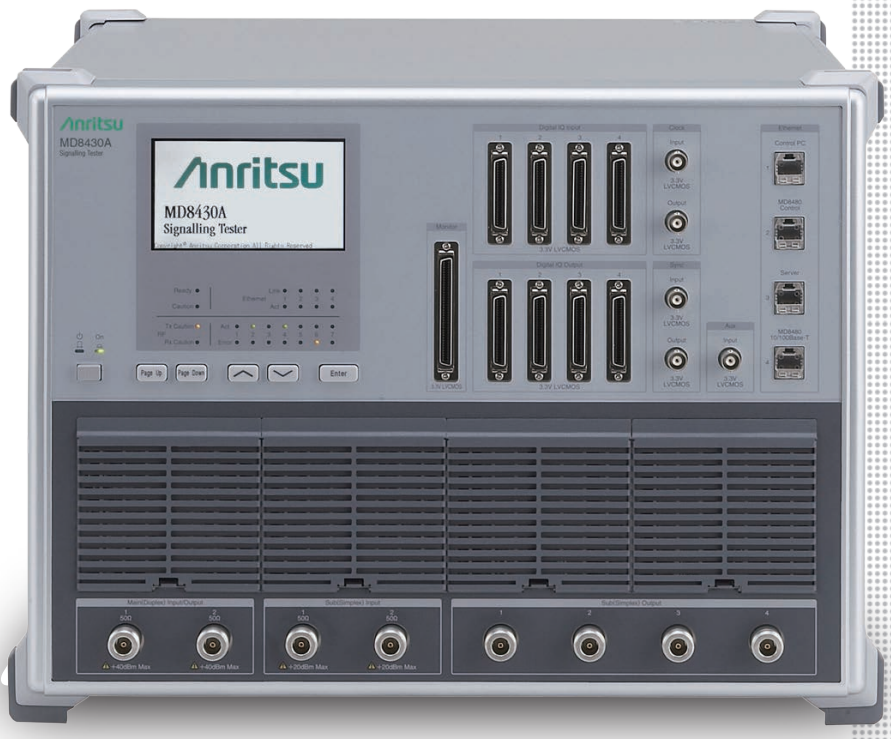
Anritsu envision:ensure

Signalling Tester

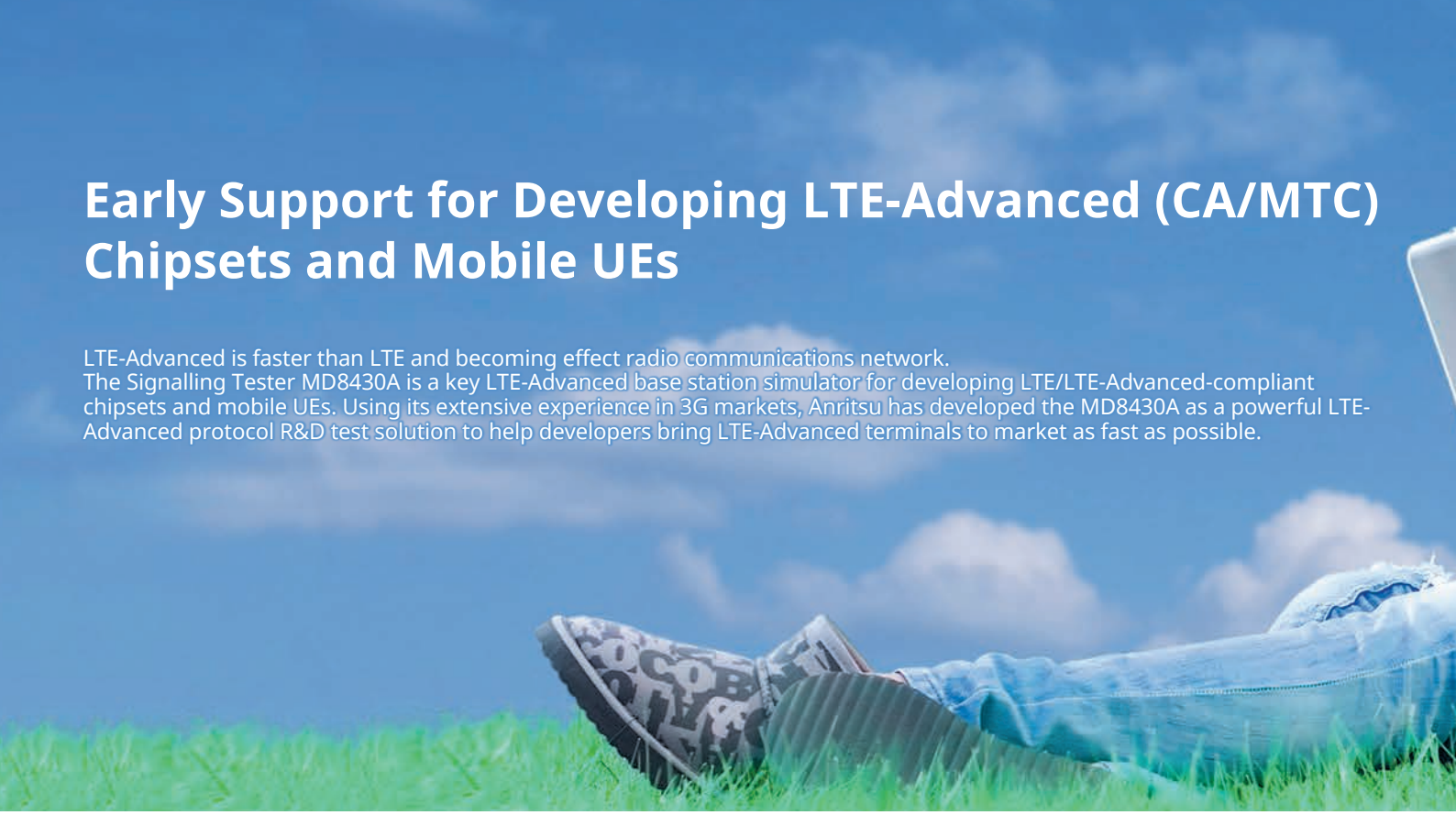
MD8430A

Rapid Test Designer (RTD) MX786201A



Early Support for Developing LTE-Advanced (CA/MTC) Chipsets and Mobile UEs

LTE-Advanced is faster than LTE and becoming effect radio communications network.
The Signalling Tester MD8430A is a key LTE-Advanced base station simulator for developing LTE/LTE-Advanced-compliant chipsets and mobile UEs. Using its extensive experience in 3G markets, Anritsu has developed the MD8430A as a powerful LTE-Advanced protocol R&D test solution to help developers bring LTE-Advanced terminals to market as fast as possible.

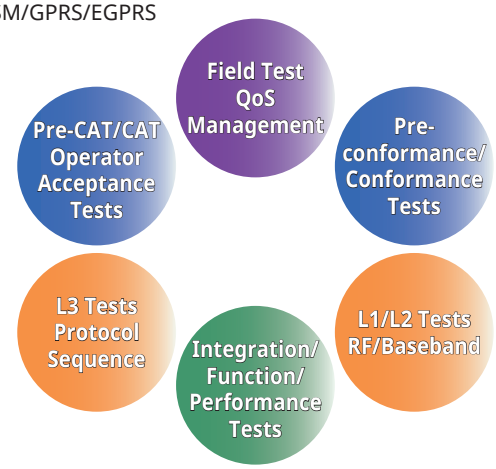


Key Features

- Early support for 3GPP LTE-Advanced FDD/TDD Carrier Aggregation (CA) 2CCs and 3CCs
- Early support 3GPP LTE-Advanced FDD/TDD Release 12
  - TDD-FDD joint operation including CA
  - DL 256QAM
  - LTE MTC (Machine Type Communication)
- One MD8430A support CA handover, 4×4 MIMO and 8×2 MIMO Available to testing of full digital fading
- Support DL 450 Mbps, UL 100 Mbps throughput test at 3CCs
- Inter-RAT tests making effective use of previous MD8480C (UTRAN/GERAN), and MD8475A (CDMA2000) hardware investments
- Optimized investment from first R&D to protocol conformance testing
- Full development and analysis toolset cuts L1, L2 and L3 scenario development time and costs
- Support UMTS Release 10, HSPA Evolution, GSM/GPRS/EGPRS

