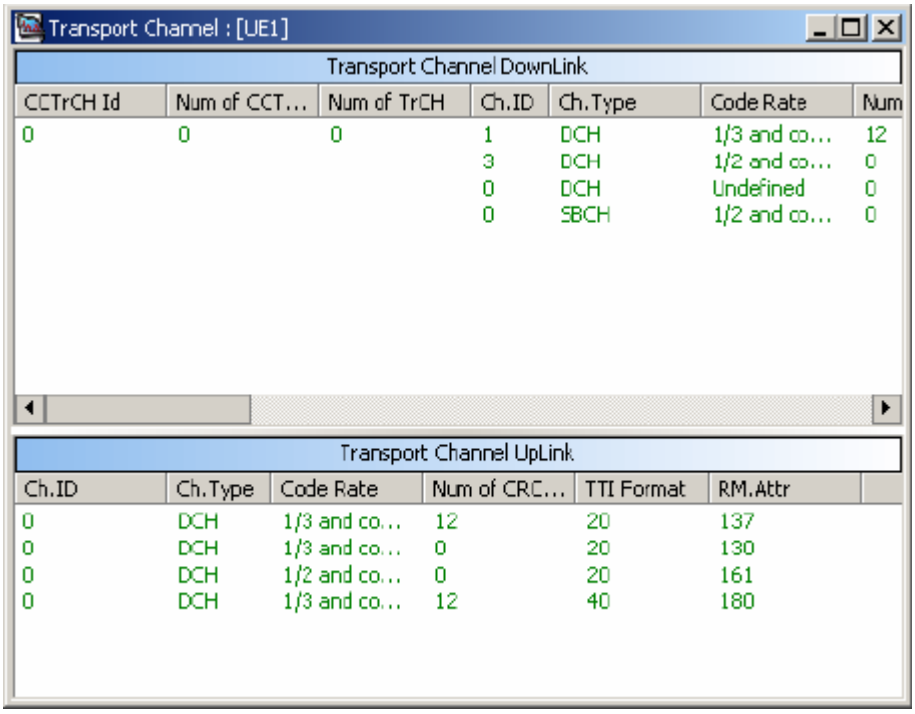


Figure 5-39 Transport Channel window

IX. Physical Channel

The **Physical Channel** window displays the parameters on the physical channel. As shown in Figure 5-40, the physical channel falls into the following types:

- Physical Channel Uplink
- Common Physical Channel Downlink
- Dedicate Physical Channel Downlink

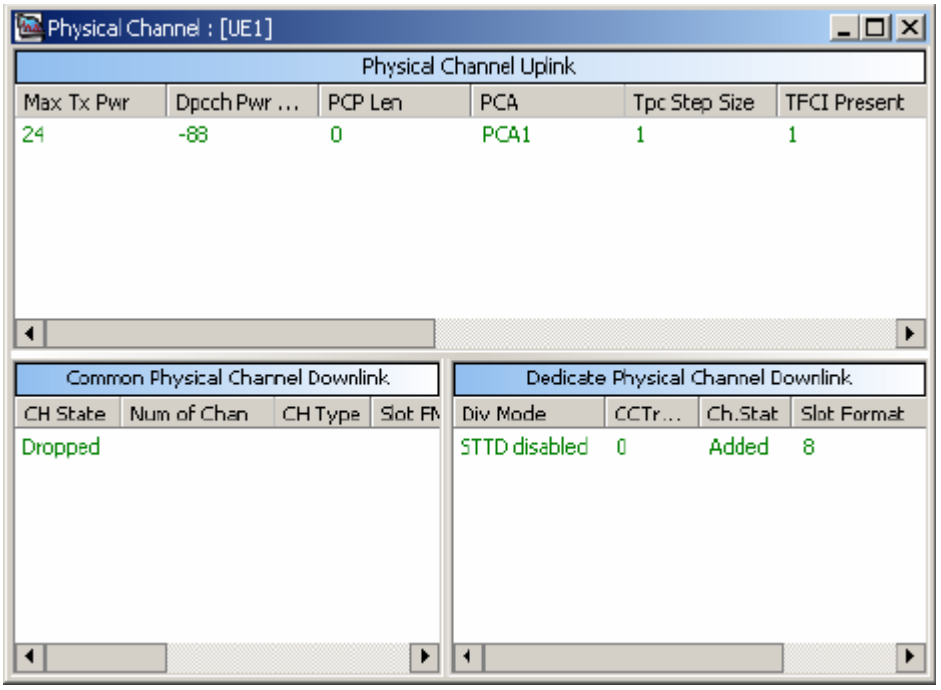


Figure 5-40 Physical Channel dialog box

X. RM UL

The **RM UL** window displays the parameter information about rate matching uplink. As shown in Figure 5-41, the information consists of two parts:

- Transport Format Combination Indicator (TFCI)
- Transport channel

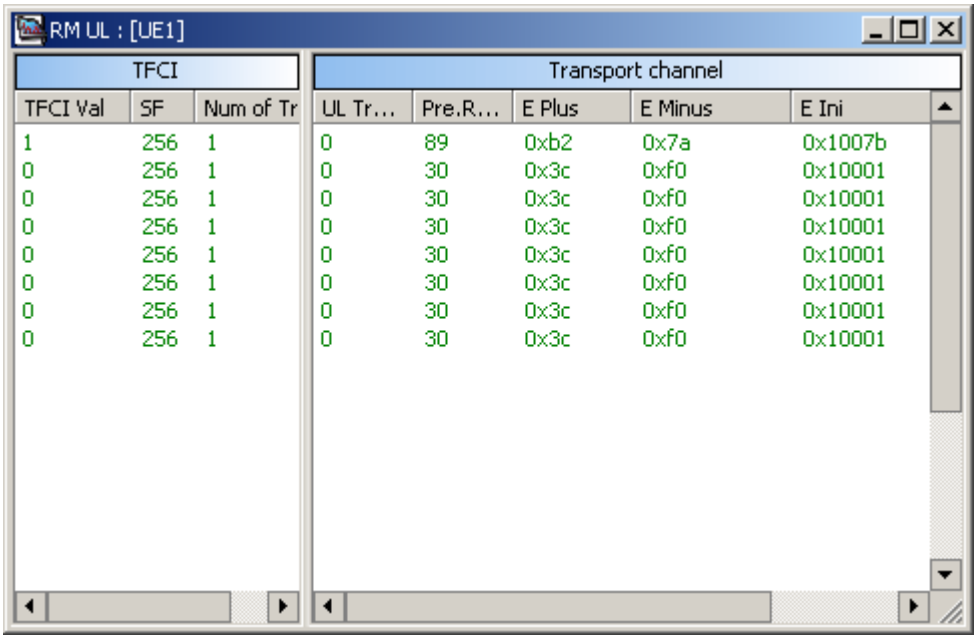


Figure 5-41 RM UL window

XI. Inter-RAT GSM Cell Information

The **Inter-RAT GSM Cell Information** window displays the GSM cell information tested in the WCDMA mode, as shown in Figure 5-42.

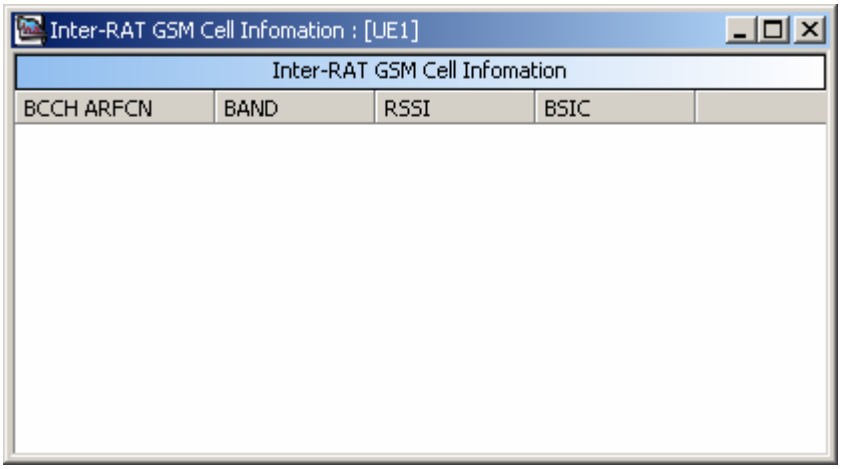


Figure 5-42 Inter-RAT GSM Cell Information window

XII. WCDMA HSDPA Physical Channel

The **WCDMA HSDPA Physical channel** window displays the configuration parameters on the HSDPA channel, as shown in Figure 5-43.

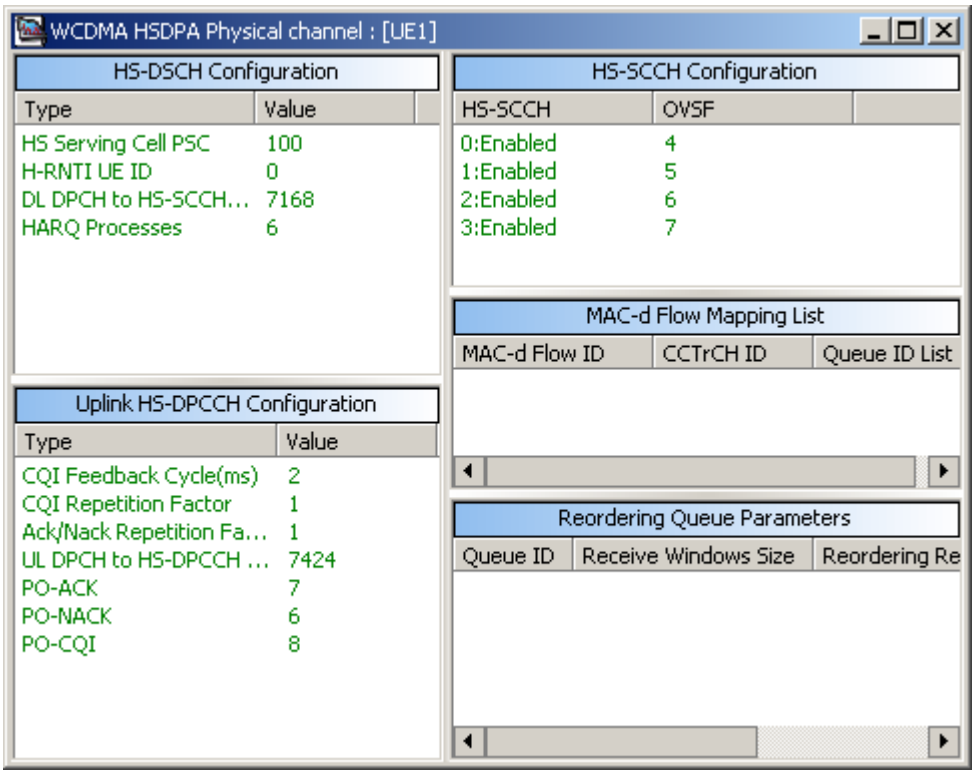


Figure 5-43 WCDMA HSDPA Physical channel window

Table 5-12 describes the parameters in the **WCDMA HSDPA Physical channel** window.

Table 5-12 Parameters in the WCDMA HSDPA Physical channel window

Parameter	Description
HS Serving Cell PSC	Primary cell code of the HSDPA serving cell
H-RNTI UE ID	ID number of the H-RNTI UE
DL DPCH to HS-SCCH Timing Offset	Time offset between the DL DPCH and the HS-SCCH
HARQ Processes	HARQ process
HS-SCCH	Number of the HS-SCCH and its effectiveness
OVSF	Orthogonal variable spreading factor
CQI Feedback Cycle	Feedback cycle of the CQI
CQI Repetition Factor	Repetition factor of the CQI

Parameter	Description
Ack/Nack Repeatition Factor	Repeatition factor of the Ack/Nack
UL DPCH to HS-DPCCH Timing Offset	Timing offset between the L DPCH and the S-DPCCH
PO-ACK	Power offset between the CK and the S-DPCCH
PO-NACK	Power offset between the ACK and the S-DPCCH
PO-CQI	Power offset between the CQI and the S-DPCCH
MAC-d Flow ID	ID of the flow
CCTrCHID	ID of the code combination transmit channel
Queue ID List	List of queue ID
Queue ID	ID of the queues
Receive Window Size	The range of the SN in the Mac-hs PDU received from the Mac-hs entity can be represented by a slider. Having received the Mac-hs PDU, the slider moves forword. The Receive Window Size refers to the available part of the slider. ***Note:*** *TSN: Transmission Sequence Number*
Reordering Release Timer	The reordering release timer is enabled when the discontinuous Mac-hs PDU is received by the Mac-hs entity. If all the Mac-hs PDU cannot be received completely before the timeout, the Probe submits the Mac-hs PDU to the upper layer for data retransmission.
MAC-d PDU Sizes	Sizes of the MAC-d PDU

XIII. WCDMA HSDPA Link Statistics

The **WCDMA HSDPA Link Statistics** window displays the following information, as shown in Figure 5-44.

- HSDPA throughput
- HSDPA BLER
- HSDPA channel utilization
- HSDPA channel quality
- HSDPA code occupancy

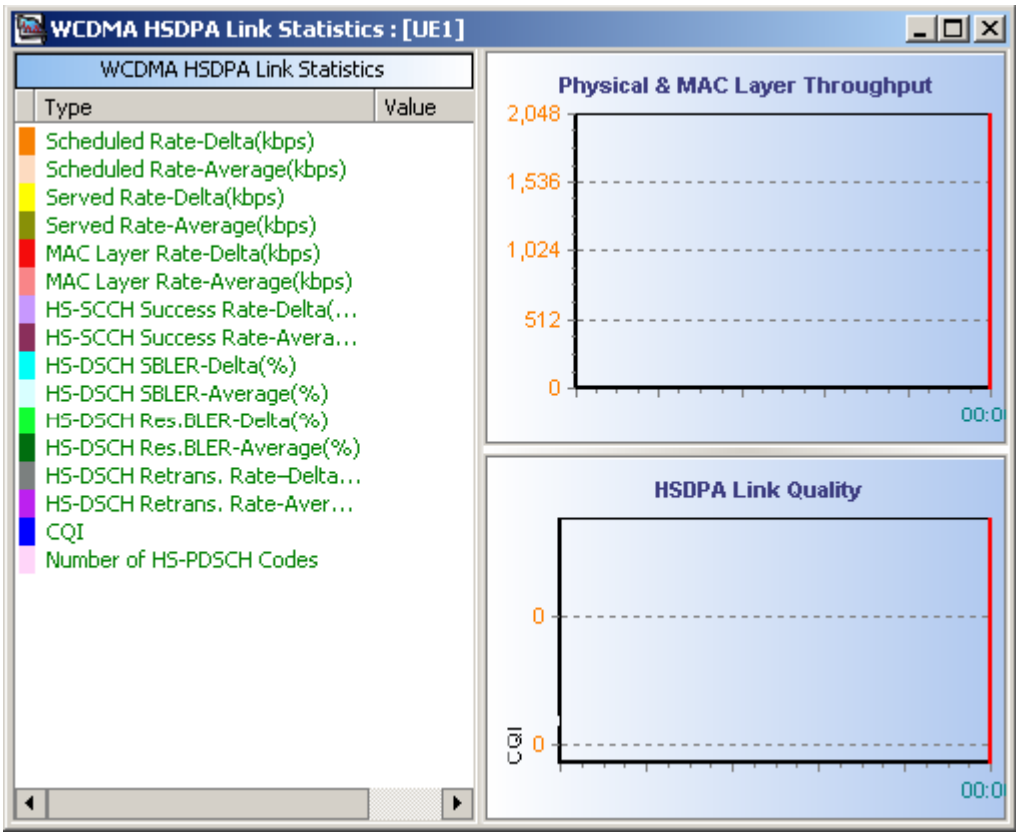


Figure 5-44 WCDMA HSDPA Link Statistics window

Table 5-13 describes the parameters in the **HSDPA Link Statistics** window.

Table 5-13 Parameters in the HSDPA Link Statistics window

Parameter	Description
Scheduled Rate – Delta	Instantaneous rate that the MAC layer schedules
Scheduled Rate – Average	Average rate that the MAC layer schedules

Parameter	Description
Served Rate – Delta	Instantaneous rate at which the MAC layer transmits The transmission here contains: • Transmission failure • Re-transmission
Served Rate – Average	Average rate at which the MAC layer transmits The transmission here contains: • Transmission failure • Re-transmission
MAC Layer Rate – Delta	Instantaneous rate at which the MAC layer transmits The transmission here excludes: • Transmission failure • Re-transmission
MAC Layer Rate – Average	Average rate at which the MAC layer transmits The transmission here excludes: • Transmission failure • Re-transmission
HS-SCCH Success Rate – Delta	Schedule success rate of the HS-SCCH channel
HS-SCCH Success Rate – Average	Average schedule success rate of the HS-SCCH channel
HS-DSCH SBLER – Delta	Instantaneous BLER of the MAC layer SBLER = Number of NACK/(Number of ACK + Number of NACK) (in the period of 200 ms)
HS-DSCH SBLER – Average	Average BLER of the MAC layer SBLER = Number of NACK/(Number of ACK + Number of NACK)

Parameter	Description
HS-DSCH Res. BLER – Delta	Instantaneous BLER of the RLC layer ***Note:*** *In the event that the MAC layer cannot perform transmission successfully after several retransmissions, the RLC originates the re-transmission.*
HS-DSCH Res. BLER - Average	Average BLER of the RLC layer ***Note:*** *In the event that the MAC layer cannot perform transmission successfully after several retransmissions, the RLC originates the re-transmission.*
HS-DSCH Retrans.Rate - Delta	Instantaneous retransmission rate of the HS-DSCH channel HS-DSCH Retrans.Rate - Delta = Number of retransmission frames in the period of 200 ms/Number of new transmission frames
HS-DSCH Retrans.Rate - Average	Average retransmission rate of the HS-DSCH channel HS-DSCH Retrans.Rate - Average = Number of retransmission frames/Number of new transmission frames
CQI	Average CQI in the period of 200 ms
Number of HS-PDSCH Codes	Average HS-PDSCH code count in the period of 200 ms

The **WCDMA HSDPA Link Statistics** and the **WCDMA HSDPA Decoding Statistics** windows support the function of data clearance. To do this, perform the following steps:

1) Right-click in the **HSDPA Link Statistics** or the **HSDPA Decoding Statistics** window.
2) Choose **Clear** on the shortcut menu.

The data in the two windows are cleared at the same time. That is, if you clear the data in one window, the data in the other window is also cleared.

Note:

Delta in the parameters mentioned previously stands for the average value in the period of 200 ms, while the Average represents the average value of all the data. If the data in the window is cleared, the Average stands for the average value after the clearance.

XIV. WCDMA HSDPA Decoding Statistics

The **WCDMA HSDPA Decoding Statistics** window displays the associated indicators about the decoding on the HS-SCCH channel and the HS-DSCH channel, as shown in Figure 5-45.

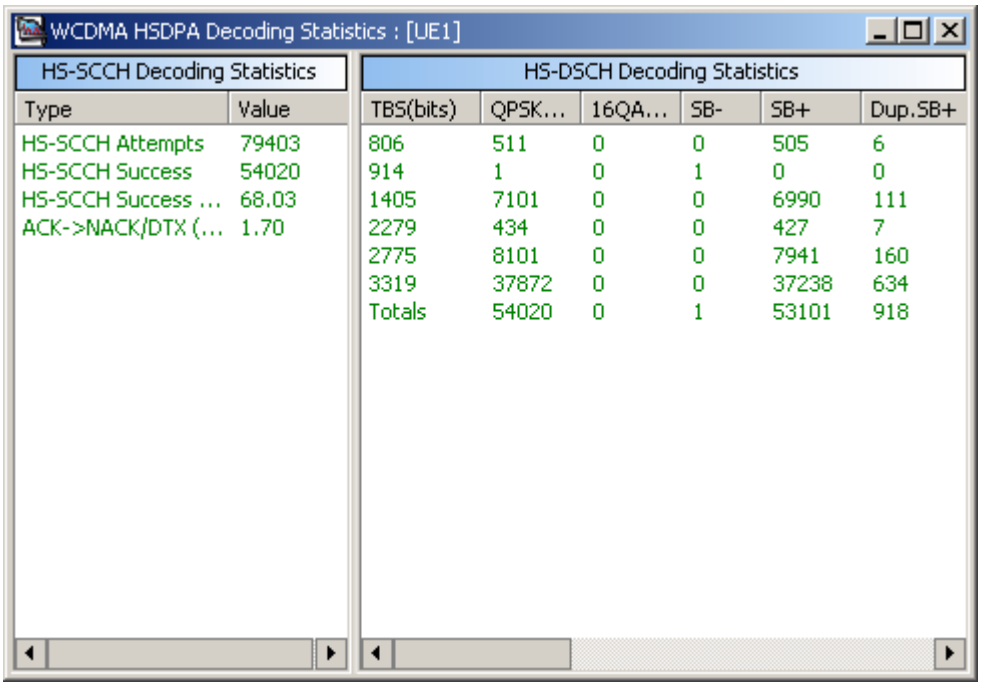


Figure 5-45 WCDMA HSDPA Decoding Statistics window

Table 5-14 describes the parameters in the WCDMA HSDPA decoding statistics.

Table 5-14 Parameters in the WCDMA HSDPA decoding statistics

Parameter	Description
HS-SCCH Attempts	Total number of frames

Parameter	Description
HS-SCCH Successes	Number of HS-SCCH frames scheduled to the local UE
HS-SCCH Success Rate	HS-SCCH channel utilization
ACK-NACK/DTX (Duplicate)	Ratio of retransmission of the correct frame
TBS	Transport block size Each frame transmits one TB.
QPSK	Number of frames with Quadrature Phase Shift Keying (QPSK) modulation
16QAM	Number of frames with 16 Quadrature Amplitude Modulation (QAM)
SB -	Number of frames transmitted unsuccessfully on the MAC layer
SB +	Number of frames transmitted successfully on the MAC layer
Dup. SB +	Number of the retransmission of the same frames
Other	Number of frames unconventional For example, the frame whose TBS is different in different periods is considered unconventional.
SBLER	BLER on the MAC layer Calculated by: Transmission failures/Total transmission
1st BLER	BLER in the retransmission of the first frame on the MAC layer
Block -	Frames transmitted unsuccessfully on the RLC layer The RLC originates the re-transmission after several failures in the MAC layer. In such a situation, the frame number should be added with 1.
Block +	Frames transmitted successfully on the RLC layer Block + equals to SB +.

Parameter	Description
Res. BLER	BLER on the RLC layer. Calculated by: (Block -)/ [(Block -) + (Block +)] x 100%
1	Number of frames transmitted successfully in the first transmission
2	Number of frames transmitted successfully in the second transmission when the first transmission fails
3	Number of frames transmitted successfully in the third transmission when the first and the second transmission fail
4	Number of frames transmitted successfully in the fourth transmission when the first three transmissions fail
5	Number of frames transmitted successfully in the fifth transmission when the fisrt four transmissions fail ***Note:*** *The first to the fourth transmissions experience the failure. The fifth retransmission is originated by the RLC layer because of the HARQ set in the Huawei device.*
>=6	Number of frames transmitted successfully after the fifth transmission ***Note:*** *After the first retransmission, the frame goes through at least four retransmissions before being successfully transmitted.*

XV. Active Set PSC Strength

The **Active set PSC strength** window displays the information about the UE link. The UE link contains:

- Service link
- Signaling link

The **Active set PSC strength** window shows the following information, as shown in Figure 5-46.

- How many radio links are available to the UE, namely, how many cells are available in the active set.
- Which cell supports the HSDPA service.
- Which cell provides signaling link.

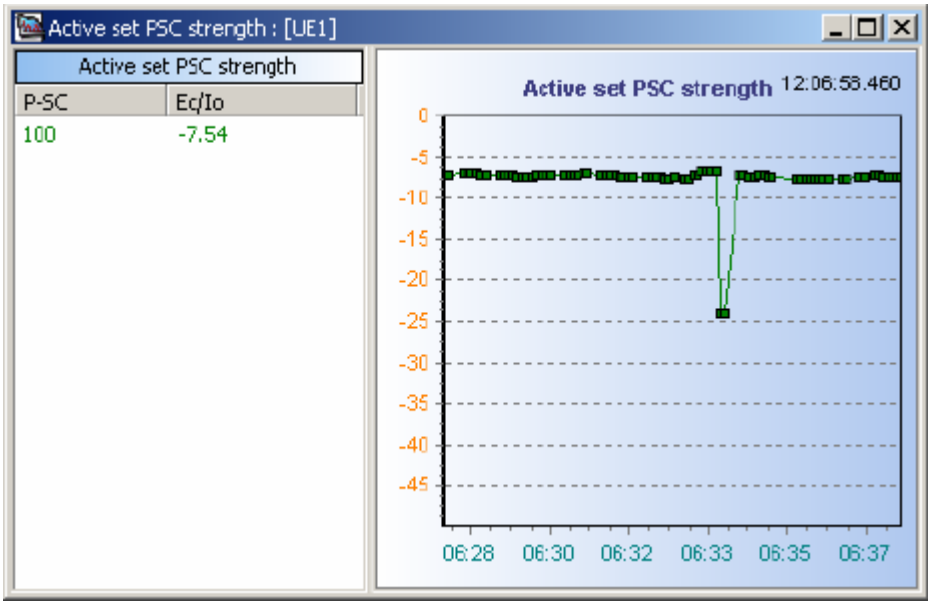


Figure 5-46 Active set PSC strength window

5.4.3 GSM/GPRS Parameter Chart

I. Cell Parameter, Channel Parameter, Hopping Parameter

The **Cell Param, Channel Param, Hopping Param** window displays the information about cell parameters, channel parameters, and hopping parameters, as shown in Figure 5-47.

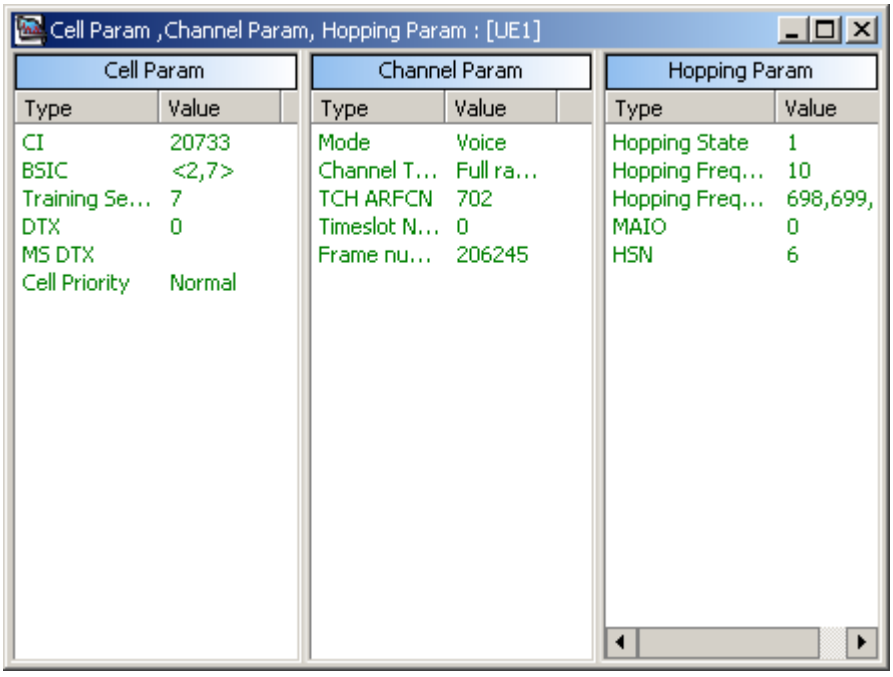


Figure 5-47 Cell Param, Channel Param, Hopping Param window

II. GSM Serving and Neighboring Cells

The **GSM Serving and Neighboring Cells** window displays the serving cells and neighboring cells of the UE, as shown in Figure 5-48.

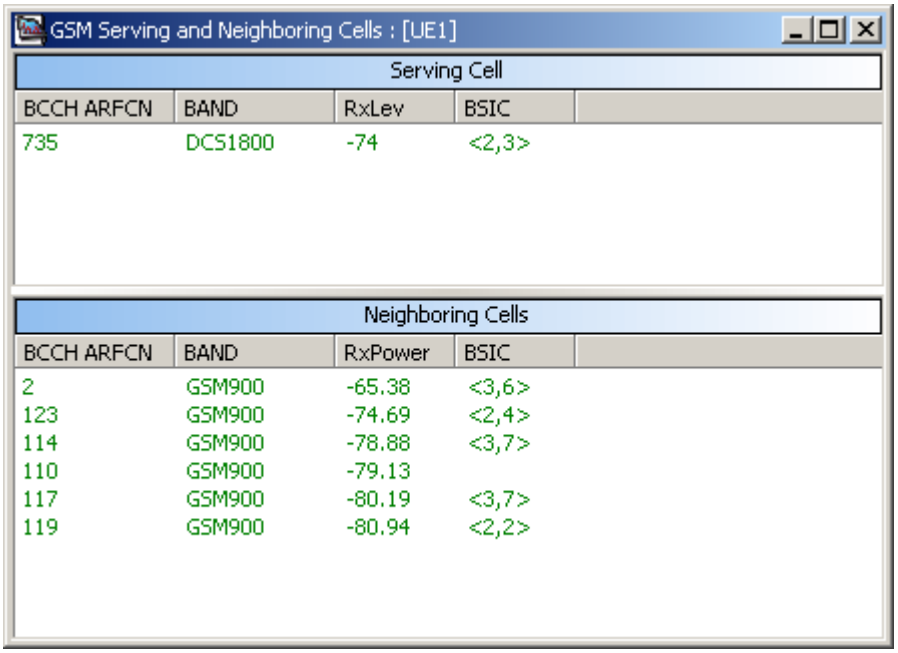


Figure 5-48 GSM Serving and Neighboring Cells window

III. GSM CCCH Parameter, RACH Parameter, and Reselect Parameter

As its name indicates, the **GSM CCCH Param And RACH Param And Reselect Param** window displays the following information, as shown in Figure 5-49.

- GSM Common Control Channel (CCCH) parameter
- Random Access Channel (RACH) parameter
- Reselect parameter

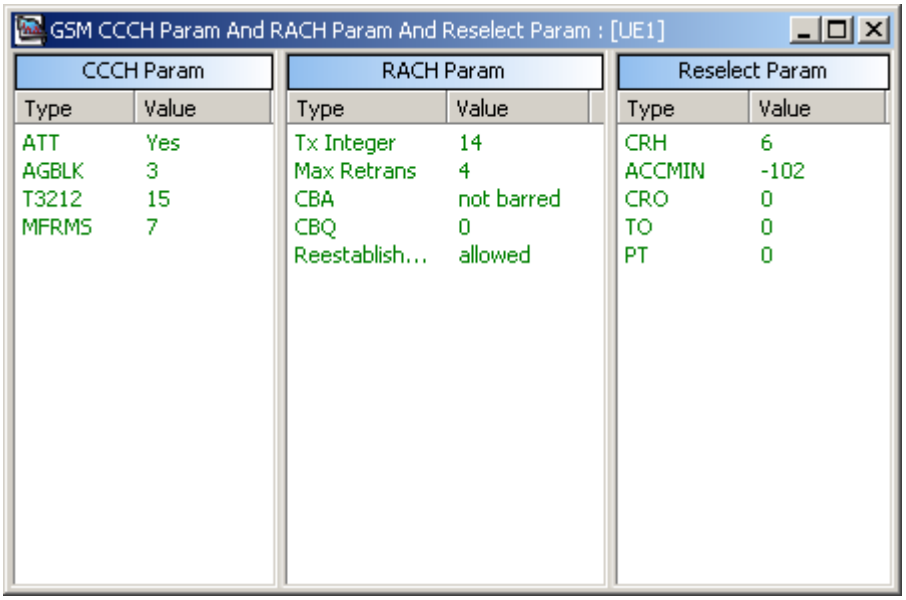


Figure 5-49 GSM CCCH Param And RACH Param And Reselect Param window

IV. Radio Parameter

The **Radio Parameter** window displays the received signal level and transmitted power level of each cell, as shown in Figure 5-50.

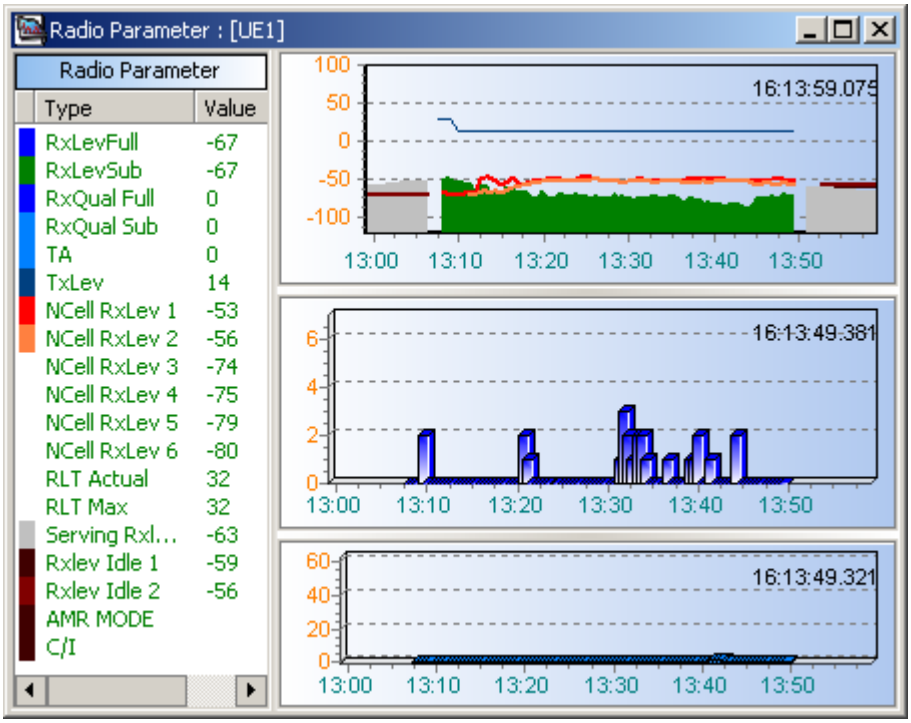


Figure 5-50 Radio Parameter window

V. BA List

The **BA List** window displays the basic access (BA) cell list and all the detected neighbor cells, as shown in Figure 5-51.

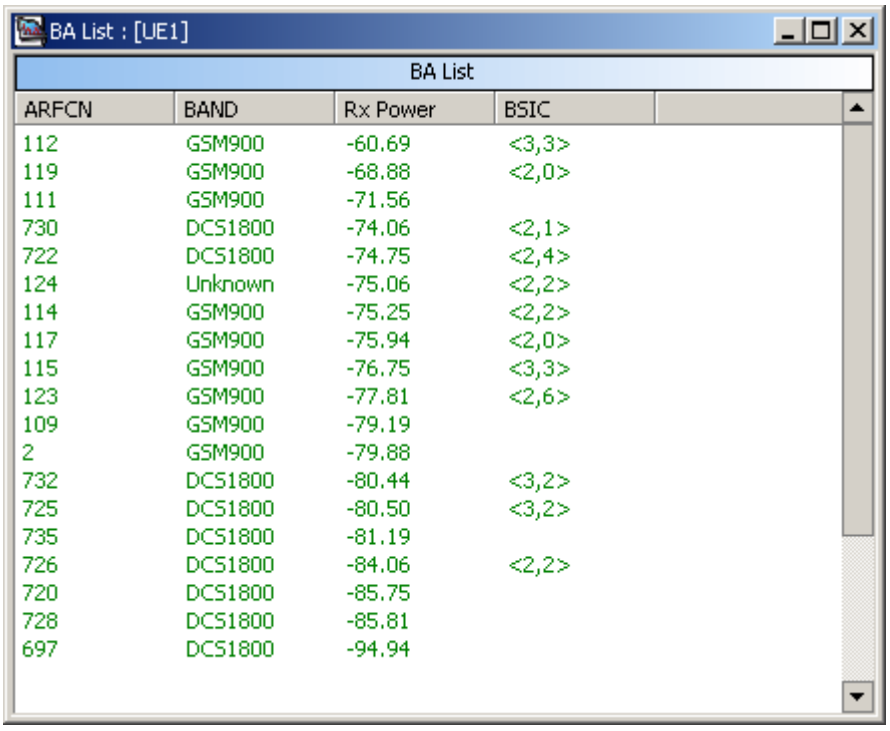


Figure 5-51 BA List window

VI. 3G Neighbour Cell Measurement

The **3G Neighbor Cell Measurement** window displays the 3G neighbor cell parameters measured in the 2G network, as shown in Figure 5-52.

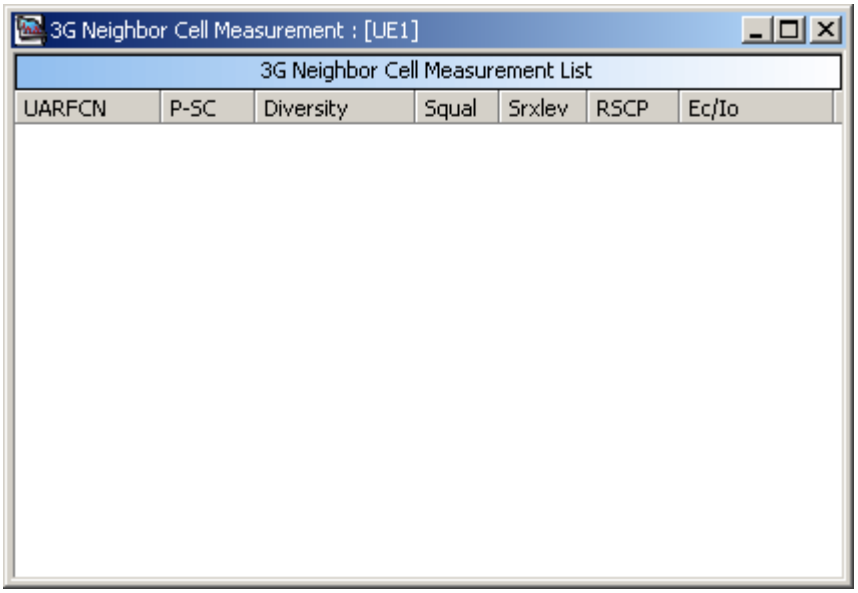


Figure 5-52 3G Neighbor Cell Measurement window

VII. GSM Cell Selection and Reselection Param

The **GSM Cell Selection And Reselection Param** window displays the parameters about the cell selection and reselection, as shown in Figure 5-53.

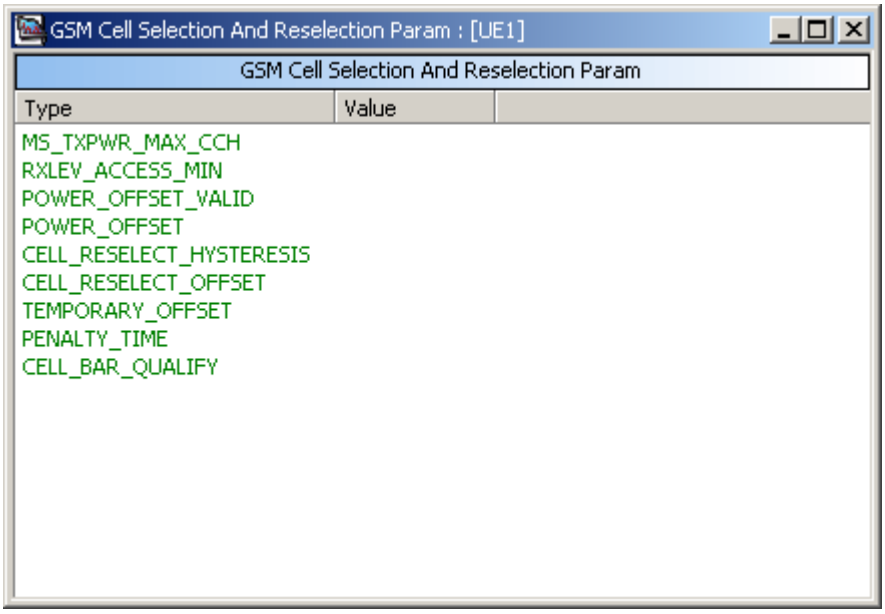


Figure 5-53 GSM Cell Selection And Reselection Param window

5.4.4 Message Parameter Chart

I. MAC/RLC Messages

The **MAC/RLC Messages** window displays the messages about the Media Access Control (MAC) and Radio Link Control (RLC). That is, the **MAC/RLC Messages** window shows the signaling and parsing on the layer2, as shown in Figure 5-54. The messages are visible only when the associated items in LogMask are selected.

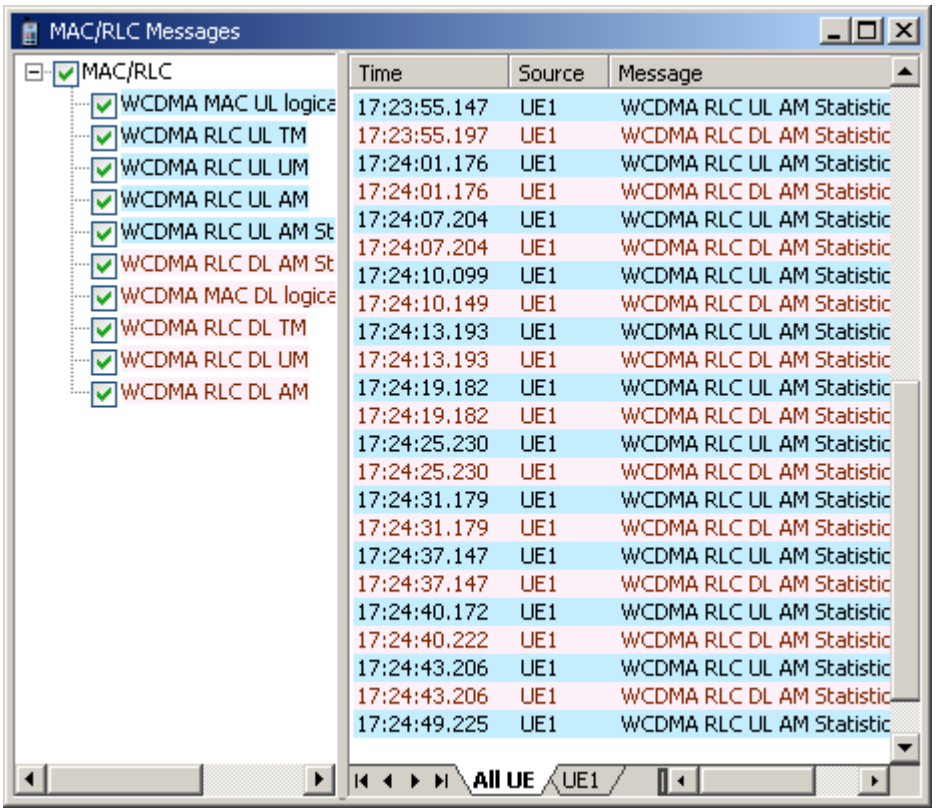


Figure 5-54 MAC/RLC Messages window

To operate the **MAC/RLC Messages** window, perform the following steps:

1) Right-click in the **MAC/RLC Messages** window.
   The shortcut menu is displayed, as shown in Figure 5-55.

