MD8470A

Signalling Tester

MX847040B TD-SCDMA/GSM Simulation Kit

TD-SCDMA/TD-HSPA
GSM

On-the-Bench Global Mobile Communications Network for Wireless Application Developers

Full-scale deployment of TD-SCDMA is starting in China following the sudden expansion of 2/2.5G communication standards. Moreover, mobile markets in China are increasingly adopting the 3.5G HSPA mobile communication standard supporting high-speed packet data. This complex mixture of 2/2.5/3/3.5G mobile networks increases the need for assured service quality and call connectivity as mobile terminals move between different cells. Since the HSPA standard offers much faster data download speeds, the performance of mobile terminals must be verified in environments with high-speed packet data rates.

The MD8470A Signalling Tester offers a personal benchtop environment for flexible simulation of TD-SCDMA network. The new standalone hardware design and software options allow users to easily configure test environment for 2-cell TD-SCDMA/GSM InterRAT handovers, TD-SCDMA/TD-SCDMA IntraRAT handovers and TD-HSPA capability of all UE categories specified in 3GPP TS25.306.
Service quality, call connectivity, stability, data throughput performance, etc., are all easy to verify with high repeatability using this high-performance test platform. The MD8470A helps you rollout TD-SCDMA terminals and services as early as possible.

MD8470A TD-SCDMA Features

- Flexible script-based TD-SCDMA/TD-HSPA network simulation using C programming interface
- Supports TD-SCDMA/TD-HSPA bearer services including voice call, video call, packet communication and SMS/MMS
- Supports all UE TD-HSPA categories in 3GPP TS25.306
- Supports 2-cell InterRAT handover between TD-SCDMA/TD-HSPA and GSM/(E)GPRS in single platform
- Supports 2-cell IntraRAT handover between TD-SCDMA/TD-HSPA and TD-SCDMA/TD-HSPA in single platform
- Supports multi-communication standards (TD-SCDMA/TD-HSPA, GSM/GPRS/EGPRS) with wide frequency coverage (400 MHz to 2.7 GHz)

Key Applications

- Perform TD-SCDMA/TD-HSPA protocol sequence tests
- Perform pre-verification of TD-SCDMA terminal before field tests
- Perform comprehensive function tests at integration phase of TD-SCDMA terminal
- Perform packet-based TD-HSPA and EGPRS application tests with appropriate external servers
- Verify mobile terminal service quality and call connectivity at InterRAT handover (TD-SCDMA ↔ GSM)
- Verify mobile terminal service quality and call connectivity at IntraRAT handover (TD-SCDMA ↔ TD-SCDMA)
- Verify roaming service between national carriers
- Evaluate TD-HSPA data throughput performance

MD8470A
Signalling Tester
MX847040B TD-SCDMA/GSM Simulation Kit

Overview

MX847040B
TD-SCDMA/GSM Simulation Kit

Flexible TD-SCDMA/GSM Network Simulation

TD-SCDMA/TD-HSPA, GSM/(E)GPRS Simulations and Analysis

The MD8470A Signalling Tester with new MU847040B TD-SCDMA/HSPA Signalling Unit and MX847040B TD-SCDMA/GSM Simulation Kit provides a flexible, repeatable and highly integrated TD-SCDMA/TD-HSPA network simulation environment for TD-SCDMA technology developers. This new solution allows users to perform extensive testing to create quality devices, protocols, user equipment, and applications for TD-SCDMA systems.
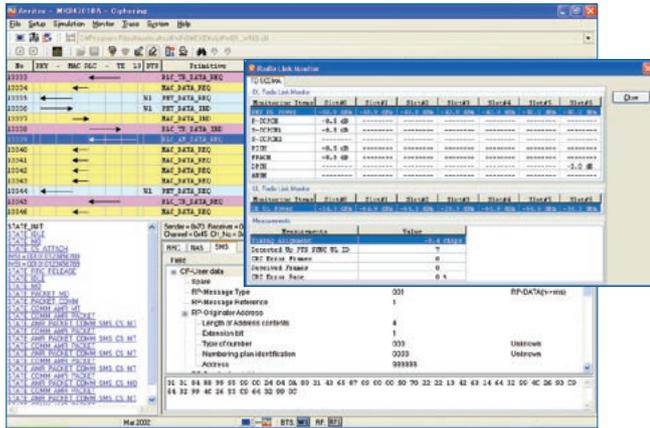
Simulation control software

Feature Highlights

- Flexible physical layer configuration
- Message encode/decode tool and programming library to support efficient test scenario creation
- Protocol message and user data logging at each layer
- Protocol message analysis support for various messages including RRC, NAS [RR, CC, MM, GMM, SM], SMS, SS [Supplementary Service] and Config
- Powerful logging data sorting, searching and filtering for effective troubleshooting
- Monitoring function for DL channel power, UL power, timing alignment and CRC errors

Control Software Support Functions

Function	Description
Scenario Execution	Reads and executes compiled DLL scenarios
Real-time Trace	Displays signalling messages and user data during simulation in real time
Trace Log Save/Load	Saves (Binary/Text/Packet/H.245/Throughput) and recalls (Binary only) traced log data
Trace Display Filtering	Displays trace filtered by channel and primitive classification
Message Decode and Analysis	Translates and displays traced messages (RRC, NAS*, SMS, SS, Config)
Scenario Library Function	Provides C library function for scenario creation
External Control Function	Provides DLL library allows external application to control MX847040B control software

∗: Supports RR, CC, MM, GMM, and SM

MX847040B-13 TD-HSPA Software

High Performance Test Platform

Testing TD-SCDMA/TD-HSPA Applications

The MD8470A Signalling Tester with MX847040B-13 TD-HSPA software and MU847040B TD-SCDMA/HSPA Signalling Unit supports TD-HSPA communication standards. Testing of protocols and applications using TD-HSPA packet data are executed by connecting to a server.