Main Applications

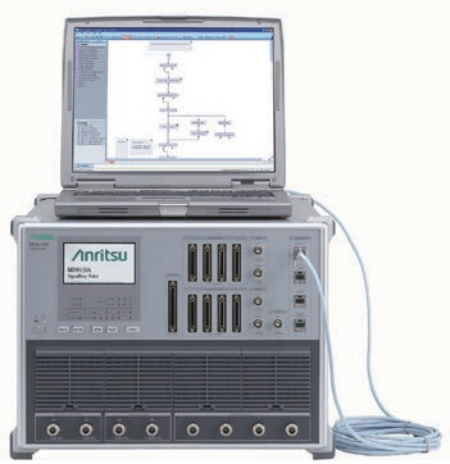
- Coding/Decoding tests (RF/Baseband)
- Protocol sequence tests
- Throughout and stress tests (Performance test)
- Intra-RAT/Inter-RAT performance tests
- LTE Pre-conformance/Conformance tests
- Network interoperability tests
- LTE network operator acceptance tests (CAT)
- Troubleshooting field test problems
- UE QC inspection
- W-CDMA/HSPA protocol sequence tests



MD8430A

Signalling Tester

MX786201A Rapid Test Designer (RTD)



Main Test Functions

- LTE-Advanced Intra-RAT CA handover test (Hard handover)
- LTE ↔ UTRAN/GERAN Inter-RAT handover test
- eMBMS test
- Digital baseband slow clock test
- Protocol sequence analysis (Log analysis)
- Throughput monitoring
- UE Scheduling function (Time/MCS/Lowest RB/RB)
- H-ARQ Test (ACK/NACK/DTX)
- VoLTE test (SPS, TTI Bundling, DRX, RoHC, CA+VoLTE)
- W-CDMA/HSPA handover test

Basic Functions (LTE-Advanced)

- Transmit Downlink (DL) signal (Up to 6 GHz)
- Receive Uplink (UL) signal (Up to 6 GHz)
- Call processing
- Transmit Power Control (TPC)
- Baseband interface
- 2×2 / 4×2 MIMO (Test Model: ETM, PTM)
  8×2 / 4×4 MIMO (Test Model: ETM)
- CA 2CCs, CA 3CCs (Test Model: ETM)
- Encryption (option)

Please refer to page 6 for specifications of MD8430A models.

Supports Newest UE Categories

The MD8430A supports UE categories 1 to 7, 9, 10 and will support all new future categories.

3GPP TS 36.306 v12.1.0 (2014-06)

LTE (DL)

UE Category	Maximum number of DL-SCH transport block bits received within a TTI	Maximum number of bits of a DL-SCH transport block received within a TTI	Total number of soft channel bits	Maximum number of supported layers for spatial multiplexing in DL
Category 1	10296	10296	250368	1
Category 2	51024	51024	1237248	2
Category 3	102048	75376	1237248	2
Category 4	150752	75376	1827072	2
Category 5	299552	149776	3667200	4
Category 6	301504	149776 (4 layers) 75376 (2 layers)	3654144	2 or 4
Category 7	301504	149776 (4 layers) 75376 (2 layers)	3654144	2 or 4
Category 8	2998560	299856	35982720	8
Category 9	452256	149776 (4 layers) 75376 (2 layers)	5481216	2 or 4
Category 10	452256	149776 (4 layers) 75376 (2 layers)	5481216	2 or 4

LTE (UL)