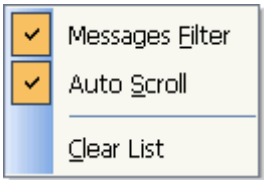


Figure 5-55 Shortcut menu of the MAC/RLC Messages window

2) Choose **Messages Filter**.
   The messages filter is displayed on the left of the window.
3) Choose **Auto Scroll** to conduct scrolling automatically.

🕮 **Note:**

This shortcut menu is applicable to all the messages windows.

II. RRC Messages

The **RRC Messages** window displays the essential layer 3 messages.

Where,

- All the UEs or single UE are displayed on the window.
- The messages selected on the left navigation tree are displayed, as shown in Figure 5-56.
- The detailed information is displayed by double-clicking the message, as shown in Figure 5-57.

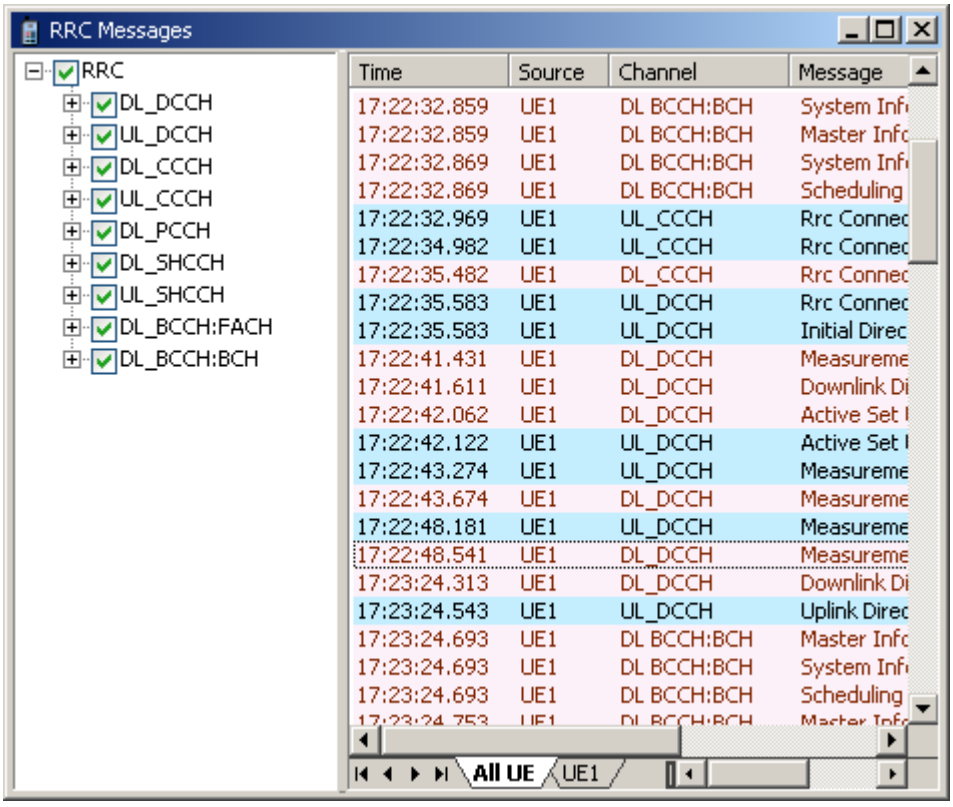


Figure 5-56 RRC Messages window

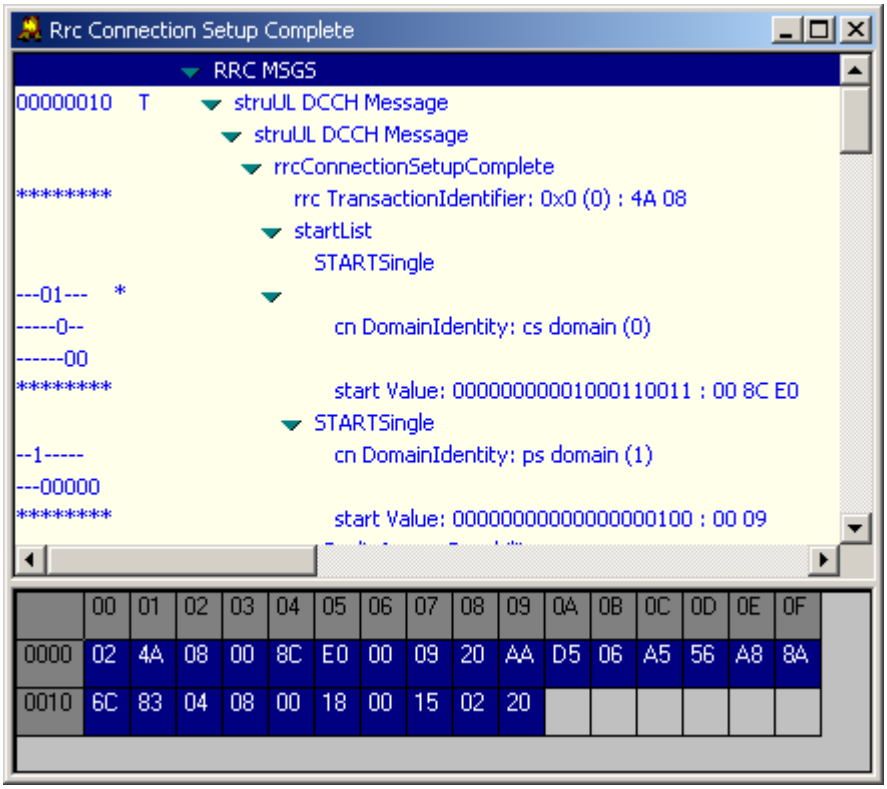


Figure 5-57 Rrc Connection Setup Complete window

III. GSM RR Messages

The **GSM RR Messages** window displays GSM radio resource messages, as shown in Figure 5-58 and Figure 5-59. The operation of this window is the same as that of the **RRC Messages** window.

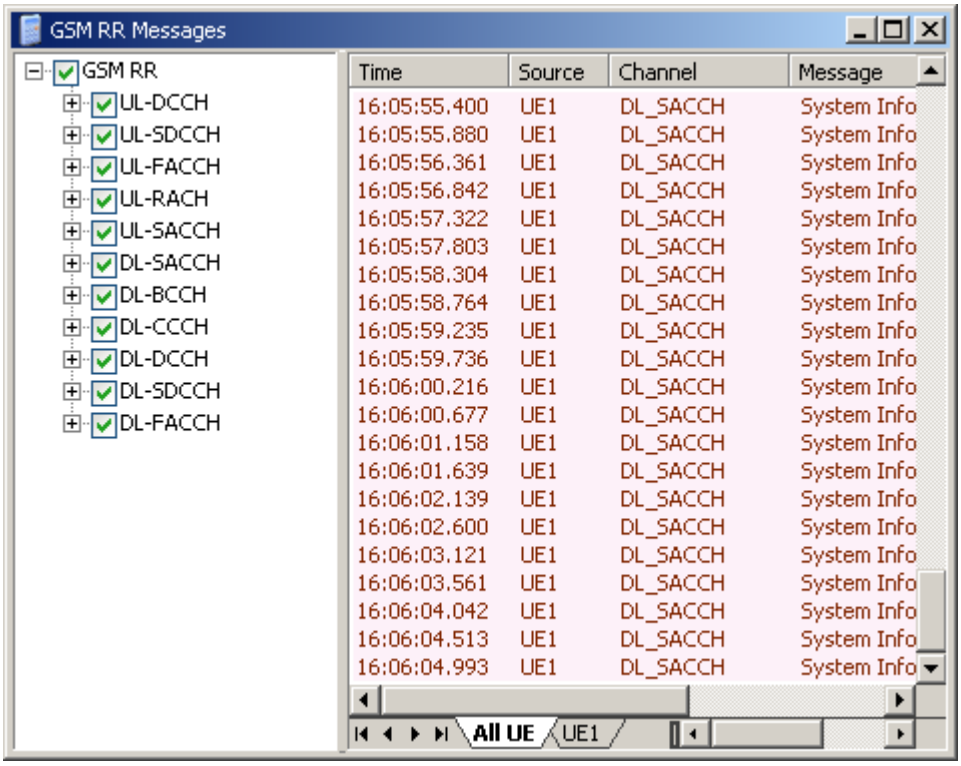


Figure 5-58 GSM RR Messages window

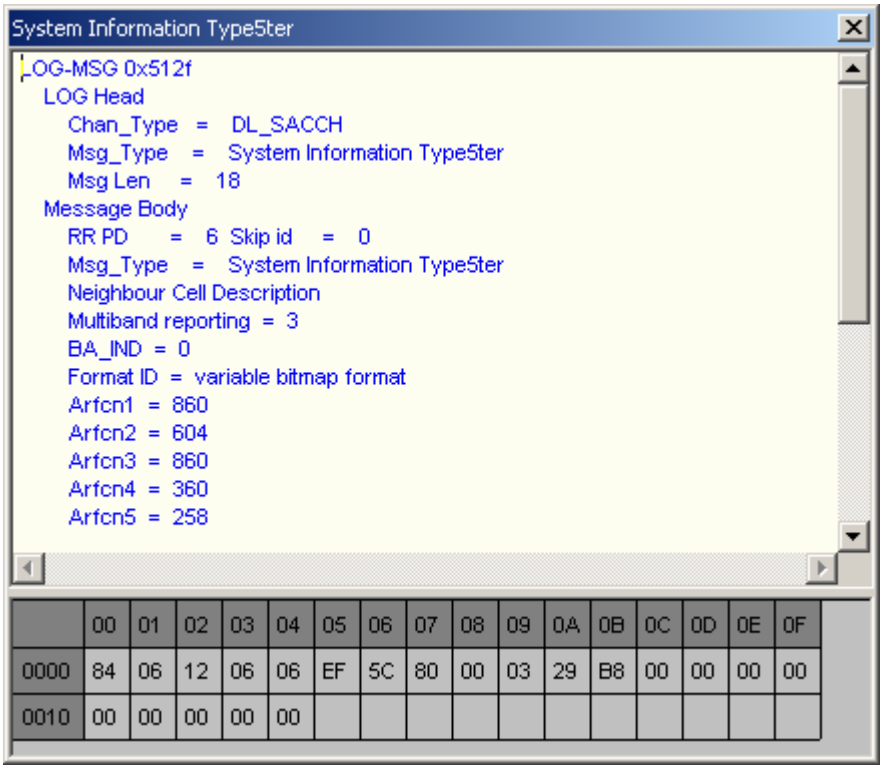


Figure 5-59 System Information Type5ter window

IV. NAS Messages

The **NAS Messages** window displays the NAS messages, as shown in Figure 5-60 and Figure 5-61. The operation is the same as that of the **RRC Messages** window.

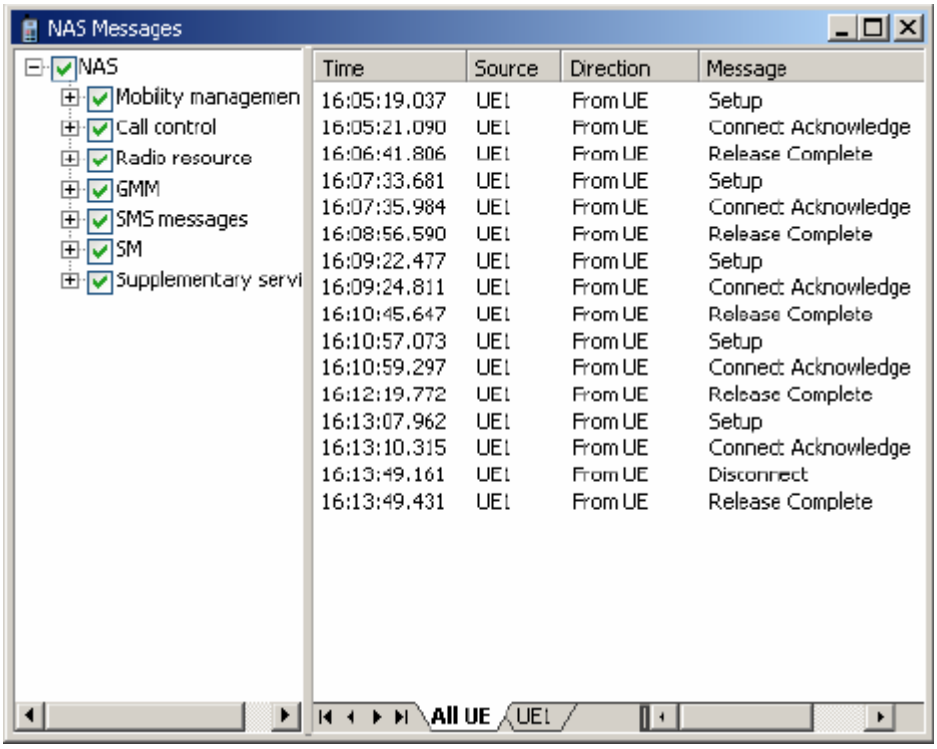


Figure 5-60 NAS Messages window

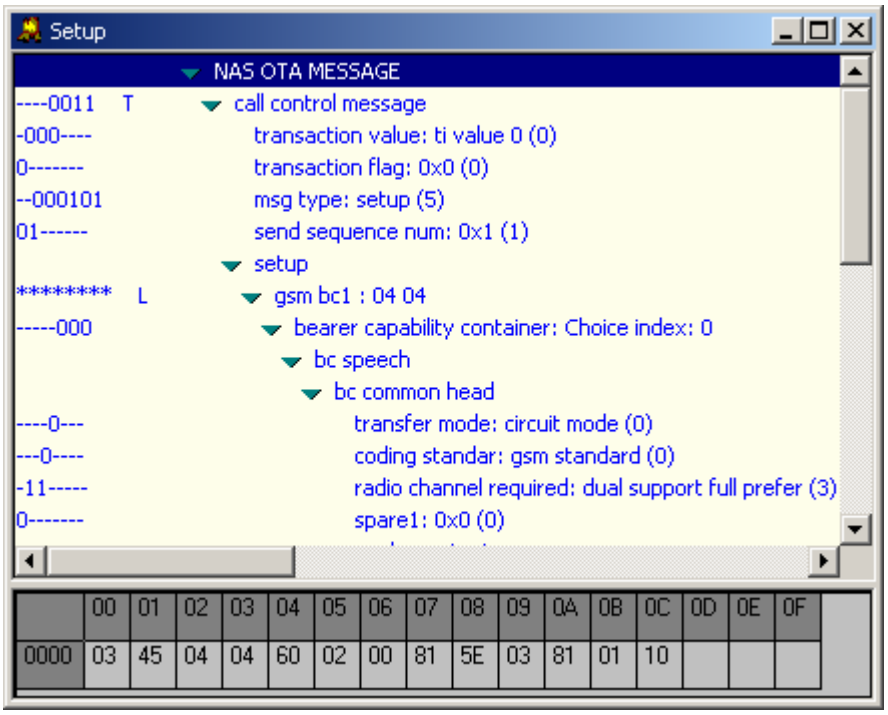


Figure 5-61 NAS OTA MESSAGE window

5.4.5 Anritsu Scanner Parameter Chart

I. Scanner Channel Info

The **Scanner Channel Info** window displays the scrambling code information and relevant parameters of each cell, as shown in Figure 5-62.

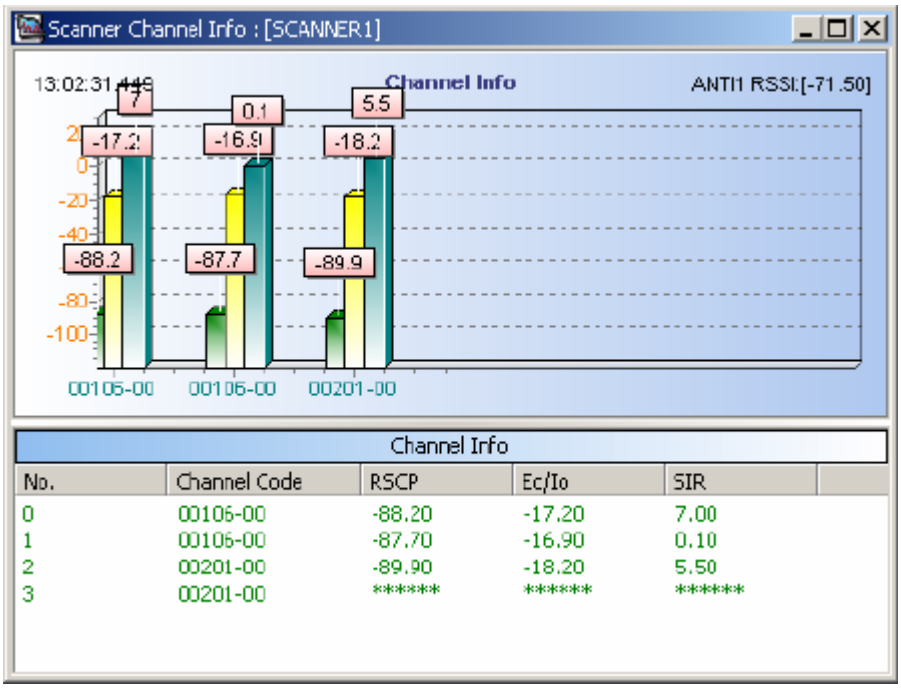


Figure 5-62 Scanner Channel Information window

II. Scanner Finger Info

The **Scanner Finger Info** window displays the finger information of a scramble code, as shown in Figure 5-63.

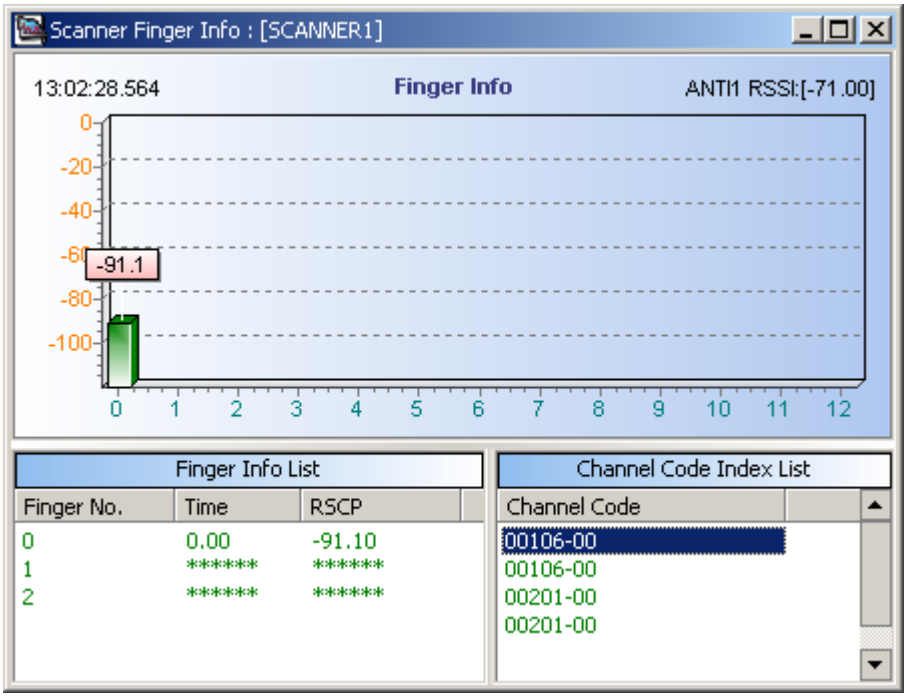


Figure 5-63 Scanner Finger Info

5.4.6 DTI Scanner Parameter Chart

I. TopN Pilot

If you set **Enable** to **True** in the TopN pilot scan of the DTI Scanner test plan and set the frequency to be scanned, the **TopN Pilot** window displays the TopN scrambling codes and their Ec/Io and RSCP, as shown in Figure 5-64.

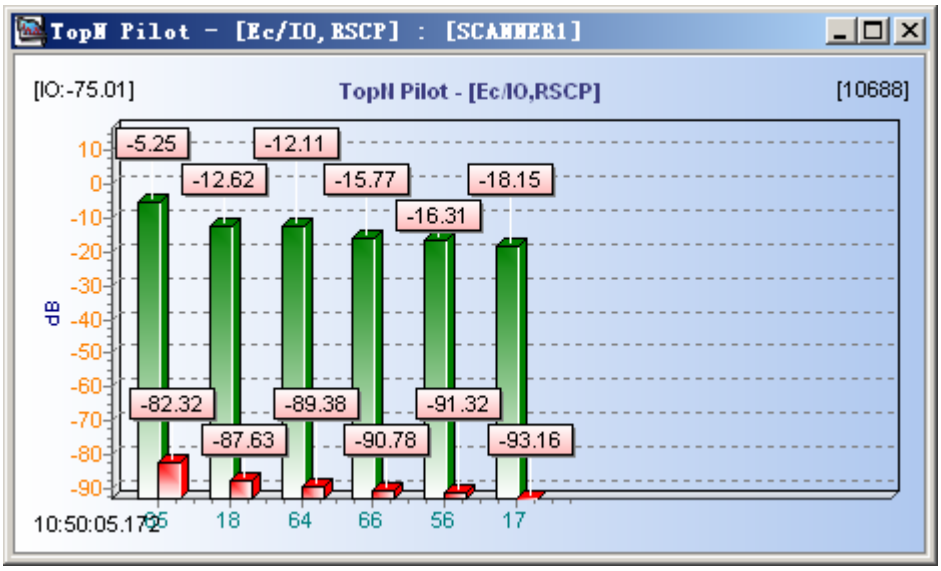


Figure 5-64 TopN Pilot window

Note:

- In Figure 5-64, the X-axis represents the scrambling codes.
- The green histogram stands for Ec/Io, while the red one for RSCP.

Right-click in the **TopN Pilot** window and choose an indicator to be displayed, as shown in Figure 5-65.

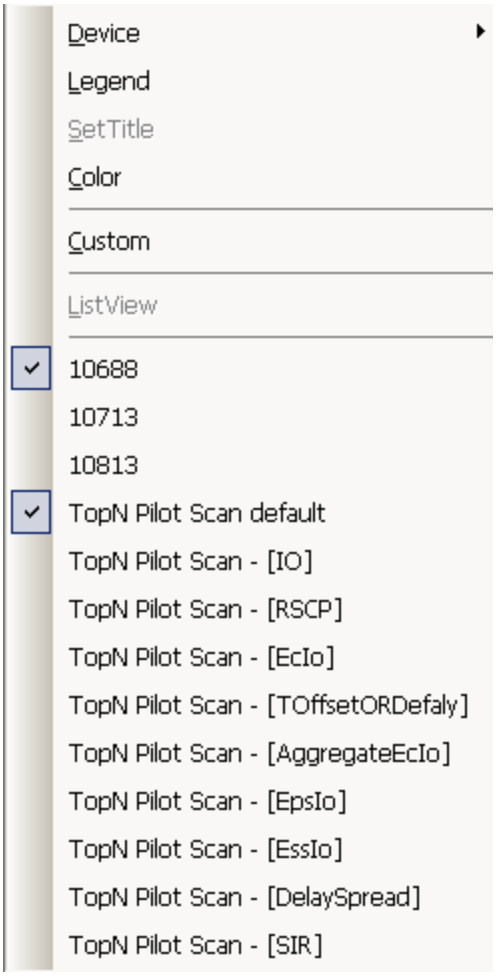


Figure 5-65 Shortcut menu of the TopN pilot window

Note:

If the multi-frequency points are set in the measurement plan, right-click in the **TopN Pilot** window and choose the point to be displayed.

II. Spectrum Analysis

If you set **Enable** to **True** in the spectrum analysis of the DTI Scanner test plan, the **Spectrum Analysis** window displays the result of the spectrum analysis, as shown in Figure 5-66.

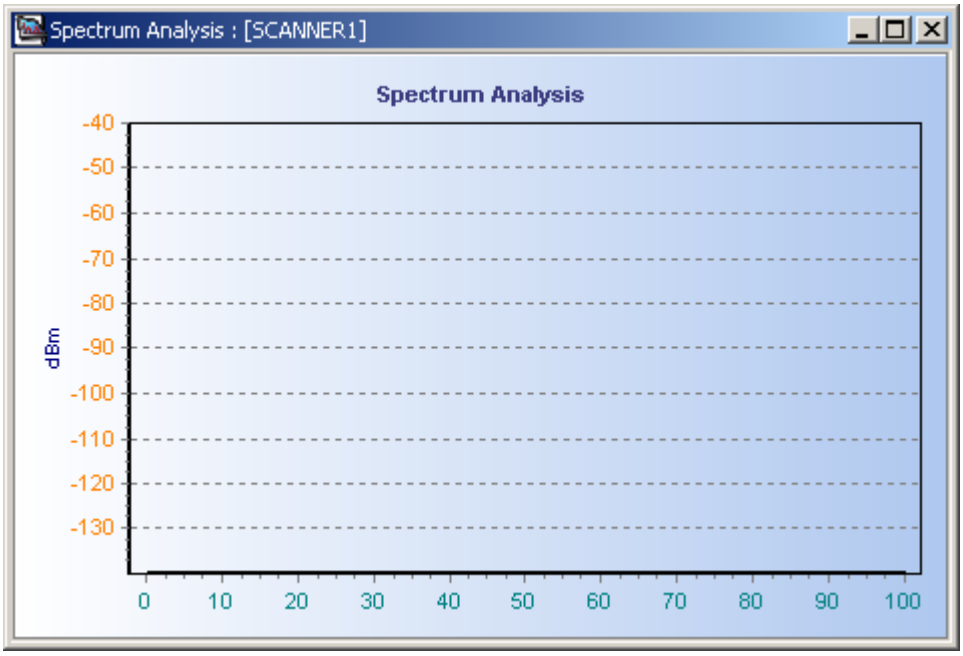


Figure 5-66 Spectrum Analysis window

Note:

If there are no curves available in the window, it indicates that errors occur in the setting of the frequency range.

III. CW Test

If you set **Enable** to **True** in the CW test and **Enable** to **False** in the other test items of the DTI Scanner test plan, the **CW Test** window displays the CW signals.

The **CW Test** window can be displayed in two modes:

- Real-time chart
- Trend chart

Figure 5-67 is a trend chart, displaying the change of CW signal strength with time.

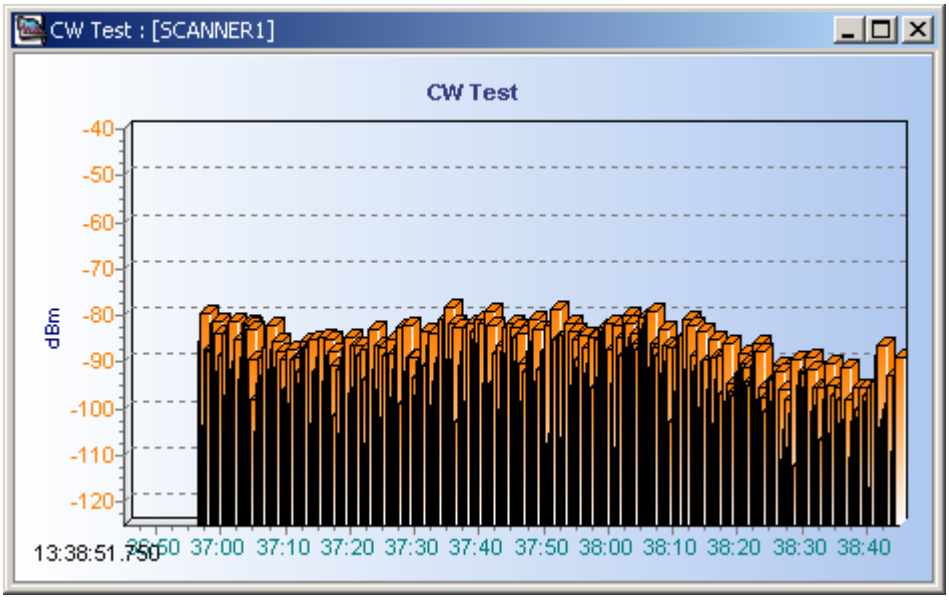


Figure 5-67 CW Test window

Note:

Right-click in the **CW Test** window and choose to convert the display mode.

IV. Pilot

If you set **Enable** to **True** in the pilot scan of the DTI Scanner test plan, and set the frequencies and scrambling codes to be scanned, the **Pilot** window displays the measurement value of these specified scrambling codes.

The options and their implications in the **Pilot** window are similar to that in the **TopN Pilot** window. The difference lies in that the Scanner information of the specified scrambling codes is displayed, as shown in Figure 5-68.

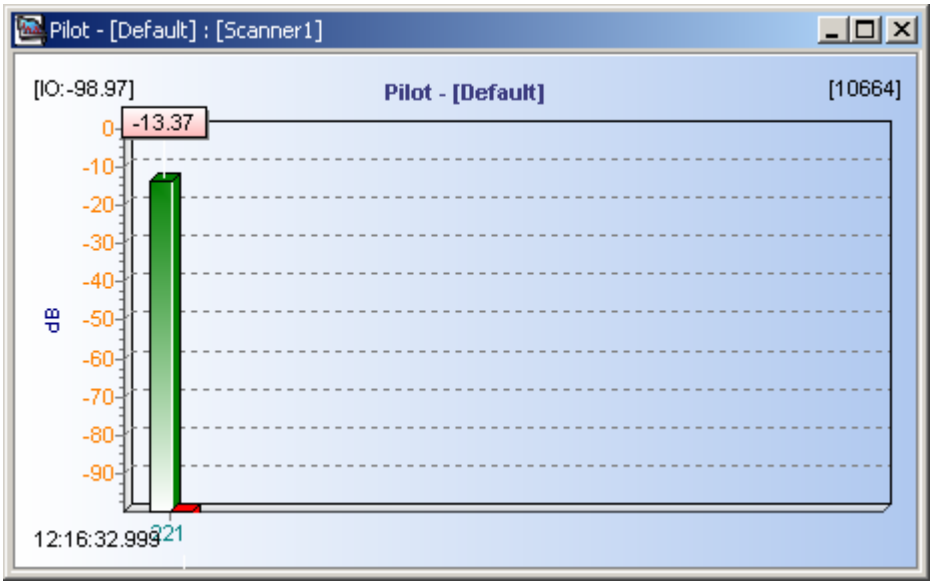


Figure 5-68 Pilot window

V. SCH Scan

If you set **Enable** to **True** in the SCH scan of the DTI Scanner test plan, the **SCH Scan** window displays the parameters in the synchronization channel, as shown in Figure 5-69.

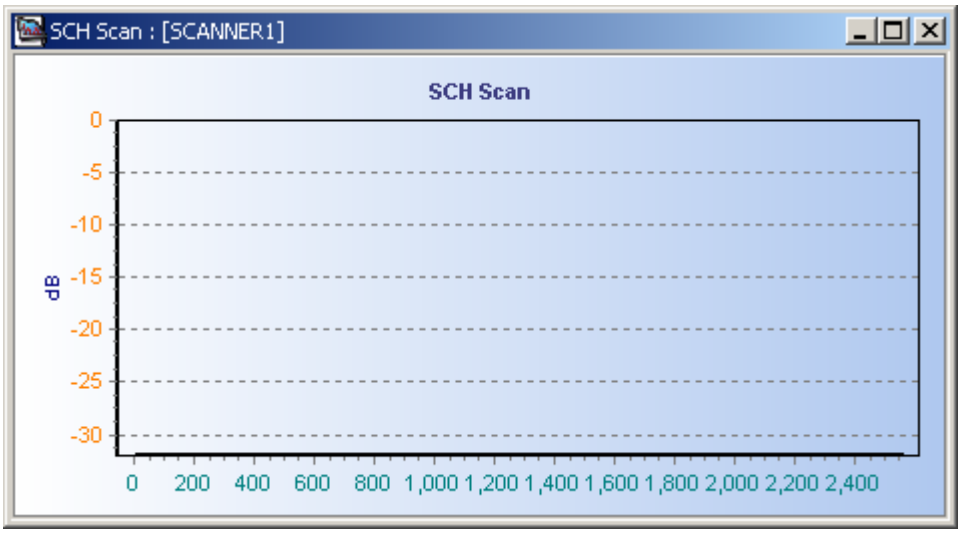


Figure 5-69 SCH Scan window

VI. RSSI 3.84M

If you set **Enable** to **True** in the RSSI 3.84 M of the DTI Scanner test plan, the **RSSI 3.84M** window displays the received signal strength indicator of the specified UARFCN. You can observe the real-time change of the signal strength, as shown in Figure 5-70.

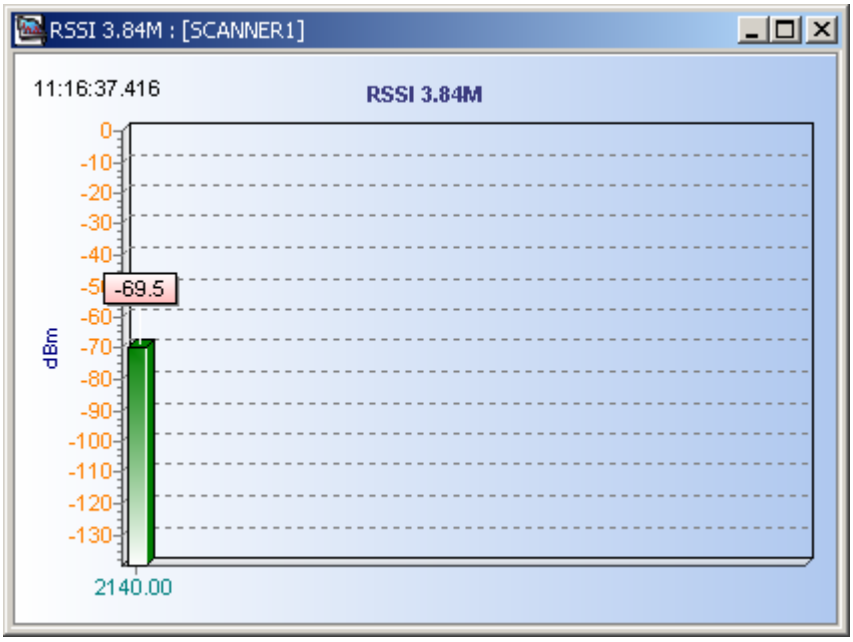


Figure 5-70 RSSI 3.84M window

5.4.7 Data Service Parameter Chart

I. App Throughput

The **App Throughput** window displays the following information:

- Uplink and downlink rate on the application layer
- NAS rate
- TCP retransmission rate

The rate includes the statistics of all the applications in the operating system, as shown in Figure 5-71.

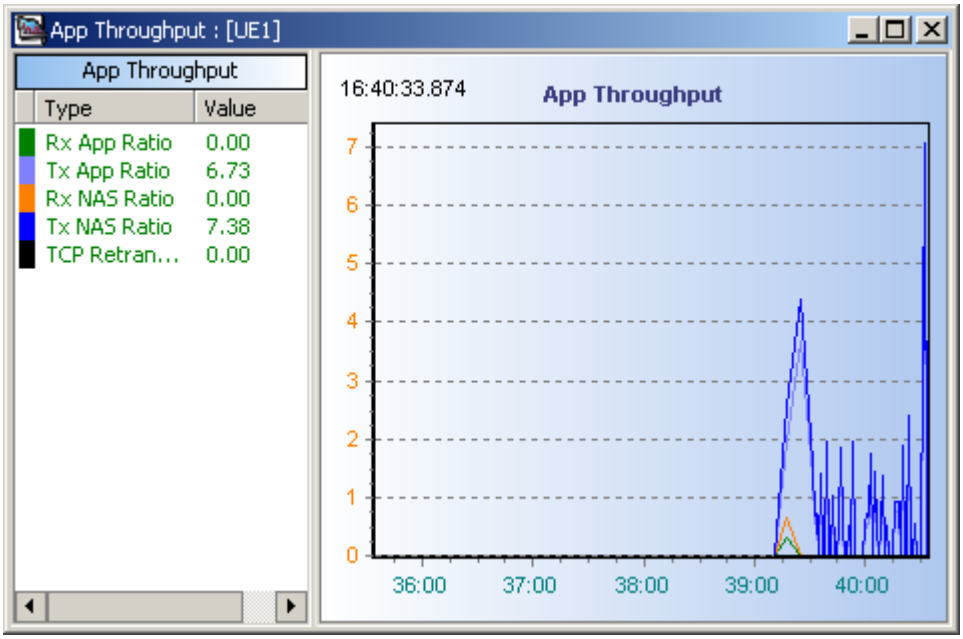


Figure 5-71 APP Throughput window

II. RLC Throughput

The **RLC Throughput** window displays the following information, as shown in Figure 5-72.

- RLC uplink throughput
- RLC downlink throughput
- Uplink PDU retransmission ratio
- Downlink PDU error ratio

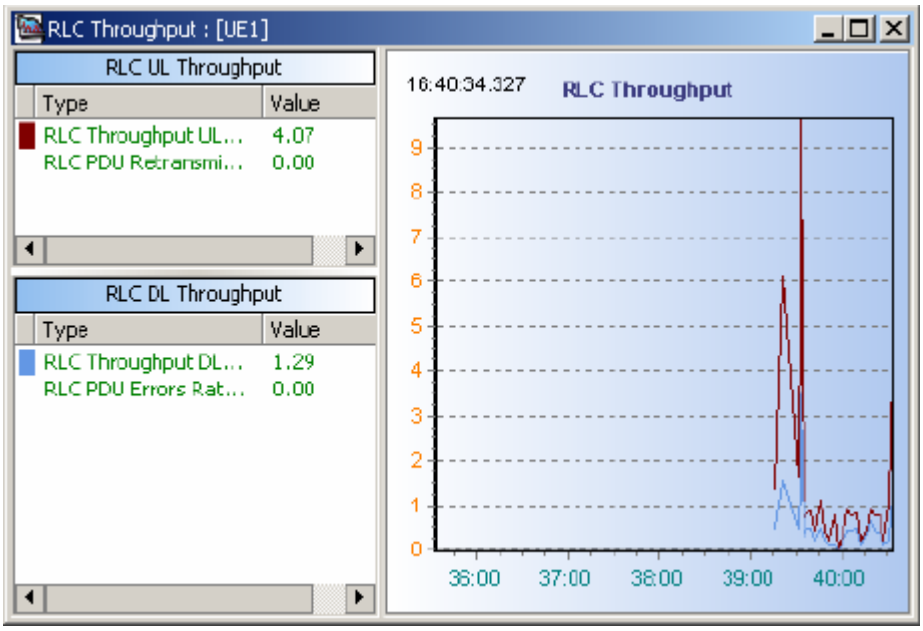


Figure 5-72 RLC Throughput window

🕮 **Note:**

Different items can be displayed based on the icons selected on the shortcut menu.

III. PS Common Indicators

The **PS Common Indicators** window displays the common indicators in the PS domain.

As shown in Figure 5-73, these common indicators consist of:

- Attach success rate
- Attach time
- PDP context activation success rate
- PDP context activation time

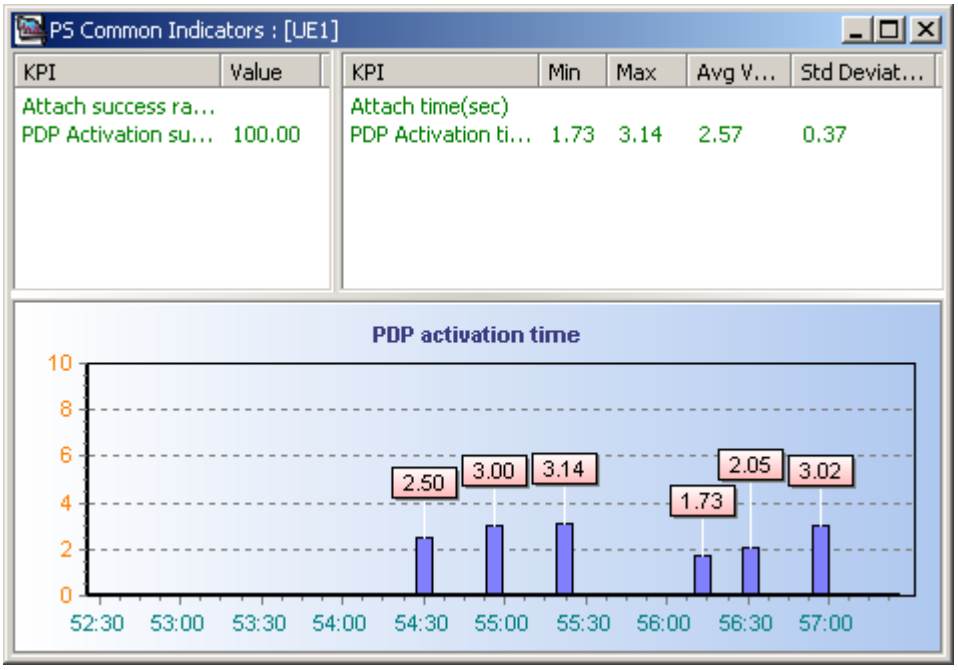


Figure 5-73 PS Common Indicators window

IV. PING Service Quality Evaluation

The **PING Service Quality Evaluation** window displays the associated indicators on the user plane of the PING service.

Figure 5-74 shows the indicators in the **PING Service Quality Evaluation** window.

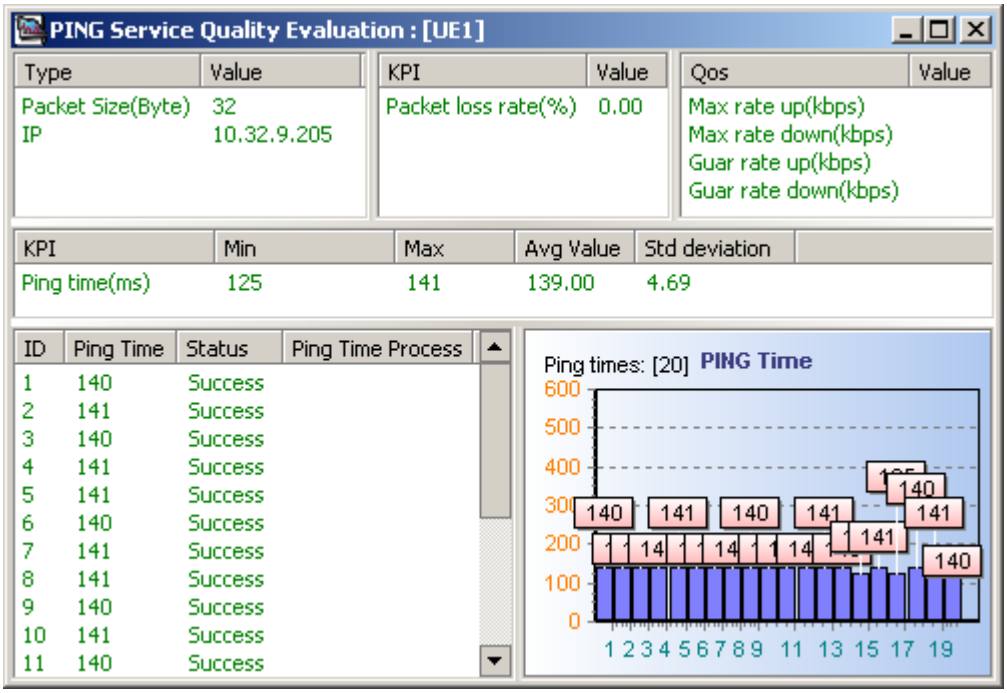


Figure 5-74 PING Service Quality Evaluation window

V. HTTP Service Quality Evaluation

The **HTTP Service Quality Evaluation** window displays the associated indicators on the user plane of the HTTP service, as shown in Figure 5-75.