Server Connection Example

Mobile Terminal   MD8470A   Application Server

Supports All UE Categories

New hardware supports high-speed TD-HSPA BTS functions of the following all UE categories specified in 3GPP TS25.306 for verifying data throughput performance.

3GPP TS25.306
1.28 Mcps TDD HS-DSCH physical layer categories (TD-HSDPA)

HS-DSCH category	Maximum number of HSDSCH codes per timeslot	Maximum number of HSDSCH timeslots per TTI	Maximum number of HSDSCH transport channel bits can be received within an HSDSCH TTI	Total number of soft channel bits	Maximum Throughput [bps]
Category 1	16	2	2788	11264	557600
Category 2	16	2	2788	22528	557600
Category 3	16	2	2788	33792	557600
Category 4	16	2	5600	22528	1120000
Category 5	16	2	5600	45056	1120000
Category 6	16	2	5600	67584	1120000
Category 7	16	3	8416	33792	1688200
Category 8	16	3	8416	67584	1688200
Category 9	16	3	8416	101376	1688200
Category 10	16	4	11226	45056	2245200
Category 11	16	4	11226	90112	2245200
Category 12	16	4	11226	135168	2245200
Category 13	16	5	14043	56320	2808600
Category 14	16	5	14043	112640	2808600
Category 15	16	5	14043	168960	2808600

3GPP TS25.306
1.28 Mcps TDD E-DCH physical layer categories (TD-HSUPA)

E-DCH category	Maximum number of E-DCH timeslots per TTI	Maximum number of E-DCH transport channel bits that can be received within an E-DCH TTI	Maximum Throughput [bps]
Category 1	2 (Note 1, 3)	2754	550800
Category 2	3 (Note 1, 3)	4162	832400
Category 3	2 (Note 2, 3)	5532	1106400
Category 4	3 (Note 2, 3)	8348	1669600
Category 5	4 (Note 2, 3)	11160	2232000
Category 6	5 (Note 2, 3)	11160	2232000

Note 1: Category 1 and 2 UEs support QPSK only.
Note 2: Category 3, 4, 5 and 6 UEs support QPSK and 16QAM.
Note 3: All category UEs support up to 2 physical channels per timeslot unless 16QAM is adopted.

Applications

Protocol Tests

### Protocol Sequence Tests using C Programming Libraries

TD-SCDMA/GSM protocol sequence tests, such as broadcast information transmission, location registration, UE-originated voice call, UE-terminated voice call, UE-originated packet call, UE-call release, NW-call release and handovers are performed using dedicated C scenarios. Test parameters and sequence can also be defined freely to perform semi-normal and interrupt testing. In addition, data transfer between the mobile terminal and MD8470A can be monitored simultaneously in real time. These functions support troubleshooting as well as efficient protocol sequence tests for chipsets and mobile terminals.

Chipset

Mobile Terminal

MD8470A
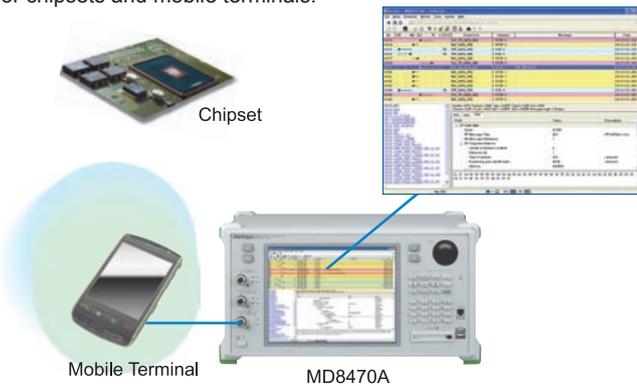
Effective Scenario Creation

|: Protocol Message Encoder/Decoder Tool (Message Coder)

The Message Coder is a protocol message encoder/decoder tool supporting RRC, NAS (RR, CC, MM, GMM, SM), SMS, and SS (Supplementary Services). It makes creation of protocol messages needed for test scenarios more efficient.
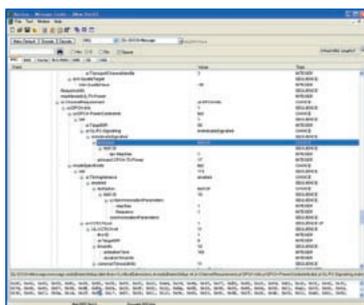
Message Coder

|: Message Encoder/Decoder Library

A protocol message encoder/decoder library supporting RRC, NAS (RR, CC, MM, GMM, SM), SMS, and SS (Supplementary Service) simplifies changing or extracting message information elements in test scenarios. The information elements are designated using the tree structure shown in the decode results of the Message Coder. This feature can be used for conditional branch processing in the scenario and analysis of received messages.