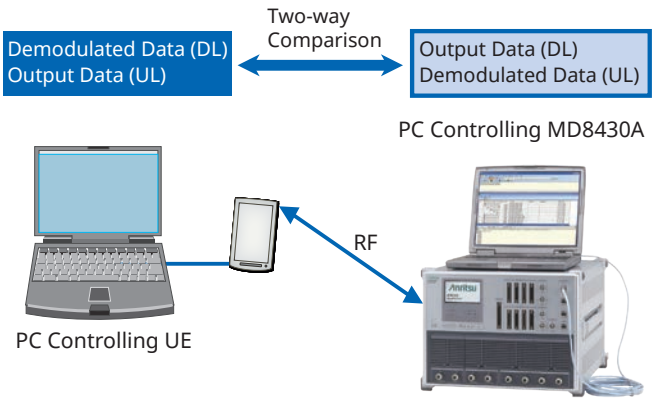
UE Category	Maximum number of UL-SCH transport block bits transmitted within a TTI	Maximum number of bits of an UL-SCH transport block transmitted within a TTI	Support for 64QAM in UL
Category 1	5160	5160	No
Category 2	25456	25456	No
Category 3	51024	51024	No
Category 4	51024	51024	No
Category 5	75376	75376	Yes
Category 6	51024	51024	No
Category 7	102048	51024	No
Category 8	1497760	149776	Yes
Category 9	51024	51024	No
Category 10	102048	51024	No

L1/L2 Tests RF/Baseband

For Developing LTE-Advanced Chipsets and Mobile UEs RF/Baseband Tests

Coding/Decoding Test

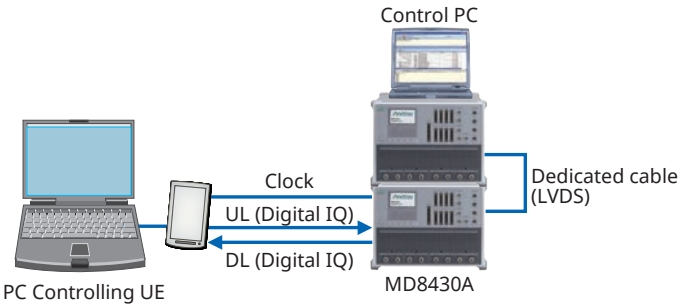
Coding/Decoding tests of LTE-Advanced terminals are performed by making the RF connections shown in the following diagram.



Coding/Decoding Test Example (RF, Patch Test)

The MD8430A supports digital baseband I/O as standard functions. Using the baseband interface offers high-reproducibility coding/decoding tests free from the RF section, supporting stable evaluation of LTE chipset baseband performance.

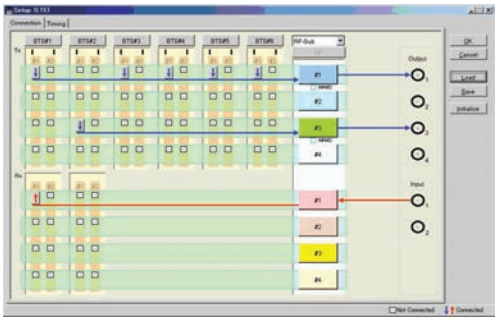
Moreover, LTE coding/decoding tests are supported because the baseband chip can be evaluated using a slower clock than the clock frequency. And connecting the second MD8430A fading function to the digital baseband interface supports slow clock evaluations in a fading environment, which are difficult to perform with an RF fading simulator.



Slow Clock Test Setup (Digital Baseband, Fading)

Easy MIMO Test Configuration Settings

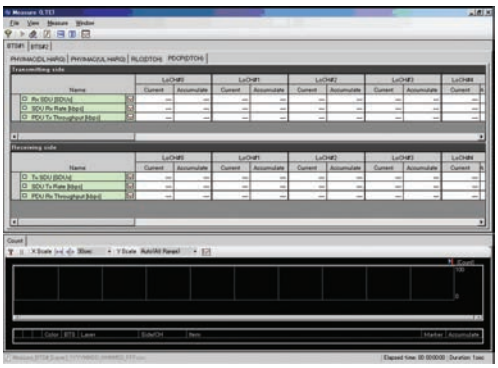
The MD8430A has 8 main and sub RF connectors as well as 8 digital IQ connectors as standard equipment for use with the MX843010A/E LTE Control Software to easily configure and monitor various settings, including RF parameters, channel power, MIMO, fading, connector selections, frame timing, BTS cell selections, etc.