These indicators may be:

- Page access time
- Page download time
- Average rate
- QoS

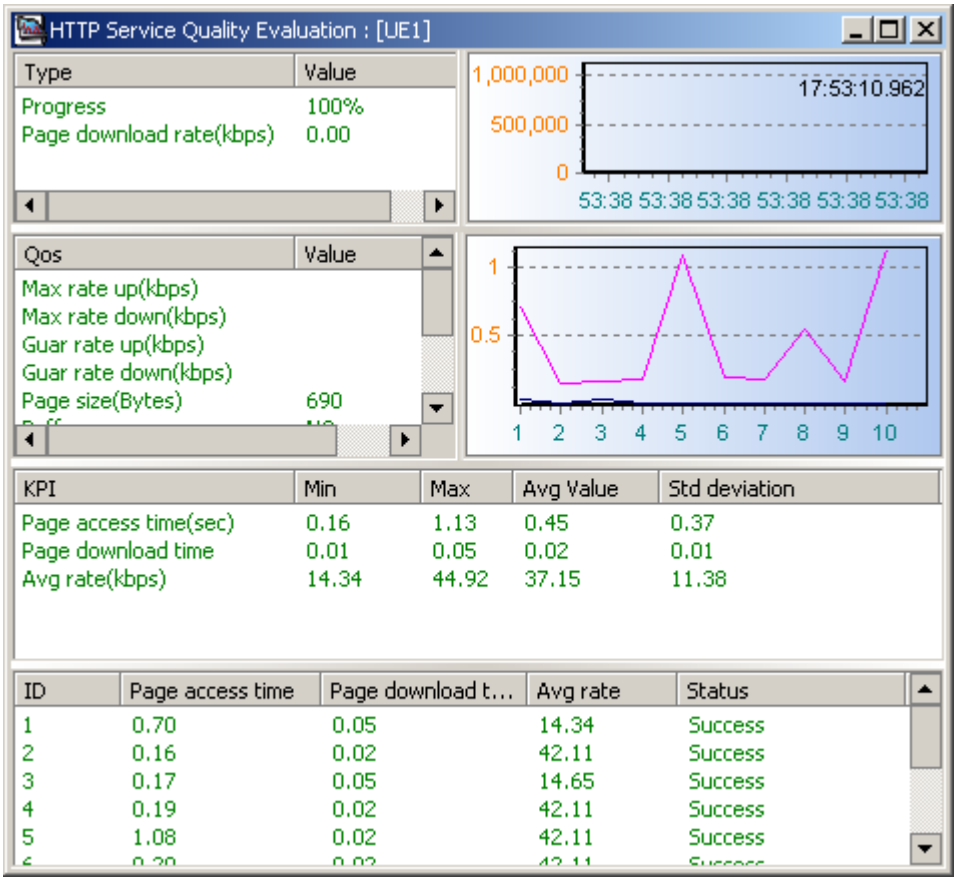


Figure 5-75 HTTP Service Quality Evaluation window

VI. FTP Service Quality Evaluation

The **FTP Service Quality Evaluation** window displays the associated indicators on the user plane of the FTP service, as shown in Figure 5-76.

These indicators may be:

- Login time
- File directory time
- Download and upload time
- Download and upload average rate

- QoS
- Duration of real-time transmission

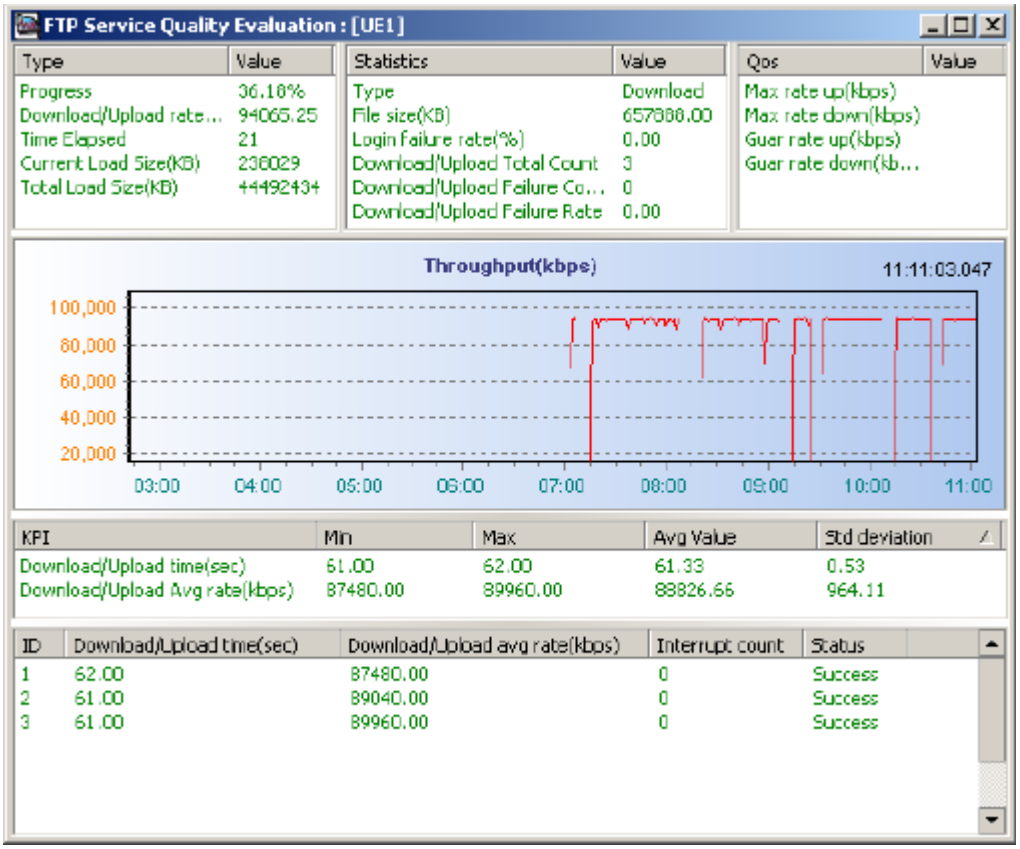


Figure 5-76 FTP Service Quality Evaluation window

VII. Video Streaming

The Probe can display some video streaming files with .rm or .3gp formats in real time when the RealPlayer and relevant decoding plugs are installed.

5.4.8 AMR Window

The **AMR** window is displayed when the AMR is selected in the LogMask. As shown in Figure 5-77, the **AMR** chart displays the following information:

- Uplink and downlink vocoder data
- Frame type
- Frame rate
- TAF

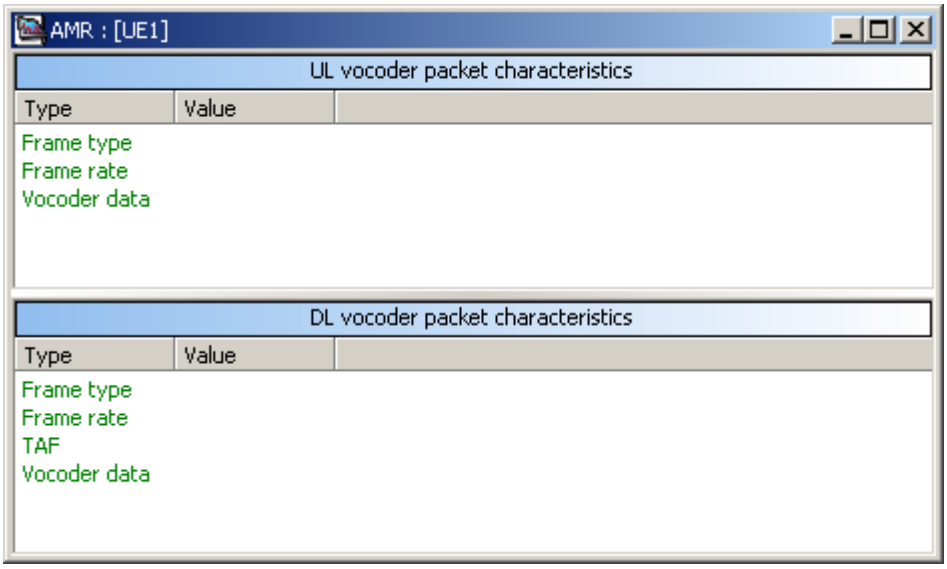


Figure 5-77 AMR window

5.4.9 Event List Window

The **Event List** window displays all the predefined events in the system, as shown in Figure 5-78.

In actual measurement, these events can be displayed based on All UE or the specified UE. You can also select some items to be displayed in the left filter tree. Both the actual measurement events and the playback events are displayed in the **Event List** chart in the real-time manner. You can stop scrolling by selecting a certain option from the shortcut menu.

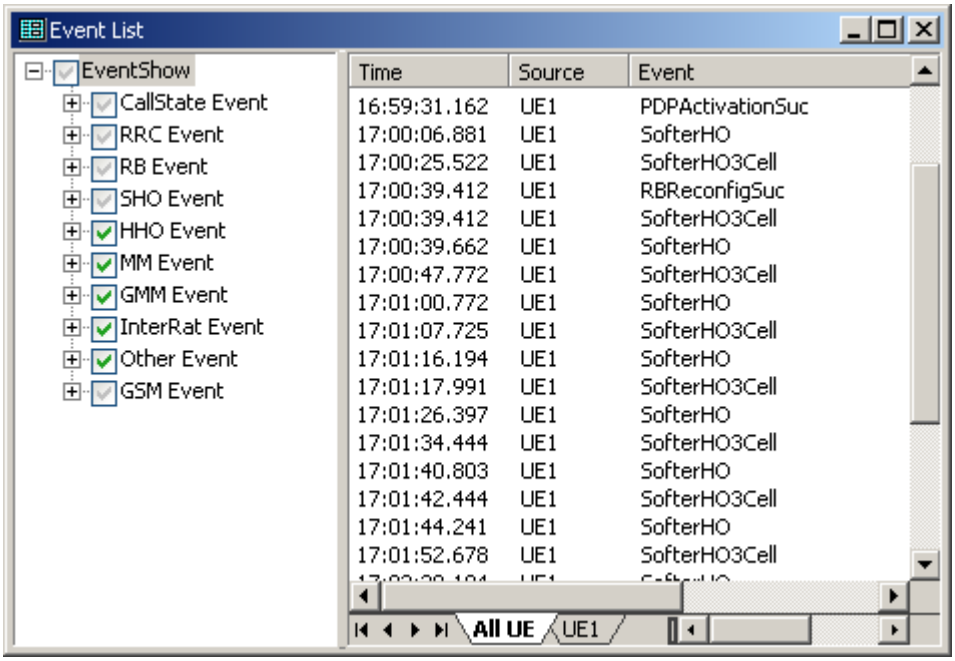


Figure 5-78 Event List window

The **Event List** window can be co-activated with the signaling, maps or charts.

- The information of the event parameters is displayed at once.
- The geographic information is also displayed.
- If **Re-judge Event** is selected in the system configuration, the event is re-generated in the playback based on the original data.

5.4.10 UE State Window

The **UE State** window displays the UE network parameters and their states. As shown in Figure 5-79, this window consists of the following three areas:

- NAS
- WCDMA
- GSM

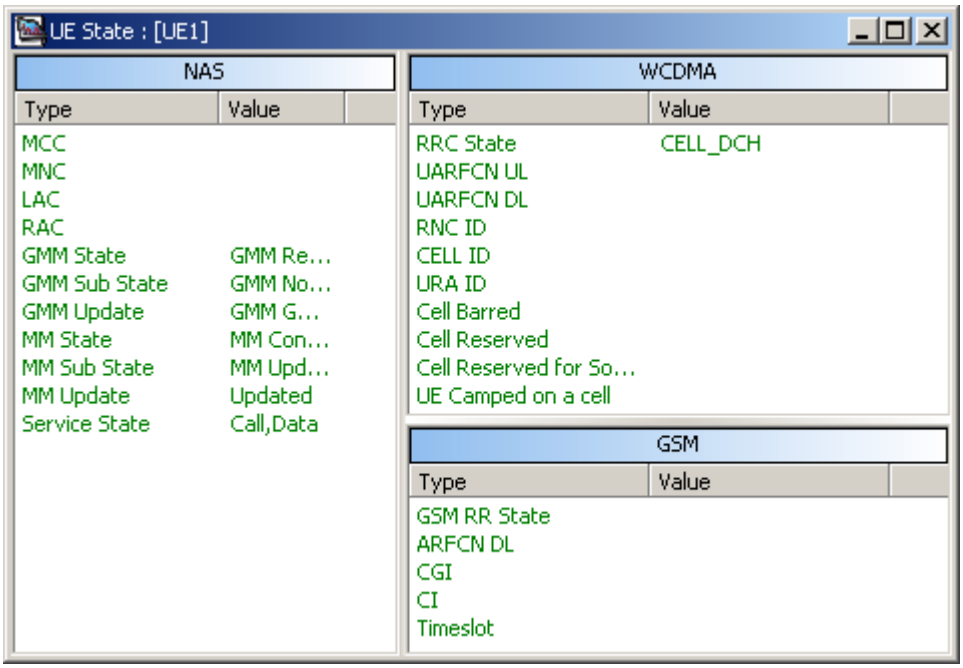


Figure 5-79 UE State window

5.4.11 Information Window

The **Information** window displays the real-time statistics and the log file information, as listed in Table 5-15.

Table 5-15 Descriptions of the three tabs in the Information window

Tab	Description
Statistic	Gives the statistics of the each test item during the real-time measurement
Log File	The events in the **Log File** tab can be displayed only when **Event Browsing** is selected, as shown in Figure 5-80.
UE1	During the real-time measurement, the information about a device is displayed in the **UE1** tab, as shown in Figure 5-81. ***Note:*** *The **UE1** tab only takes effect during the real-time measurement, and displays all the proper and effective test plans for the UE1.*

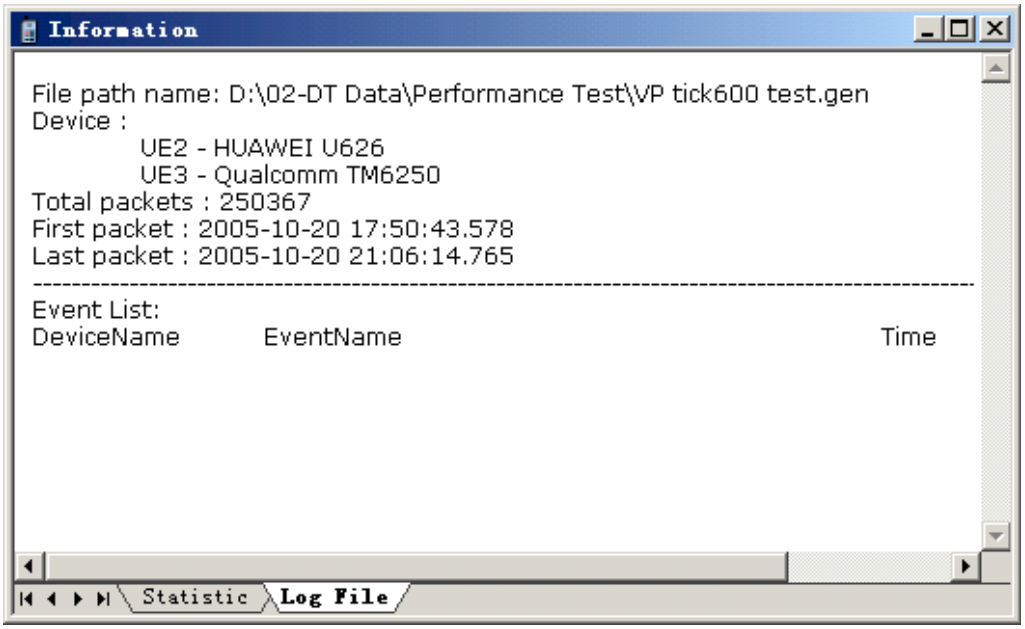


Figure 5-80 Log File tab

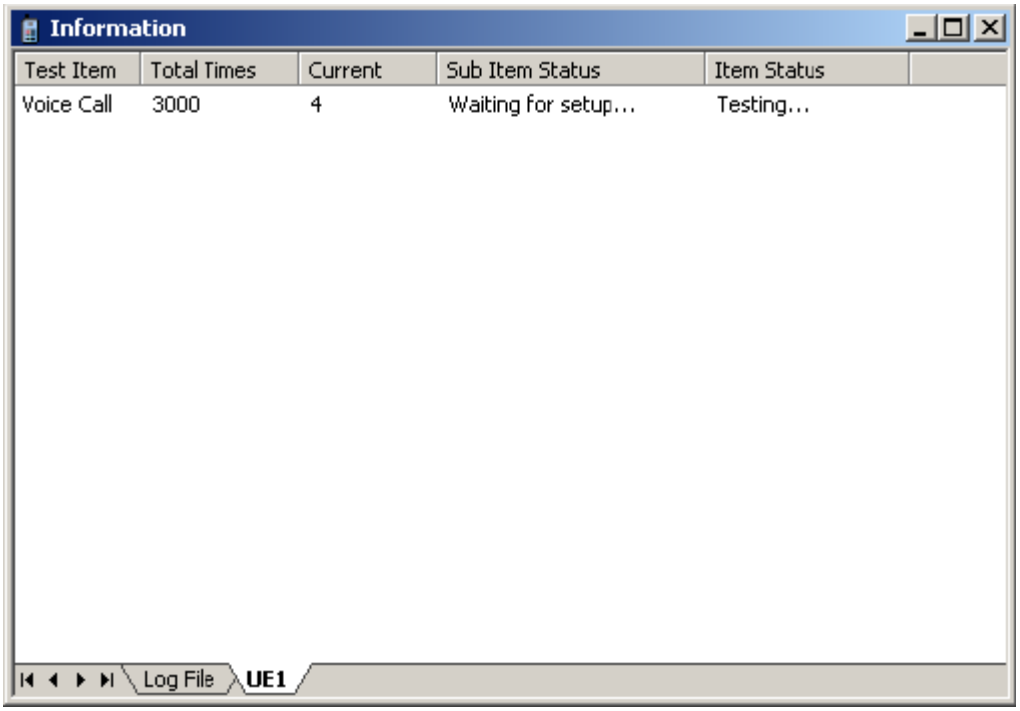


Figure 5-81 UE1 tab

5.4.12 Map Window

As shown in Figure 5-82, the **Map** window displays the following information:

- Digit map currently imported (For details, refer to section 6.6 "Importing a Map."

- Drive test path, imported sites and cells based on the GPS (For details, refer to section 6.5 "Importing the Engineering Parameter."

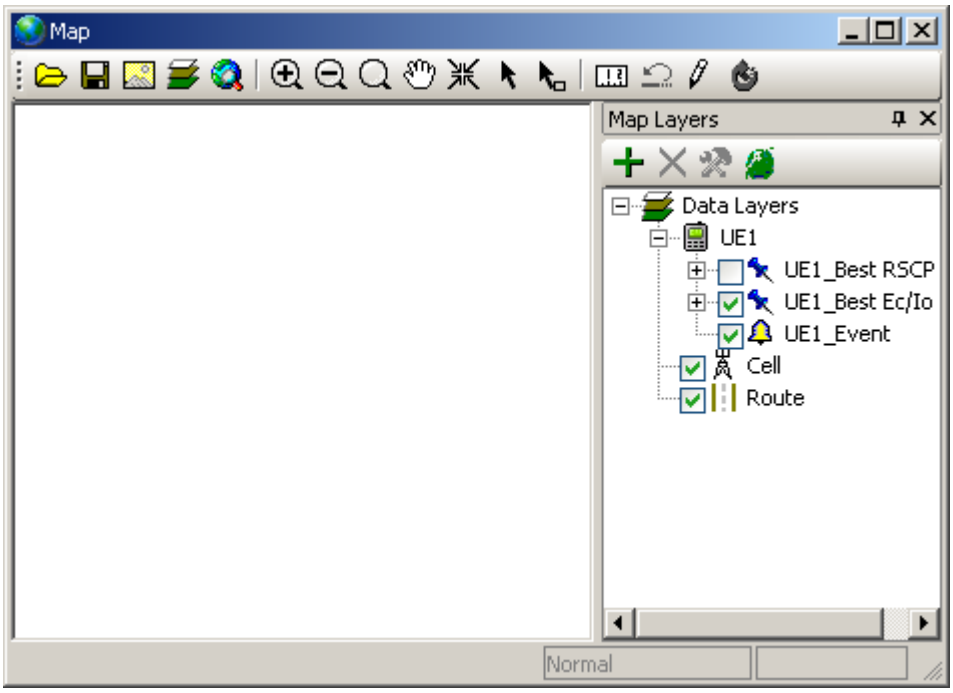


Figure 5-82 Map window

You can add, delete, or edit the map layers and legends in the **May Layers** pane. For details, refer to section 9.3 "Outdoor Test."

Figure 5-83 shows the shortcut menu of the **Map** window.

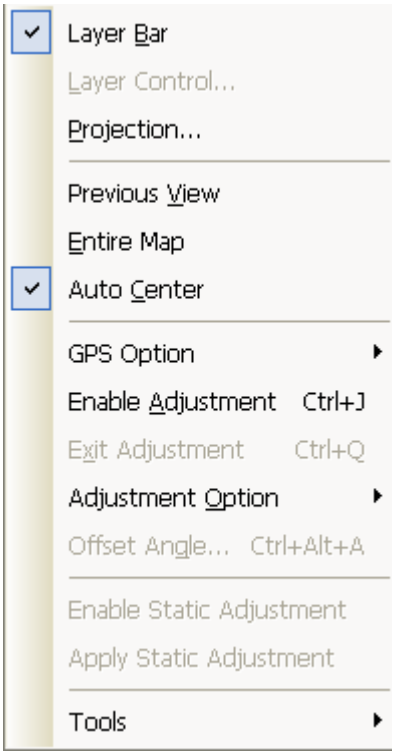


Figure 5-83 Shortcut menu of the map window

Table 5-16 describes the options on the shortcut menu.

Table 5-16 Options on the shortcut menu

Option	Description
Layer bar	Select **Layer Bar**. The **Map Layers** pane is displayed on the right of the **Map** window. Otherwise, the pane is hidden.
Layer control	Choose **Layer Control**. The **Layer Control** dialog box is displayed, as shown in Figure 5-84. ***Note:*** *You can add, remove, or set properties for the layer in the **Layer Control** dialog box.*
Projection	Select **Projection**. The **Choose Projection** dialog box is displayed, as shown in Figure 5-85.
Previous view	To check the previous view.
Entire map	To check the entire map of the layer. If serveral layers are available, you need to select a layer to be displayed, as shown in Figure 5-86.

Option	Description
Auto Center	To center the map automatically.
GPS Option	Choose the signal source for the GPS. Figure 5-87 shows the possible GPSs: • External GPS only • Internal GPS only • Auto Adjust by Internal
Enable adjustment	To enable the GPS adjustment mode.
Exit adjustment	To exit the GPS adjustment mode.
Adjustment option	To choose the ranges for the adjustment. These ranges are: • All GPS • DR GPS only
Offset angle	Enter the offset angle in the dialog box, as shown in Figure 5-88. For details, refer to section 9.3 "Outdoor Test."
Enable static adjustment	To enable the static adjustment mode. For details, refer to section 9.3 "Outdoor Test."
Apply static adjustment	To apply the static adjustment data.
Tool	To provide shortcut keys for the operations in the Map window.

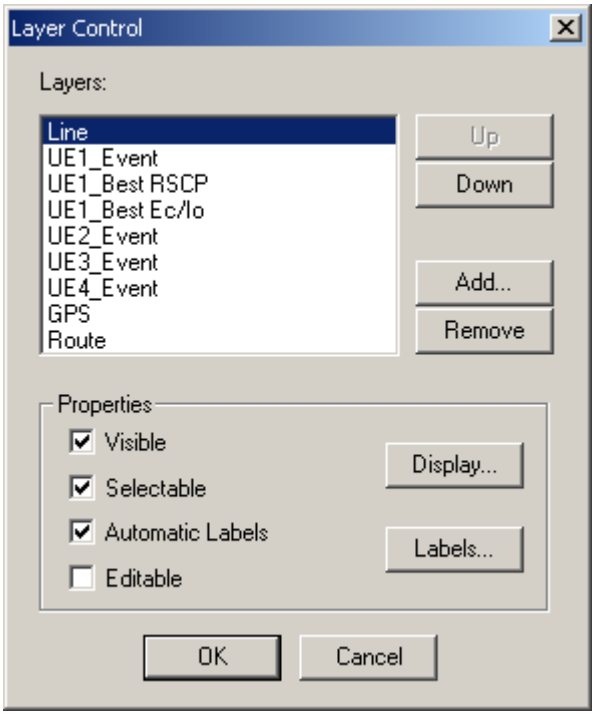


Figure 5-84 Layer Control dialog box

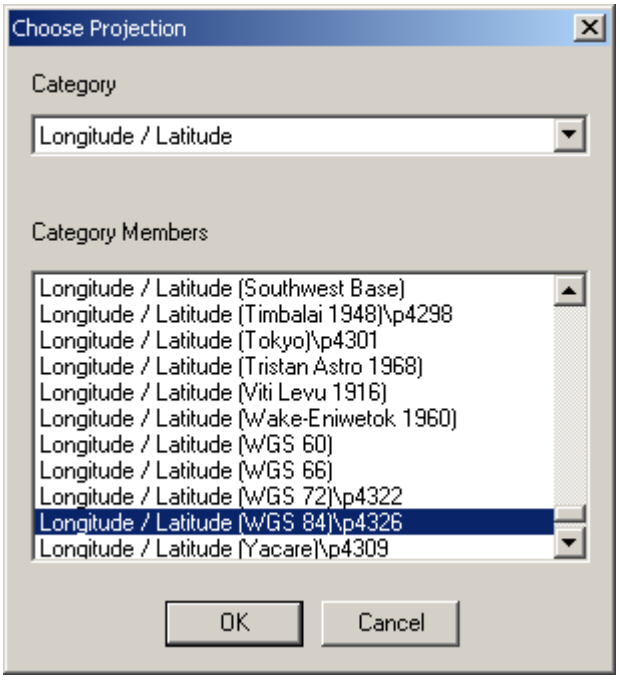


Figure 5-85 Choose Projection dialog box

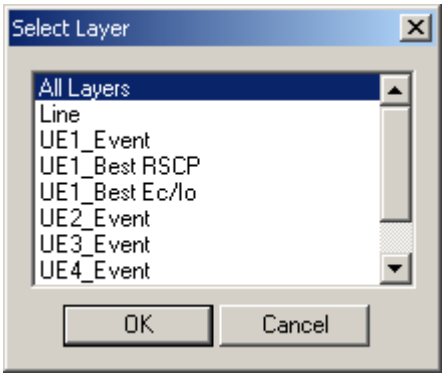


Figure 5-86 Select Layer dialog box

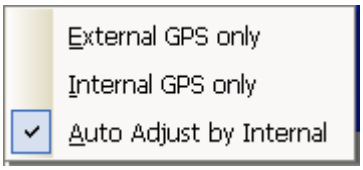


Figure 5-87 GPS submenu

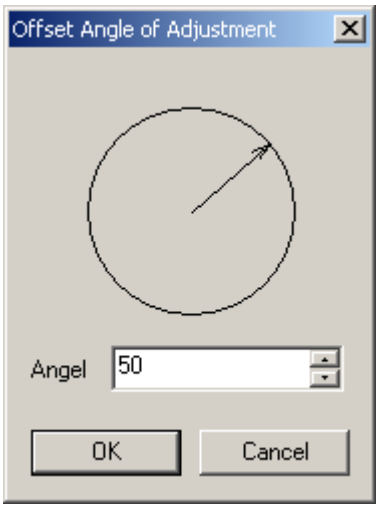


Figure 5-88 Offset Angle of Adjustment dialog box

5.4.13 Indoor Measurement Window

The **Indoor Measurement** window displays the indoor map currently imported, as shown in Figure 5-89.

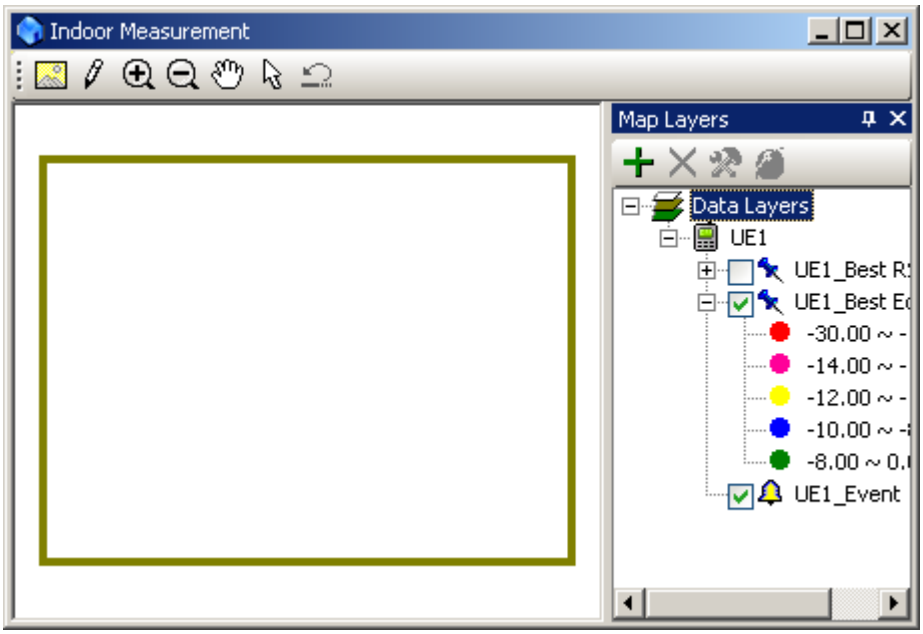


Figure 5-89 Indoor Measurement window

Figure 5-90 shows the shortcut menu of the **Indoor Measurement** window.

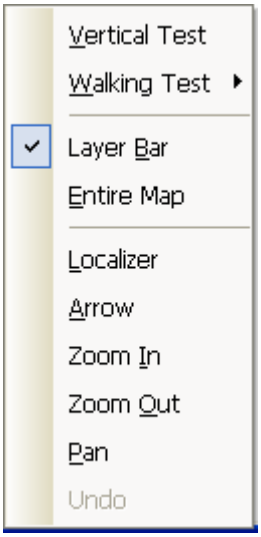


Figure 5-90 Shortcut menu of the indoor measurement window

Table 5-17 describes the options on the shortcut menu.

Table 5-17 Options on the shortcut menu

Option	Description
Vertical test	To enable the vertical test.

Option	Description
Walking test	To enable the walking test. The walking test can be automatic or manual.
Layer bar	Choose **Layer Bar** and the system displays the **Map Layers** pane on the right of the **Map** window. Otherwise, the pane is hidden.
Entire map	To check the entire map of the layer. In case of server layers available, you need to select the layer to be displayed.
Localizer	To dot the drive test line on the map and select report points on the map.
Arrow	To enter the arrow mode.
Zoom in	Choose **Zoom In**, and click the map to zoom in it.
Zoom out	Choose **Zoom Out**, and click the map to zoom out it.
Pan	Choose **Pan**, and click the map and drag it.
Undo	To cancel the previous operation.

5.4.14 Window Templates

The system provides the following four types of window template:

- Window 1-1
- Window 1-2
- Window 2-2
- Window 3-2

Table 5-18 describes the window templates.

Table 5-18 Window templates

Template	Description
Window 1-1	Single window display mode (chart view or list view)
Window 1-2	Double window display mode (one chart view window and one list view window)
Window 2-2	Four windows display mode (two chart view panes and two list view panes)

Template	Description
Window 3-2	Six windows display mode (three chart view panes and three list view panes)

Note:

- Using window templates, you can display different parameters in various panes.
- Set the display parameter before using the custom window templates. In this way, the reported data can be displayed.

Chapter 6 Managing the Project

6.1 Overview

During the drive test, conduct settings on the test project after the project is created or open.

It contains the following contents:

- Managing the Project Files
- Managing the Workspace
- Configuring a Device
- Importing the Engineering Parameter
- Importing a Map
- Setting the System

6.2 Managing the Project Files

A test project can not only save some individual information, but also keep all the system configuration information.

The individual information contains:

- Window layout
- Custom parameters

The system configuration information contains:

- BS information
- Map legend
- Test plan
- LOGMASK setup
- Event log setup
- Alarm setup
- Parameter setup

Each test project corresponds to a project file in .xls format.

Note:

The test plan can be saved either in the engineering file or individually.

6.2.1 Creating a New Project

To create a new project, choose **File** > **New Project**.

6.2.2 Saving a Project

To save an open project, chose **File** > **Save**.

All the system and individual settings are automatically saved into the project file.

6.2.3 Opening a Project

To open a project, choose **File** > **Open Project**.

All the system and individual settings are automatically imported into the project file.

🕮 **Note:**

You can also utilize the configurations used before to ensure the consistency of different tests.

6.2.4 Loading a Project Template

The Probe customizes and loads the templates for the test projects.

To load the project template, perform the following steps:

1) Choose **File** > **Template Project**.
   The **Template List** dialog box is displayed.
2) Click a project template.
   The system loads the template automatically.

🕮 **Note:**

- The **Template Project** file stores both the default and custom project templates.
- At present, the Probe only displays the top10 project template files sorted in the alphabetic descending order.
- During the tests on the similar projects, you can open the appropriate project template directly rather than reset the project.

6.2.5 Closing a Project

To close a project, choose **File** > **Close Project**.

The **Information** dialog box is displayed, querying if you would like to save the current setting in the **Template Project** file, as shown in Figure 6-1.

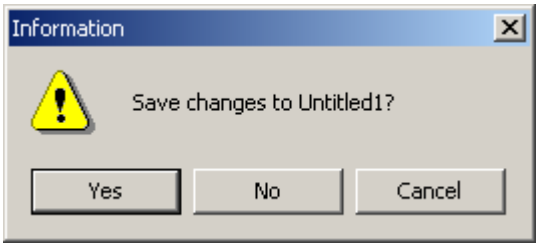


Figure 6-1 Information dialog box

6.3 Managing the Workspace

The effective management and operation is fundamental to improve the test efficiency.

6.3.1 Managing a Tab

The data or the chart can be individually displayed in each tab.

Figure 6-2 shows the shortcut menu of a tab.

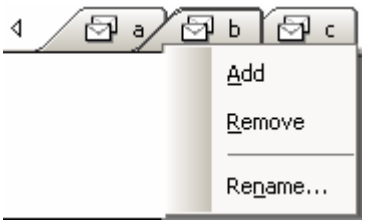


Figure 6-2 Shortcut menu of a tab

Table 6-1 lists the descriptions of tab operations.

Table 6-1 Description of tab operations

To…	You can…
Add a tab	Right-click the tab and choose **Add** on the shortcut menu.
Remove a tab	Right-click the tab and choose **Remove** on the shortcut menu.
Rename a tab	1) Right-click the tab to be renamed. 2) Choose **Rename** on the shortcut menu. The **Rename Page** dialog box is displayed, as shown in Figure 6-3. 3) Enter the new name for the tab.

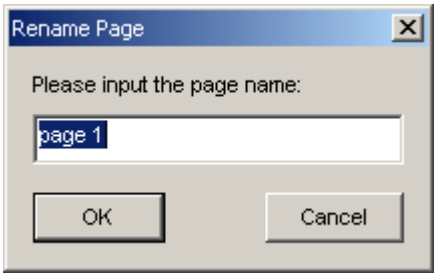


Figure 6-3 Rename Page dialog box

6.3.2 Adding a Pane to a Tab

You can manage the parameter panes in category by clicking different tabs.

Note:

You can use the **View** tab and the **Choose Device** option on the standard toolbar to open the parameter pane. With this method, you can also operate the peripherals and conduct data tracing.

I. Priniciples

Keep to the following principles when opening the parameter panes:

- Ensure that the device is configured before opening the parameter window. Otherwise, the Probe gives a prompt, indicating that the matched device cannot be found, as shown in Figure 6-4.

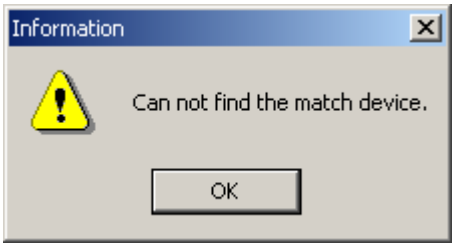


Figure 6-4 Failing to open the parameter pane

- If a device to be displayed is of the same type as that selected in the **Choose Device** list, the Probe opens the parameter pane of the device. If several device of the same type is available in the **Device** list, the parameters of the selected device are displayed in the pane, as shown in Figure 6-5.

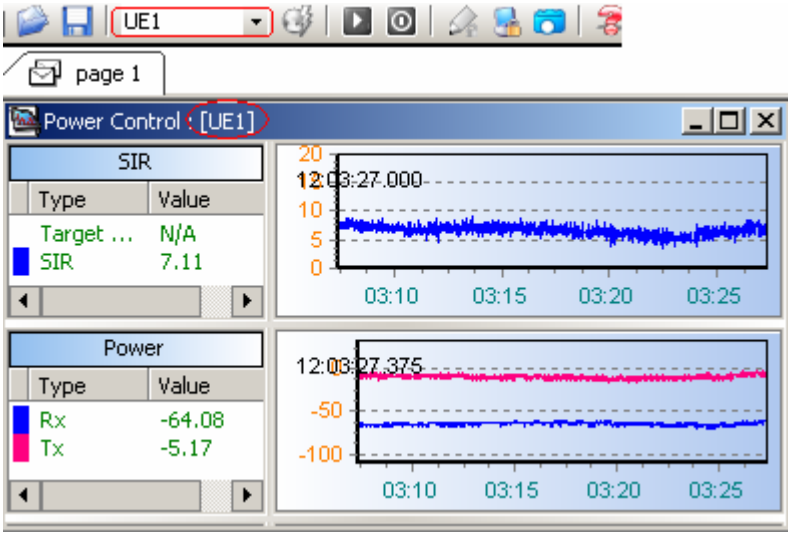


Figure 6-5 Parameter window of the selected device

- If a device to be displayed is not of the same type as the one selected in the **Choose Device** list, the Probe searches in the **Device** list and displays the parameters of the device first found to be matched.

II. Exceptions

There are some special windows in which the principles mentioned previously are not applicable.

- In a project, the **Map** and **Indoor Measurement** windows are incompatible. The Probe gives a prompt if the user tries to open these two windows simultaneously in the same project, as shown in Figure 6-6.

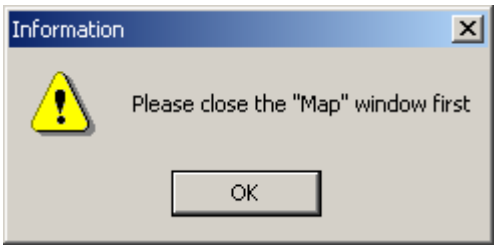


Figure 6-6 Incompatible prompt

- In the windows **Event List**, **Information**, **Message**, only the information of one tab can be displayed at a time, as shown in Figure 6-7.

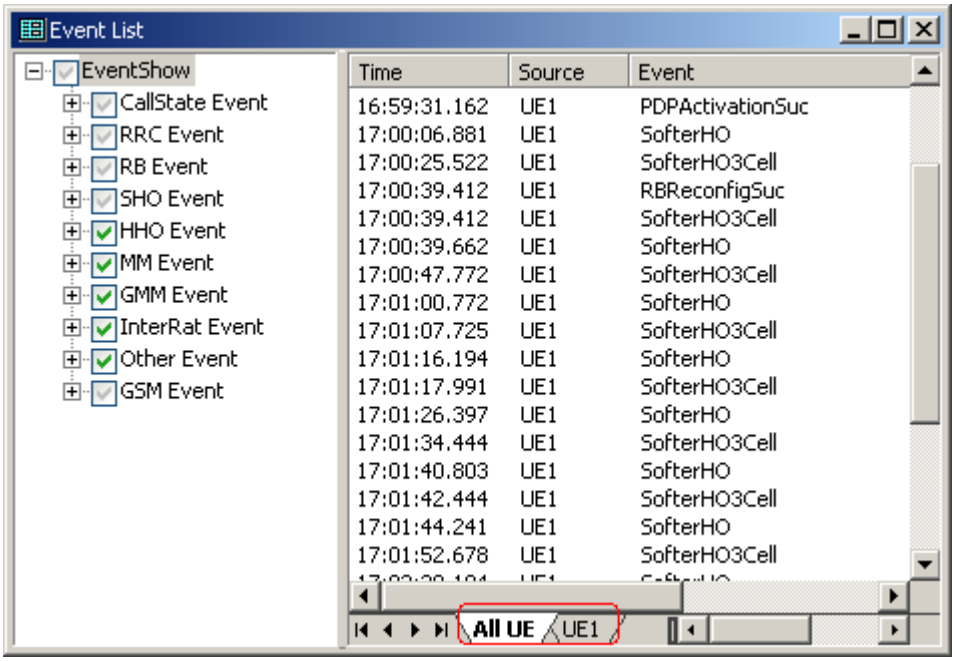


Figure 6-7 All UE tab

Finally, choose **File** > **Save** to save the current setting. In this way, the system recovers the settings of all the tabs and parameter windows after the system reboot.

6.4 Configuring a Device

This section contains the following parts:

- Adding a Device
- Deleting a Device

6.4.1 Adding a Device

To add a device, perform the following steps:

1) Choose **Configuration** > **Hardware Config** > **Manual Config** on the main menu. The **ManualConfig** window is displayed, as shown in Figure 6-8.