Cell Selection, Reselection & Handover Tests

The all-in-one MD8470A supports 2-cell InterRAT/IntraRAT tests including cell selection, reselection and handovers. In addition to roaming verifications when moving between different carriers, it can verify the quality of high-speed packet-based multimedia services at InterRAT between TD-HSPA and EGPRS by installing the MX847040B-13 TD-HSPA Software and MX847010A-01 EGPRS Software options. Moreover, various UE protocol sequence tests can also be performed at InterRAT/IntraRAT handover. Since one MD8470A with these options closely emulates the real service environment, it greatly improves work efficiency at pre-verification of field tests.

|: TD-SCDMA/TD-HSPA (2-cell)

- Cell Selection
- Cell Reselection
- Handover
    Baton Handover
    Hard Handover
    - Voice Call (AMR: Handset, Loopback)
    - Voice Call (Loopback)
    - Packet Call (DL 384 k/UL 384 k to DL 2.8 M/UL 2.0 M)
    - Multi-Call (Voice + Packet, Video + Packet)

|: TD-SCDMA/TD-HSPA, GSM/(E) GPRS (2-cell/InterRAT)

- Cell Selection
- Inter-system Cell Reselection
- Inter-system Handover
    - Voice Call (TD-SCDMA: AMR ↔ GSM: EFR)
    - Packet Communication with application server
      (TD-SCDMA/TD-HSPA ↔ GSM/(E) GPRS)

Application Tests

All-in-One Platform for Testing Various Applications

The MD8470A supports a full range of TD-SCDMA application tests as well as end-to-end simulation of various services when connected to an application server.

TD-SCDMA Voice Call Tests (Handset/Loopback)

Voice call testing is performed between the mobile terminal and handset by connecting a handset to the MD8470A. A sample scenario is provided for voice call testing (AMR 12.2 kbps).

TD-SCDMA Video Call Tests (Loopback)

Video call testing is performed by looping back video data within the MD8470A. The ability to save H.245 control protocol trace data during video calls supports offline analysis of H.245 protocol message logs. A sample scenario is provided for video call testing (AV 64 kbps).

TD-SCDMA Packet Communication Tests

Application functions using packet data are tested on this all-in-one platform by installing an application server in the built-in PC. External application servers can also be connected. A sample scenario is provided for packet communication testing.

TD-SCDMA Messaging Tests (SMS/MMS)

Using the SMSC (SMS Centre) software to simulate Short Message Service supports SMS sending/receiving, and SMS loopback tests. The SMSC has a simple GUI for creating and sending test text (7-bit ASCII, Unicode) and binary SMS messages. Also, combining with a separate MMSC (MMS Center) application server* and SMSC supports MMS (Multimedia Messaging Service) testing.

*: Requires separate MMS application server

Data Throughput Tests

Data Throughput Measurements

The new built-in IP Performance Monitor function supports real-time monitoring of data throughput performance. Actual data throughput can be verified at a fixed rate or at a rate determined by the TD-HSPA UE category and CQI value.
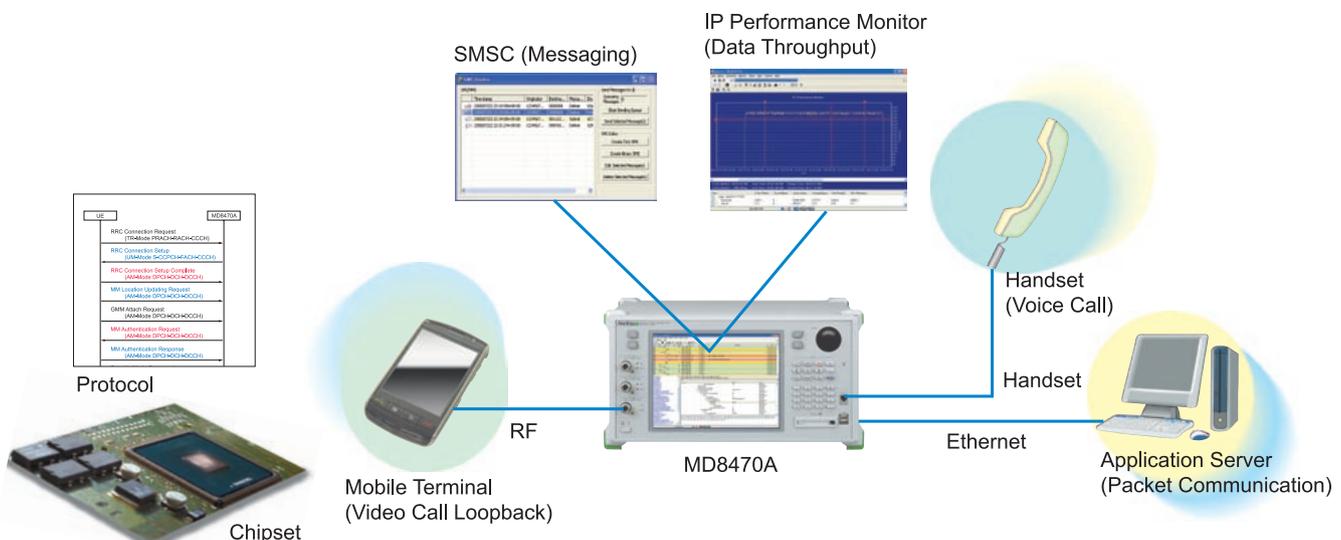
Examples of TD-HSPA Test