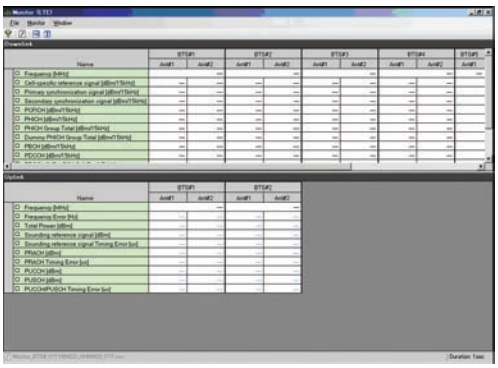
Setup Screen Example

Fully Versatile L1/L2 Monitoring Functions

The MX843010A/E software supports LTE development by processing large volumes of low-layer data at very high speeds using a full line of versatile power monitoring, throughput monitoring and log analysis functions. The Measure (Counter) functions can monitor Layer 1/2 (L1/L2) throughputs in real time by counting parameter values such as ACK/NACK/DTX/CQI.



Measurement (Counter and Throughput) Screens



Monitor Screen Example

Signalling Tester MD8430A Features

Complete LTE-Advanced Protocol Test Environment

L3 Tests Protocol Sequence

Intelligent Test Creation

The Rapid Test Designer (RTD) MX786201A software tools gives users power to create tests that cannot be done with traditional language based tools. RTD Supports L1/L2/L3 testing using Lower Layer Configuration library and Layer 3 procedure library of UE development.

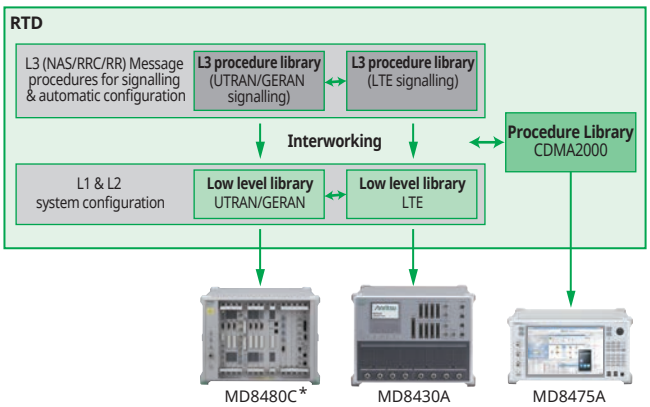
Moreover, each procedure auto-sets the connection with the lower Layers (L1/L2) based on full compliance with the 3GPP standards. RTD can simulator LTE ↔ UMTS Inter-RAT and LTE ↔ CDMA2000 Interworking by connecting MD8480C and/or MD8475A.

The Reference Library test cases provides a reference to build the customized test cases and libraries with ease.

Cuts Test Case Development Time

The RTD GUI offers intuitive test case creation by linking procedures with parameters, such as network conditions and message data, at easy-to-understand setting screens, quickly increasing the number of working test cases.

In addition, the Built-in Analyzer function checks for programming errors prior to testing, which can start immediately without recompiling after editing and changing settings.

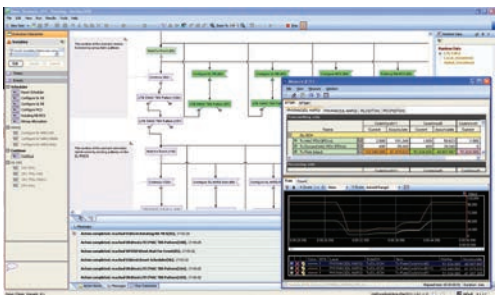


RTD Procedure Block

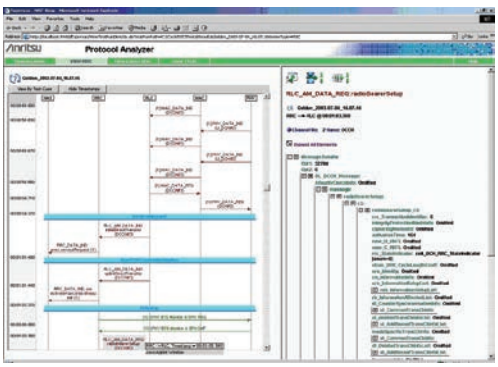
*: MD8430A can be used on UMTS/GSM test in place of MD8480C.