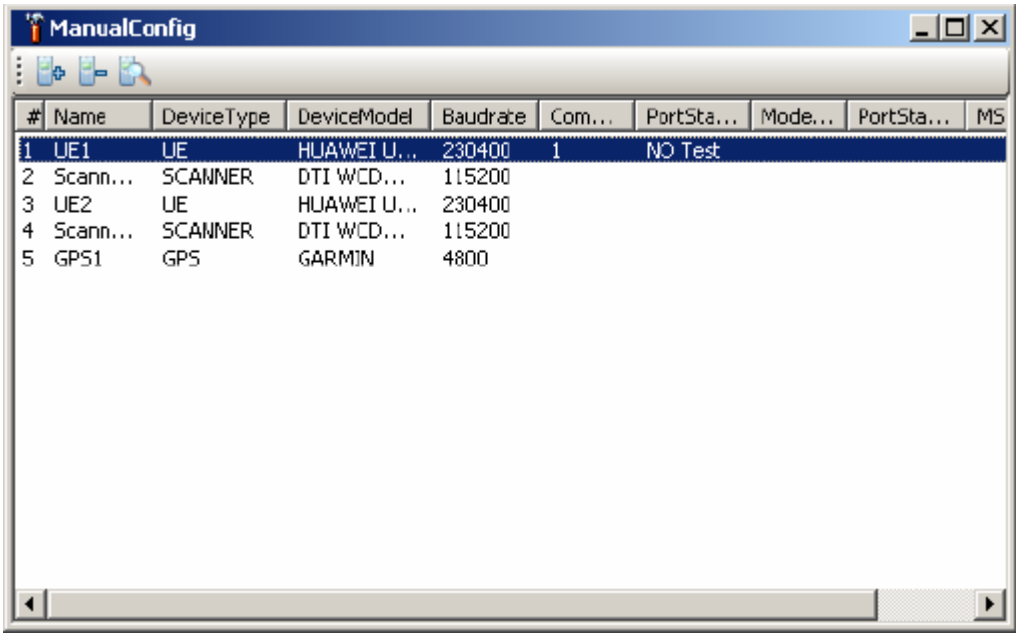


Figure 6-8 ManualConfig window

2) Click  .

The **Device Config** dialog box is displayed, as shown in Figure 6-9.

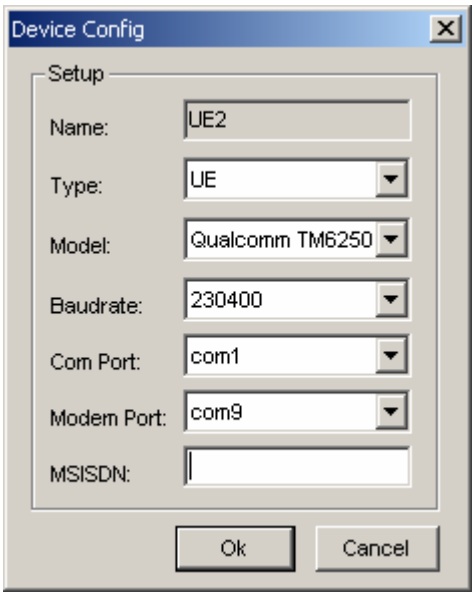


Figure 6-9 Device Config dialog box

3) Select the type in the **Type** drop-down list.
4) Select the device type in the **Model** drop-down list, such as, the UE type or Scanner type.

5) Choose the proper baud rate in the **Baudrate** drop-down list.
The Probe provides the default bau drate for the device it supports. Select 115200, 230400, and 4800 for common ports, USB port and GPS respectively. For the settings at the device side, refer to Chapter 7 "Connecting the Devices."
6) Set the port based on the hardware actual connection. For details, refer to device manager of the operating system. The port number may not be allocated for the device available.

If the device parameters are not correctly configured, the system returns an error or warning prompt, as shown in Figure 6-10.

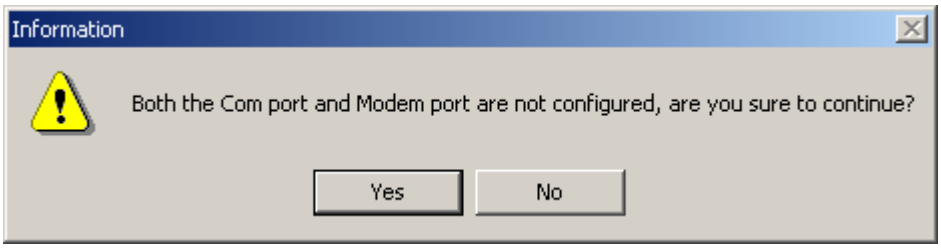


Figure 6-10 Device configuration information

6.4.2 Deleting a Device

When a device in the device list is unnecessary, you can delete it to release the system port.

To delete a device, perform the following steps:

1) Choose the device to be deleted in the device list.
The device is highlighted after being selected.
2) Click  in the **ManualConfig** window. Alternatively, right-click the device to be deleted and choose **Delete** on the shortcut menu.
The device list refreshes itself automatically.

6.5 Importing the Engineering Parameters

The BTS information can be displayed on the map during the test or log file playback only when the engineering parameter list is configured.

The BTS configuration is automatically saved into a project file for future use.

6.5.1 Opening the BTS Configuration Window

I. Importing the WCDMA Engineering Parameters

To import the WCDMA engineering parameters, choose **Configuration** > **BTS Information** > **WCDMA**.

The **BTS Information (WCDMA)** window is displayed, as shown in Figure 6-11.

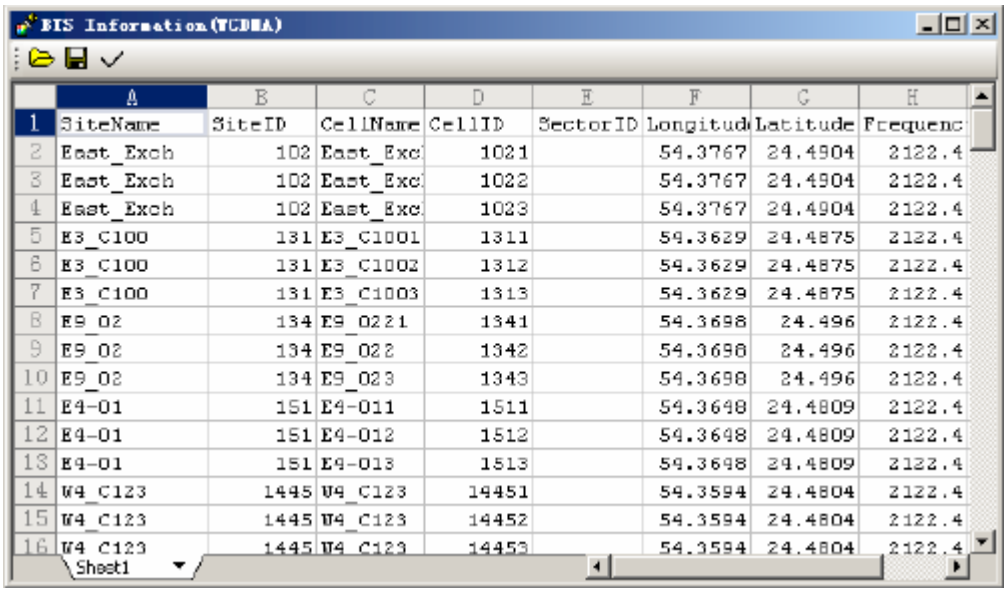


Figure 6-11 BTS Information (WCDMA) window

II. Importing the GSM Engineering Parameters

To import the GSM engineering parameter, choose **Configuration** > **BTS Information** > **GSM**.

The **BTS Information (GSM)** window is displayed, as shown in Figure 6-12.

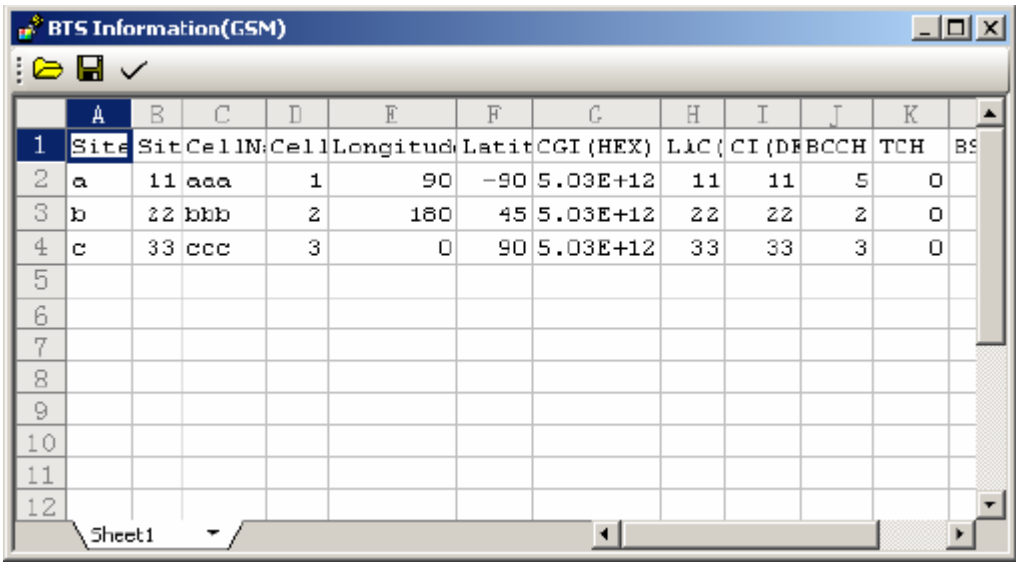


Figure 6-12 BTS Information (GSM) window

6.5.2 Importing the BTS Information

The Probe supports the BTS information files with either of the following suffixes:

- *.csv
- *.cel
- *.xls

To import the BTS information file, perform the following steps:

1) Click to open the file dialog box.
2) Select the BTS information file to be displayed.
   The **BTS Information** window is displayed, as shown in Figure 6-11.

Alternatively, you can copy the information directly from the excel files and paste it to the BTS file according to columns.

6.5.3 Editing and Applying the BTS Information

To edit and apply the BTS information, perform the following steps:

1) Edit the BTS information on the working panel.
   You can copy or paste the BTS file in the same sheet. Or you can copy or paste the data from the Excel into the BTS information window.
2) Click to apply the modified BTS information to the map, as shown in Figure 6-11.

6.5.4 Displaying the BTS Information on the Map

To display the BTS information on the map, perform the following steps:

1) Open the **Map** window, as shown in Figure 6-13.
   Different cells are distinguished from each other by different colors. The PSC of cells are also displayed in the **Map** window.

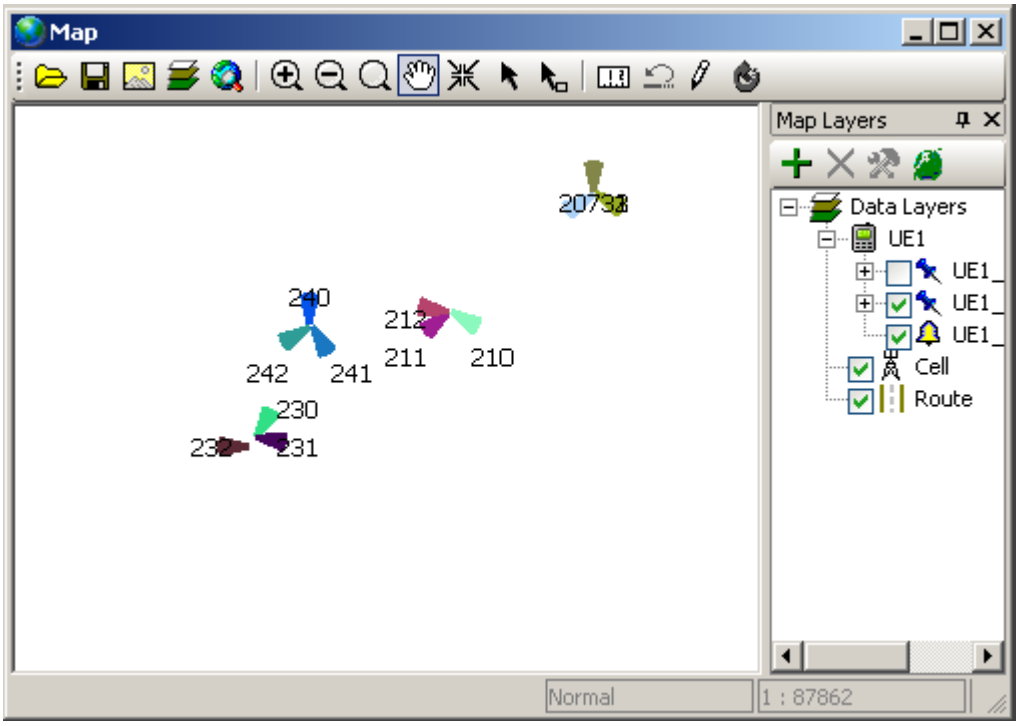


Figure 6-13 Map window with the BTS information

2) If other information needs to be displayed, choose **Display settings** on the **Map Layers**. Alternatively, right-click the **Cell** and choose **Display Settings** on the shortcut menu, as shown in Figure 6-14.

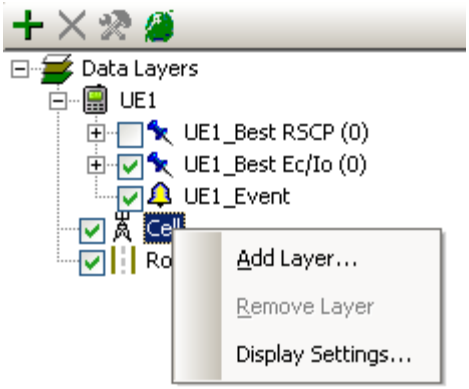


Figure 6-14 Setting display mode for cell information

3) In the **Display Settings** dialog box, select the **Site Visible** check box, as shown in Figure 6-15.

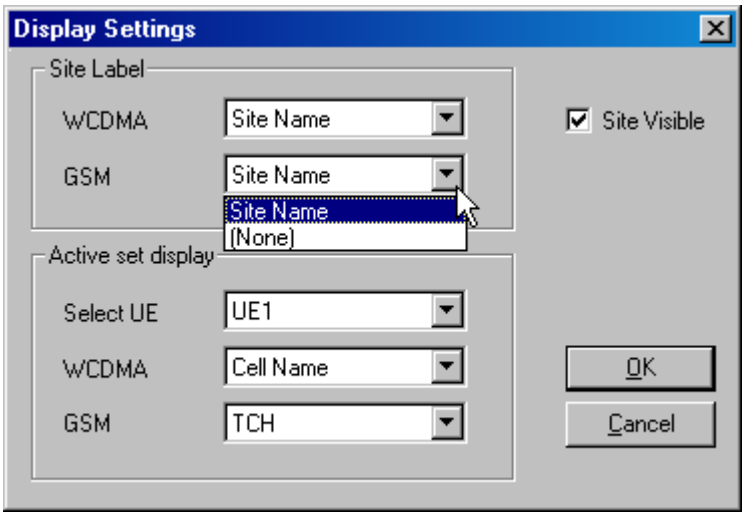


Figure 6-15 Display Settings dialog box

4) Select the site name in the area of **Site Label**.
5) Click **OK** to apply the setting to the **Map** window.

Note:

You can set the cell relation line in the **Display Settings** dialog box. For details, refer to part 9.3.3 "Setting the Cell Relation Line."

6.5.5 Exporting the BTS Information

To export a BTS information file, click on the toolbar to save the BTS information in the file.

The BTS information file may be with the format of *.csv or *.cel.

6.6 Importing a Map

An imported map shows the drive test track directly and vividly.

Imported maps contain outdoor maps and indoor maps. An outdoor map shows outdoor test tracks while an indoor map displays the indoor test tracks.

6.6.1 Importing an Outdoor Map

The outdoor map falls into the following two types:

- MapInfo digit map
- Raster map

I. Importing and Editing MapInfo Digit Map

To import the MapInfo digit map, perform the following steps:

1) Choose **View** > **Map** on the main menu of the Probe. Alternatively, double-click **Map** in the **View** tab.
   The **Map** window is displayed, as shown in Figure 6-16.

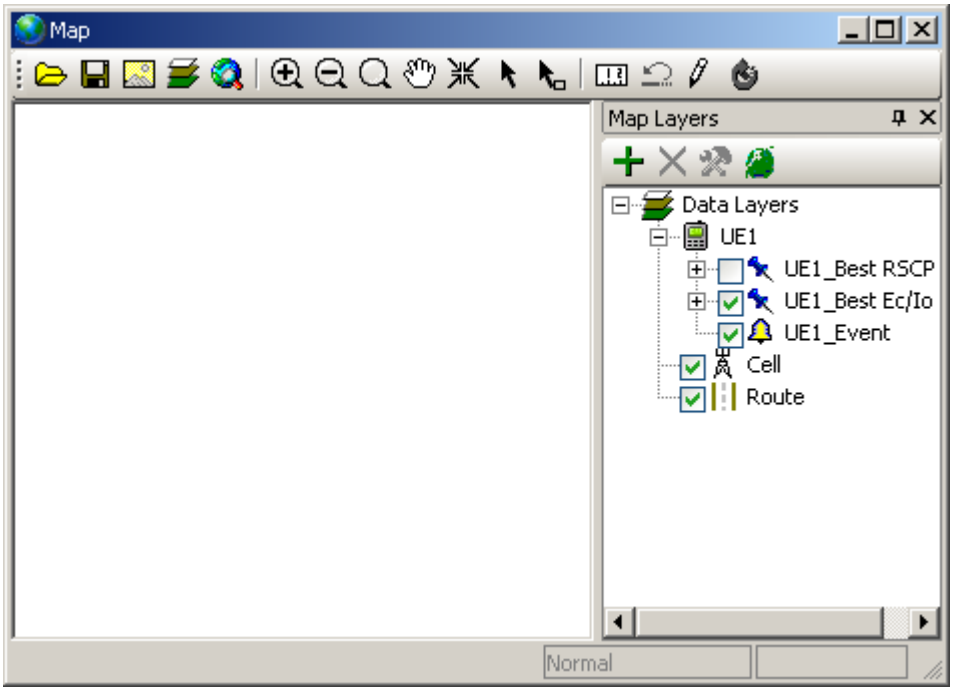


Figure 6-16 Map window

2) Click .
3) Choose the map set file with the extension .gst and open it.
4) Click .
   The **Layer Control** dialog box is displayed, as shown in Figure 6-17.

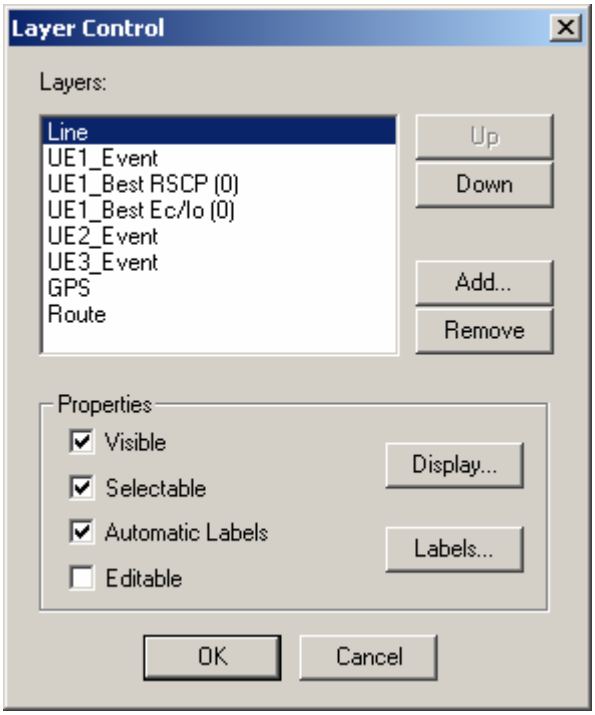


Figure 6-17 Layer Control dialog box

5) Perform some routine operations on the layer, such as adding, deleting, or moving the layer.

6) Click  after editing the map and save the map as a .gst file.

II. Importing a Raster Map

A raster map can be used as a background layer. The Probe supports the following types of raster maps:

- .bmp
- .tif
- .jpg
- .gif
- .png

To import a raster map, perform the following steps:

1) Choose **View** > **Map** on the main menu of the Probe. Alternatively, double-click **Map** in the **View** tab.
   The **Map** window is displayed, as shown in Figure 6-16.

2) Click  in the **Map** window.

3) Double-click the raster map file in the open dialog box.
   The **Raster Image** dialog box is displayed, as shown in Figure 6-18.

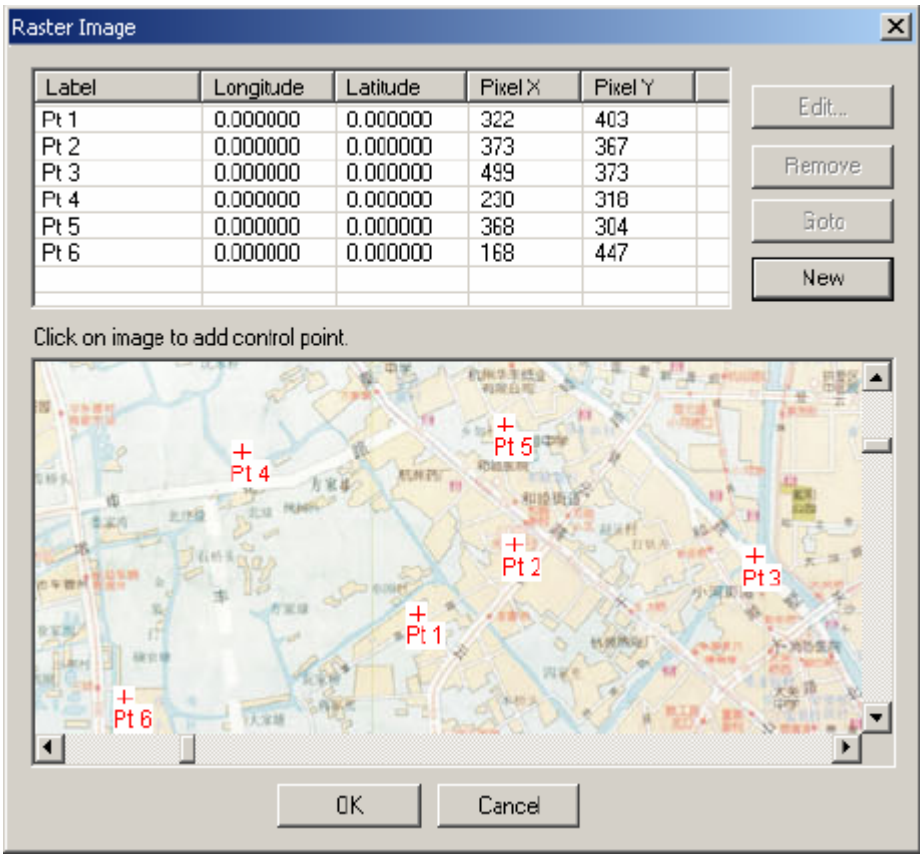


Figure 6-18 Raster Image window

4) Click one point in the map area.
The **Add Control Point** dialog box is displayed, as shown in Figure 6-19.

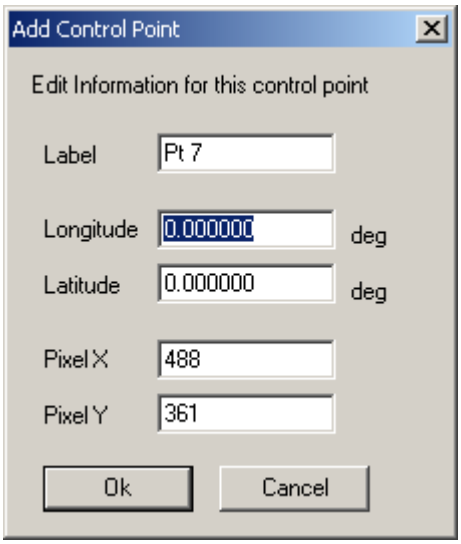


Figure 6-19 Add Control Point dialog box

5) Specify the label, longitude, latitude, pixel X, and pixel Y.

6) Repeat the steps mentioned previously to edit at least three points.
The more points you edit, the higher the precision is.

7) Click **OK**.
The raster map is displayed as a layer in the **Map** window.

8) After editing the raster map, click  to save the map file as a .gst file.

6.6.2 Importing an Indoor Map

To import an indoor map, perform the following steps:

1) Choose **View** > **Indoor Measurement** on the main menu. Alternatively, click **Indoor Measurement** in the **View** tab.
The **Indoor Measurement** window is displayed.

2) Click  on the toolbar.
The **.tif or .bmp File** dialog box is displayed.

3) Choose a file.

4) Click **OK**.

Figure 6-20 shows the **Indoor Measurement** window after the import of the indoor map.

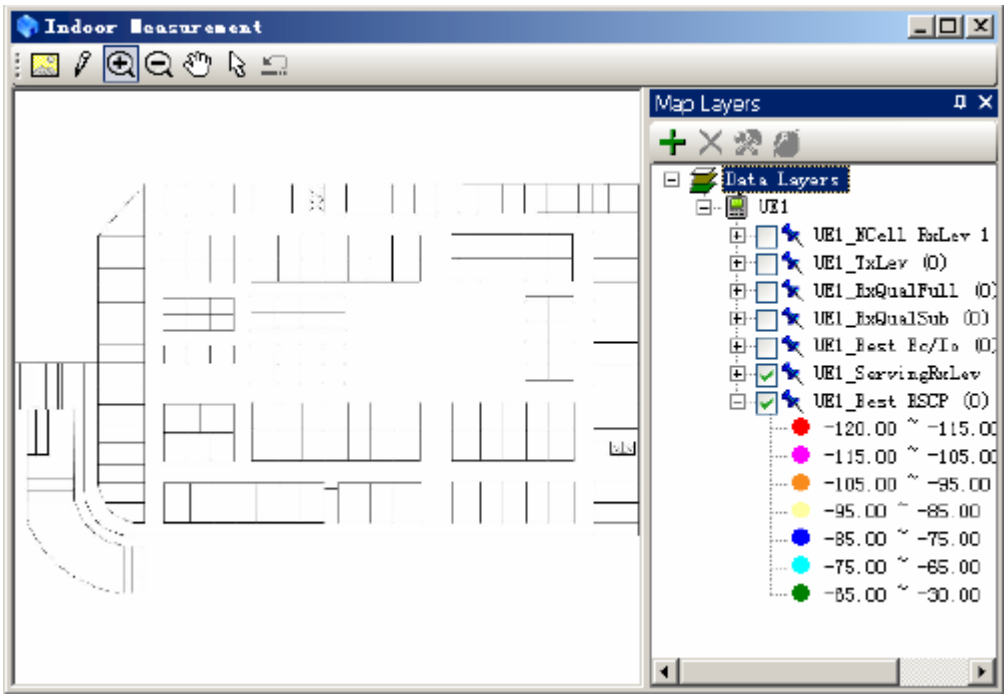


Figure 6-20 Indoor Measurement dialog box

6.6.3 Managing Map Layers

The layers come in the static and the dynamic layers. This part describes only the static layer management.

For details about the dynamic layers, refer to part 9.3.4 "Adding or Deleting a Layer."

Note:

Whether the layer is static or dynamic, the layer can be edited in the **Layer Control** dialog box. You can add a dynamic layer on the **Map Layers** bar.

I. Adding a Static Layer

To add a static layer, perform the following steps:

1) Click **Add** in the **Layer Control** dialog box.
2) Choose the required MapInfo Tables in the **Add** dialog box.

II. Removing a Static Layer

To remove a static layer, perform the following steps:

1) Select the layers to be removed in the area of **Layers** in the **Layer Control** dialog box.
2) Click **Remove**.

III. Adjusting Layer Sequence

To adjust the layer sequence, perform the following steps:

1) Choose the layers whose sequences need adjusting in the **Layer Control** dialog box.
2) Click **Up** or **Down**.

IV. Setting Layer Properties

To set layer properties, perform the following steps:

1) Choose the layers whose properties need revising in the area of **Layers** in the **Layer Control** dialog box.
2) Set the layer properties in the area of **Properties**.
   The properties are as follows:
   - Visible
   - Selectable
   - Automatic Labels
   - Editable

🕮 **Note:**

For users who familiarize themselves with the MapX, click **Display…** or **Labels…** to set the layer properties.

6.7 Setting the System

The system setting involves the setting of the following five modules:

- Test Plan
- Log Mask
- Event
- Alarm
- Other

Except for the Test Plan module, the other four modules provide the default settings.

You can set different test plans to meet different requirements. Table 6-2 lists suggestions for test plan.

Table 6-2 Suggestions for test plan

If…	Huawei recommends that …
You use the Probe for the first time and would like to be familiar with it	you go through each subsection to know more detailed information.
You have some knowledge about the Probe system configuration, and would like to conduct only some routine test	you go through those modules related to the drive test.
You familize yourself with the Probe settings, and would like to know how to control the test, control the display data or else	you start with Chapter 9 ”Controlling the Test and Playing the Log File Back.”

🕮 **Note:**

The hardware must be configured before the system configuration. For details about how to connect device hardware, refer to Chapter 7 "Connecting the Devices.”

6.7.1 Setting a Test Plan

For different devices, the Probe offers different test items, and each test item is defined by the test properties. You can save a test plan for later use, which ensures the consistency and objectiveness of different tests.

I. Creating a New Test Plan

At present, the Probe supports the following three types of test devices:

- UE
- Scanner

To create a new test plan, perform the following steps:

1) Choose **Configuration** > **System Config** on the main menu.
The **Test Plan** dialog box is displayed, as shown in Figure 6-21.

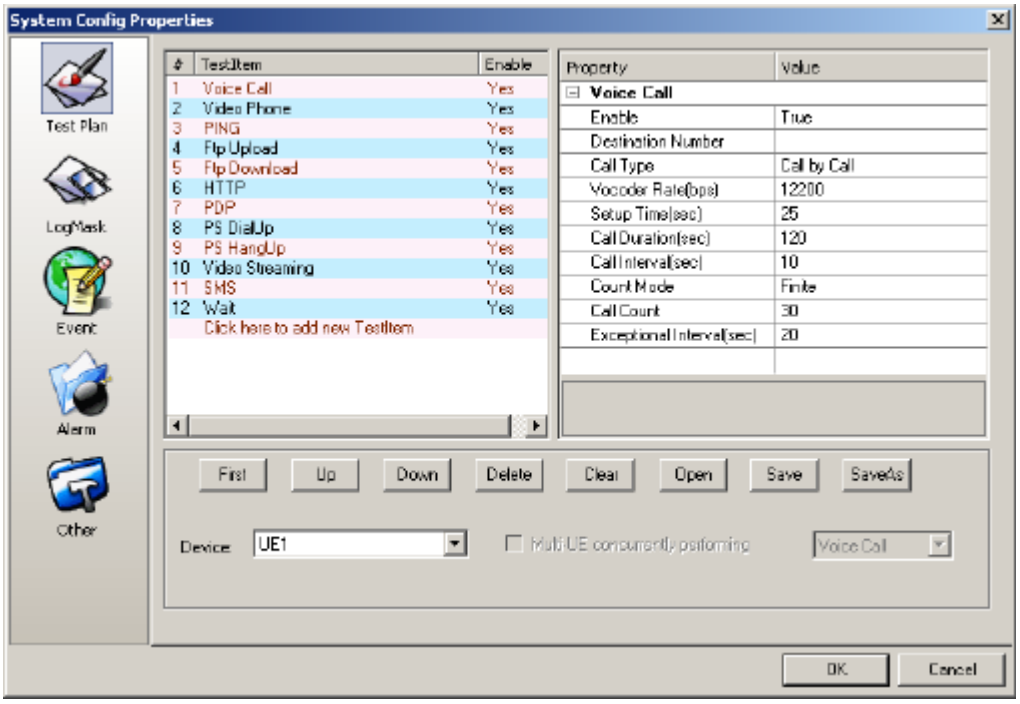


Figure 6-21 Test Plan dialog box

2) Choose the device for the test plan from the **Device Select** drop-down list, as shown in Figure 6-22.

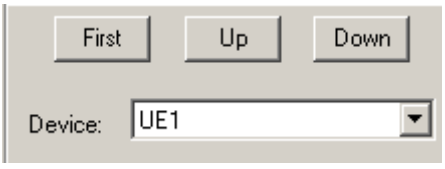


Figure 6-22 Device drop-down list

3) Click a test item in the **TestItem** screen.
   The **TestItem** drop-down list is displayed.
4) Choose a test item, as shown in Figure 6-23, Figure 6-24, and Figure 6-25.

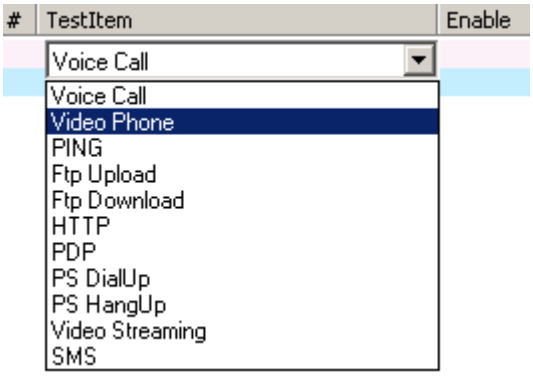


Figure 6-23 UE test item

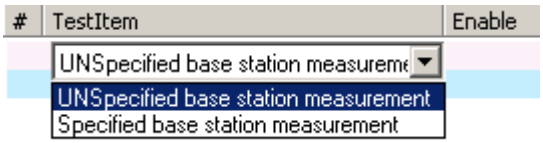


Figure 6-24 Anritsu Scanner test item

Figure 6-25 DTI Scanner test item

Note:

- In the Probe, several UEs and one Scanner can carry out their test plans at the same time. For each UE, several test items can be configured and carried out one by one.
- You can adjust the test sequence to meet different drive test requirements.
- You can set the properties for each item in the test plan based on the purpose of the drive test. For details about the property setting, refer to Chapter 7 "Connecting the Devices."
- In case of the manual tests with DTI and Anritsu ML8720B, you need to set the test plan before the system receives and analyses the test data.

II. Saving a Test Plan

You can save a configured test plan as a file.

To save the test plan, perform the following steps:

1) Click **Save** or **Save as** to save the current test plan.
2) Specify the name and the directory of the current test plan.

III. Importing a Test Plan

You can load the test plan information by importing the test plan file.

To import the test plan, perform the following steps:

1) Click **Open**.
2) Specify the directory of the test plan file and open it.

6.7.2 Setting the Log Mask

You can perform the following operations in the **LogMask** dialog box:

- Set the LogMask
- Save the Log file
- Specify the directory for the Log file

The LogMask is to:

- Filter Qualcomm Log data packet
- Report the specified data packet

To set the LogMask, perform the following steps:

1) Click the LogMask icon on the left of the **System Config Properties** window. The **LogMask** window is displayed, as shown in Figure 6-26.

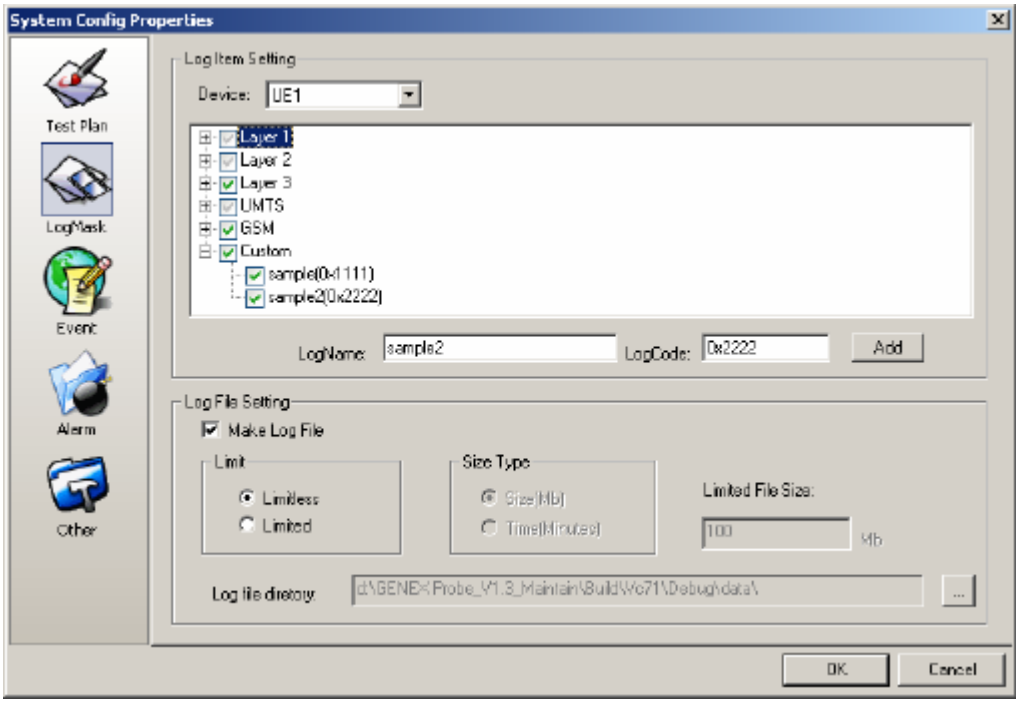


Figure 6-26 LogMask dialog box

2) Choose the device in the **Device** drop-down list.
3) Select the Log to be tested in the **Log Item Setting** area, as shown in Figure 6-27. The UE reports the associated data when certain items are selected.

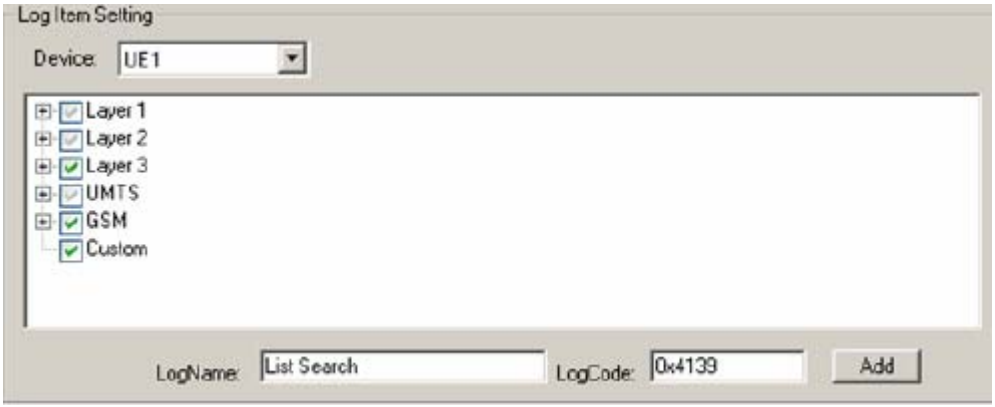


Figure 6-27 Log Item Setting area

Note:

Figure 6-27 shows the default log item setting. Huawei recommends that you select some vital options. If you do not select them, the data file does not contain the associated information about the options.

---

4) Click **Add** to add the custom log masks dynamically.
After the addition of the log masks, some sub-nodes are displayed under the **Custom** node, as shown in Figure 6-28.

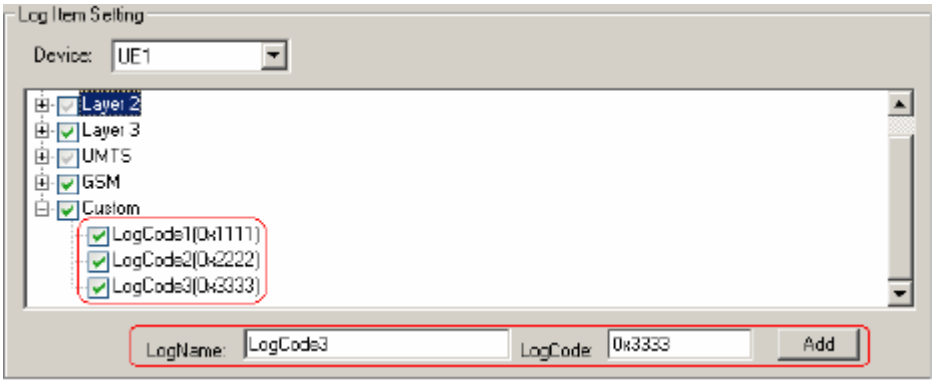


Figure 6-28 Custom logmask

5) Select the **Make Log File** check box in the **LogMask** window.
The Probe records the drive test data in the log file. If the **Make Log File** check box is not selected, the Probe does not record any drive test data. By default, the Probe saves the drive test data as log file.
6) Select the **Limitless** or the **Limited** check box.
In the former case, the options in the **Size Type** drop-down list are unavailable. In the latter case, you can set the size of the log file.

Note:

Two ways are available to limit the size of data file:

- Control the length of the log file
- Control the test duration

The threshold of a record for a single file is about 1.048 x 10^6. The capacity of hard disk is within the range of 100 MB–300 MB (depending on the network environment).

---

7) Click the unfold button in the filed of **Log file directory** and choose the specified path.
The Probe generates the name for the log file automatically. The file is named after as follows: GENEX_PROBE_Version Number_Auto Date_System Time, for example: GENEX_PROBE_1_WCDMA_2004-2-19-15-43-45.gen. You can customize the name for the log file.

🕮 **Note:**

- The sampling rate in the **LOG Mask** is different from that in **Other**.
- **LOG Mask** is to filter the data based on the requirements.
- **Other** is to decide whether or not to set the sampling and sampling frequency.
- Whether the data is reported or not depends on the **LogMask** rather than the **Other** dialog box.

6.7.3 Setting the Events

Table 6-3 lists the default events provided by the Probe.

Table 6-3 Event list

Event Type	Event Name
CallState Event	OutgoingCallAttempt
	OutgoingCallAlerting
	OutgoingCallAnswered
	OutgoingCallDisconnected
	Paging Type1
	Paging Type2
	IncomingCallResponsed
	IncomingCallAlerting
	IncomingCallAnswered
	IncomingCallDisconnected
	CMServiceReq
	CMServiceAcpt
	CMServiceRej
	CallDropped
	CallCompleted
	CallSetupFail
	CallSetupFailing

Event Type	Event Name
	CallDropping
	CallReSetup
	DataServiceReq
	DataServiceAcpt
	DataServiceRej
	DataServiceSetupFail
	DataServiceDropped
	DataServiceCompleted
RRC Event	RRCSetupReq
	RRCSetupSuc
	RRCSetupFail
	RRCConnectionRel
	RRCConnectionAbnormalRel
	RRCState
RB Event	RBSetupReq
	RBSetupSuc
	RBSetupFail
	RBReconfigSuc
	RBReconfigFail
	RBRelease
	RBReleaseFail
SHO Event	SoftHO
	SoftHOFail
	SofterHO
	Soft-SofterHO
	SofterHO3Cell

Event Type	Event Name
	SoftHO3Cell
	Event1A
	Event1B
	Event1C
	Event1D
	Event1E
	Event1F
HHO Event	Event2A
	Event2B
	Event2C
	Event2D
	Event2E
	Event2F
	IntraFreqHHOSuc
	IntraFreqHHOFail
	InterFreqHHOSuc
	InterFreqHHOFail
MM Event	LAUpdateReq
	LAUpdateSuc
	LAUpdateFail
GMM Event	AttachSuc
	AttachFail
	PDPActivationReq
	PDPActivationSuc
	PDPActivationFail
	PDPDeActivation

Event Type	Event Name
	RAUpdateReq
	RAUpdateSuc
	RAUpdateFail
InterRat Event	CSConnectionHO3Gto2GAttempt
	CSConnectionHO3Gto2GSuc
	CSConnectionHO3Gto2GFail
	CSConnectionHO2Gto3Gattempt
	CSConnectionHO2Gto3GSuc
	CSConnectionHO2Gto3GFail
	PSConnectionHO3Gto2GAttempt
	PSConnectionHO3Gto2GSuc
	PSConnectionHO3Gto2GFail
	3Gto2GCellReselection
	2Gto3GCellReselection
	Event3A
	Event3B
	Event3C
	Event3D
Other Event	Detach
	CellReselectionConnectedMode
	AuthenticationReq
	AuthenticationRsp
	AuthenticationFail
	SecurityModeReq
	SecurityModeSuc
	SecurityModeFail

Event Type	Event Name
	AuthenCipherReq
	AuthenCipherSuc
	AuthenCipherFail
	PhChannelRecfgSuc
	PhChannelRecfgFail
	TrChannelRecfgSuc
	TrChannelRecfgFail
GSM Event	GSMCallAttempt
	GSMCallAttemptFail
	GSMAssignmentSuc
	GSMAssignmentFail
	GSMLateAssignmentSuc
	GSMLateAssignmentFail
	GSMCallAnswered
	GSMCallCompleted
	GSMCallDropped
	GSMOutgoingCallUnReachable
	GSMDisconnected
	GSMOutgoingCallAleritng
	GSMIncomingCallAleritng
	GSMDataServiceDropped

To configure the events, perform the following steps:

1) Click the event icon in the left side of the **System Config** window.
   The **Event** dialog box is displayed, as shown in Figure 6-29.