• Transfer large volumes of data from FTP server
• Verify data throughput performance using the throughput monitor.
• Perform service interruption testing, such as incoming voice call during TD-HSPA data communication.
• Check the data throughput behavior at InterRAT handover.
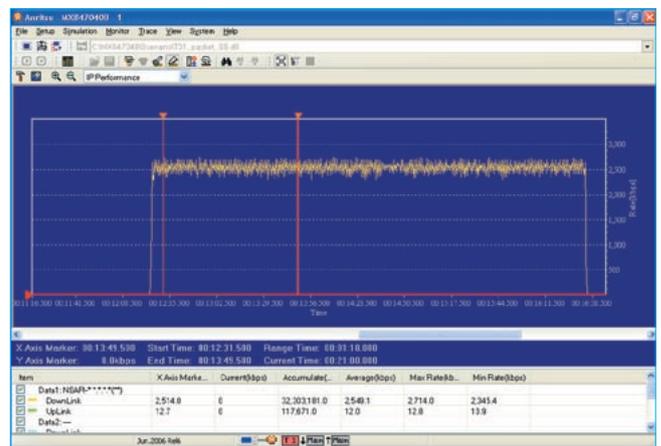
IP Performance Monitor

■ **Test System Example**

Ethernet and handset interfaces support various data communication services and an application server can be installed in the built-in PC. The all-in-one platform provides a development environment including the application server function.

SMSC (Messaging)

IP Performance Monitor (Data Throughput)

Protocol

Chipset

Mobile Terminal (Video Call Loopback)

RF

MD8470A

Handset (Voice Call)

Handset

Ethernet

Application Server (Packet Communication)

Specifications

▪ Supported TD-SCDMA Downlink Channel/Uplink Channel/Bearer Services

• Supported TD-SCDMA Downlink Channel

Channel	Logical Channel	Transport Channel	Physical Channel	
Common	BCCH	BCH	P-CCPCH	2 Codes
			DwPCH	
			FPACH	1 Code
			PICH	2 Codes
	PCCH	PCH	S-CCPCH	Max. 16 Codes
	CCCH/DCCH/DTCH	FACH		
			HS-SCCH	2 Codes × 4
			E-AGCH	2 Codes
			E-HICH	2 Codes
Dedicated	DCCH+DTCH	DCH	DPCH	Max. 16 Codes, 4 Slots
		HS-DSCH	HS-PDSCH	Max. 16 Codes, 5 Slots

• Supported TD-SCDMA Uplink Channel

Channel	Logical Channel	Transport Channel	Physical Channel	
Common			UpPCH	
	CCCH	RACH	PRACH	Max. 2 Codes
			HS-SICH	1 Code
Dedicated	DCCH/DTCH	DCH	DPCH	Max. 2 Codes, 4 Slots
		E-DCH	E-PUCH	Max. 2 Codes, 5 Slots

• Supported Bearer Service

Service	Data rate	DL Physical Channel	UL Physical Channel
Protocol (Standalone DCCH)		DPCH (1 Code)	DPCH (SF8, 1 Code)
Voice Call (GSM-AMR)	12.2 kbps	DPCH (2 Codes)	DPCH (SF8, 1 Code)
Video Call	64 kbps	DPCH (8 Codes)	DPCH (SF2, 1 Slot)
Packet Switched Data	64 kbps	DPCH (8 Codes)	DPCH (SF2, 1 Slot)
	144 kbps	DPCH (9 Codes, 2 Slots)	DPCH (SF2, 2 Slots)
	384 kbps	DPCH (SF1, 3 Slots)	DPCH (SF2+SF16, 4 Slots)
Packet Switched Data (HSDPA)	2.8 Mbps	HS-PDSCH (16 Codes, 5 Slots)	
Packet Switched Data (HSUPA)	2.2 Mbps		E-PUCH (SF1, 4 Slots)
Reference Measurement Channel	12.2 kbps	DPCH (2 Codes)	DPCH (SF8, 1 Code) or DPCH (SF16, 2 Codes)
	64 kbps	DPCH (8 Codes)	DPCH (SF2, 1 Slot)
	144 kbps	DPCH (8 Codes, 2 Slots)	DPCH (SF2, 2 Slots)
	384 kbps	DPCH (9 Codes, 4 Slots)	DPCH (SF2+SF16, 4 Slots)
Reference Measurement Channel (HSDPA)	1278.6 kbps	HS-PDSCH (12 Codes, 5 Slots)	
Reference Measurement Channel (HSUPA)	56.4 kbps		E-PUCH (SF4, 2 Slots)
	515.6 kbps		E-PUCH (SF2, 3 Slots)