Flexibility in Testing & Analysis

When the test finishes the execution, the RTD provides a preliminary judgment against predetermined criteria. This avoids the need to study complex message sequences and can show a test outcome explained in a local language. The Integrated protocol analyzer with RTD supports very detailed Message Sequence Analysis and provides a facility to export the Protocol Test logs in to HTML format which can be viewed at any PC with a Browser without a RTD license.



Test Execution Screen (RTD)



Log Analysis Screen (RTD)

Integration/ Function/ Performance Tests

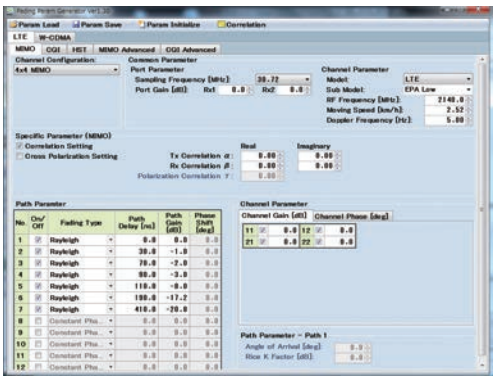
Efficient UE Integration and Performance Tests

Testing Throughput for Various Conditions

The MD8430A supports the latest UE categories with download speeds of 450 Mbps and uploads speeds of 100 Mbps.

The bundled sample scenarios make it easy to change parameters such as bandwidth, scheduling, HARQ, etc., for testing LTE throughputs under various conditions.

In addition, combination with second MD8430A fading function supporting LTE MIMO via the dedicated digital interface simplifies complex power control procedures for easy throughput testing in a fading environment with simple test setup.

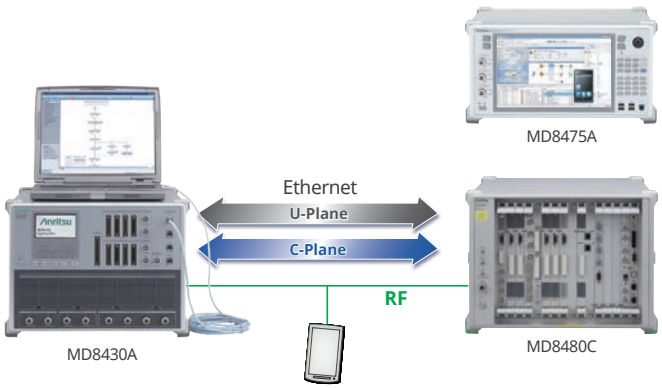


Fading Setting Screen (MF6900A Fading Simulator)

Handover Tests Optimizing Hardware Investment

The MD8430A supports up to six cells (Four active cells) allowing handover tests between two LTE BTS with one tester. In addition, LTE-UTRAN/GERAN Inter-RAT handover tests are supported by connecting the W-CDMA Signalling Tester MD8480C. And the MD8480C is not limited to the globally dominant W-CDMA technology but also supports the HSPA/HSPA Evolution and GSM/ GPRS/EGPRS technologies.

When combined with the Signalling Tester MD8475A, CDMA2000 Interworking tests are supported too, maximizing support for both worldwide communications technologies and investment in hardware.