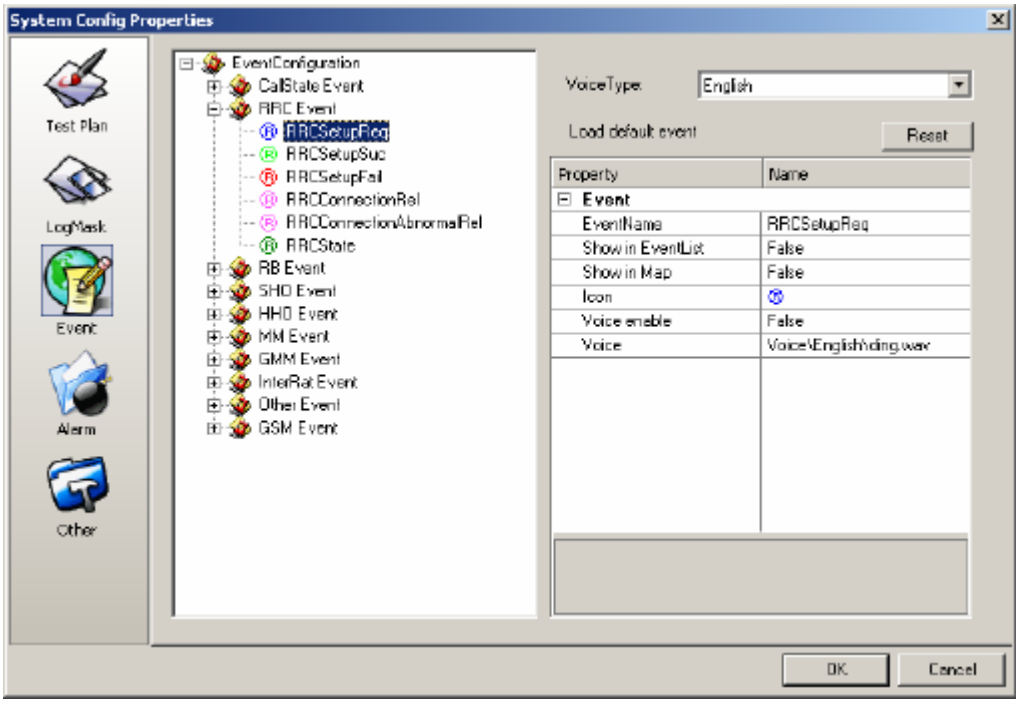


Figure 6-29 Event dialog box

2) Choose one event and modify its properties.

Table 6-4 lists the descriptions of event properties.

Table 6-4 Descriptions of event properties

Property	Description
EventName	Cannot be modified.
Shown in EventList	Decides whether or not to display the events in the event list.
Show in Map	Decides whether or not to display the events in the map.
Icon	Sets the symbols for the event display.
Voice enable	Decides whether or not to give audible prompt when the event occurs.
Voice	Sets the sound file.

6.7.4 Setting the Alarms

You can set alarms on the alarm setup page. The Probe supports the following four alarm items:

- UE Disconnection
- GPS Disconnection
- SCANNER Disconnection
- GPS Signal Inadequate

For each of the previous alarm items, you can choose the visual alarm or audio alarm. In case of audio alarm, the sound is user-definable.

To set the alarms, perform the following steps:

1) Click the alarm icon on the left of the **System Config Properties** window.
   The **Alarm** dialog box is displayed, as shown in Figure 6-30.

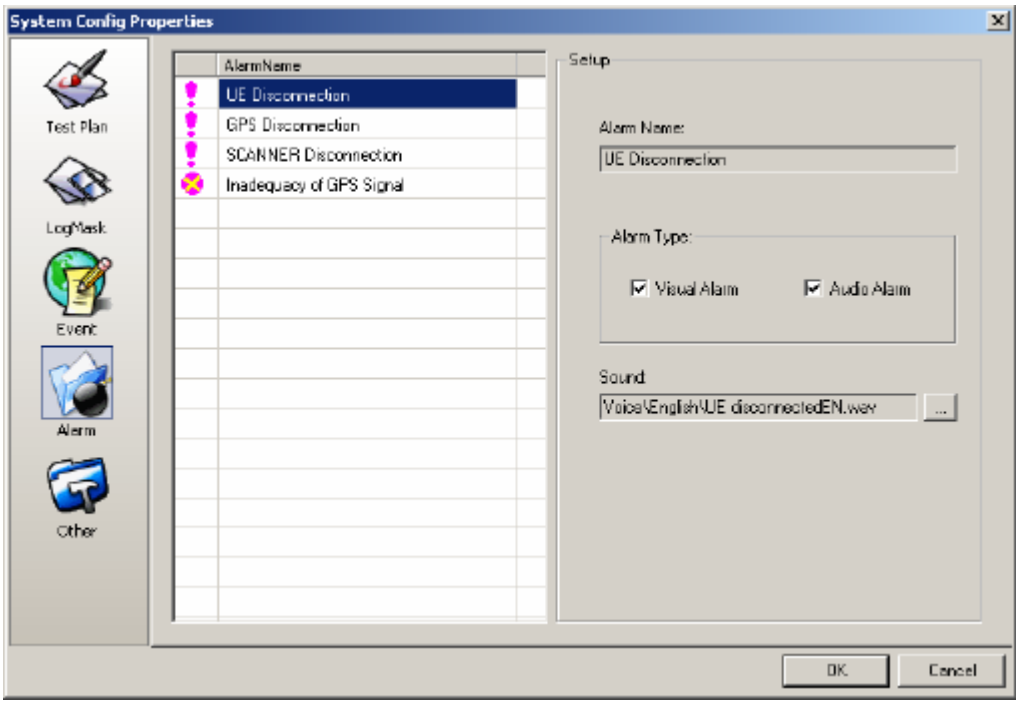


Figure 6-30 Alarm dialog box

2) Choose an alarm in the **Alarm Name** area.

   : Indicates that the alarm setting takes effect.

   : Indicates that the alarm setting does not take effect.

3) Choose an alarm type in the **Alarm Type** area.
   You can either select the **Visual Alarm** or the **Audio Alarm** check box individually or select both of them at a time. If you select neither of the two boxes, the alarms become unavailable.
4) Click the unfold button in the **Sound** area to specify the directory of the sound file.

6.7.5 Setting Others

The **Others** contains:

- Time
- DailUp connection
- Display filter
- Event playback mode
- DTI Scanner gain parameter

Note:

If the PS service test is not necessary, the dialup connection setting is optional.

I. Setting Time

Setting the Log Time

The Probe provides the following two modes to record the time label of each Log header in the drive test file:

- Data-synchronization first
- UE-Time first

Figure 6-31 shows the **Log Time Setting** dialog box.

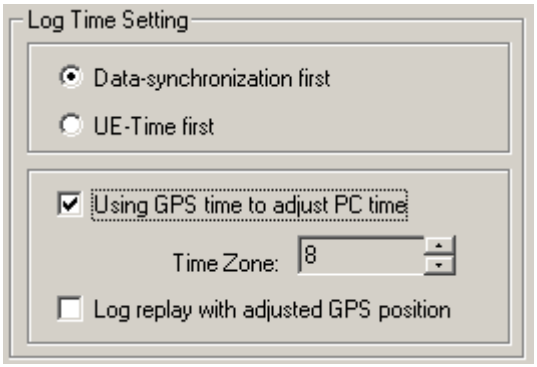


Figure 6-31 Log Time Setting dialog box

Table 6-5 lists the setting of the log time.

Table 6-5 Setting log time

If you…	The Probe…
Select the **Data-synchronization first** check box	Chooses the time when the log is loaded on the PC as the time for log header. ***Note:*** • *The data-synchronization first method synchronizes the data of each UE and Scanner well. If there are large gap between the PC time and UE time, or in case of PC poor performance, the time for log header is later than the time when the log is actually generated.* • *Thus, the data-synchronization first method is not applicable to those signaling packets that have high requirements on time precision.*
Select the **UE-Time first** check box	Chooses the time when the signaling packet is generate in the UE as the time for log header, if the UE logs are available. Chooses the time when the log is loaded on the PC as the time for log header, if the other logs are available. ***Note:*** *The UE-Time first method improves the accurancy of time display of the UE logs. The big gap between the UE time and PC time leads to the inaccuracy of the relative time between UE logs and other logs.*

Adjusting the PC Time

The GPS provides the standard time for the Probe. Namely, the GPS time takes effect in the system as long as the GPS is connected to the system. In addition, the GPS time can be converted into the local time.

To adjust the PC time, perform the following steps:

1) Click **Other** on the left of the **System Config** window.
   The **Other** setup page is displayed, as shown in Figure 6-32.

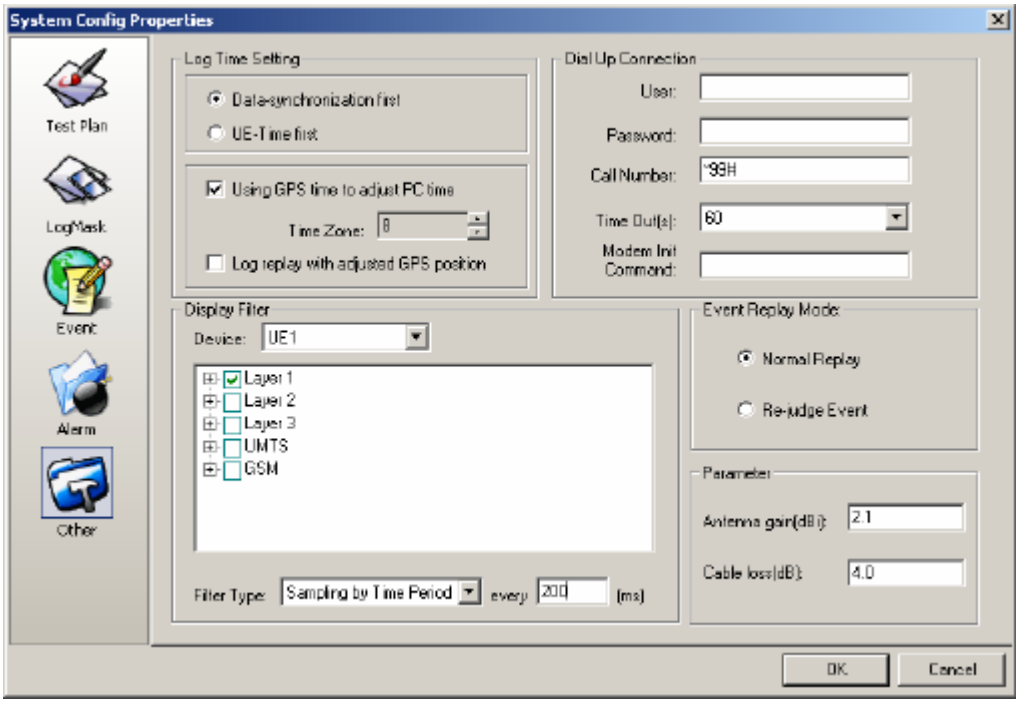


Figure 6-32 Others dialog box

2) Select the **Use GPS time to adjust PC time** check box to set the GPS UTC time to the PC time, as shown in Figure 6-33.
3) Select the time in the **Time** drop-down list.

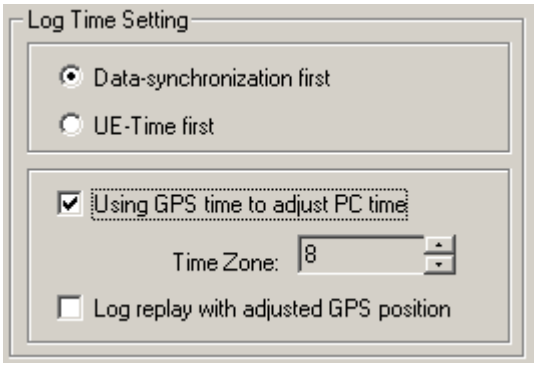


Figure 6-33 Adjusting the PC time

Adjusting GPS Position

To adjust the GPS position, select the **Log replay with adjusted GPS position** check box.

II. Setting the Dial up Connection

To set the dial up connection for the PS service, perform the following steps:

1) Enter the user name in the **User** field.

2) Enter the login password in the **Password** field.
3) Enter the call number in the **Call Number** field, as shown in Figure 6-34.
4) Enter the time need in the **Time Out** drop-down list.
5) Enter the modem initial command in the **Modem Init Command** field.

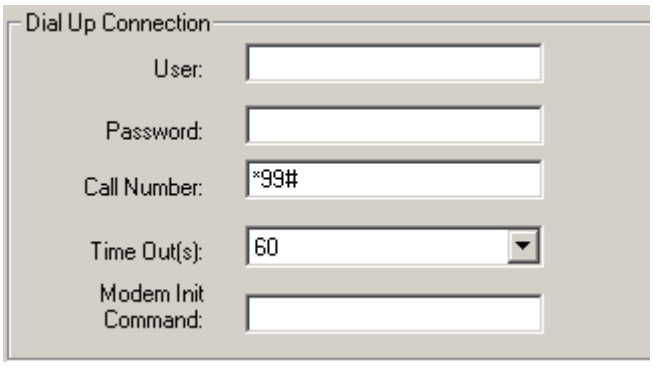


Figure 6-34 Dial Up Connection dialog box

III. Setting the Display Filter

Before test, you can set the sampling frequency for each device. The sampling frequency setting limits the inputs of useless redundant data to a large extent, which saves time and system resources.

By default, the Probe adopts the time sampling for the following two vital parameters:

- List Search
- Finger Info for TA

To set the sampling frequency, perform the following steps:

1) Choose the sampling device in the **Device** drop-down list, as shown in Figure 6-35.

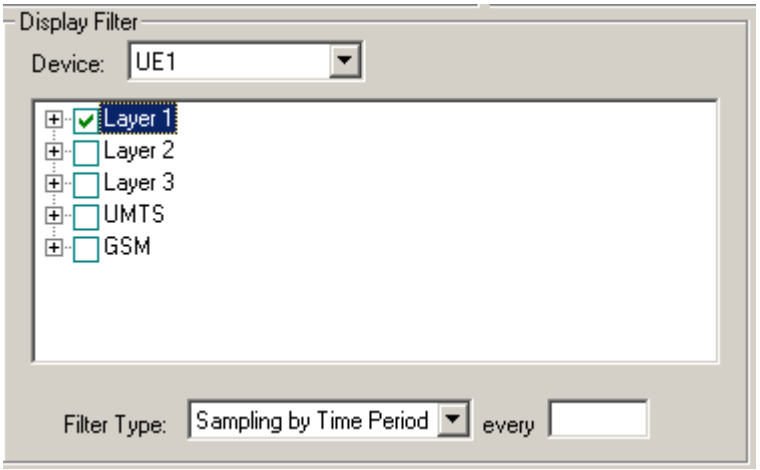


Figure 6-35 Device drop-down list

2) Choose the parameters to be filtered.
3) Choose the filtering type in the **Filter Type** drop-down list.

🕮 **Note:**

The following three sampling modes are available in the setting of the display filter:

- Sampling by time period: Samples every certain time (ms)
- Sampling by count: Samples based on the count of data report
- No sampling: No sampling is conducted on any parameters. Namely, the Probe reads the data flowing from the device.

---

4) Set the sampling frequency value in the **Every** field.
   - If the sampling mode is by time period, the unit for the sampling value is ms.
   - If the sampling mode is by count, the unit for the sampling value is times.

IV. Setting the Event Replay Mode

To set the event replay mode, click the **Normal Replay** or **Re-judge Event** box in the **Event Replay Mode** list box, as shown in Figure 6-36.

Figure 6-36 Event Playback Mode list box

🕮 **Note:**

- The **Normal Replay** reads events directly from the log file.
- The **Re-judge Event** produces events dynamically.

V. Setting DTI Scanner Gain Parameter

If the antenna gain and cable loss cannot be neutralized, you need to set them separately, as shown in Figure 6-37.

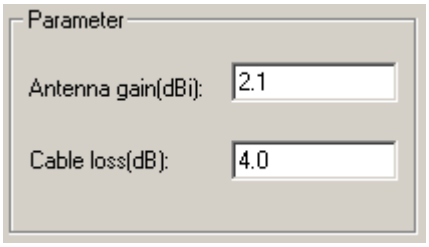


Figure 6-37 Parameter dialog box

Chapter 7 Connecting the Devices

7.1 Overview

The chapter contains the following contents:

- Setting a UE
- Setting the GPS Receiver
- Setting the Anritsu Scanner
- Setting the DTI Scanner
- Identifying the Devices

7.2 Setting a UE

This section contains the following parts:

- Setting the UE Connection
- Setting the Probe
- Setting the APN for UE

7.2.1 Setting the UE Connection

You can connect the testing UE to the PC in the following ways:

- Through a port
- Through a USB
- Through a PCMCIA

🕮 **Note:**

- Common UEs are equipped with USB data line, while some UEs have serial port cable as well as the USB data line. The serial port cable, however, cannot be applied in the actual test due to the limited baud rate.
- The USB is the main method for connection. The data line is connected to the PC through the PCMCIA.

I. Connecting a UE Through a Port

The port connection mode is applicable to the following UEs:

- Qualcomm 6200
- Qualcomm 6250

- Qualcomm 6275

To connect a UE through a port, perform the following steps:

1) Open a UE.
2) Connect the UE to a port on the PC through a port data line.
3) Keep the UE active.
4) Set the connection mode for the UE port, as listed in Table 7-1.

II. Connecting a UE Through an USB port

An USB port serves as an essential mode for the connection of a UE to a PC. At present, the USB connection mode is applicable to the following UEs:

- Qualcomm 6200
- Qualcomm 6250
- Qualcomm 6275
- Huawei U526
- Huawei U626
- Huawei U636

For details about the connection, refer to Table 7-1.

III. Connecting a UE Through PCMCIA

The PCMCIA connection mode is only applicable to Huawei E600 and Huawei E620. For details about the connection, refer to *Operation Guide* and *User Guide* for the E600 and the E620.

Table 7-1 lists the detailed information about UE connection.

Table 7-1 UE connection

UE Type	Port Connection	USB Connection	PCMCIA Connection
Qualcomm 6200	1) Choose **Menu** > **5 Setting** > **7 Extras** > **1 SIO Config** > **1 Port Map** > **1 Diag** > **UART** to choose the port. 2) Choose **Menu** > **5 Setting** > **7 Extras** > **1 SIO Config** > **1 Port Map** > **2 DS BAUD** to set the baud rate to 115200.	1) Choose **Menu** > **5 Setting** > **7 Extras** > **1 SIO Config** > **1 Prot Map** > **1 Diag** > **USB DIAG**. 2) Choose **Menu** > **5 Setting** > **7 Extras** > **1 SIO Config** > **1 Port Map** > **2 DS BAUD** to set the baud rate to 230400.	Non-supportive

UE Type	Port Connection	USB Connection	PCMCIA Connection
Qualcomm 6250	1) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **Port Map** > **Diag** to choose UART1 (COM1) or UART3 or (COM3) based on the port number to which the UE is connected. 2) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **DS Baud** to set the baud rate to 115200.	1) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **Port Map** > **Diag** to choose **USB Diag**. 2) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **DS Baud** to set the baud rate to 230400.	Non-supportive
Qualcomm 6275	1) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **Port Map** > **Diag** to choose UART1 (COM1) or UART3 or (COM3) based on the port number to which the UE is connected. 2) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **DS Baud** to set the baud rate to 115200.	1) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **Port Map** > **Diag** to choose the **USB Dialog**. 2) Choose **SETTINGS** > **Extras** > **SIO Configuration** > **DS Baud** to set the baud rate to 230400.	Non-supportive
Huawei U526	Unavailable	No additional setting	Non-supportive
Huawei U626	Unavailable	No additional setting	Non-supportive
Huawei U636	Unavailable	No additional setting	Non-supportive
Huawei E600	Unavailable	No additional setting	For details, refer to *Operation Guide* and *User Guide* for E600.

UE Type	Port Connection	USB Connection	PCMCIA Connection
Huawei E620	Unavailable	No additional setting	For details, refer to *Operation Guide* and *User Guide* for E620.
Commercial UE	For details, refer to the operation guide and user guide.	For details, refer to the operation guide and user guide.	Non-supportive

IV. Installing the Driver

You need to install the driver correctly on the UE before the first use.

To install the driver on the Qualcomm 6200, 6250, or 6275, perform the following steps:

1) Connect the Qualcomm UE to the PC through the USB line.
   The system gives a prompt, indicating it is a hardware installation driver.
2) Choose the installation from the disk.
3) Choose the **qcser2k.inf** and **qcmdm2k.inf** files under the directory of **\Accessory\Driver\ TM6200 USB Driver 1103**.
4) Update the driver when the UE is in use.

🕮 **Note:**

- The update program for TM6250 is under **\Accessory \Driver\QCUSBCompositeHostDriver2012**.
- The update program for TM6275 is under **\Accessory\Driver\ QCUSBCompositeHostDriver2032**.

To install the driverr on the Huawei U526, U626, U636, E600, or E620, perform the following steps:

1) Connect the Qualcomm UE to the PC through the USB line.
   The system gives a prompt, indicating it is a hardware installation driver.
2) Choose the installation from the disk.
3) Choose the associated file under the directory of **\Accessory\Driver\Huawei 626\winXP** or **Accessory\Driverr\Huawei U626\win2K**.

Note:

- For Huawei U526, the installation directory is **\Accessory\Driver\Huawei 526**.
- For Huawei U636, the installation directory is **\Accessory\Driver\Huawei 636**.
- For Huawei E600, E620, the installation directories are **\Accessory\Driver\E600** and **\Accessory\Driver\E620** respectively.

7.2.2 Setting the Probe

Note:

- Set the UE connected in the Probe system before the test.
- For detailed information about adding or removing devices in the **ManualConfig** window, refer to section 6.4 "Configuring a Device."

To set the configuration parameters, perform the following steps:

1) Click  in the **ManualConfig** window. Alternatively, double-click a device.

   The **Device Config** dialog box is displayed, as shown in Figure 7-1.

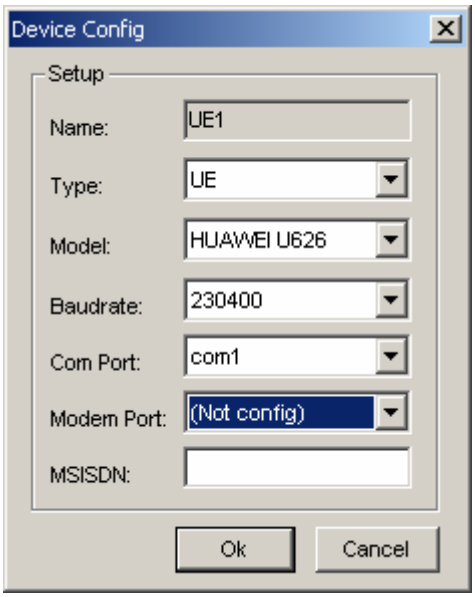


Figure 7-1 Device Config dialog box

2) Choose **UE** in the **Type** drop-down list in the **Device Config** dialog box. The system renames the device automatically.
3) Set the UE model in the **Model** drop-down list.

4) Choose the baud rate in the **Baudrate** drop-down list.
   - If the UE is connected with the port on the PC, Huawei recommends setting the baud rate to 115200.
   - If the UE is connected with the USB on the PC, Huawei recommends setting the baud rate to 230400.
5) Set the device port.
   - The system searches for the COM port automatically, and adds the new port into the Port drop-down list.
   - For the CS service, choose the port that the port Diag corresponds to in the Com Port drop-down list.
   - For the PS service, choose the port that the port Modem corresponds to in the Modem Port drop-down list, as well as the port that the port Diag corresponds to in the Com Port drop-down list.
6) Click **OK**.

Note:

- When the UE is connected to the PC through a USB, two virtual Com ports are displayed for the UE, and named **Diag** window and **Modem** window. You can distinguish these two windows from each other by checking the port and modem configuration.
- The Diag port must be configured for the test. For the PS service, the Modem port must be configured, as well as the Diag port. If the Modem port is not configured, the Probe cannot initiate the PS service, let alone record or observe the throughput on the application layer.
- When multiple UEs are connected, several ports are created. Huawei recommends connecting the UE and configuration port one by one to avoid any mismatch.

7.2.3 Setting the APN for UE

You need to set the Access Point Name (APN) for a UE before conducting the PS service test.

I. Setting the APN in the Operating System

To set the APN in the operating system, perform the following steps:

1) Open the **System Config Properties** window.
2) Unfold the **Modem** list and choose a modem.
3) Choose **Advanced** in the **Modem** dialog box.
4) Enter the commands below in the **Extra Initialized Command** field: `at+cgdcont=1, "ip", "your APN".`

5) Click **OK**.

II. Setting the APN in the Probe

To set the APN in the Probe, perform the following steps:

1) Choose **Configuration** > **System Configuration** on the main menu.
   The **System Config Properties** window is displayed.
2) Click **Other**.
   The **Other** dialog box is displayed, as shown in Figure 7-2.

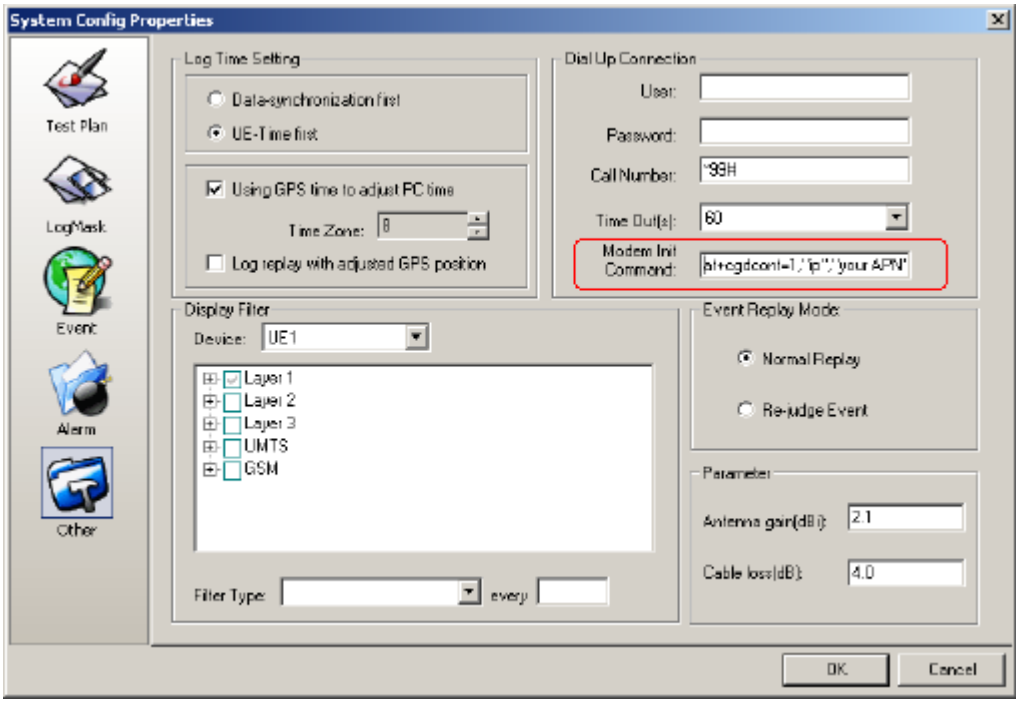


Figure 7-2 Other dialog box

3) Enter the command below in the **Modem Init Command** field:
   `at+cgdcont=1, "ip", "your APN".`
4) Click **OK**.

You can also set the APN in the test plan. For details, refer to section 8.2 "Configuring the UE Test Plan."

III. Setting the APN on the UE

To set the APN on the Qualcomm 6250 or 6275, perform the following steps:

1) Choose **DATASTATS** > **Settings** > **Edit Data Profile** on the main menu.
2) Choose a profile in the **Profile** list.
3) Click **OK**.
4) Move the mouse to the APN column and click **OK**.
5) Enter the APN name and click **OK**.

6) Choose **DATASTATS** > **Settings** > **Select Active Data** > **Profile** on the main menu.
7) Choose the modified profile in the **Profile** list.
8) Click **OK** to activate.

To set the APN on the Huawei U526, U626 or U636, perform the following steps:

1) Choose **Menu** > **Connect** > **Data account**.
   The **Profile** list is displayed.
2) Right-click the profile to be edited, and choose **Edit** on the shortcut menu.
3) Enter the APN name in the **APN Name** field and click **Save**.
4) Choose **Menu** > **Connect** > **Modem Setup**.
5) Choose **Activation** in the **USB Modem** list.
6) Choose the edited profile in the **Profile** list.
7) Click **OK**.

You can set the APN on the Huawei E600 or E620 through the delivery-attached programs.

🕮 **Note:**

- The three tips metioned previously for the APN setting aim to initialize the UE Modem before the data service test. You can achieve the goal by employing any of the three methods.
- Among the three APN setting methods, the APN set in the operating system enjoys the highest priority. That is, if the APN are set both in the operating system and in the Probe, the former is used to initialize the Modem. This principle is also applicable to the maximum downlink and uplink rates.
- If the APN or the maximum downlink and uplink rates do not work during the test, check if they are set previously in the operating system. If the APN or the maximum downlink and uplink rates are not set before, initialize the Modem with the latest successful setting.

7.3 Setting the GPS Receiver

This section contains the following parts:

- Setting the GPS Connection
- Setting the GPS in the Probe

7.3.1 Setting the GPS Connection

To set the GPS connection, perform the following steps:

1) Connect the GPS to a PC port through a data line.
2) Enable the GPS.
3) Set the GPS protocol with the GPS operating system.
   The NEMA0183 or TAIP protocol is also available.

7.3.2 Setting the GPS in the Probe

The setting of GPS in the Probe is similar to that of UE.

To set the GPS in the Probe, perform the following steps:

1) Choose **GPS** in the **Type** drop-down list, as shown in Figure 7-3.
2) Choose the **GPS model** in the **Model** drop-down list.
3) Set the baud rate to **4800** in the **Baudrate** drop-down list.
4) Click **OK**.

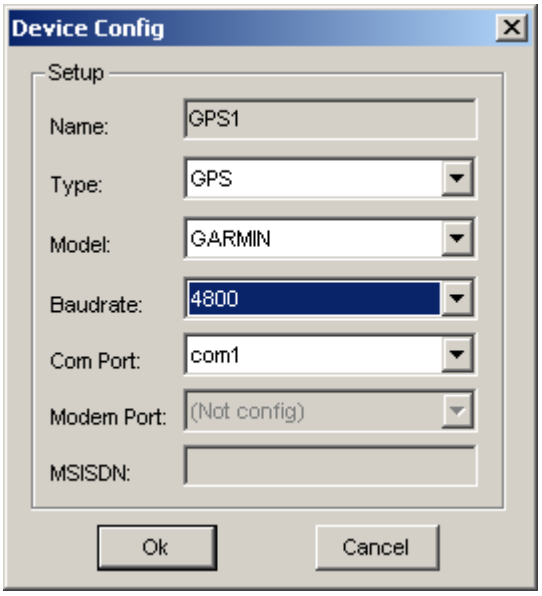


Figure 7-3 Baudrate drop-down list

🕮 **Note:**

The satellite speed differs with the change of application environments. Huawei recommends that a period should be spared (usually five minutes) after the GPS configuration and before the test.

7.4 Setting the Anritsu Scanner

This section contains the following parts:

- Setting the Anritsu Scanner Connection
- Setting the Anritsu Scanner in the Probe

7.4.1 Setting the Anritsu Scanner Connection

For details about the Anritsu Scanner connection, refer to *Anritsu Scanner Operation Guide* and *Anritsu Scanner User Guide*.

7.4.2 Setting the Anritsu Scanner in the Probe

To set the Anritsu Scanner in the Probe, perform the following steps:

1) Choose **Scanner** in the **Type** drop-down list, as shown in Figure 7-4.
2) Choose **Anritsu ML8720B** in the **Model** drop-down list.
3) Choose the port number in the **Com Port** drop-down list.
4) Set the baud rate to **115200** in the **Baudrate** list.
5) Click **OK**.

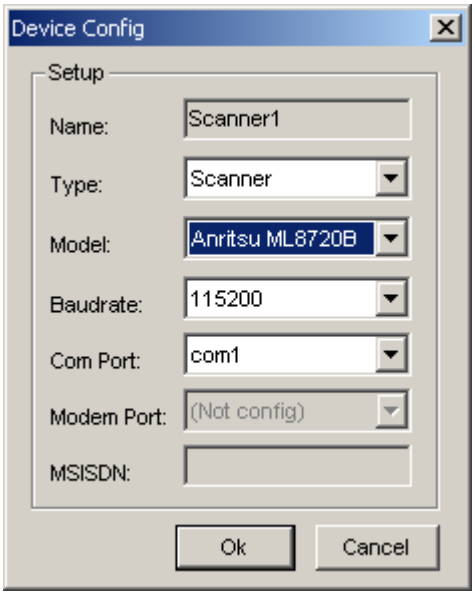


Figure 7-4 Model drop-down list

7.5 Setting the DTI Scanner

This section contains the following parts:

- Setting the DTI Scanner Connection
- Setting the DTI Scanner in the Probe

7.5.1 Setting the DTI Scanner Connection

To set the DTI Scanner connection, perform the following steps:

1) Connect the DTI Scanner to a PC port through the data line.
2) Connect the other end of the data line to the battery or power socket.

After being powered on, the DTI Scanner starts and the light indicator flashes.

- If the DTI Scanner works well, the light indicator turns green.
- If the light indicator is yellow for a while or flashes with yellow light, this indicates that the power is not sufficient or the DTI Scanner does not work well.

7.5.2 Setting the DTI Scanner in the Probe

To set the DTI Scanner in the Probe, perform the following steps:

1) Choose **Scanner** in the **Type** drop-down list, as shown in Figure 7-5.
2) Choose the type of the current DTI Scanner in the **Model** drop-down list.
3) Choose the port No. in the **Com Port** drop-down list.
4) Set the baud rate to **115200** in the **Baudrate** drop-down list.
5) Click **OK**.

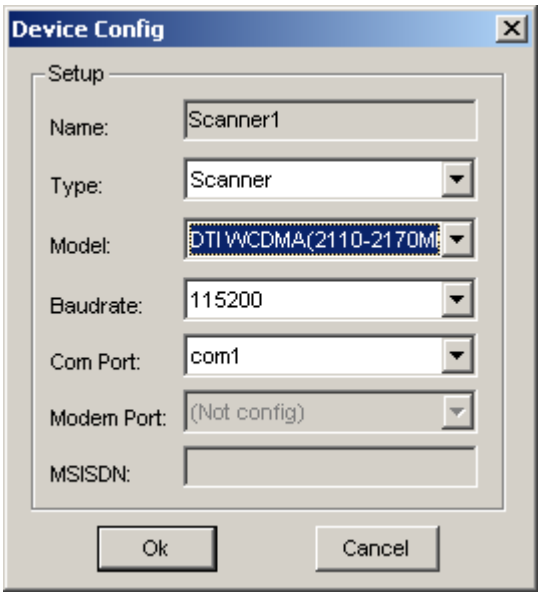


Figure 7-5 Model drop-down list

7.6 Identifying the Devices

The Probe identifies the devices through port scanning.

To identify the devices, you can choose one or several configured devices and click  . Alternatively, right-click a configured device and choose **Test Port** on the shortcut menu.

The system detects the connection status of the port, as shown in Figure 7-6.

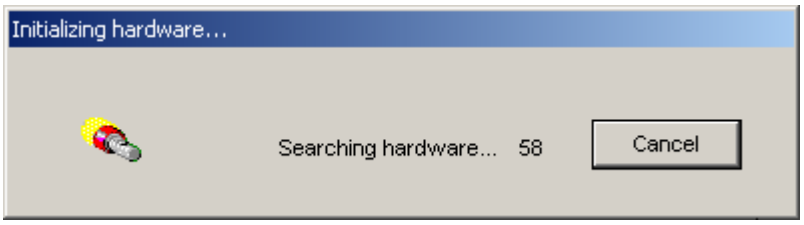


Figure 7-6 Initializing hardware dialog box

Note:

In the event that no devices are selected, the system detects the connection status of all ports that connect the devices.

The system returns the test result automatically and updates the port status in the **Device Config** dialog box.

The status of the devices in the **Device Config** is displayed by the light indicators, as shown in Figure 7-7.

- Red: Indicates the device is not connected or does not work well.
- Green: Indicates the device is connected properly.

Figure 7-7 Device indicators

Chapter 8 Configuring Test Plan

8.1 Overview

This chapter contains the following contents:

- Configuring the UE Test Plan
- Configuring the DTI Scanner Test Plan
- Configuring the Anritsu ML8720B Scanner Test Plan
- Identifying the Devices

Caution:

Set the DTI and SCANNER test plan before conducting the test. In this way, the data from DTI or SCANNER can be captured by the Probe.

The test plan supports automatic drive tests. With the simple and easy-to-follow test plan, you can conduct a series of drive tests. Table 8-1 lists the brief information about the test plan in the Probe.

Table 8-1 Test plan in the Probe

For…	The Probe …
UEs and Scanners	The Probe predefines some test items as follows: • UE CS service test • UE PS service test • CW test • Spectrum analysis • Pilot test • SCH scan • RSSI 3.84 M • Finger information
Other devices	The Probe provides different test items that control test process through test properties.
Same device	You can set and run the test plans in sequence to excute several tasks in batches.

For…	The Probe …
CS and PS Service of the UE	You can choose the concurrent test to verify the combined service performance.
Test plan	The Probe saves it for later searching and sharing with other users.

To update the UE type after the completion of the test plan, perform the following steps:

1) Save the test plan.
2) Modify the UE type.
3) Import the saved test plan.

Otherwise, the old test plan is removed.

8.2 Configuring the UE Test Plan

This section contains the following parts:

Voice Call Test

- Video Phone Test

PING Test

- FTP Upload Test
- FTP Download Test
- HTTP Test
- PDP Test
- PS DialUp Test

PS HangUp Test

- Video Streaming Test

SMS Test

- AT Control Test
- Multi-UE Multi-Technology Comparative Test
- Wait Test

8.2.1 Voice Call Test

I. Function Description

The voice call test verifies the funtions of the automatic test call.

II. Data Configuration

Figure 8-1 shows the data items used in the voice call test.

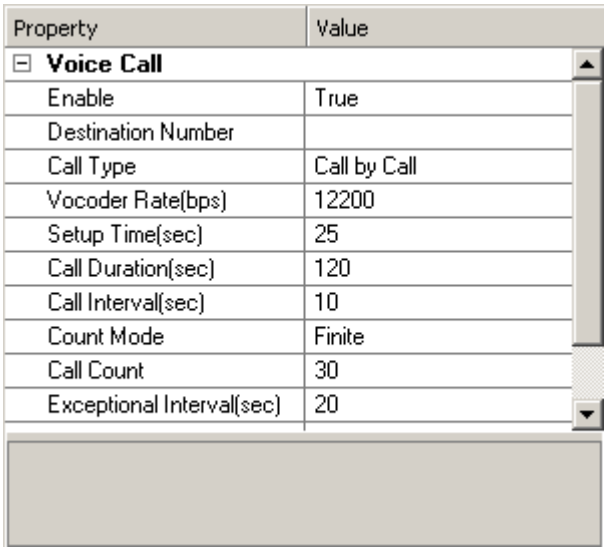


Figure 8-1 Data items in voice call test

Table 8-2 describes the data items in the voice call test.

Table 8-2 Data items in the voice call test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
Destination Number	Indicates the number being called.
Call Type	• Continuous call: The call continues if it does not fail, drop, or hang up. If the call fails, drops, or hangs up, the Probe waits for a call interval to originate another call. • Call by call: The call lasts and waits for the predetermined calling duration and call interval, and repeats for the times defined in call count.
Vocoder Rate(bps)	• Indicates the AMR rate. • Can be set to 4750, 5150, 5900, 6700, 7400, 7950, 10200, 12200.
Setup Time(sec)	Indicates the maximum time for call setup. If the call cannot be setup within the defined period, the call setup fails.

Name	Description
Calling Duration(sec)	• Indicates the duration of one call, from call setup to call normal release. • The item only applies to the call by call.
Call Interval(sec)	Indicates the time between two calls, from the previous call disconnection to the beginning of the next call.
Count Mode	• Indicates the limitations on the call number. • If the value is finite, this indicates that the number of calls is limited. The value, however, cannot exceed the value of call count. • If the value is infinite, this indicates that the number of calls is unlimited.
Call Count	• Indicates the total number of calls. • Applicable to short calls only.
Exceptional Interval(sec)	Indicates the period between the exceptional end of a call and the next call.

Note:

Huawei recommends that the PS dialup not be conducted on the Modem of the outgoing UE when you conduct the voice call test.
The UE that is conducting the PS services can serve as an incoming UE for Voice Call or Video Phone test, thus realizing the CS and PS concurrent test on the same UE. The PS services consist of PING, Ftp Upload, Ftp Download, HTTP, PDP, PS DialUp, PS HangUp, Video Streaming, and SMS.

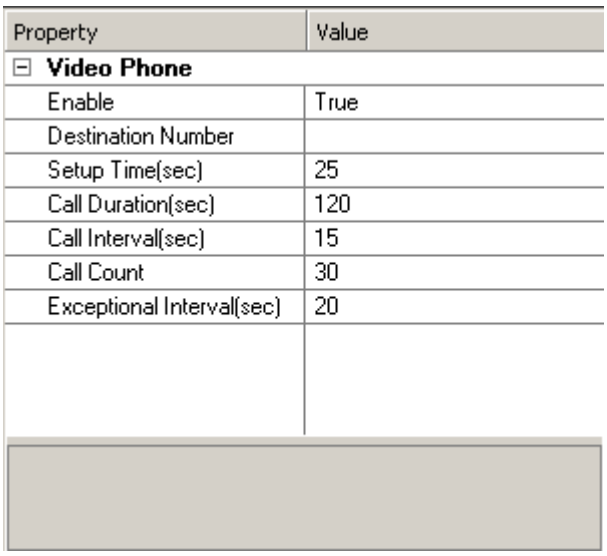
8.2.2 Video Phone Test

I. Function Description

The video phone test verifies the funtions of the video call test, which requires that the UE and called terminal support this function.