MD8470A Signalling Tester

Transmitter characteristics	Frequency range: 400 MHz to 2700 MHz Frequency setting resolution: 100 Hz Output level range: −120 to −18 dBm (RF Main) Level setting resolution: 0.1 dB Output level accuracy: ±3 dB (Output level: ≥−50 dBm, +18° to +28°C) Modulation accuracy: ≤7% rms (when MU847040A/B is mounted) Phase error: ≤4° rms (when MU847020A/B is mounted)
Receiver characteristics	Frequency range: 400 MHz to 2700 MHz Frequency setting resolution: 100 Hz Maximum input level: +34 dBm (average) Reference setting range: −30 to +20 dBm (RF Main)
External interface	RF Main/RF Aux1/RF Aux2: N-type connector, Impedance: 50 Ω Call Proc Serial I/O A to D: D-Sub 9-pin connector, RS-232C, Serial interface for data communications Call Proc Ethernet A to D: RJ-45 connector, 10BASE-T, Ethernet interface for data communications ISDN 0/1: RJ-45 connector (Option), ISDN interface for data communications (I.430) Handset: Modular jack, Handset interface (including dedicated handset)

Reference oscillator	10 MHz Buff Output
	  Frequency: 10 MHz
	  Level: TTL level
	  Connector: BNC type
	  Startup characteristics: ≤±5 × 10^{-8} (5 minutes after power-on, referenced to 24 hours after power-on)
	  Aging rate: ≤±1 × 10^{-8}/day, ±1 × 10^{-7}/year (referenced to 24 hours after power-on)
	  Temperature characteristics: ≤±2 × 10^{-8}

External reference input	10 MHz Ref Input
	  Frequency: 10 MHz (±0.5 ppm)
	  Level: ≥0 dBm
	  Impedance: 50 Ω
	  Connector: BNC type

Built-in personal computer	OS: Windows XP Professional operating system CPU: Mobile Intel Pentium 4 processor 1.7 GHz HDD: 40 GB Memory: 512 MB
User interface	Display: Color TFT LCD, 10.4-inch, XGA Headphone: 3.5-mm mini-jack Microphone: 3.5-mm mini-jack USB: USB1.1 (Front panel), USB2.0/1.1 (Rear panel) RS-232C: D-Sub 9-pin connector PCMCIA: Type I, II compliant (Front/Rear panel) Keyboard: PS/2 Mouse: PS/2 VGA: Mini D-Sub 15-pin connector Ethernet 0/1: RJ-45 connector (10BASE-T/100BASE-TX)
Dimensions	426 (W) × 221.5 (H) × 281 (D) mm ＊Excluding protrusions
Mass	≤17 kg (when all options)
Power supply	100 to 120 Vac/200 to 240 Vac (−15%/+10%, Max.: 250 V), 47.5 Hz to 63 Hz, ≤300 VA
Operating temperature	+5° to +40°C, Humidity ≤95% (no condensation)
Storage temperature	−20° to +65°C, Humidity ≤95% (no condensation)
EMC	EN61326-1, EN61000-3-2
LVD	EN61010-1