LTE-UTRAN/GERAN Handover Test Setup

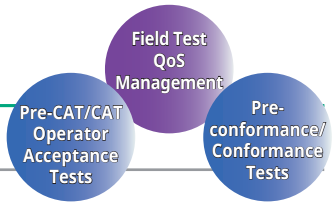
Specifications of Signalling Tester MD8430A Models

Model/Name	MD8430A-020 LTE Standard Test Model (STM)	MD8430A-030 LTE Performance Test Model (PTM)	MD8430A-035 LTE Enhanced Test Model (ETM)
Interface	RF, Digital IQ		RF, Digital IQ, Baseband Fading*1
Frequency Band	Max. 20 MHz		
UE Category	Category 1, 2, 3, 4, 6		Category 1, 2, 3, 4, 6, 7, 9*2, 10*2
Max. Data Rate (DL)	150 Mbps (PHY: 300 Mbps)		450 Mbps
Max. Data Rate (UL)	50 Mbps		100 Mbps
MIMO	2 × 2 MIMO	2 × 2 MIMO 4 × 2 MIMO	2 × 2 MIMO 4 × 2 MIMO 4 × 4 MIMO*3 8 × 2 MIMO*4
Max. No. of Base Station	Active + adjacent BTS: 4 (Max. Active BTS: 2)	Active + adjacent BTS: 6*5 (Max. Active BTS: 2)	Active + adjacent BTS: 6
Hard Handover (including at MIMO)	Intra-frequency Inter-frequency handover*6		Available 2 units for CA with Inter-frequency
Carrier Aggregation: No. of Component Carriers (DL)*7	2*8		3*8, *9
Carrier Aggregation: No. of Component Carriers (UL)*7	2		

★1: Requires two MD8430A sets for baseband fading.
★2: Requires two MD8430A sets.
★3: Requires MD8430A-075.
★4: Two base stations maximum for 8 × 2 MIMO.
★5: For 4 × 2 MIMO, the maximum number of base stations is 1, the number of active base stations + number of adjacent base stations is 5.
★6: Handover of CA is not supported.
★7: Requires MD8430A-085.
★8: The active base station is used as the component carrier.
★9: One unit supports 3CA for SISO. Requires two MD8430A sets for MIMO.

Signalling Tester MD8430A Features

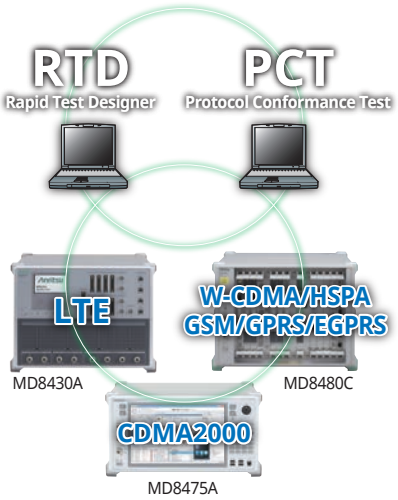
Powerful Platform for Both Conformance and Operator Acceptance Tests



Optimized Hardware Investment

The MD8430A supports to design for early chipset and mobile UE, function tests, and performance tests ranging from carrier acceptance tests to protocol conformance tests as well as retrofit upgrades between models allows developers to tailor their hardware investment to current needs with future flexible upgrade options.

The Protocol Conformance Test Toolkit (PCT) with MD8430A and GCF/PTCRB approved TTCN test package provide an optimum environment for LTE protocol conformance testing. Hence, a Single Hardware Platform that extends its usage from Platform development to Conformance Testing and Operator Acceptance Test.



Full Line of Versatile L3 Analysis Tools

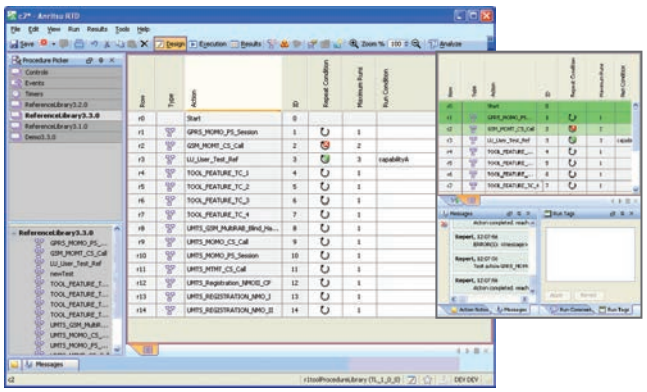
Used as a component for test system

Instant Firmware Switching

Because the MD8430A saves up to ten firmware versions, the right firmware is selected easily at startup. There is no need to install/uninstall firmware when executing a test case that determines the firmware version.