II. Data Configuration

Figure 8-2 shows the data items used in the video phone test.



Property	Value
Video Phone	
Enable	True
Destination Number	
Setup Time(sec)	25
Call Duration(sec)	120
Call Interval(sec)	15
Call Count	30
Exceptional Interval(sec)	20

Figure 8-2 Data items in the video phone test

The data items in the video phone test have the same implications as that in the voice call test.

8.2.3 PING Test

I. Function Description

The PING test verifies the funtions of the automatic PING test.

II. Data Configuration

Figure 8-3 shows the data items used in the PING test.

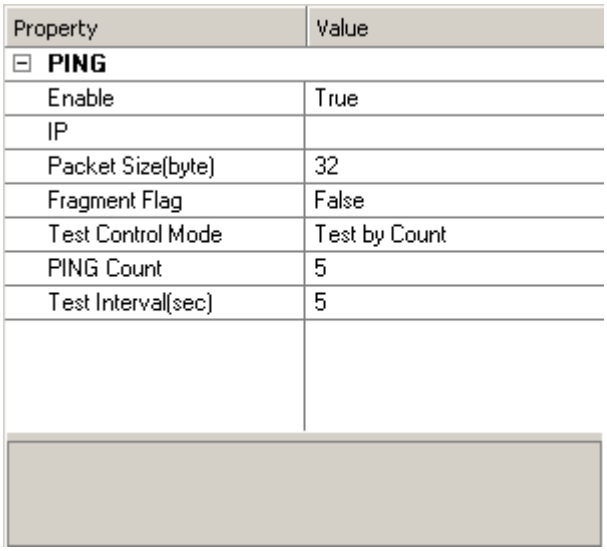


Figure 8-3 Data items in the PING test

Table 8-3 describes the data items in the PING test.

Table 8-3 Data items in the PING test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
IP	Indicates that the destination IP address during PING test.
Package Size(byte)	Indicates that the size of one package.
Fragment Flag	Indicates whether to split a PING packet.
Test Control Mode	Indicates the control mode in the PING test. Can be set either **Test by Count** or **Test by Time**. ***Note:*** *By default, the test control mode is **Test by Count**.*
PING Count	Sets the PING counts when **Test by Count** is selected.
Test Duration (sec)	Sets the PING duration when **Test by Time** is selected.
Test Interval (sec)	Indicates the time between the end of the previous PING test and the start of the next one.

8.2.4 FTP Upload Test

I. Function Description

The FTP upload test verifies the functions of the automatic upload test.

II. Data Configuration

Figure 8-4 shows data items used in the FTP upload test.

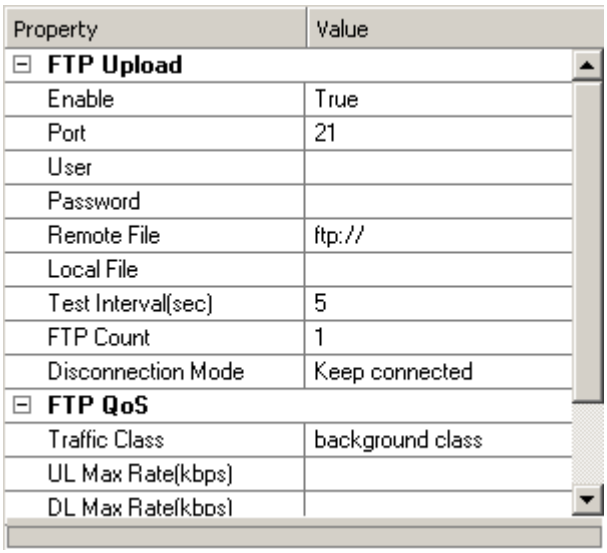


Figure 8-4 Data items in the FTP upload test

Table 8-4 describes the data items in the FTP upload test.

Table 8-4 Data items in the FTP upload test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
Port	Indicates that the port of the server. By default, the port number is considered to be 21.
User	Indicates the username if required during FTP upload.
Password	Indicates the passwords if required during FTP upload.

Name	Description
Remote File	Indicates the name and path of destination file on the server. It should be in the following format: [ftp://]+IP address+"/"+file name (including the file path) For example, 10.0.0.1/upload/test.dat.
Local file	Indicates the absolute path for the source file, for example, c:\test.dat.
Test Interval (sec)	Indicates the interval between two uploads.
FTP Count	Indicates the total number of the FTP tests.
Disconnection Mode	Indicates whether or not to disconnect the data connection. The following three options are available: • Keep connected After the loading of the target file, do not conduct the PDP deactivation while maintaining the RRC connection. After the Interval Time period, initiate the next FTP Download. • Disconnected by time Condut the PDP deactivation every Valid FTP Duration. If the download is not complete in the preset period, the result shows Timeout and the download is considered a failure. Initiate the PDP deactivation after the Valid FTP Duration. • Discnnected after transfer completed Initiate the PDP deactivation after the loading of a file. ***Note:*** *By default, the disconnection mode is **keep connected**.*
Valid FTP Duration (sec)	Indicates the duration between the activation and disconnection of the data link, if the **Disconnected by time** is selected in the **Disconnection Mode**. ***Note:*** *The value is 60 seconds by default.*

Name	Description
Traffic class	Indicates the type of the traffic. These types are as follows: • Background class • Conversational class • Interactive class • Streaming class • Subscribed class
UL Max Rate(kbps)	Indicates the maximum uplink rate.
DL Max Rate(kbps)	Indicates the maximum downlink rate.
UL Guaranteed Rate(kbps)	Indicates the guaranteed uplink rate.
DL Guaranteed Rate(kbps)	Indicates the guranteed downlink rate.

Note:

Before the FTP upload test, ensure that you have the authority to upload the files to the specified directory.

8.2.5 FTP Download Test

I. Function Description

The FTP download test verifies the funtions of the automatic FTP download test.

II. Data Configuration

Figure 8-5 shows the data items used in the FTP download test.

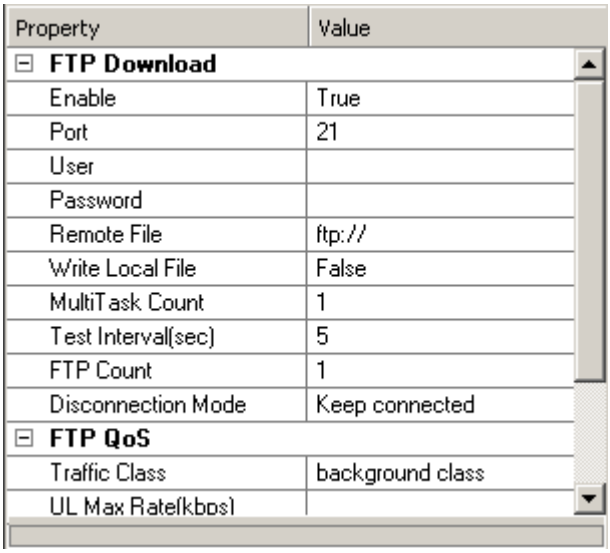


Figure 8-5 Data items in the FTP download test

Table 8-5 describes the data items in the FTP download test.

Table 8-5 Data items in the FTP download test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
Port	Indicates that the port of the server. By default, the port number is considered to be 21.
User	Indicates the username if required during FTP download.
Password	Indicates the passwords if required during FTP download.
Remote File	Indicates the name and path of destination file on the server. It should be in the following format: [ftp://]+IP address+"/"+file name (including the file path) For example, 10.0.0.1/download/test.dat.
Write Local File	Indicates whether or not to save the downloaded file on the local PC. ***Note:*** *The default value is **False**.*

Name	Description
Local File	Indicates the path to save a file when **Write Local File** is **True**. For example, c:\test.dat.
MultiTask Count	Indicates the number of files to be downloaded. Note: The defalt value is **1**.
Test Interval (sec)	Indicates the interval between two downloads.
FTP Count	Indicates the total number of the FTP tests.
Disconnection Mode	Indicates whether or not to disconnect the data connection. The following three options are available: • Keep connected The Probe does not conduct the PDP context deactivation after the target files are loaded completely. After the interval time, the Probe initiates the next FTP download. • Disconnected by time The Probe performs the PDP context deactivation based on the period. The period for the PDP context deactivation is represented by the **Valid FTP Duration** parameter. If the target files are not loaded completely within the predefined time, the loading result shows timeout. The Probe considers this loading as failure and initiates another PDP context deactivation in the next loading. • Discnnected after transfer completed The Probe performs the PDP context deactivation each time when the file load is complete.
Valid FTP Duration(sec)	Indicates the duration between the activation and disconnection of the data link, if **Disconnection Mode** is **Disconnected by time**. ***Note:*** *The default value is **60** seconds.*

Name	Description
Traffic Class	Indicates the types of the traffic. These types are as follows: • Background class • Conversational class • Interactive class • Streaming class • Subscribed class
UL Max Rate(kbps)	Indicates the maximum uplink rate.
DL Max Rate(kbps)	Indicates the maximum downlink rate.
UL Guaranteed Rate(kbps)	Indicates the guaranteed uplink rate.
DL Guaranteed Rate(kbps)	Indicates the guranteed downlink rate.

Note:

- As a vital indicator in the HSDPA test, the download rate is affected by air interface, the size of TCP/IP reception window, and the MTU. Use the multi-thread download tools to stabilize the HSDPA rate.
- If the traffic class is background class or interactive class, the guaranted rate becomes unnecessary.

8.2.6 HTTP Test

I. Function Description

The HTTP test is to verify the automatic HTTP test functionality.

II. Data Configuration

Figure 8-6 shows the data items used in the HTTP test.

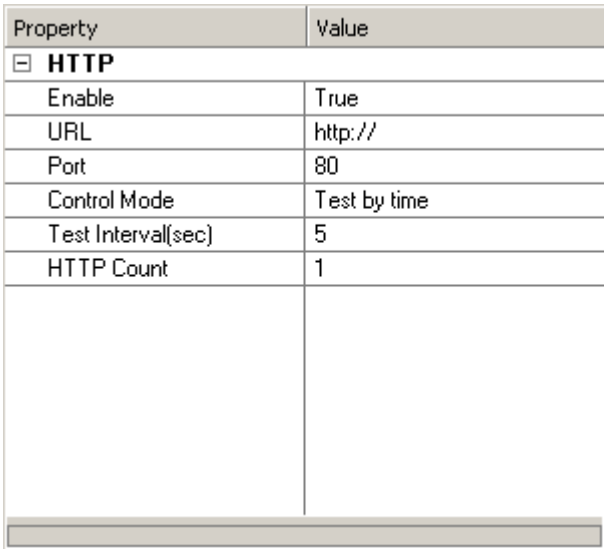


Figure 8-6 Data items in the HTTP test

Table 8-6 describes the data items in the HTTP test.

Table 8-6 Data items in the HTTP test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
URL	Indicates the destination HTTP address of the server.
Port	Indicates the HTTP serving port. By default, it is considered to be 80.
Control Mode	Indicates the HTTP control mode. • Test by time: Test based on time. • Test by state: Test based on the RRC state.
Test Interval(sec)	Indicates the time between two HTTP tests. ***Note:*** *This parameter takes effect when **Control Mode** is **Test by time**.*

Name	Description
HTTP Count	Indicates the number of HTTP tests. ***Note:*** *This parameter takes effect when **Control Mode** is **Test by time**.*

8.2.7 PDP Test

I. Function Description

The PDP test verifies the functions of the automatic and continuous PDP context activation and PDP context deactivation test.

II. Data Configuration

Figure 8-7 shows the data items used in the PDP test.

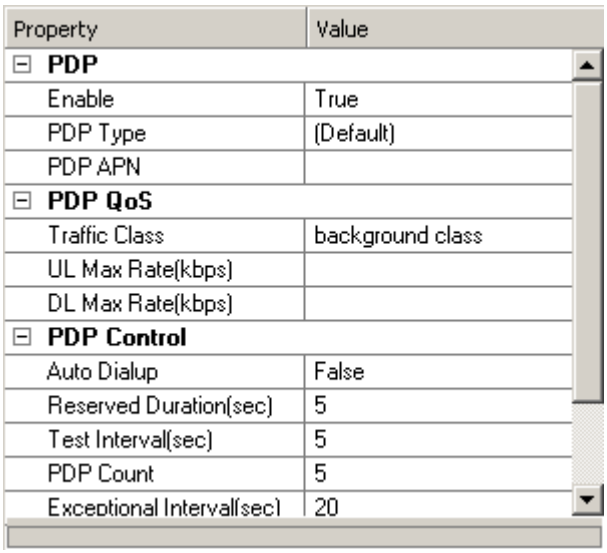


Figure 8-7 Data items in the PDP test

Table 8-7 describes the data items in the PDP test.

Table 8-7 Data items in the PDP test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item

Name	Description
PDP Type	Indicates the types of PDP, such as IP or PPP.
PDP APN	Indicates the access point name.
Traffic Class	Indicates the types of the traffic. These types are as follows: • Background class • Conversational class • Interactive class • Streaming class • Subscribed class
UL Max Rate(kbps)	Indicates the maximum uplink rate.
DL Max Rate(kbps)	Indicates the maximum downlink rate.
UL Guaranteed Rate(kbps)	Indicates the guaranteed uplink rate.
DL Guaranteed Rate(kbps)	Indicates the guranteed downlink rate.
Auto Dialup	Indicates whether or not to set the automatic dialup. This parameter can be set to **False** (No dialup) or **True** (Dialup). ***Note:*** *False is by default.*
Reserved Duration(sec)	The duration refers to the period from the PDP context activation to the PDP context deactivation.
Deactivation Duration (sec)	Indicates the period from the previous PDP context deactivation to the next PDP context activation.
PDP Count	Indicates the number of PDP context activation and PDP context deactivation pair tests.

🕮 **Note:**

- If **False** is selected in the **Auto Dialup**, the connections on the signaling plane are set up. The signaling includes RRC signaling, PDP context activation request, PDP context activation reception message. The service plane, however, is not established. In such a situation, the PING service is not being connected.
- If **True** is selected in the **Need Dialup**, the connections on both signaling and service planes are established. That is, the PC <-> UE <-> CN channel is setup for dialup connection and providing services.

8.2.8 PS DialUp Test

I. Function Description

The PS dialup test is performed to establish a PS service connection. Set up an item for PS dialup test before a PS service test, such as FTP Upload, FTP Download, PING, and HTTP. Otherwise, the Probe attempts the PS dialup and modifies the APN and QoS using the AT command or using the latest successful setting for the APN and QoS.

II. Data Configuration

Figure 8-8 shows the data items used in the PS dialup test.

Property	Value
⊟ **PSDialUp**	
Enable	True
PDP Type	(Default)
PDP APN	
⊟ **PDP QoS**	
Traffic Class	conversational class
UL Max Rate(kbps)	
DL Max Rate(kbps)	
UL Guaranteed Rate(kb...	
DL Guaranteed Rate(kb...	

Figure 8-8 Data items in the PS dialup test

Table 8-8 describes the data items in the PS dialup test.

Table 8-8 Data items in the PS dialup test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
PDP APN	Indicates the access point name.
PDP Type	Indicates the types of PDP, such as IP or PPP.
Traffic Class	Indicates the types of the traffic. These types are as follows: • Background class • Conversational class • Interactive class • Streaming class • Subscribed class
UL Max Rate(kbps)	Indicates the maximum uplink rate.
DL Max Rate(kbps)	Indicates the maximum downlink rate.
UL Guaranteed Rate(kbps)	Indicates the guaranteed uplink rate.
DL Guaranteed Rate(kbps)	Indicates the guranteed downlink rate.

🕮 **Note:**

You do not have to set the uplink and downlink guranteed rates for the background class and interactive class. According the protocols, the guranteed rate is irrelevant in the background class and interactive class. Some UEs do not support setting the guranteed rate for the background class and interactive class, which may lead to the failure of PS dialup test.

8.2.9 PS HangUp Test

I. Function Description

The PS hangup test is to accomplish the automatic PS hangup test.

II. Data Configuration

Figure 8-9 shows the data items used in the PS hangup test.

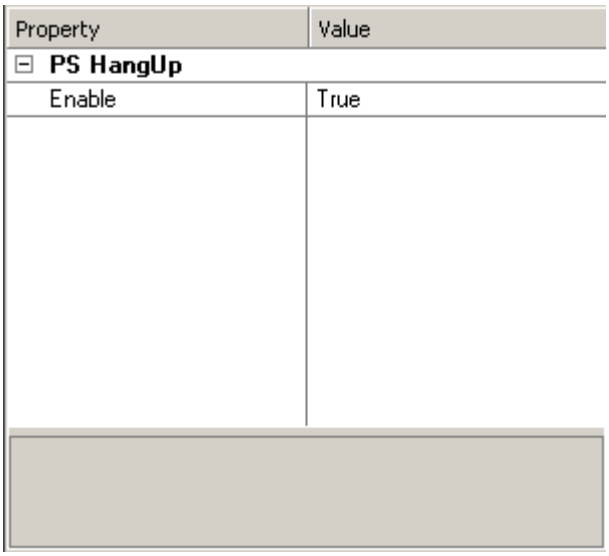


Figure 8-9 Data items in the PS handup test

Table 8-9 describes the data items in the PS hangup test.

Table 8-9 Data items in the PS hangup test

Name	Description
Enable	Indicates whether or not to disconnect the current data connection. • True: to disconnect the data connection • False: to keep the data connection

8.2.10 Video Streaming Test

I. Function Description

The video streaming test is to accomplish the automatic and continuing video streaming test.

II. Data Configuration

Figure 8-10 shows the data items used in the video streaming test.

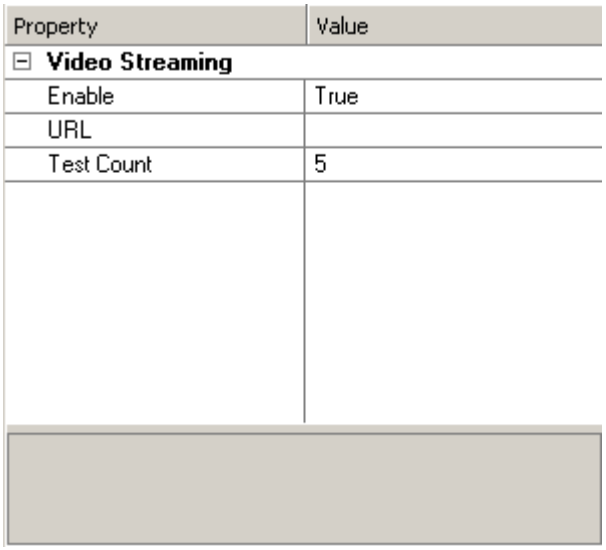


Figure 8-10 Data items in the video streaming test

Table 8-10 describes the data items in the video streaming test.

Table 8-10 Data items in the video streaming test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
URL	Indicates the URL of the destination file, for example, tsp://192.168.34.154/athens/wuhuan.rm.
Test Count	Indicates the count of the cyclic play.

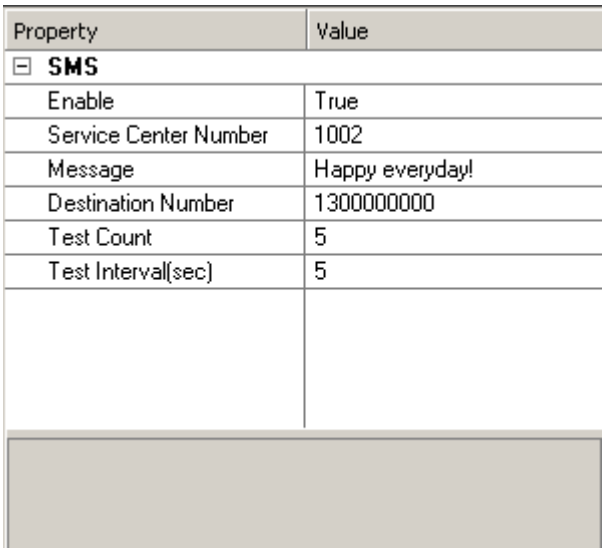
8.2.11 SMS Test

I. Function Description

The SMS test is to accomplish the automatic and continuing SMS test.

II. Data Configuration

Figure 8-11 shows the data items used in the SMS test.



Property	Value
⊟ **SMS**	
Enable	True
Service Center Number	1002
Message	Happy everyday!
Destination Number	1300000000
Test Count	5
Test Interval(sec)	5

Figure 8-11 Data items in the SMS test

Table 8-11 describes the data items in the SMS test.

Table 8-11 Data items in the SMS test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: To enable the test item. • False: To disable the test item.
Service Center Address	Indicates the number of short message service center.
Message	Indicates the short message content. The string can be entered.
Destination Number	Indicates the destination address of the short message.
Test Count	Indicates the total sending count.
Test Interval(sec)	Indicates the duration between two messages.

8.2.12 AT Control Test

I. Function Description

The AT control test is to verify the AT control test functionality on a commercial UE. Connect the commercial UE to the Probe to carry out this test.

II. Data Configuration

Figure 8-12 shows the data items used in the AT control test.

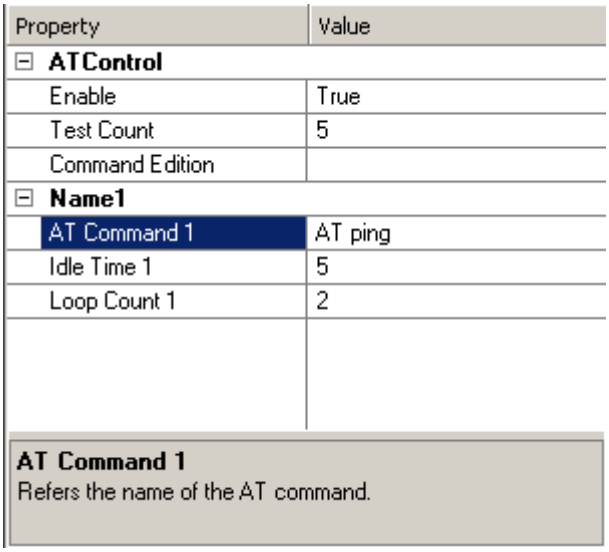


Figure 8-12 Data items in the AT control test

The AT control provides the following functions:

- Import and export the AT commands
- Group the AT commands
- Move the AT commands up and down

Figure 8-13 shows the **AT Command Edit** dialog box.

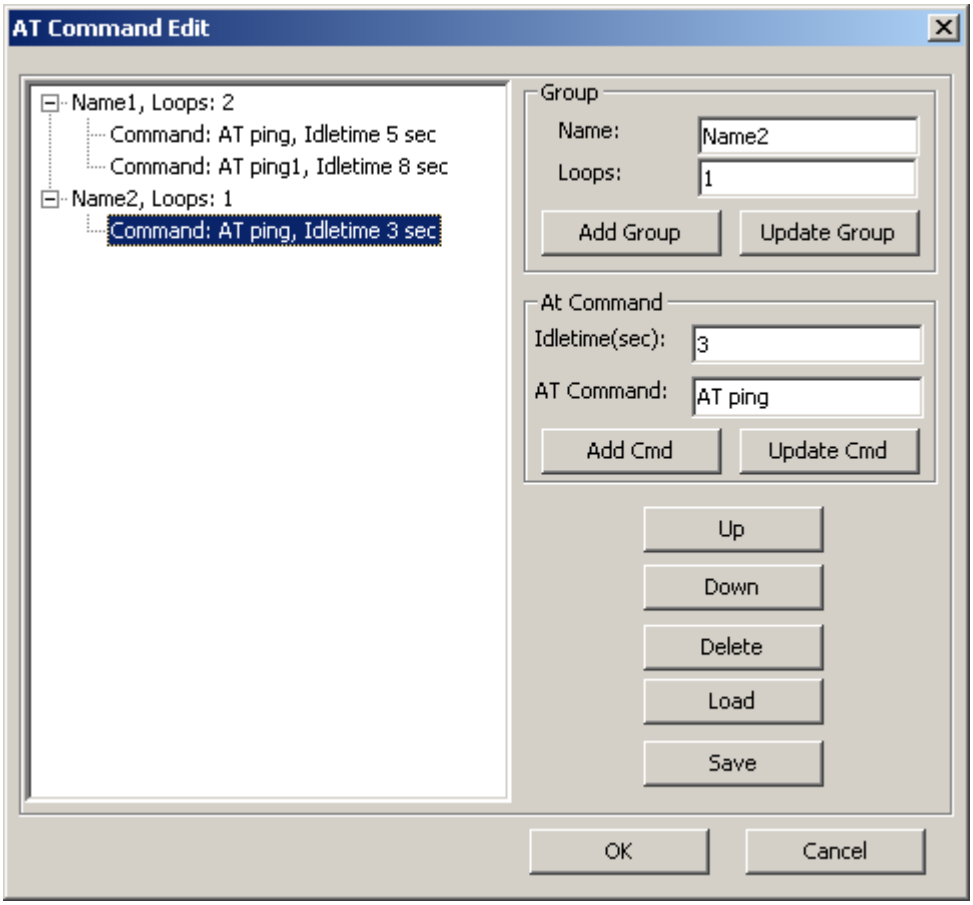


Figure 8-13 AT Command Edit dialog box

Note:

Test the AT commands on each UE before the AT control test, because the AT commands and their formats supported by different vendor differ in many ways.

8.2.13 Multi-UE Multi-Technology Comparative Test

I. Function Description

The Probe can conduct the voice call, Video or Phone test on several UEs in different networks.

The multi-UE multi-technology comparative test is to accomplish the comparative test on different UEs in the different networks.

II. Procedures

Note:

Before the multi-UE multi-technology comparative test, ensure that the UEs are connected to the current device.

To conduct the multi-UE multi-technology comparative test, perform the following steps:

1) Select the **Multi-UE concurrently performing** box in the **System Config Properties** window, and choose the service type that is concurrently performed, as shown in Figure 8-14.
   The **Multi-UE Concurrently Setting** dialog box is displayed, as shown in Figure 8-15.

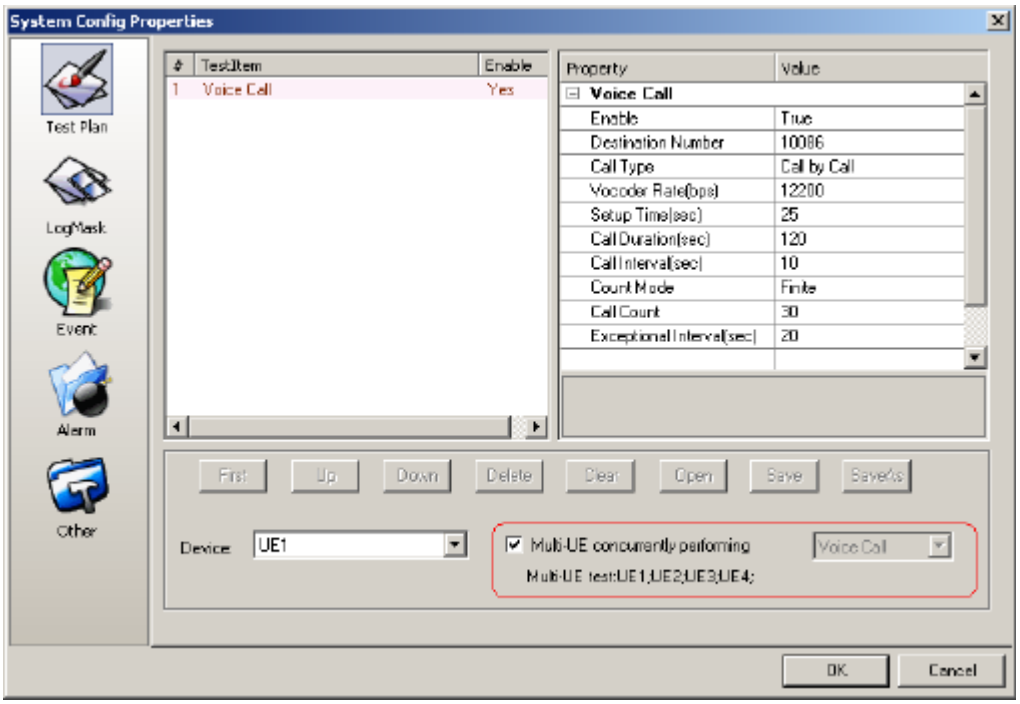


Figure 8-14 Multi-UE test check box

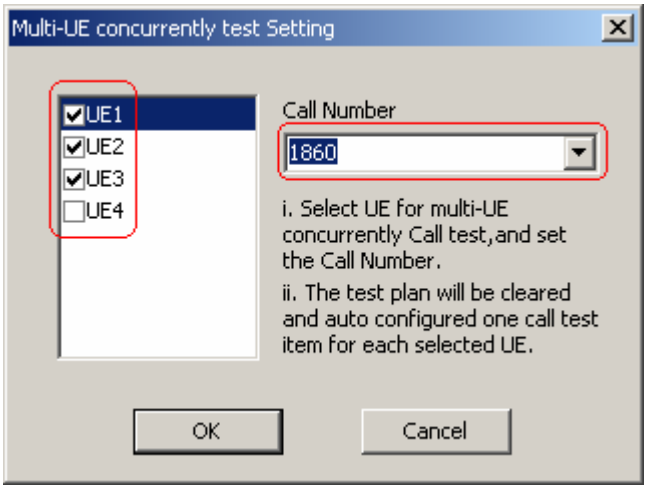


Figure 8-15 Multi-UE concurrently test Setting dialog box

2) Add or delete the UEs for the comparative tests and set the destination call number for each UE.
3) Click **OK**.
   The destination call number is displayed in the **TestItem** area, as shown in Figure 8-16.

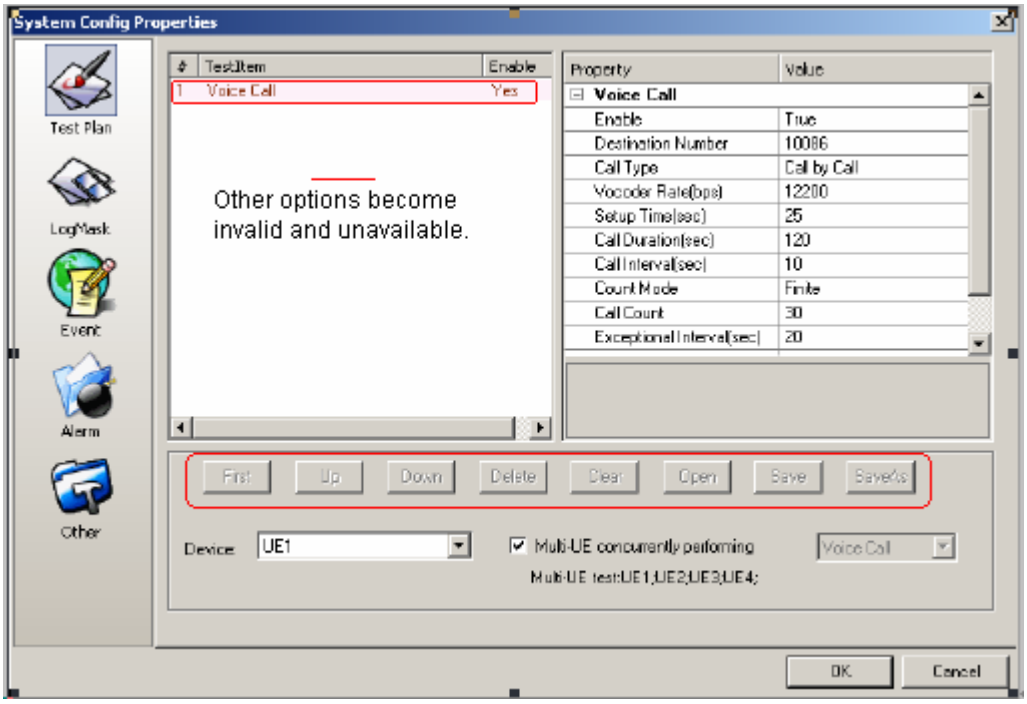


Figure 8-16 Comparative test succeeded

🕮 **Note:**

The other configuration items are invalid in the test plan. The **Up**, **Down**, **Delete**, or **Save** button becomes unavailable.

III. Data Configuration

Figure 8-17 shows the data items in the multi-UE multi-technology comparative test. You can edit the call number or the call setup time in the data configuration window.

Property	Value
⊟ **Voice Call**	
Enable	True
Destination Number	10086
Call Type	Call by Call
Vocoder Rate(bps)	12200
Setup Time(sec)	25
Call Duration(sec)	120
Call Interval(sec)	10
Count Mode	Finite
Call Count	30
Exceptional Interval(sec)	20

Figure 8-17 Data items in the multi-UE multi-technology comparative test

8.2.14 Wait Test

I. Function Description

The Wait test is used to set the time interval between two test items.

II. Data Configuration

Figure 8-18 shows the data items in the wait test.

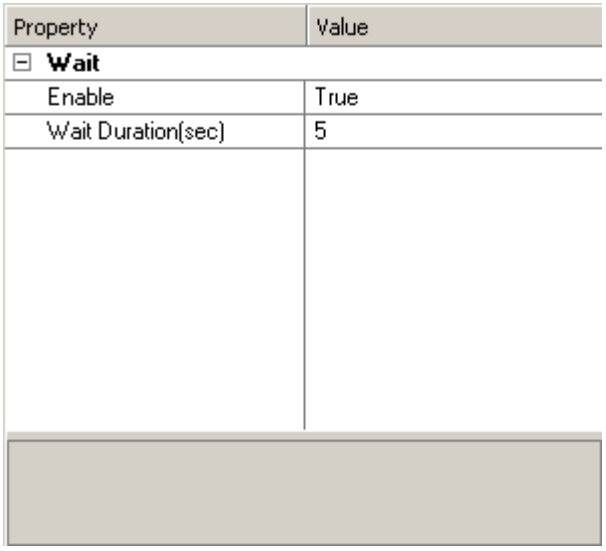


Figure 8-18 Data items in the wait test

Table 8-12 lists the descriptions of the data items in the wait test.

Table 8-12 Descriptions of the data items in the wait test

Name	Description
Enable	Indicates whether or not to enable this test item. • True: to enable the test item • False: to disable the test item
Wait Duration(sec)	Sets the waiting period. ***Note:*** *The default value is five seconds..*

8.3 Configuring the DTI Scanner Test Plan

This section contains the following parts:

- TopN Pilot Scan Test
- Spectrum Analysis

CW Test

- Pilot Scan Test
- SCH Scan Test
- RSSI Test

8.3.1 TopN Pilot Scan Test

I. Function Description

The TopN pilot scan test is to scan the TopN pilot.

II. Data Configuration

Figure 8-19 shows the data items in the TopN pilot scan test.

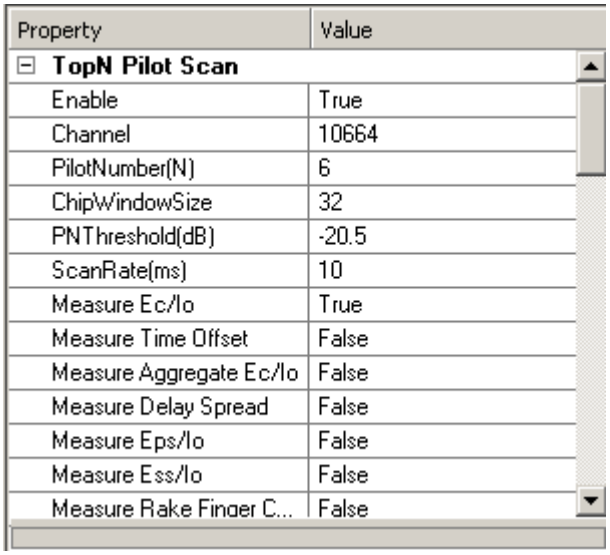


Figure 8-19 Data items in the TopN pilot scan test

Table 8-13 describes the data items in the TopN pilot scan test.

Table 8-13 Data items in the TopN pilot scan test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
Channel	Indicates the scanned ARFCN. Note: At most, the six ARFCNs can be scanned simultaneously. These ARFCNs should be separated from each other by commas.
PilotNumber (N)	• Indicates the TopN strongest pilot. • Ranges from 1 to 32.

Name	Description
ChipWindowSize	Adopts the default value.
PNThreshold(dB)	Adopts the default value.
ScanRate(ms)	Adopts the default value.
Measure Ec/Io	Indicates whether or not to measure the Ec/Io. • True: Enable the Ec/Io measurement. • False: Disable the Ec/Io measurement.
Measure Time Offset	Indicates whether or not to measure the time offset. • True: Enable the time offset measurement. • False: Disable the time offset measurement.
Measure Aggregate Ec/Io	Indicates whether or not to measure the aggregate Ec/Io. • True: Enable the aggregate Ec/Io measurement. • False: Disable the aggregate Ec/Io measurement.
Measure Delay Spread	Indicates whether or not to measure the transmission delay. • True: Enable the transmission delay measurement. • False: Disable the transmission delay measurement.
Measure Eps/Io	Indicates whether or not to measure the Eps/Io. • True: Enable the Eps/Io measurement. • False: Disable the Eps/Io measurement.
Measure Ess/Io	Indicates whether or not to measure the Ess/Io. • True: Enable the Ess/Io measurement. • False: Disable the Ess/Io measurement.
Measure Rake Finger Count	Indicates whether or not to measure the rake finger count. • True: Enable the rake finger count measurement. • False: Disable the rake finger count measurement.
Measure SIR	Indicates whether or not to measure the SIR. • True: Enable the SIR measurement. • False: Disable the SIR measurement.

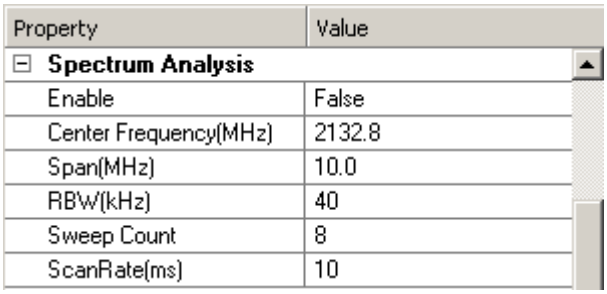
8.3.2 Spectrum Analysis

I. Function Description

The spectrum analysis is to accomplish the spectrum analysis test.

II. Data Configuration

Figure 8-20 shows the data items in the spectrum analysis.



Property	Value
Spectrum Analysis	
Enable	False
Center Frequency(MHz)	2132.8
Span(MHz)	10.0
RBW(kHz)	40
Sweep Count	8
ScanRate(ms)	10

Figure 8-20 Data items in the spectrum analysis

Table 8-14 describes the data items in the spectrum analysis.

Table 8-14 Data items in the spectrum analysis

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
Center frequency (MHz)	Indicates the frequency of the center.
Span (MHz)	Indicates the scan spectrum (MHz). The 45 MHz is at most.
RBW (KHz)	Adopts the default value.
Sweep count	Adopts the default value.
ScanRate (ms)	Adopts the default value.

8.3.3 CW Test

I. Function Description

The CW test is to accomplish the propagation model correction and cell planning. The CW test is describes from the following perspectives:

- Principle
  The DTI Scanner receives the signals from the CW transmitter, and obtains the CW test conclusion through the post processing based on the geographic information.
- Sampling
  The DTI Scanner conducts 50 samplings in the distance of 40 wave lengths. In this way, the sampling data can reflect the wireless environment.
- Calculation
  Vmax = （40 x λ）/(50 x T)

Where:

- Vmax: indicates the maximum vehicle speed.
- Λ: Indicates the CW wave length.

Take the 2100 MHz for example. The wave length is 0.1428 m. If the DTI sampling rate is 6 ms, the maximum vehicle speed is 72 km/h.

II. Data Configuration

Figure 8-21 shows the data items in the CW test.

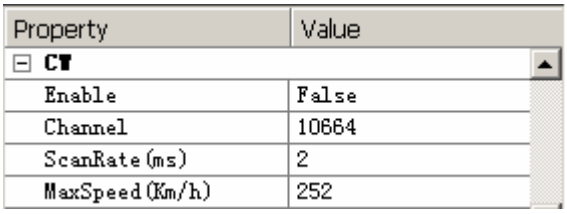


Figure 8-21 Data items in the CW test

Table 8-15 describes the data items in the CW test.

Table 8-15 Data items in the CW test

Name	Description
Enable	Indicates whether or not to enable a test item after the test. • True: to enable a test item • False: to disable a test item
Channel	Indicates the frequency of CW signal, namely five times of the frequency.
ScanRate	Indicates the sampling frequency and comes in: • 2 ms • 4 ms • 6 ms

Name	Description
MaxSpeed	Indicates the maximum vehicle speed, which can be set automatically based on the different sampling frequency.

Note:

If the CW test is conducted, the other test items should be disabled.

8.3.4 Pilot Scan Test

I. Function Description

The pilot scan test is to accomplish the scan of the specified pilot.

II. Data Configuration

Figure 8-22 shows the data items in the pilot scan test.

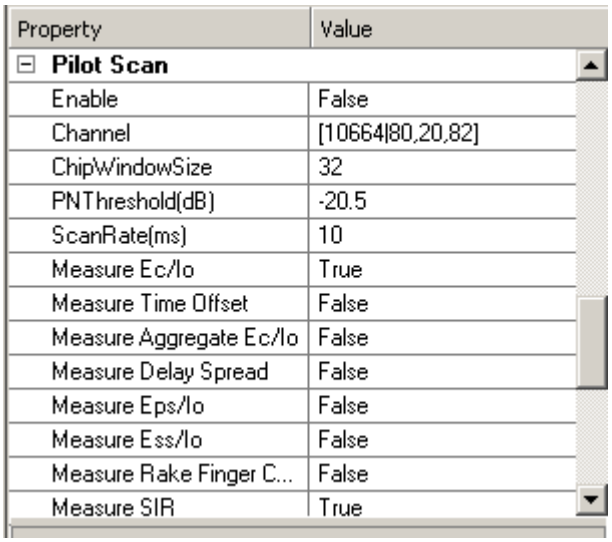


Figure 8-22 Data items in the pilot scan test

Table 8-16 describes the data items in the pilot scan test.

Table 8-16 Data items in the pilot scan test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item

Name	Description
Channel	Indicates the specified pilot to be scanned, including the ARFCN and scrambling code. ***Note:*** • *You can add several ARFCNs separated by commas.* • *During the multi-frequency scan, six ARFCNs can be added at most.* • *There are no limitations on the number of the scrambling codes under each ARFCN.*

🕮 **Note:**

The configurations of the other test items are similar to that in the TopN pilot scan test.

8.3.5 SCH Scan Test

I. Function Description

The SCH scan test is to obtain the Ec/Io of one SCH timeslot (2560 chips).

II. Data Configuration

Figure 8-23 shows the data items in the SCH scan test.