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Panel Layout
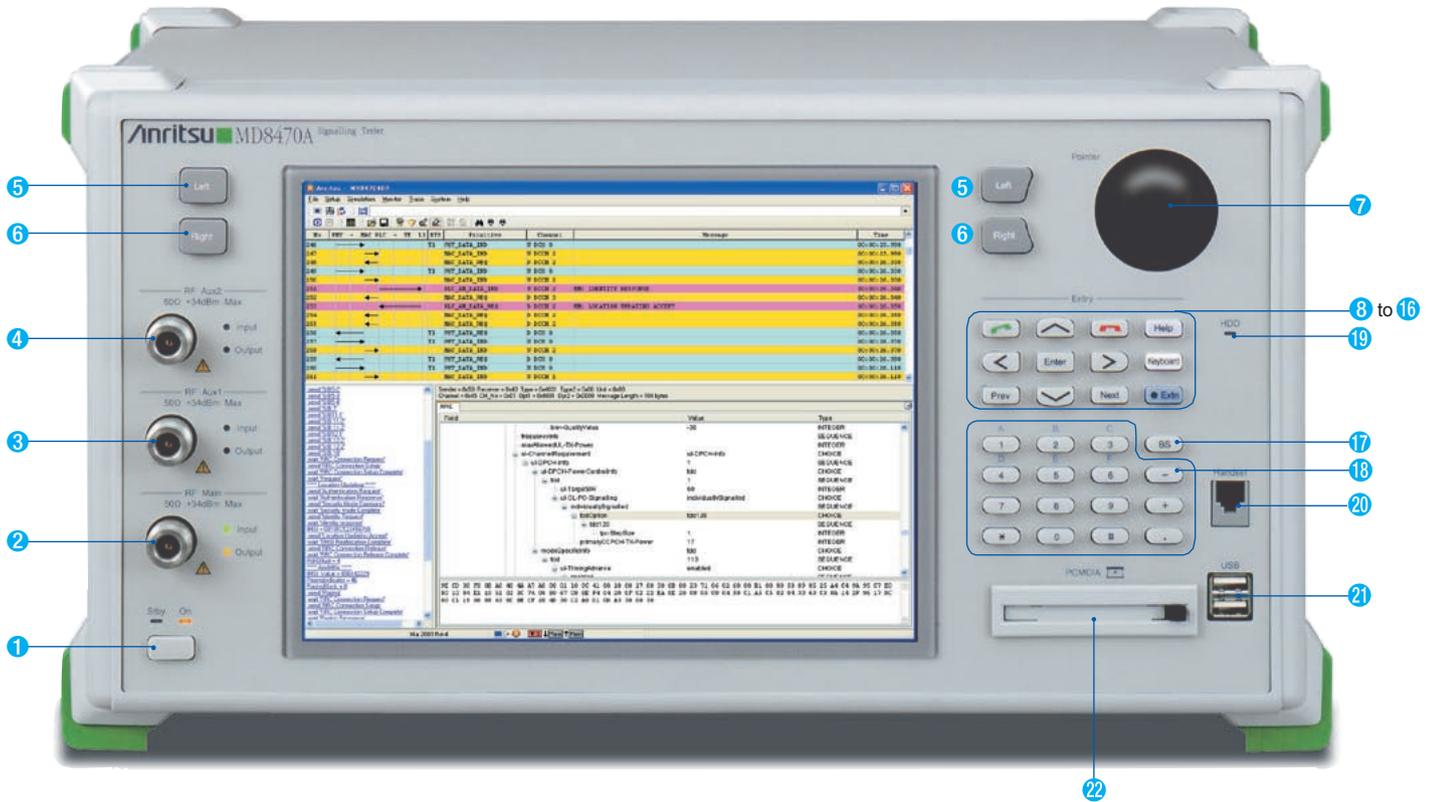
❶ **Power switch**
Switches mode between power-on (On) and standby (Stby)

❷ **[RF Main] Main input/output connector**
Main N-type input/output connector

❸ **[RF Aux1] Aux1 input/output connector**
Auxiliary N-type input/output connector

❹ **[RF Aux2] Aux2 input/output connector**
Auxiliary N-type input/output connector

❺ **Left key**
Performs same operation as left mouse click

❻ **Right key**
Performs same operation as left mouse click

❼ **[Pointer] Pointer**
Moves screen pointer

❽ **Cursor key**
Performs same operation as keyboard cursor key

❾ **Enter key**
Performs same operation as keyboard Enter key

❿ **Off-Hook key**
Performs same Off-Hook operation as Shift + Ctrl + F1 on keyboard

⓫ **On-Hook key**
Performs same On-Hook operation as Shift + Ctrl + F2 on keyboard

⓬ **Previous key**
Moves cursor to item before current selection in same operation as Shift + Tab on keyboard

⓭ **Next key**
Moves cursor to item after current selection in same operation as Tab on keyboard

⓮ **Help key**
Displays on-screen Help window in same operation as F1 on keyboard

⓯ **Keyboard key**
Displays on-screen keyboard

⓰ **Extender key**
Changes keyboard key functions to descriptions in blue while key lamp lit

⓱ **BackSpace key**
Deletes previous letter in same operation as BackSpace on keyboard