Property	Value
⊟ **SCH Scan**	
Enable	False
Channel	10664
ScanRate(ms)	10

Figure 8-23 Data items in the SCH scan test

Table 8-17 describes the data items in the SCH scan test.

Table 8-17 Data items in the SCH scan test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item

Name	Description
Channel	Indicates the scan ARFCN. ***Note:*** *At most six ARFCNs can be scanned simultaneously. These ARFCHs are separated by commas.*
ScanRate (ms)	Adopts the default value.

8.3.6 RSSI Test

I. Function Description

The RSSI test is to check the coverage distribution of the carrier strength.

II. Data Configuration

Figure 8-24 shows the data items in the RSSI test.

Property	Value
⊟ **RSSI 3.84M**	
Enable	False
Channel	10664
RBW(kHz)	30
ScanRate(ms)	10

Figure 8-24 Data items in the RSSI test

Table 8-18 describes the data items in the RSSI test.

Table 8-18 Data items in the RSSI test

Name	Description
Enable	Indicates whether or not to enable this test item after the test. • True: to enable the test item • False: to disable the test item
Channel	Indicates the scan ARFCN. ***Note:*** *At most six ARFCNs can be scanned simultaneously. These ARFCHs are separated by commas.*

🕮 **Note:**

- The DTI Scanner supports testing several items spontaneously. Ensure that **True** should be selected in the **Enable** field for at least one test item during the configuration of DTI Scanner plan.
- Since the items are tested in different periods, the frequency of data sampling is affected when several items are tested spontaneously. Huawei recommends that **True** is selected in the **Enable** field only for one test item in each test.

8.4 Configuring the Anritsu ML8720B Scanner Test Plan

For the Anritsu ML8720B Scanner, the Probe provides the following two test plans:

- Unspecified Base Station Measurement
- Specified Base Station Measurement

8.4.1 Unspecified Base Station Measurement

I. Unspecified

The **Unspecified** is to set the common properties of the unspecified base station measurement.

Table 8-19 describes the data items in the unspecified base station measurement.

Table 8-19 Data items in the unspecified base station measurement

Name	Description
Enable	Sets whether this test item is valid or not.
Calibrate user (dB)	Sets the value for user correction, which is used for the compensation of cable loss. ***Note:*** *By default, the user correct is 0 dB.*
Reference input	Adopts the default value: False.
Adjust antenna	Sets the adjustment in antenna gain. Adopts the default value: Disable.

II. Conditions

The **Conditions** lists the conditions for the test items in the unspecified base station measurement.

Table 8-20 describes the test items in the unspecified base station measurement.

Table 8-20 Test items in the unspecified base station measurement

Name	Description
Measurement duration (sec)	Indicates the measurement period. The recommended value is 0.5 s.
Fingers at ANT1	Indicates the maximum number of fingers available at ANT1. Ranges from 1 to 6. ***Note:*** *The recommended value is 6.*
Fingers at ANT2	Indicates the maximum number of fingers available at ANT2. Ranges from 1 to 6. ***Note:*** *If the Scanner does not install the diversity antenna, the value is 0.*
Diversity	Indicates whether or not to be diversified. ***Note:*** *Set to **OFF** if no hardware for diversity is available.*
All methods	Indicates that the data processing method that applies to RSCP, Ec/No, SIR. ***Note:*** *Set to **Average** in the **All Method** field.*
RSCP method	Indicates the method for processing RSCP data.
Ec/No method	Indicates the method for processing Ec/No data.
SIR method	Indicates the method for processing SIR data.
RAKE threshold (dB)	Indicates the RAKE threshold. Ranges from 0 dB to 20 dB. ***Note:*** *The effective range should be within the best finger and (the best finger – rake threshold).*

Name	Description
Selection level (dB)	Indicates the selection level. Ranges from 0 dB to 20 dB. ***Note:*** *The finger whose value exceeds (receiver noise + selection level) can be accepted.*
Carrier frequency (MHz)	Indicates the frequency of the carrier. Ranges from 2110.0 MHz to 2200.0 MHz.

III. CH Limits

The CH limits are settings for such items as primary scrambling code, secondary scrambling code, or cell.

Table 8-21 describes the data items in the CH limits.

Table 8-21 Data items in the CH limits

Name	Description
Group number start	Indicates the starting number of a primary scrambling code group.
Group number end	Indicates the ending number of a primary scrambling code group.
Cell number start	Indicates the start number for cells.
Cell number end	Indicates the end number for cells.
Min.secondary SC	Indicates the minimum of the secondary scrambling codes.
Max.secondary SC	Indicates the maximum of the secondary scrambling codes.
Searching method	Indicates the search mode: P-CPICH or SCH.
Measurement channels	Indicates the number of measurement channels. Ranges from 1 to 32.
Specified channels	Indicates the number of the specified channel. When **Specified Channels** is enabled, **Measurement Channels** does not take effect.

IV. CH Code

The CH code refers to the channel code, which includes primary scrambling code, secondary scrambling code, and channel code, as shown in Figure 8-25.

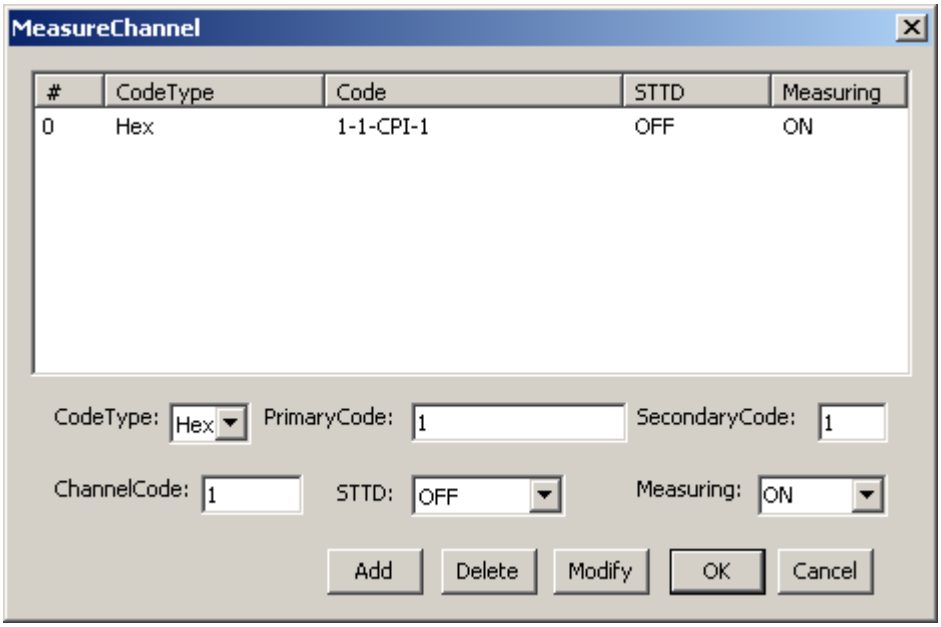


Figure 8-25 MeasureChannel dialog box

8.4.2 Specified Base Station Measurement

I. Specified

The **Specified** sets the common properties of the data items in the specified base station measurement.

Table 8-22 lists the specified data items in the specified base station measurement.

Table 8-22 Specified data items in the specified base station measurement

Name	Description
Enable	Sets whether this test item is valid or not.
Calibrate user (dB)	Sets the value for user correction, which compensates the cable loss. ***Note:*** *By default, the user correct is 0 dB.*
Reference input	Adopts the default value: false.
Adjust antenna	Sets the adjustment in antenna gain. Adopts the default value: Disable.

II. Conditions

The **Conditions** lists the conditions for the test items in the specified base station measurement. These conditions are as follows:

- Measurement period
- Rake reception threshold

Table 8-23 describes the conditions in the specified base station measurement.

Table 8-23 Conditions in the specified base station measurement

Name	Description
Measurement duration (sec)	Indicates the measurement period. The 0.5s is recommended.
Figures at ANT1	Indicates the maximum number of fingers available at ANT1. Ranges from 1 to 6. Note: Huawei recommends adopting the maximum value.
Fingers at At ANT2	Indicates the maximum number of fingers available at ANT2. Ranges from 1 to 6. Note: If the Scanner is not installed with the diversity antenna, the value here is 0.
Diversity	Indicates whether or not to conduct diversify. Note: Set to OFF if no hardware for diversity is available.
All methods	Indicates that the data processing method that applies to RSCP, Ec/No, SIR. ***Note:*** *The recommended value is **Average** in the **All Method** field.*
RSCP method	Indicates the processing method for RSCP data.
Ec/No method	Indicates the processing method for Ec/No data.
SIR method	Indicates the processing method for SIR data.

Name	Description
RAKE threshold (dB)	• Indicates the RAKE threshold. • Ranges from 0 dB to 20 dB. ***Note:*** *The effective range should be within the best finger and (the best finger – rake threshold).*
Selection level (dB)	• Indicates the selection level. • Ranges from 0 dB to 20 dB. ***Note:*** *The finger whose value exceeds (receiver noise + selection level) can be accepted.*
Carrier frequency (MHz)	• Indicates the frequency of the carrier. • Ranges from 2110.0 MHz to 2200.0 MHz.

III. CH Code

The CH code refers to the channel code, which includes the setting of primary scrambling code, secondary scrambling code, or channel code, as shown in Figure 8-26.

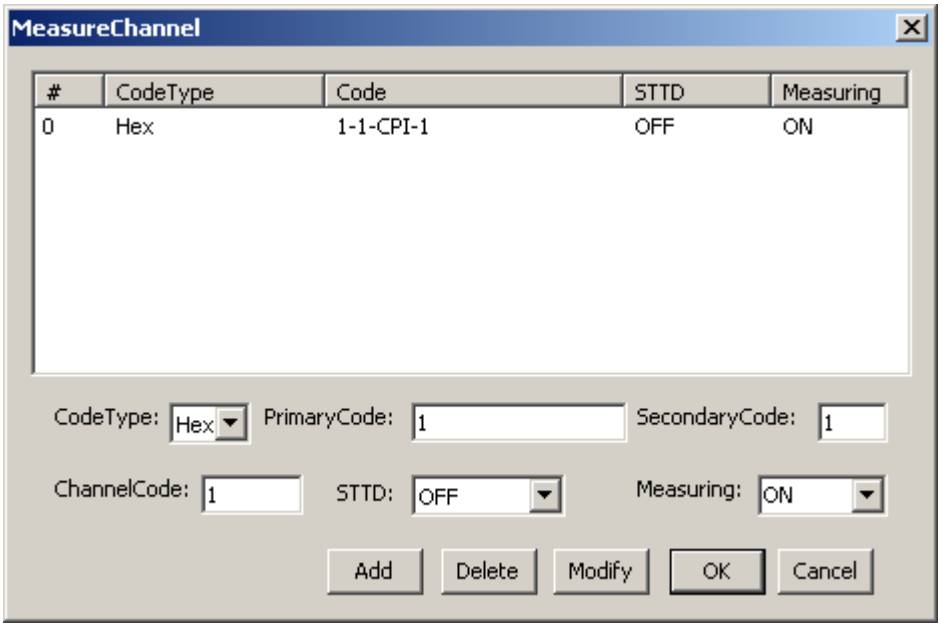


Figure 8-26 MeasureChannel dialog box

Chapter 9 Controlling the Test and Playing the Log File Back

9.1 Overview

This chapter provides guidance for test operation and log file playback.

This chapter contains the following contents:

- Conducting a Test
- Outdoor Test
- Indoor Test
- Real-Time Test
- Controlling the Log File Playback

9.2 Conducting a Test

This section contains the following parts:

- Starting a Test
- Stopping a Test
- Pausing or Resuming Recording
- Pausing or Resuming Screen
- Capturing a Window
- Capturing a Page
- Marking a Map

9.2.1 Starting a Test

Table 9-1 lists the three ways to start a test.

Table 9-1 Three ways to start a test

Method	Operation
From the menu	Choose **Test** > **Start Test**.
From the Navigator	Click the start test icon on the navigator.
From the toolbar	Click the start test icon on the toolbar.

🕮 **Note:**

- Before the test, the Probe gives a prompt, indicating whether to save the log file or not. At that time, the system starts the test, but does not save the log file.
- If the **Make Log File** is not selected in the LogMask, the system does not save the Log file.

9.2.2 Stopping a Test

Table 9-2 lists the three ways to stop a test.

Table 9-2 Three ways to stop a test

Method	Operation
From the menu	Choose **Test** > **Stop Test**.
From the Navigator	Click the stop test icon on the navigator.
From the toolbar	Click the stop test icon on the toolbar.

You can stop or cancel some test plans by selecting some options on the shortcut menu in the **Information** window. For details, refer to part 9.5.2 "Shortcut Menu for Information Window."

9.2.3 Pausing or Resuming Recording

I. Reason

The reason for the record pause is that the drive test car may reside on a place for a long time due to traffic jam or red lights. When you need to record the data, you can choose to resume recording.

II. Method

Table 9-3 lists the three ways to pause or resume recording.

Table 9-3 Three ways to pause or resume recording

Method	Operation
From the menu	Choose **Test** > **Record Pause/Resume**.
From the navigator	Click the record pause/resume icon on the navigator.
From the toolbar	Click the record pause/resume icon on the toolbar.

9.2.4 Pausing or Resuming Screen Scrolling

I. Reason

When data exceptions occur, you need to check the parameters in the window. The screen pause function enables you to locate the problem. After that, you can resume the screen scrolling.

II. Method

Table 9-4 lists the three ways to pause or resume the screen scrolling.

Table 9-4 Three ways to pause or resume screen scrolling

Method	Operation
From the menu	Choose **Test** > **Screen Pause/Resume**.
From the navigator	Click the screen pause/resume icon on the navigator.
From the toolbar	Click the screen pause/resume icon on the toolbar.

9.2.5 Capturing a Window

I. Reason

You may need to capture a window to meet the specified requirements during the drive test. The captured window is saved in a .bmp file under **\Capture**.

II. Method

Table 9-5 lists the three ways to capture a window.

Table 9-5 Three ways to capture a window

Method	Operation
From the menu	Choose **Test** > **Capture Window**.
From the Navigator	Click the capture window icon on the navigator.
From the toolbar	Click the capture window icon on the toolbar.

9.2.6 Capturing a Page

I. Reason

You may need to capture a certain page in the current window to meet the specified requirements during the drive test. The captured page is saved in a .bmp file under **\Capture**.

II. Method

You can capture a page by choosing **Test** > **Capture Page**.

9.2.7 Marking a Map

You can use some shortcut keys to mark a map during the drive test.

To mark the map, you can choose **Configuration** > **Map Mark**.

Table 9-6 lists the shortcut keys to mark a map.

Table 9-6 Shortcut keys to mark a map

Shortcut Key	Function
F7	Marks the current position on the map and allows the users to enter text marks.
F8	Marks the current position on the map without text marks.

Note:

The **Mark** can be modified if you double-click it in the idle mode. The **MAP Mark** cannot be modified during the real-time test or log file playback.

9.3 Outdoor Test

This section contains the following parts:

- Importing Area Geographic Information
- Loading the Engineering Parameters
- Setting the Cell Relation Line
- Adding or Deleting a Layer
- Defining a Layer Legend
- Searching for a Cell
- Adjusting the GPS Position

9.3.1 Importing Area Geographic Information

The area geographic information are as follows:

- Digit map
- Raster map

To import the digit map, perform the following steps:

1) Click **Open Geoset file** on the toolbar in the **MAP** window.
2) Choose a file with the suffix gst.
3) Click **OK**.

For details, refer to part 6.6.1 “Importing an Outdoor Map.”

To import the raster map, perform the following steps:

1) Click **Raster Image** on the toolbar in the **MAP** window.
2) Choose the file format of a raster map (including .bmp, .jpg, .tif, .gif, and .png).
3) Click **OK**.

For details, refer to part 6.6.1 “Importing an Outdoor Map.”

Note:

For details about the import of area graphic information, refer to part 6.6.1 "Importing an Outdoor Map."

9.3.2 Loading the Engineering Parameters

For details about the load of the engineering parameter, refer to section 6.5 "Importing the Engineering Parameter."

9.3.3 Setting the Cell Relation Line

To set the cell relation line, perform the following steps:

1) Right-click **Cell** on the toolbar of the **Map layers**.
2) Choose **Display Settings…** on the shortcut menu.
   The **Display Settings** dialog box is displayed, as shown in Figure 9-1.

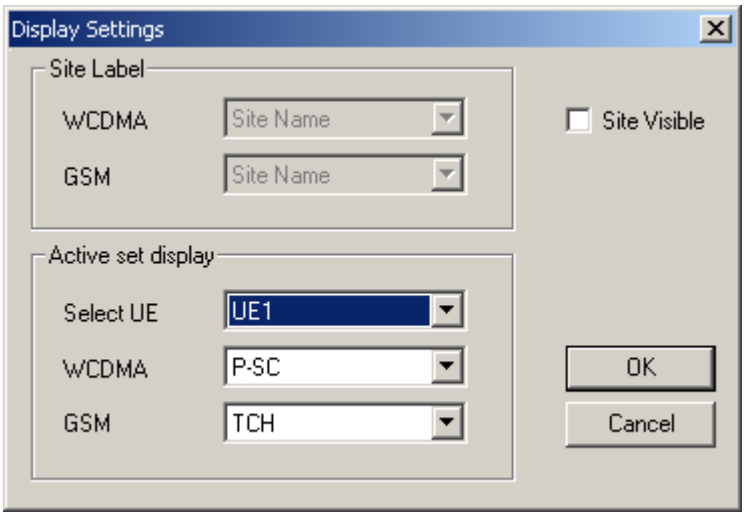


Figure 9-1 Display Settings dialog box

3) Modify the properties of the relation line in the area of **Active set display** in the **Display Settings** dialog box.

🕮 **Note:**

The area of Site Label is used to set the display mode of cell labels. For details, refer to part 6.5.4 "Displaying the BTS Information on the Map."

By default, there are relation lines available between the UE and the cells. You can clear the **Cell** check box in the **May Layers** pane to remove the line.

9.3.4 Adding or Deleting a Layer

The following lists the two methods to modify a layer:

- Click the **Layer Control** icon on the toolbar, and manage the layer in the **Layer Control** dialog box. For details, refer to part 6.6.3 "Managing Map Layers."
- Click the icons on the toolbar in the **Map Layers** pane to manage a layer.

🕮 **Note:**

The second method is applicable only to the dynamic layers. The dynamic spot display during the drive test or test playback relies on the correct settings in the dynamic layer.

To add a map layer, perform the following steps:

1) Click **Add Layer** on the toolbar. Or choose **Add Layer…**on the shortcut menu. The **Add Layer** dialog box is displayed, as shown in Figure 9-2.

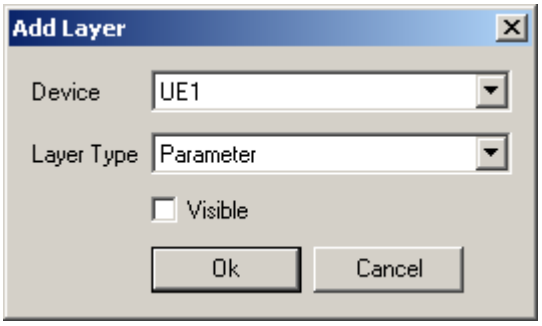


Figure 9-2 Adding Layer dialog box

2) Set the parameters such as device, layer type, and visibility in the **Add Layer** dialog box.
3) Click **OK**.

🕮 **Note:**

If you select **Parameter** in the **Layer Type** area, you need to define map legends in the **Parameter Layer** dialog box.

9.3.5 Defining a Layer Legend

To define a layer legend, perform the following steps:

1) Right-click a layer.
2) Choose **Edit Layer** to edit the layer, as shown in Figure 9-3.

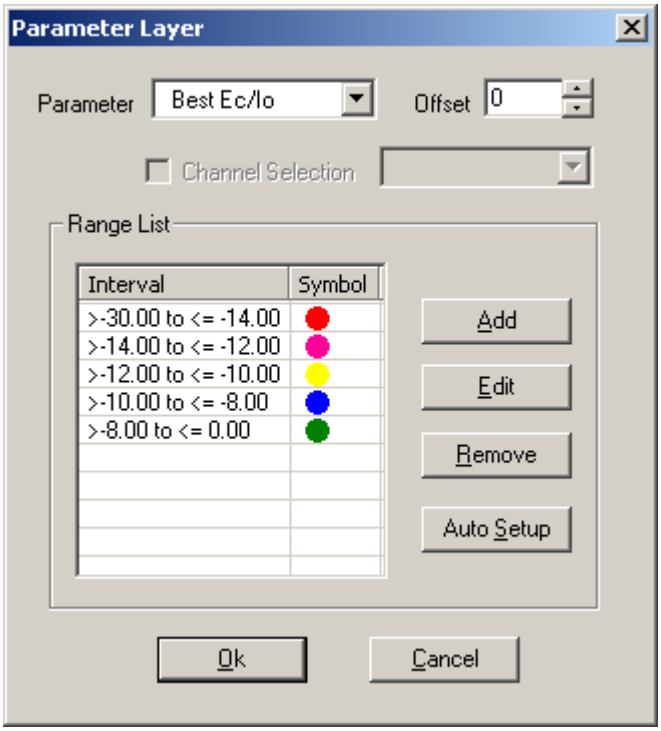


Figure 9-3 Parameter Layer dialog box

3) Click **Add**, **Edit**, **Remove** or **Auto Setup** to modify the layer legend
4) Click **Start Test**.

🕮 **Note:**

- The **Offset** in the **Parameter Layer** dialog box refers to the offset between layer position and actual GPS track.
- The **Channel Selection** is available when the multi-frequency parameter layer is added by the DTI Scanner.

9.3.6 Searching for a Cell

To search for a cell, perform the following steps:

1) Click **Cell Search** on the toolbar.
2) Enter the cell information in the displayed dialog box.
3) Click **Search**.
   The cell search result is displayed in the displayed dialog box.
4) Double-click a cell in the dialog box.
   The selected cell is centered in the **Map** window.

Note:

The cell search is optional.

9.3.7 Adjusting the GPS Position

The low GPS precision results in the offset between the actual position and the display position shown in the **Map** window. You can adjust the GPS position to make up for the insufficient GPS precision. The Probe supports the following GPS adjustments:

- Dynamic adjustment
- Static adjustment

I. Adjusting the GPS Position Dynamically

To adjust the GPS position dynamically, perform the following steps:

1) Right-click in the **Map** window.
2) Choose **Enable Adjustment** on the shortcut menu.
   The GPS adjustment is enabled.
3) Choose **Offset Angle** on the shortcut menu.
   The **Offset Angle** dialog box is displayed.
4) Enter the offset angle and click **OK**.

The Probe adjusts the track automatically on the map based on the offset angle.

To adjust the GPS position statically, you can choose **Log playback with adjust GPS position** in the **Others** tab in the **System Config** window. For details, refer to part 6.7.5 "Setting Others."

Note:

The static GPS adjustment is valid only during the playback.

II. Adjusting the GPS Position Statically

To adjust the GPS position statically during the playback, perform the following steps:

1) Right-click in the **Map** window.
2) Choose **Enable Adjustment** on the shortcut menu.
   The static GPS adjustment is enabled.
3) Click  on the map toolbar.
4) Drag the data sampling points to the required positions.

The Probe moves along the modified track during the log file playback.

9.4 Indoor Test

This section contains the following parts:

- Walking Test
- Vertical Test

Two types of indoor tests are available:

- Walking test: collects the signals horizontally distributed in the building.
- Vertical test: collects the signals vertically distributed in the building.

To enable the walking test, perform the following steps:

1) Right-click in the **Indoor Measurement** window.
2) Choose **Walking Test** > **Automatic/Manual** on the shortcut menu.

To enable the vertical test, perform the following steps:

1) Right-click in the **Indoor Measurement** window.
2) Choose **Vertical Test** on the shortcut menu.

9.4.1 Walking Test

The walking test comes in:

- Automatic walking test
- Manual walking test

I. Automatic Walking Test

To conduct the automatic walking test, perform the following steps:

1) Right-click in the **Indoor Measurement** window.
2) Choose **Automatic Walking Test** on the shortcut menu.
3) Use the localizer to mark the testing route.
4) Click **Start Test**.
5) Precede the test following the predefined test route.
6) When the marked point is reached, press the space key to show the gathered test data on the map.
7) Repeat the previous steps to gather the test data.
8) End the test.

II. Manual Walking Test

To conduct the manual walking test, perform the following steps:

1) Right-click in the **Indoor Measurement** window.
2) Choose **Manual Walking Test** on the shortcut menu.
3) Click **Start Test**.

4) Use the localizer to mark the current position on the map during the test.
   The system utilizes the geographic binning method to display the test data between the marked points on the map.
5) End the test.

9.4.2 Vertical Test

To conduct the vertical test, perform the following steps:

1) Double-click the **Indoor Measurement** window.
2) Choose **Vertical Test** on the shortcut menu.
3) Click **Start Test**.
4) Switch the stories by clicking the direction button ↓ or ↑, as shown in Figure 9-4.
   The system displays the test data based on the different stories.

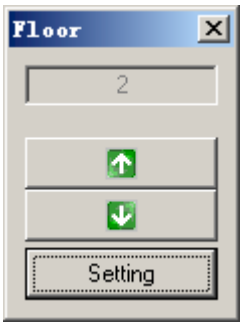


Figure 9-4 Direction button

5) End the test.

9.5 Real-Time Test Statistics

The **Information Statistics** window helps you to monitor the current test items. The window automatically creates pages for each connected test device to display the test plan and the test completion information of the device.

This section contains the following parts:

- Managing the Information Statistic Window
- Shortcut Menu for Information Window

9.5.1 Managing the Information Statistic Window

To operate on the information statistic window, perform the following steps:

1) Click the **Information** node in the navigator.
2) Click the equipment tab in the **Information** window, as shown in Figure 9-5.
   The progress status bar about each test item is displayed.

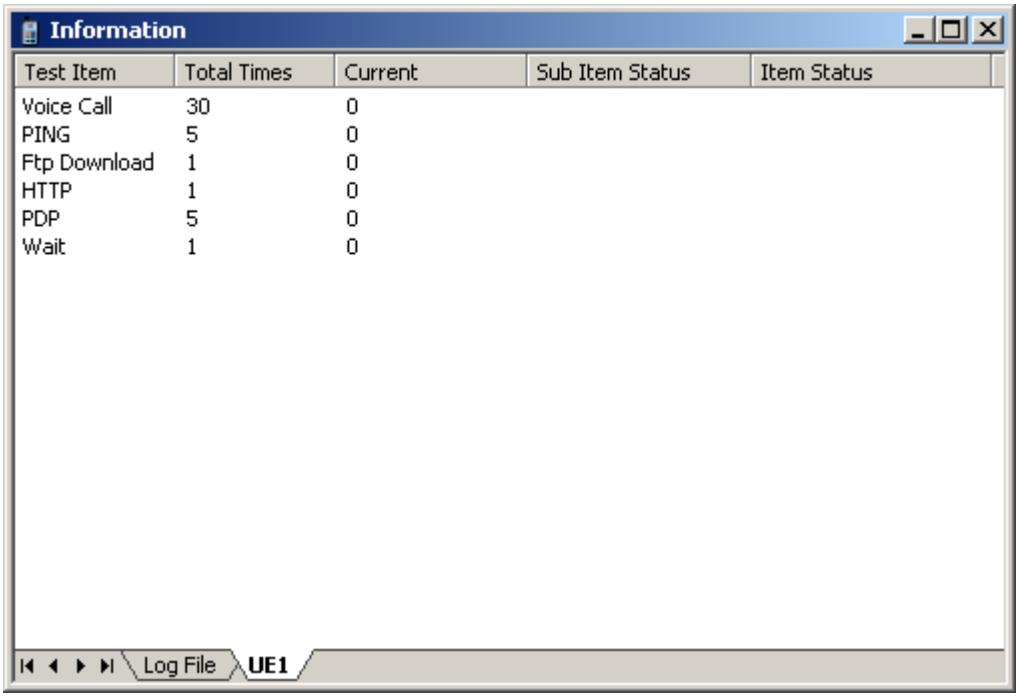


Figure 9-5 UE1 tab

3) View the statistic information to trace the test item.

9.5.2 Shortcut Menu for Information Window

I. Shortcut Menu of Test Item

The eqipment page is used to trace each test item or stop an item when required.

To stop a test item, perform the following steps:

1) Right-click a test item in the equipment page.
2) Choose **Stop Test Item** on the shortcut menu, as shown in Figure 9-6.

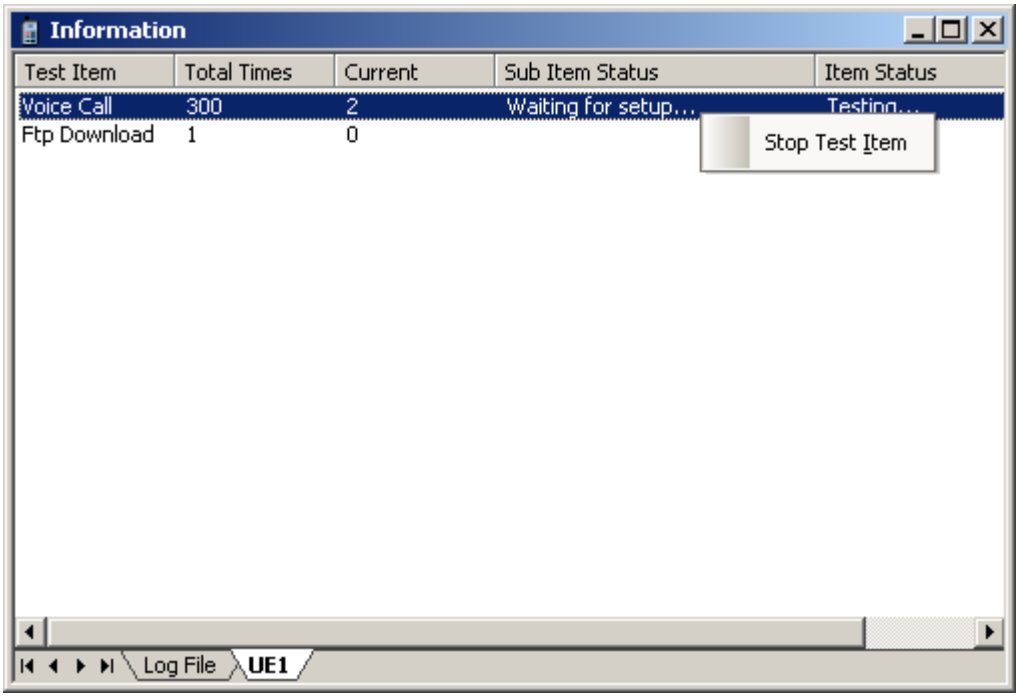


Figure 9-6 Stop Test Item option

9.6 Controlling the Log File Playback

This section contains the following parts:

- Opening and Previewing a Log File
- Controlling the Playback Speed and Direction
- Locating a Log File
- Co-Activating the Window

The Probe system supports the playback of the Log files, which enables you to observe the network performance or to locate the network troubles.

To control the log file playback, perform the following steps:

1) Choose **Open Logfile** on the **Logfile** menu.
2) Control the log file playback through the menu or the icons on the logfile toolbar, as shown in Figure 9-7.

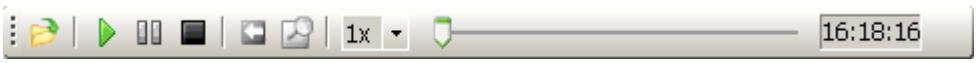


Figure 9-7 Logfile toolbar

Table 9-7 describes the icons on the logfile toolbar.

Table 9-7 Icons on the logfile toolbar

Button	Function
	To open a log file.
	To start a playback.
	To pause a playback.
	To stop a playback.
	To control the playback direction. By default, the system conducts the forward playback. If you press the button once, the system plays back forward. If you press button twice, the system plays back backward.
	To locate a log file. For details, refer to part 9.6.3 "Locating a Log File."

Note:

You can operate the progress bar or time input box to locate the playback position.

9.6.1 Opening and Previewing a Log File

To open and preview a log file, perform the following steps:

1) Click **Open Logfile** on the **Log** toolbar.
2) Double-click a log file to open it.
3) View the log file information in the **Log Files** tab of the **Information** window, as shown in Figure 9-8.

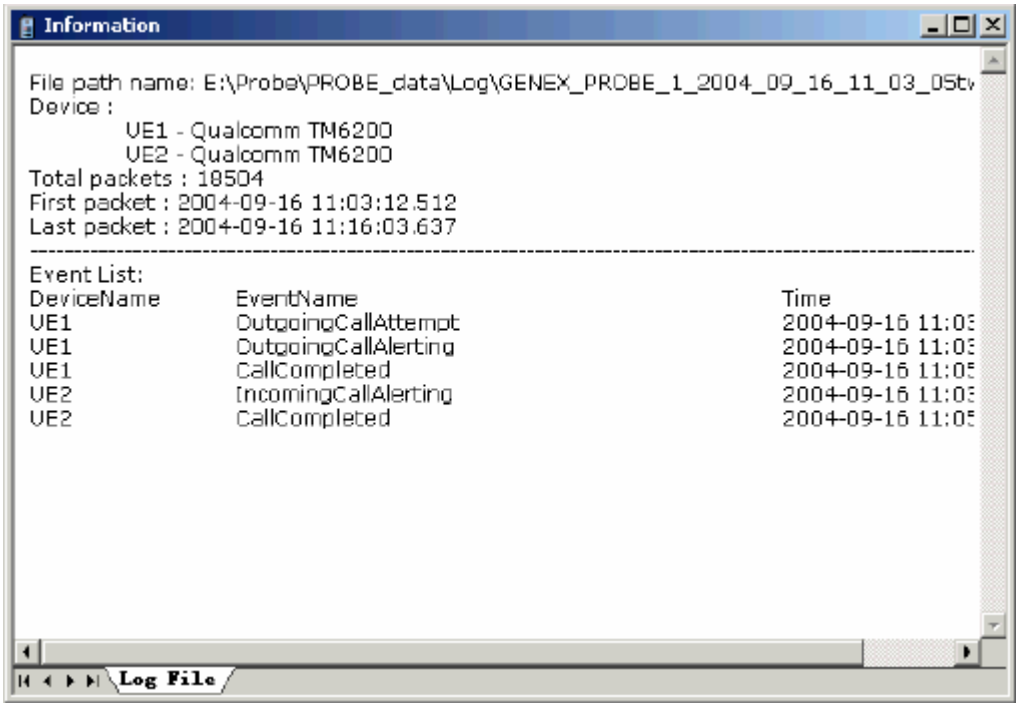


Figure 9-8 Preview information in the Log File tab

4) Double-click the node of the parameters to be observed on the navigator to open the associated windows.
5) Click **Play Logfile** to play the log file back.
6) Control the playback of the log file playback through the buttons on the **Logfile** toolbar.
7) End the playback of the log file.

9.6.2 Controlling the Playback Speed and Direction

I. Controlling the Playback Speed

The system supports up to 8 times and down to 1/8 times playback speed adjustment.

The following two ways are available for speed control:

- Choose **Speed Up** or **Speed Down** on the **Logfile** menu.
- Select a speed in **Speed Control** drop-down list, as shown in Figure 9-9.

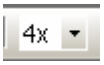


Figure 9-9 Speed Control drop-down list

II. Controlling the Playback Direction

The following two ways are available to control the direction:

- Click the forward/backward button on the **Logfile** toolbar.
- Choose **Play Backward** on the **Logfile** menu.

9.6.3 Locating a Log File

To locate a log file, perform the following steps:

1) Click the unfold button to choose a log file, as shown in Figure 9-10.

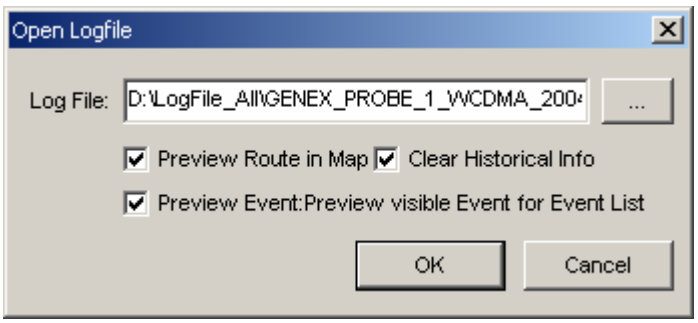


Figure 9-10 Opening Logfile dialog box

2) Select **Preview Event: Preview visible Event for Event List**.
3) Click **OK**.
4) Choose **Logfile** > **Locate**. Alternatively, click (Location button) on the **Logfile** toolbar.
   The **Find Event** window is displayed, as shown in Figure 9-11.

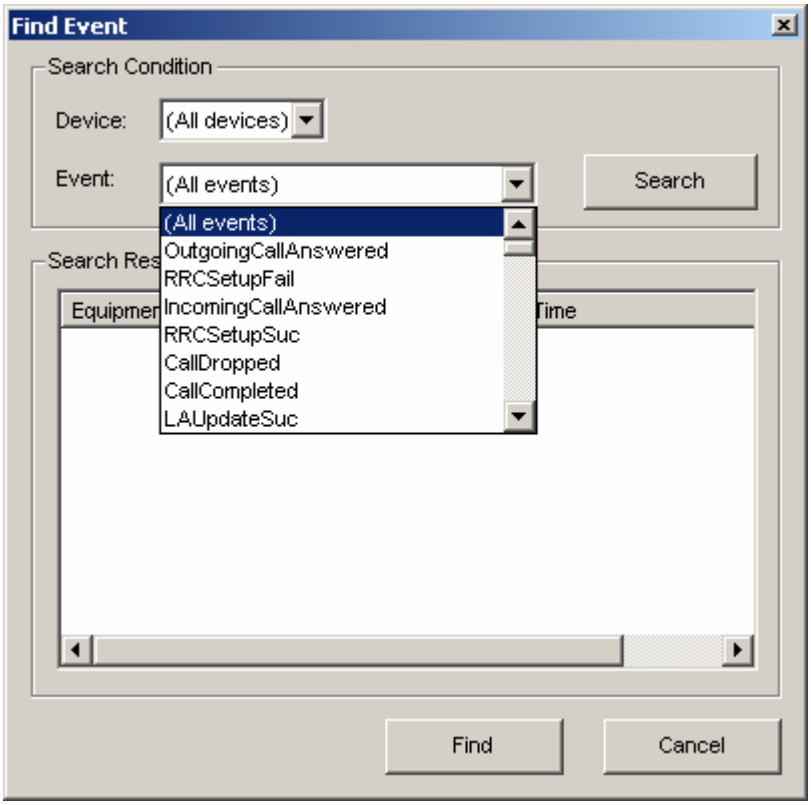


Figure 9-11 Find Event dialog box

5) Choose the devices and events to be located.
6) Click **Search**.
   The Probe displays the event and its occurring time in the list.
7) Choose an event and click **Find**.
   The system locates the event automatically and displays it in the chart.

9.6.4 Co-Activating the Window

The Probe provides the window co-activation function.

Table 9-8 lists the results during the co-activation.

Table 9-8 Results during the co-activation

If…	Then…
The system is in playback or real-time measurement status	The system co-activates only with the data in the current window.

If…	Then…
The system is in the status of playback pause	The system displays a data segment round the triggering data extracted from the playback file during the co-activation. At the same time, the triggering data is highlighted in the associated windows. The data information at the current time is displayed in the parameter window.

Through either of the following ways, you can trigger the window co-activation:

- Click a message in the **Message** window.
- Click an event in the **Event List** window.
- Click the signal indicator in the **Map** window or **Indoor Measurement** window.
- Press and hold the **Ctrl** button, and click in the **Chart** window.
- Select an event in the **Found Event** dialog box, and click **Find**, as shown in Figure 9-11.
  This operation is valid only in the log file playback mode.

Chapter 10 Continuous Wave Test

10.1 Overview

During the network planning, it is necessary to calibrate the radio propagation models. This job is usually done by gathering continuous wave (CW) test data and entering them to model calibration application.

The Probe has the following advantages for the CW test:

- The Probe provides the built-in CW test.
- The Probe utilizes the discrete GPS information to deal with the mismatch between GPS information and signal strength information.
- The Probe conducts the geographic binning and bad data filtering during the CW test, and exports the data for the network planning.

This chapter describes the following:

- Adding and Identifying the DTI Scanner
- Configuring the Test Plan
- Adding a Test Window
- Starting a Test
- Exporting and Processing the CW Data

10.2 Adding and Identifying the DTI Scanner

Before the test, you need to correctly identify the DTI Scanner.

To configure the hardware manually in the Probe and set the DTI Scanner parameters, perform the following steps:

1) Choose **Configuration** > **Hardware Config** > **Manual Config** on the main menu. The **ManualConfig** window is displayed.

2) Click  to add a device, as shown in Figure 10-1.

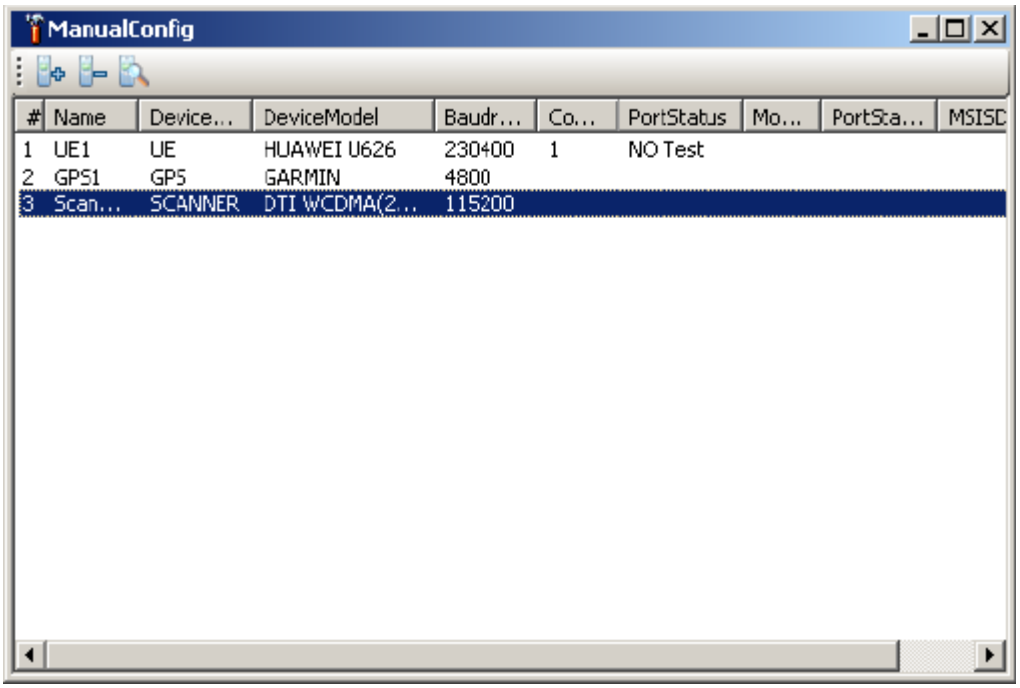


Figure 10-1 Adding a device

3) Double-click the device in the **Device List** in the **ManualConfig** window. The **Device Config** window is displayed.
4) Choose **Scanner** in the **Type** drop-down list and set the model of DTI Scanner in the **Model** drop-down list, as shown in Figure 10-2.