⓲ **Ten keys**
Input numeric values for parameters and A to F in hexadecimal

⓳ **[HDD] Hard disk access lamp**
Lights during main-frame HDD access
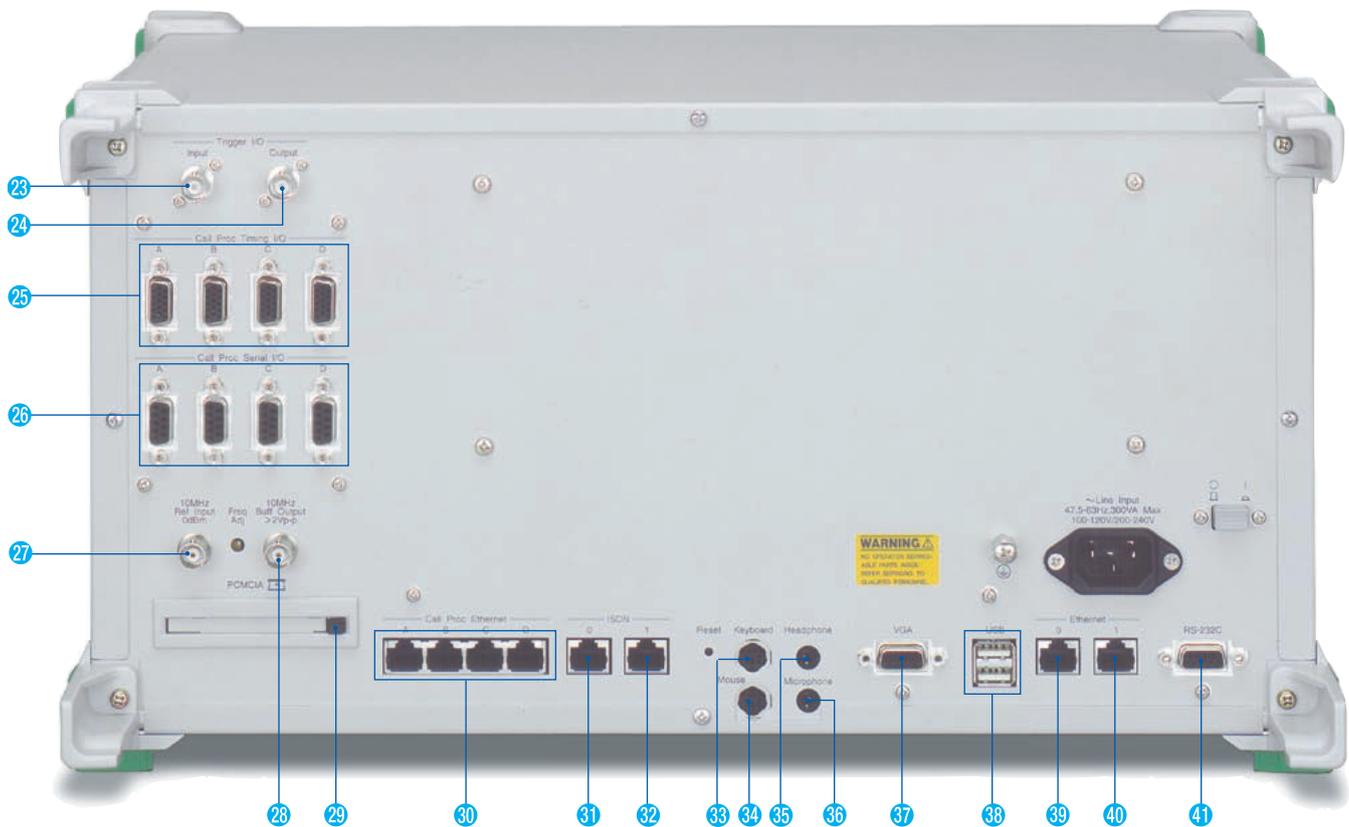
⓴ **[Handset] Handset connector**
Handset (standard accessory) connector

㉑ **[USB] USB connector**
USB connector for USB1.1 devices

㉒ **[PCMCIA] PCMCIA slot**
Slot for Type I or II PCMCIA memory card

㉓ [Trigger I/O Input] Trigger input connector
Reserved

㉔ [Trigger I/O Output] Trigger output connector
Reserved

㉕ [Call Proc Timing I/O A to D] Timing input/output port for call processing
Reserved

㉖ [Call Proc Serial I/O A to D] Serial input/output port for call processing
D-sub 9-pin connector for call processing

㉗ [10 MHz Ref Input] Reference signal input connector
BNC connector for external reference signal input

㉘ [10 MHz Buff Output] Reference signal output connector
BNC connector for built-in reference signal output

㉙ [PCMCIA] PCMCIA slot
Slot for Type I or II PCMCIA memory card

㉚ [Call Proc Ethernet A to D] Ethernet input/output port for call processing
RJ-45 connector and Ethernet port for call processing for packet communications

㉛ [ISDN 0] ISDN 0 port
RJ-45 connector for ISDN for video call test (BRI) <Option>

㉜ [ISDN 1] ISDN 1 port
Reserved

㉝ [Keyboard] Keyboard
Keyboard connector (standard accessory)

㉞ [Mouse] Mouse
Mouse connector (standard accessory)

㉟ [Headphone] Headphone
Headphone connector for 3.5-mm mini-jack

㊱ [Microphone] Microphone
Microphone connector for 3.5-mm mini-jack

㊲ [VGA] VGA connector
Mini D-sub 15-pin connector for external monitor

㊳ [USB] USB connector
USB connector for USB 2.0/1.1 devices

㊴ [Ethernet 0] Ethernet 0 port
Ethernet port for built-in PC

㊵ [Ethernet 1] Ethernet 1 port
Ethernet port for built-in PC

㊶ [RS-232C] RS-232C port
D-sub 9-pin connector for external PC

㊷ Main power switch
Switches main power on and off; front-panel Power switch enters Stby mode while main power on

Units/Options/Software

Hardware

• TD-SCDMA/HSPA Signalling Unit (MU847040B)
This hardware unit simulates operation of a TD-SCDMA/HSPA base station.

• GSM Signalling Unit (MU847020B)

This hardware unit simulates operation of a GSM/GPRS base station.

• Second RF Option (MD8470A-02)

This hardware unit supports simulation using two RF signals.
It is required when running InterRAT testing with one MD8470A unit.

Software

• TD-SCDMA/GSM Simulation Kit (MX847040B)
This software is required for use with TD-SCDMA and GSM/GPRS. The kit includes libraries for scenario programming, control software for scenario execution and tracing/analysis, sample scenarios for basic call processing, and user manuals. (Microsoft Visual C++.net Standard 2003 or Microsoft Visual Studio 2005 Standard Edition or Microsoft Visual Studio 2008 Standard Edition is required for scenario compiling. Also, if Visual C++.net Standard 2003 or Visual Studio 2005 Standard Edition or Visual Studio 2008 Standard Edition is installed in the built-in PC, a CD or DVD drive with USB interface is required.)