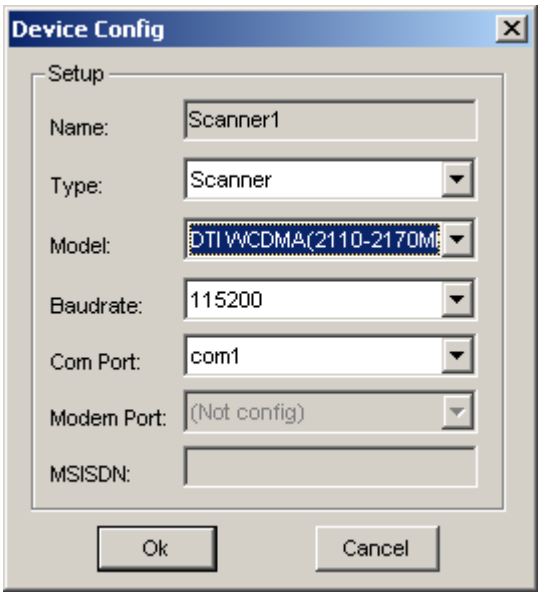


Figure 10-2 Model drop-down list

5) Click  to identify the device in the **ManualConfig** window.

After the device identification, **Success**, **Failed** or **Error** is displayed in the device status.

10.3 Configuring the Test Plan

After the configuration of the DTI Scanner, you also need to configure the CW measurement plan based on the device configuration.

To configure the test plan, perform the following steps:

1) Choose **Configuration** > **System Config** on the main menu.
The **Test Plan** dialog box is displayed.
2) Click the test item row and choose the items for the DTI Scanner, as shown in Figure 10-3.

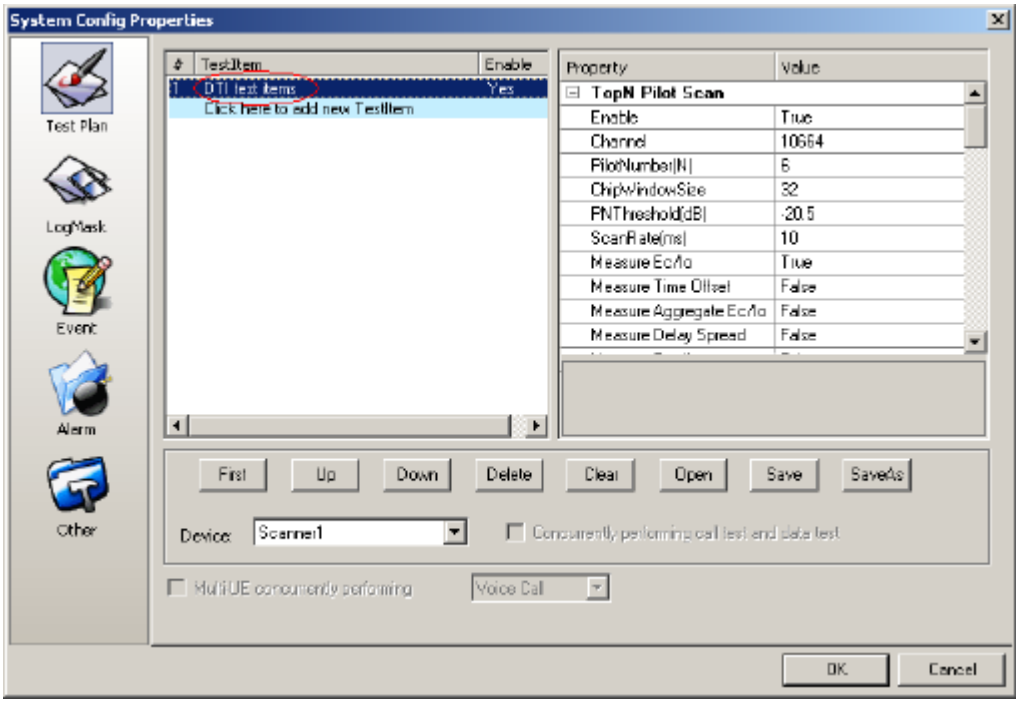


Figure 10-3 Selecting test items

3) Enable the CW measurement. Namely, ensure that **TRUE** is selected in the **Enable** area, while the **False** is selected for other test items, as shown in Figure 10-4.

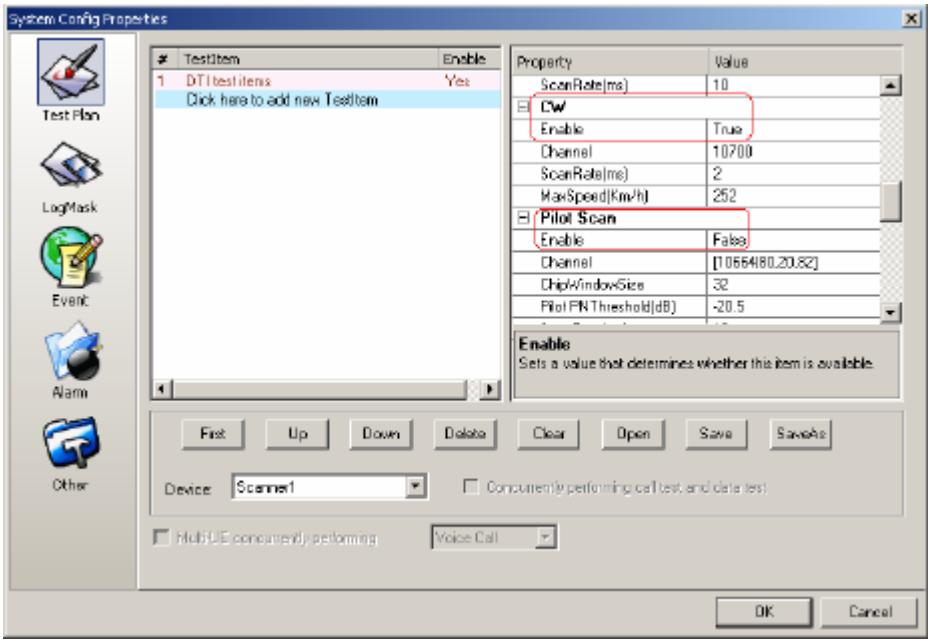


Figure 10-4 Enabling the CW test items

4) Click **OK**.

10.4 Adding a Test Window

The test window comes in the following two types:

- Map: observes the historical track of the CW data.
- CW Test: views the current CW test data.

Figure 10-5 shows the CW test window and map window.

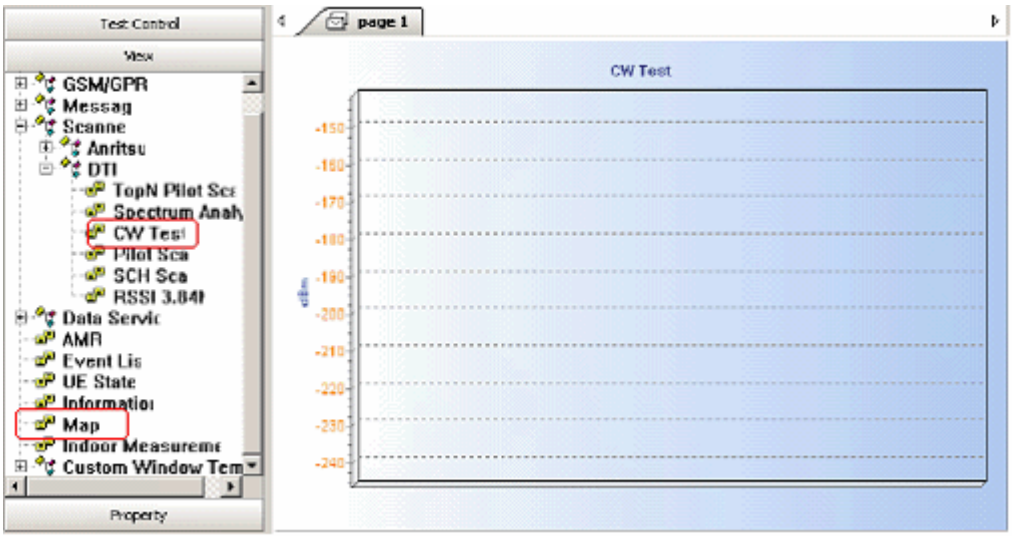


Figure 10-5 CW Test and Map option

To add a layer for the CW test, perform the following steps:

1) Click  in the **Map** window.

   The **Add Layer** dialog box is displayed.

2) Choose a Scanner in the **Device** drop-down list.
3) Choose **Parameter** in the **Layer Type** drop-down list.
4) Select the **Visible** check box, as shown in Figure 10-6.

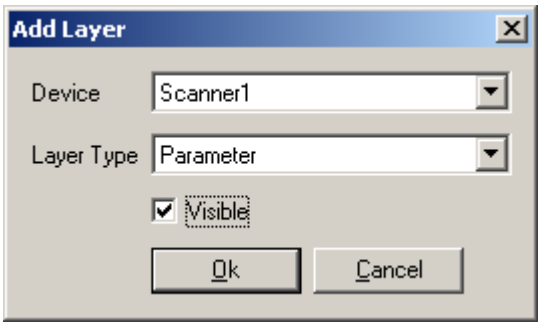


Figure 10-6 Add Layer dialog box

5) Click **OK**.

   The **Parameter Layer** dialog box is displayed, as shown in Figure 10-7.

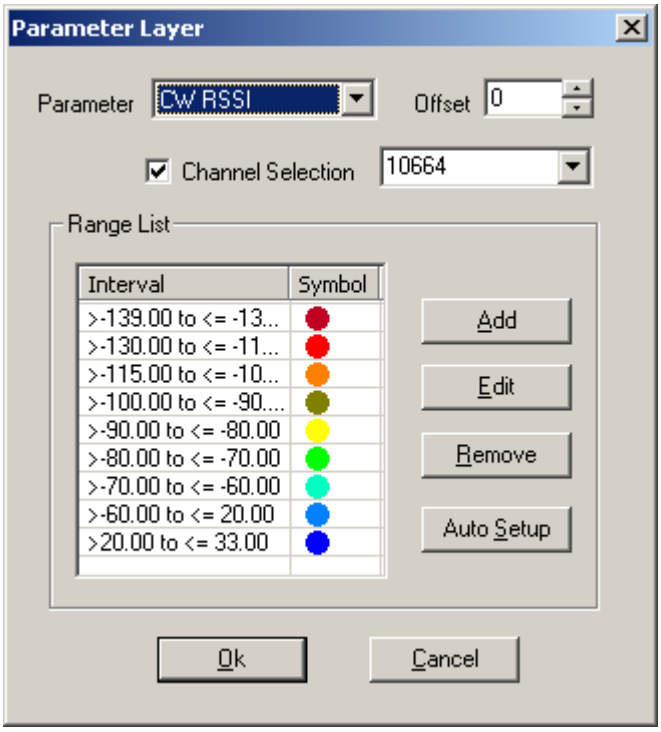


Figure 10-7 Parameter Layer

6) Choose **CW RSSI** in the **Parameter** drop-down list.

7) Select the **Channel Selection** check box and choose a frequence in the drop-down list.
8) Click **OK**.

10.5 Starting a Test

After the configuration and preparation, click **Start Test** in the Probe to start a test.

10.6 Exporting and Processing the CW Data

For details about the export and process of the CW data, refer to part 11.3.7 "Exporting the DTI Test Data."

Chapter 11 File Exporting Funtion

11.1 Overview

The Probe provides powerful data processing function, as listed in Table 11-1.

Table 11-1 Powerful data processing

If…	You can…
The data is exported in the .bin format	Conduct the focused analysis.
The data is exported in the .txt format	View the formats and contents of some packages.
The data is exported in the .QXDM format	Give the feedbacks to the Qualcomm for troubleshooting.
the data about UE measure is exported in the .xls format,	Analyze the UE measure by using the networking planning application.
The data about UE message is exported in the .xls format	Analyze the UE message based on signaling.
The data about the Anritsu or DTI is exported in the .xls format	Calibrate the propagation model by using the planning application software. ***Note:*** *The CW test filters the data based on the geographic binning and bad spots removal.*
The two drive test files that meet the requirements are combined	Give a synthesis analysis on the network troubles.

11.2 Exporting the Data

To export the data, perform the following steps:

1) Choose **Logfile Menu** > **Export Data** on the main menu.
   The **Log Wizard – Step One** dialog box is displayed, as shown in Figure 11-1.

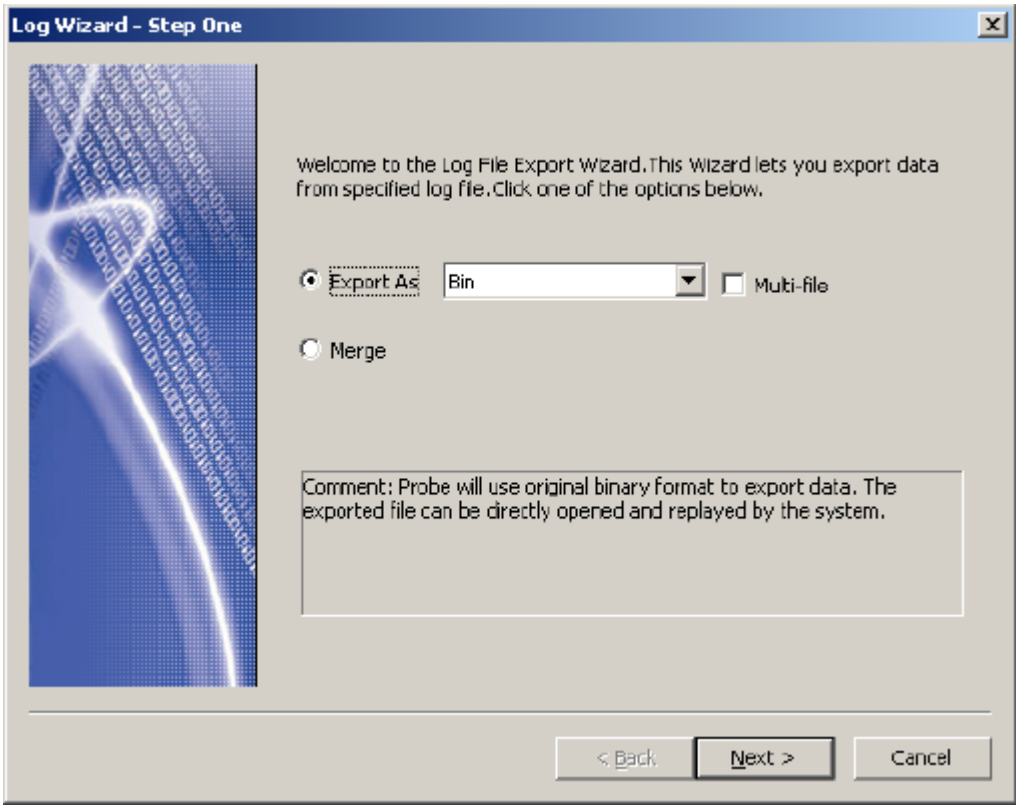


Figure 11-1 Log Wizard – Step One dialog box

2) Choose the data export mode in the **Export As** drop-down list, as shown in Figure 11-2.

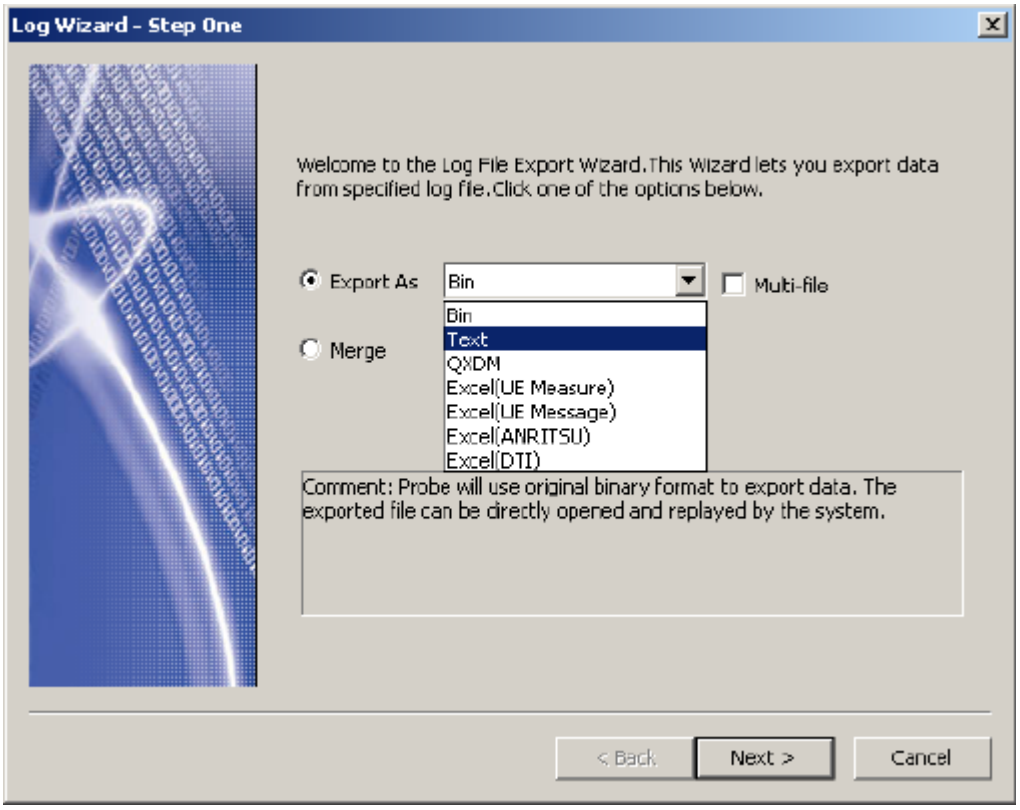


Figure 11-2 Export As drop-down list

3) Select the source file and the destination file.
   The properties of the source file are displayed in the **File Information** and **Packet Selection** areas, as shown in Figure 11-3.

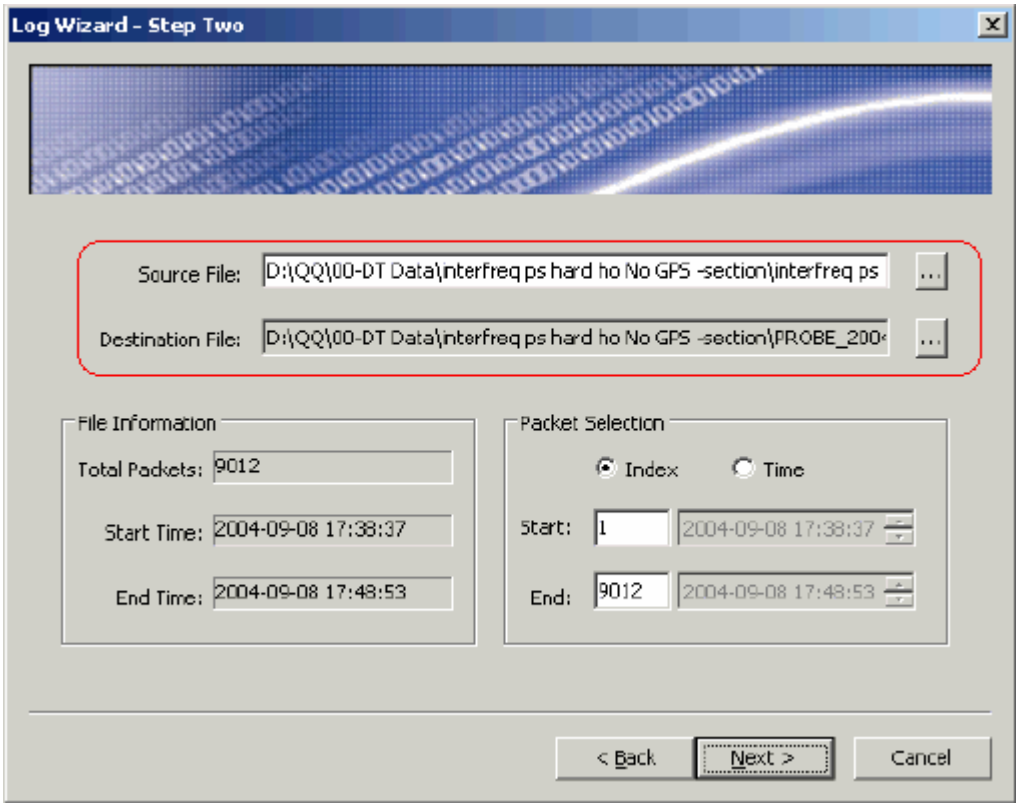


Figure 11-3 Selecting the source file and the destination file

4) Select the device type in the **Device** field in the **Log Selection** area, as shown in Figure 11-4.

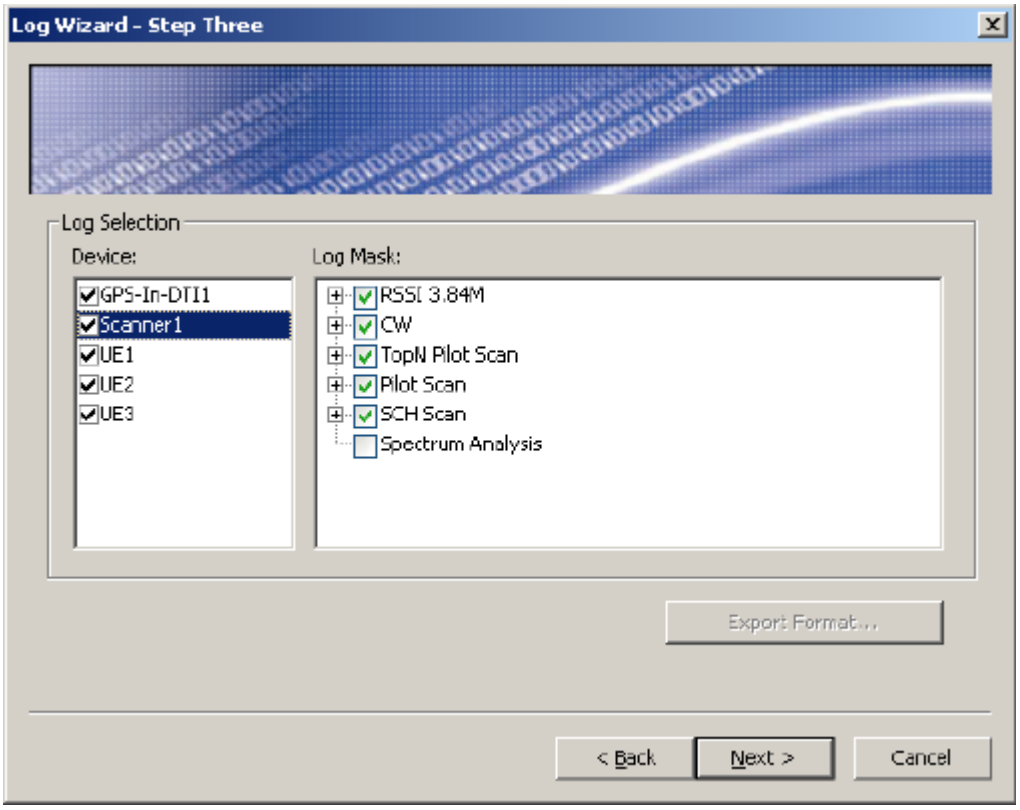


Figure 11-4 Selecting the log

5) Select the log type in the **Log Mask** field in the **Log Selection** area.
For the DTI device, you can select some log files for export.

Note:

- The settings in the **Log Selection** area are applicable only to the UE and the DTI Scanner.
- When **Bin** or **Merge** is chosen as the export format, the GPS-In-DTI selects the GPS information contained in the selected DTI Scanner in the **Log Selection** area, and exports the information either individually or with Scanner.

---

6) Click **Start**.
The system starts to export the data.

🕮 **Note:**

If the **Explore the Exporting Destination Folder** check box is selected, this indicates the target folder is open at the conclusion of the export (Default). Otherwise, the target folder will not be open at the conclusion of the export.

7) View the progress bar to check the export status.
8) Click **Stop**.
   The system stops exporting the data.
9) Click **Reset**.
   The system returns to the first step of data export, as shown in Figure 11-5.

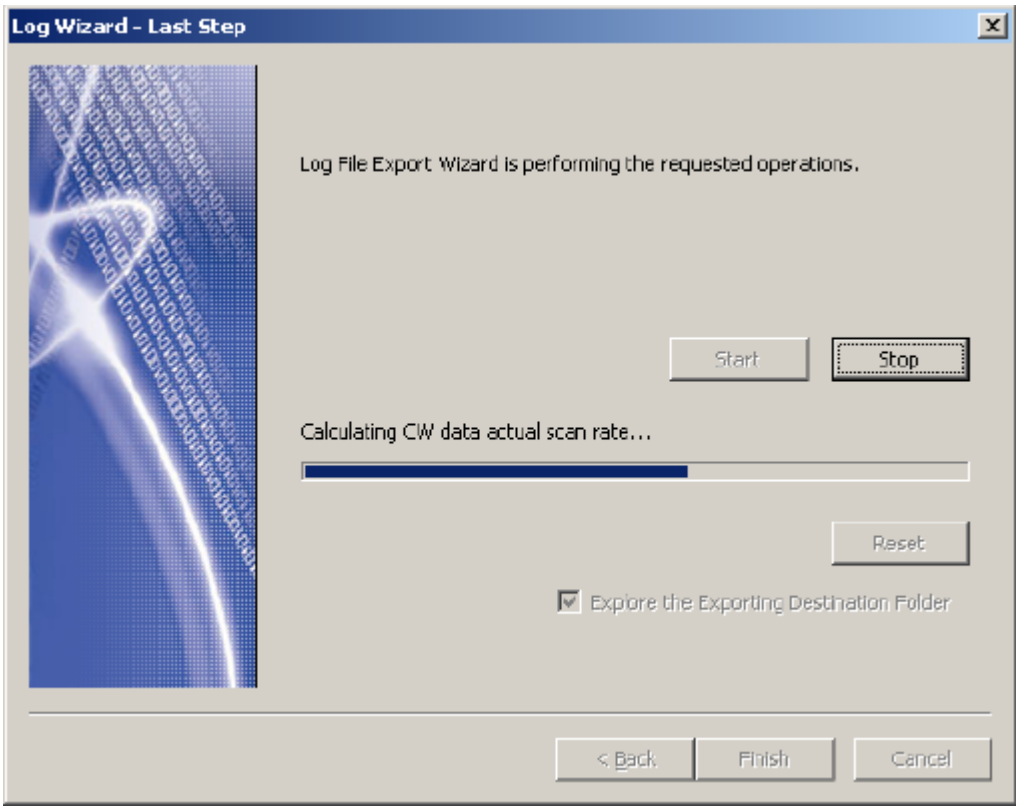


Figure 11-5 Exporting the data

11.3 Exporting the Data with Different Formats

This section contains the following parts:

- Exporting the Data into .bin Format
- Exporting the Data into .txt Format
- Exporting the Data into .QXDM Format
- Exporting the UE Measure into .xls Format

- Exporting the UE Message into .xls Format
- Exporting the ANRITSU Data into .xls Format
- Exporting the DTI Test Data

11.3.1 Exporting the Data into .bin Format

If you select **Bin** in the **Export Format** drop-down list, the Probe exports the data based on the original binary format.

By default, one file is exported at a time. Multiple files can be exported at the same time only when **Bin** and **Multi-file** are selected in the **Export Format** drop-down list.

The equipment information of the first log file serves for reference.

The exported files have the following features:

- Mapping with the source files one by one
- Being saved in the same target folder
- Being directly opened and played back

11.3.2 Exporting the Data into .txt Format

If you select **Text** in the **Export Format** drop-down list, the Probe exports the data into the .txt format to facilitate the data view and query.

11.3.3 Exporting the Data into .QXDM Format

If you select **QXDM** in the **Export Format** drop-down list, the Probe exports the data into the .QXDM format. In this way, you can use the QCAT (an application from the Qualcomm) to locate the network trouble.

11.3.4 Exporting the UE Measure into .xls Format

If you select **Excel (UE Measure)** in the **Export Format** drop-down list, the Probe exports the UE measure data. You can conduct the analysis by employing the network planning software.

11.3.5 Exporting the UE Message into .xls Format

If you select **Excel (UE Message)** in the **Export Format** drop-down list, the Probe exports the UE message. The Probe exports the signaling on the layer 2 and layer 3 to facilitate the call analysis and trouble locating.

11.3.6 Exporting the ANRITSU Data into .xls Format

If you select **Excel (ANRITSU)** in the **Export Format** drop-down list, the Probe exports the Anritsu data in .xls format.

11.3.7 Exporting the DTI Test Data

Before exporting the DTI test data, you need to select the DTI test data to be exported in the **LogMask**. For details, refer to section 11.2 "Exporting the Data."

To export the DTI test data, perform the following steps:

1) Choose **Excel (DTI)** in the **Export As** drop-down list.
2) Click **Export Format**.
   The **Setting** dialog box is displayed, as shown in Figure 11-6.

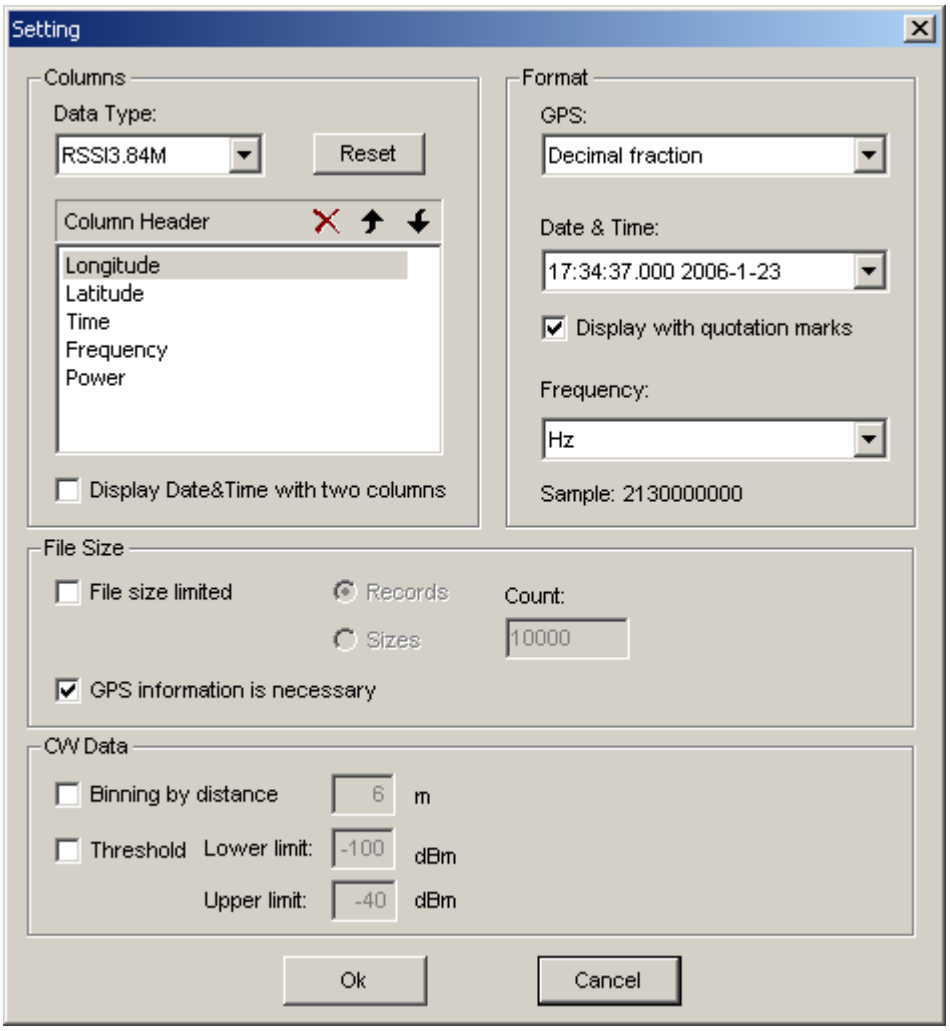


Figure 11-6 Setting dialog box

3) Conduct the following settings, as listed in Table 11-2.

Table 11-2 DTI export format setting

In the area of…	You can…
In the **Column** area	1) Choose one item in the **DTI Data Type** drop-down list. 2) Customize the column header in the **Column Header**. ***Note:*** *Alternatively, double-click one item in the column header to edit it.* *The icons on the toolbar are used for deleting and sorting operations.*
In the **Format** area	1) Choose the format with which the GPS information is exported in the **GPS** drop-down list. 2) Choose the time and date for export in the **Date and Time** drop-down list. 3) Choose the frequency unit in the **Frequency** list.
In the **CW Data** area	1) Select the **Binning by distance** check box. 2) Enter the length based on the geographic binning. The default value is 6 m. 3) Select the Threshold lower limit check box. 4) Enter the custom upper and lower limits. ***Note:*** *The 6 m is the length of the 40 waves in the 2000 MHz frequency.*
In the **File Size** area	You can designate limits on the file size by: • Sizes • Records ***Note:*** • *If the data in one file exceeds the file size, the data flows into another file.* • *If the GPS information is necessary option is selected, the Probe filters the data without the GPS information. Otherwise, all the data is exported.*

Note:

- The feature of geographic binning is added in the DTI data export in the Probe V1.2. You can export the data for propagation model calibration.
- The geographic binning in the Probe adopts new algorithm and avoids the expiration of CW data and geographic information error.

11.4 Merging Log Files

To merge log files, perform the following steps:

1) Choose **Logfile** > **Export Data**.
2) Click **Merge** in the **Log Export** dialog box.
   The procedure for merging log files is similar to that in exporting log data, with difference in file selection and export page layout.
3) Click **Add** or **Delete** to add or delete the log file and set the size of the generated log file.
   For details, refer to section 11.2 "Exporting the Data."

Note:

The Probe merges several log files based on the original binary format. The information about the device in the first log file serves as a reference and the data is merged by device port. The saved file can be opened and played back.

Chapter 12 FAQ

12.1 Why Cannot the Probe Be Enabled in a Normal Way?

I. Problem Description

The Probe cannot be enabled normally. The system gives a prompt, saying "Lock Error: Verify Lock Fail."

II. Solution

To solve the problem, perform the following steps:

1) Check if the hard dongle is connected. Connect the hard dongle if it is unavailable.
2) Check if the driver for the hard dongle is installed. Install the hard dongle driver before putting the hard dongle in use.
3) Check if the device ports work well.
4) If the reason why the Probe cannot be enabled normally is due to other hard dongles have been installed, you need to uninstall the Sentinal Driver in the **Control Panel**, and re-install the GENEX Share.

12.2 Why Cannot the Probe Detect a UE?

I. Problem Description

The UE cannot be detected after the port configuration.

II. Solution

If the system gives the Error prompt, it indicates the port is being occupied. In such a situation, ensure that other applications that may utilize the port have been closed. Re-connect to the UE. If the problem still exists, reboot the PC.

If the system gives a failure prompt, do as listed in Table 12-1.

Table 12-1 Solution to detecting UE

If…	You can…
The UE is connected to the PC through the USB port	1) Right-click **My Computer**. 2) Choose the **Manager** > **Device Manager**. 3) Check if the UE port is under the COM and LPT tree and if it works well. If the UE port does not work well, re-install the driver. 4) Check the UE setting. Ensure that the UE is connected through the USB port. 5) Ensure the serial port in the Hardware Config list is consistent with that in the device manager. 6) Set the BaudRate to 230400.
The UE is connected to the PC through a port	1) Check if the COM port works well. 2) Choose **Menu** > **5 Setting** > **7 Extras** > **1 SIO Config** > **1 Port Map** > **1 Diag** to set to UART. 3) Choose the **SIO Config** > **2 DS BAUD**. 4) Set the baud rate to **115200**. 5) Ensure that the settings of Port and BaudRate in the Probe are same as that in the UE. ***Note:*** *Only the Qualcomm 6200 and 6250 can be connected to the serial port.*

12.3 Why Cannot the Probe Detect the GPS?

I. Problem Description

The Probe cannot detect the GPS.

II. Solution

To solve this problem, perform the following steps:

1) Check if the settings of port No and BaudRate in the **Hardware Config** are correct.
2) Check if the interface protocol is NEMA through the GPS match application software.

12.4 Why Cannot the Probe Detect the Anritsu Scanner

I. Problem Description

The Probe cannot detect the Anritsu Scanner.

II. Solution

To solve the problem, perform the following steps:

1) Check if the settings of port No and BaudRate in the **Hardware Config** are correct.
2) Check the settings of Anritsu Scanner Interface.
3) Choose **Direct** as the protocol.
4) Set the baud rate same to that in the Probe.
5) Use the default value in other options (8 digit bit, 1 stop bit, no parity check).

12.5 Why Cannot the Mouse Be Controlled After PC Switched On or Reboot?

I. Problem Description

The mouse cannot be controlled after the PC switched on or reboot.

II. Reason

The problem is caused by the fact that you reboot or switch on the PC when the GPS or DTI is connected.

III. Solution

Extract the GPS or DTI data line, reboot the PC and re-insert the data line.

12.6 Why Cannot Some Messages Be Reported?

I. Problem

In the event that the UE is in the GSM mode, conduct the test. You find that no data is received. The adjustment in the UE and the interface rate cannot solve the problem.

II. Reason

Some message packages cannot be reported because of the heavy amounts of WCDMA messages.

III. Solution

To solve the problem, you can close the logmask of some message packets that need no observation.

Note:

- The engineers can open the required Logmask before test.
- For details, refer to part 6.7.2 "Setting the Log Mask."

12.7 Why Cannot the Map Window Be Open?

I. Problem Description

The **Map** window or the **Indoor Measurement** window cannot be opened. The system gives a prompt, saying "Please install the maps plug-in".

II. Solultion

To solve the problem, you can re-install the GENEX Share component package.

12.8 Why Cannot the Base Station Window Be Open?

I. Problem Description

The **Base Station** window cannot be opened. The system gives a prompt, saying "Please install the Office plug-in."

II. Solution

To solve the problem, you can re-install the GENEX Share component package.

12.9 Why Cannot the Chart Window Be Open?

I. Problem Description

The **Chart** window cannot be opened. The system gives a prompt, saying "Please install the Teechart plug-in."

II. Solution

To solve the problem, you can re-install the GENEX Share component package.

12.10 Why Cannot the Probe be Installed or Uninstalled?

I. Problem Description

If the local PC is equipped with the Probe 1.2, Probe 1.3 or the ealier ones, you may not succeed in installing the Probe 1.3, though receiveing the installation success information.

II. Solution

The different kits used in the intallation packets lead to the incompatibility between the new and old Probe versions. In such a situation, Huawei recommends that you uninstall the old Probe version first, and then install the new one.

If the old Probe version cannot be uninstalled in the **Control Panel**, to remove the old Probe version, perform the following steps:

1) Click **Start**.
2) Click **Run** and enter **regedit** to open the registry.
3) Remove the HKEY_LOCAL_MACHINE\SOFTWARE\Huawei GENEX\Probe 1.2 (Or Probe 1.3) in the navigation tree.

Appendix A Common Parameters and Shortcuts

A.1 Common Parameters

The section describes the following:

- System Performance
- DTI Scanner Parameter

A.1.1 System Performance

The system performance is listed from the following perspectives:

- Support 8 UEs and Scanners at the same time.
- Run 8 hours continuously without faults
- Support WCDMA/GSM air interface test
- Test data during UE powered on or off
- Scan multiple UARFCN by the DTI Scanner at the same time
- Connect to the UE and Scanner automatically without human involvement

A.1.2 DTI Scanner Parameter

I. Antenna

Table A-1 lists the antenna parameters.

Table A-1 Antenna parameter

Max. power	Antenna type	Coax type	Gain	Freq (MHz)	Dimension (Antenna stub)
150 Watts	Low profile	LMR195	4 dB	2100	1 ¾ inches

II. Cable

Table A-2 lists the cable parameters.

Table A-2 Cable parameter

Loss	Length	Total loss
17.5 dB/100 in	12 in	2.1 dB

III. Battery

Charge: 4 hours

Discharge: 3 hours

Table A-3 lists the battery parameters.

Table A-3 Battery

Item	Reference value
Weight	2.5 lb
Size	1.25” h x 5.25” w x 6.5” d
Nominal capacity	19.2 Ah
Battery type	Sealed Lead
Fuse	3 A Fast Blow, Type 3 AG
Input power connector	5.5 × 2.5mm coaxial plug
Output power connector	DB15 Female

IV. Scanner

Table A-4 lists the Scanner parameters.

Table A-4 Scanner

Receiver Sensitivity	–19dB for Ec/Io CPICH (pilot channel) –116dBm for Ec (RSCP)
Scan rate for CW test	4 ms
Sampling Precision	±1 dBm

A.2 System Shortcut Keys

The Probe provides some system shortcut keys to facilitate your operation.

Table A-5 lists the shortcut keys for system operation.

Table A-5 Shortcut keys for system operation

Operation		Shortcut keys
File	New Project	**Ctrl** + **N**

Operation		Shortcut keys
	Open Project	**Ctrl** + **O**
	Save Project	**Ctrl** + **S**
	Close Project	**Ctrl** + **C**
Log File	Open Logfile	**Ctrl** + **L**
	Close Logfile	**Ctrl** + **H**
	Play	**F6**
	Stop	**Shift** + **F6**
	Speed up	**Ctrl** + **Num** +
	Speed down	**Ctrl** + **Num** -
Test	Start Test	**F5**
	Stop Test	**Shift** + **F5**
	Record Pause	**PAUSE**
Hardware Configuration	Add	**Ctrl** + **Insert**
	Delete	**Ctrl** + **Delete**
	Edit	**Ctrl** + **Return**
	Auto Config	**Ctrl** + **Shift** + **A**
	Manual Config	**Ctrl** + **M**
Map	Enable adjustment	**Ctrl** + **J**
	Exit adjustment	**Ctrl** + **Q**
	Offset Angle	**Ctrl** + **Alt** + **A**
Interface	Switch to Test Control Panel	**Alt** + **1**
	Switch to View Panel	**Alt** + **2**
	Switch to Property Panel	**Alt** + **3**
	Swith to Previous Page	**Ctrl** + **Alt** + **I**
	Swith to Next Page	**Alt** + **Z**
	Message Page Swithover	**Ctrl** + **Alt** + **U**

Operation		Shortcut keys
	Capture Window	**Ctrl** + **P**
	Capture Page	**Ctrl** + **Alt** + **P**
	Screen Pause/Resume	**F10**

Appendix B Acronyms and Abbreviations

A

AMR	Adaptive MultiRate
APN	Access Point Name
APP	Application

B

BLER	Block Error Rate

C

CW	Continuous Wave

N

NAS	Non-access Stratum

R

RRC	Radio Resource Control
RSCP	Received Signal Code Power
RSSI	Received Signal Strength Indication

S

SCH	Synchronized Channel

T

TPC	Transmit Power control

U

UARFCN	UMTS Absolute Radio Frequency Channel Number

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