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• TD-HSPA Software (MX847040B-13)
This software is required for TD-HSPA simulation. TD-HSPA testing is supported by combining the MX847040B TD-SCDMA/GSM Simulation Kit with MU847040B TD-SCDMA/HSPA Signalling Unit.

• EGPRS Software (MX847010A-01)
This software is required for EGPRS simulation. EGPRS testing is supported by combining the MX847040B TD-SCDMA/GSM Simulation Kit with the MU847020B GSM Signalling Unit.

Software Maintenance Contract

• MX847040B Support Service (1 year) (MX847040B-SS110)
This contract supports user troubleshooting and software maintenance releases. It is the software maintenance contract for the MX847040B.

• Configuration

Configurations		MD8470A	MD8470A-02	MU847040B	MU847040B	MU847020B	MU847020B	MX847040B	MX847040B-13	MX847010A-01	MX847040B-SS110	Remarks
Single (1BTS) Configurations	TD-SCDMA Test Configuration	√		√				√			√	
	TD-SCDMA/TD-HSPA Test Configuration	√		√				√	√		√	
	TD-SCDMA • GSM/GPRS Test Configuration	√		√		√		√			√	
	TD-SCDMA/TD-HSPA • GSM/GPRS/EGPRS Test Configuration	√		√		√		√	√	√	√	
IntraRAT Handover Test (TDS-TDS 2BTS) Configurations	TD-SCDMA ↔ TD-SCDMA IntraRAT Test Configuration	√	√	√	√			√			√	
	TD-SCDMA/TD-HSPA ↔ TD-SCDMA/TD-HSPA IntraRAT Test Configuration	√	√	√	√			√	√		√	
InterRAT Handover Test (TDS-GSM 2BTS) Configurations	TD-SCDMA ↔ GSM/GPRS InterRAT Test Configuration	√	√	√		√		√			√	
	TD-SCDMA/TD-HSPA ↔ GSM/GPRS/EGPRS InterRAT Test Configuration	√	√	√		√		√	√	√	√	
InterRAT/IntraRAT Handover Test (TDS-TDS/GSM-GSM 2BTS) Configurations	TD-SCDMA 2-cell, GSM/GPRS 2-cell Test Configuration	√	√	√	√	√	√	√			√	
	TD-SCDMA/TD-HSPA 2-cell, GSM/GPRS/EGPRS 2-cell InterRAT Test Configuration	√	√	√	√	√	√	√	√	√	√	

TD-SCDMA/TD-HSPA Test Configuration: Runs simulation corresponding TD-SCDMA/HSPA 1BTS
TD-SCDMA/TD-HSPA • GSM/GPRS/EGPRS Test Configuration: Includes functions for test configurations for both TD-SCDMA/TD-HSPA and GSM/GPRS/EGPRS

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

Model/Order No.	Name
	Main frame
MD8470A	Signalling Tester
	Standard accessories
	Power Cord, 2.6 m
Z0741	MD8470A Operation Manual (CD-ROM)
	Keyboard (Japanese or English)*1
G0134	Mouse
A0058A	Handset
MX847000A	Platform Software
	Units/Options
MD8470A-02	Second RF Option
MU847040B	TD-SCDMA/HSPA Signalling Unit
MU847020B	GSM Signalling Unit
Z0714	English OS Option
Z0715	Japanese OS Option
Z0716A/B	Retrofit Option
	Software
MX847040B	TD-SCDMA/GSM Simulation Kit*2
MX847040B-13	TD-HSPA Software
MX847010A-01	EGPRS Software
MX847040B-SS110	MX847040B Support Service (1 year)
	Warranty service
MD8470A-90	Extended Three Year Warranty Service
MD8470A-91	Extended Five Year Warranty Service

*1: Selected by Z0714 or Z0715 OS option.
*2: P0035B W-CDMA/GSM TEST USIM is supplied by this option.

Model/Order No.	Name
	Application parts
J1261A	Ethernet Cable (Shielded, Straight), 1 m
J1261B	Ethernet Cable (Shielded, Straight), 3 m
J1261C	Ethernet Cable (Shielded, Crossover), 1 m
J1261D	Ethernet Cable (Shielded, Crossover), 3 m
J1262A	RS-232C Cable (Straight), 2 m
J1262B	RS-232C Cable (Crossover), 2 m
J0576B	Coaxial Cord (N-P · 5D-2W · N-P), 1 m
J0576D	Coaxial Cord (N-P · 5D-2W · N-P), 2 m
J0127A	Coaxial Cord (BNC-P · RG58A/U · BNC-P), 1 m
J0127B	Coaxial Cord (BNC-P · RG58A/U · BNC-P), 2 m
J1263	W-CDMA Interface Cable
J1264	N-SMA Adapter
J1265	Adapter (Serial Connector)
J0658	Adapter (SMA, L Type)
B0543	Carrying Case
B0329D	Front Cover for 1MW 5U
Z0749	MN8110B + Inch Screw Cable
J1287	HDD-SUB15P Cable (Milli-Inch)
P0035B	W-CDMA/GSM TEST USIM

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