Powerful Automated Testing

The RTD software supporting the UE control interface makes it easy to setup automated test systems. Furthermore, multiple test cases can be executed continuously and test reports generated automatically, and many functions, including repeat testing under different conditions with multiple settings, can be automated, offering carriers, etc., an ideal turnkey solution for acceptance testing.



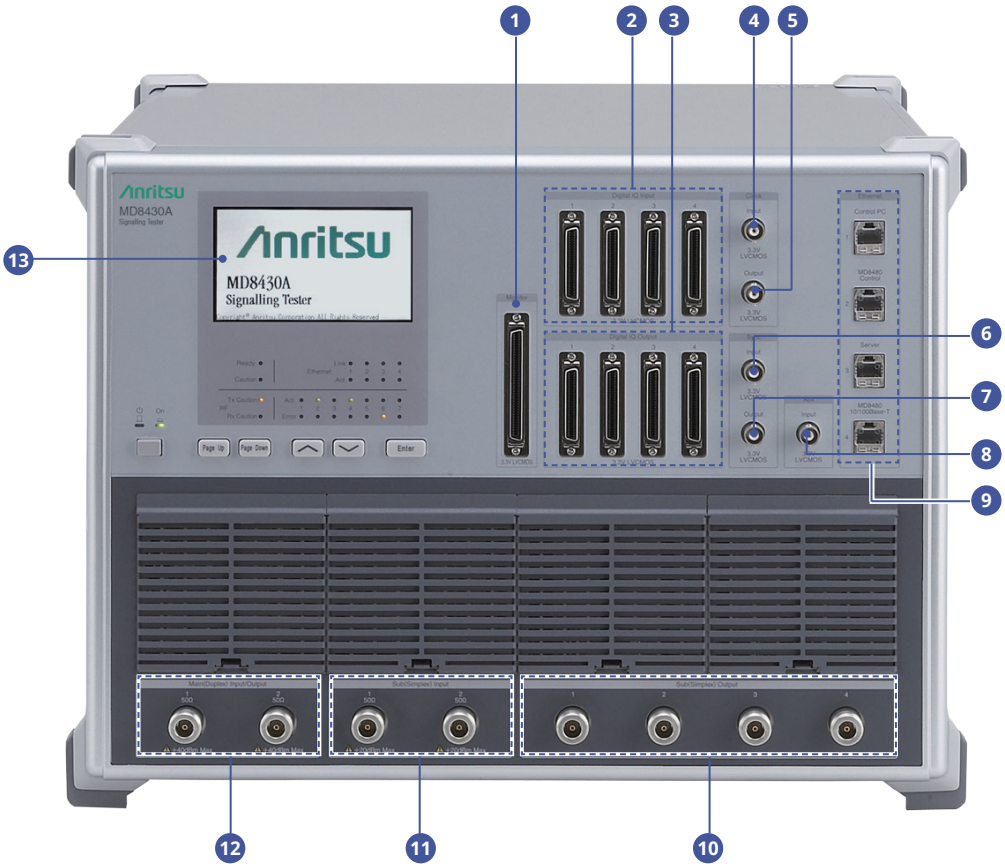
Example of Test Case Campaign

Easy Test Case Maintenance

Test cases created by the RTD software can be updated easily when new 3GPP standard evolves, reducing the need for re-editing. In addition, guaranteed test case compatibility even when the MD8430A firmware version is changed removes the need to recompile, etc., resulting in greatly reduced costs for maintaining test cases to support regression testing when rolling out new terminals and performing pre-IOT to assure compatibility with network equipment worldwide.

Signalling Tester MD8430A Panel Layout

Front Panel



1 Monitor
Connector outputting signal internal data and status to accessory Monitor Board

2 Digital IQ Input
Connector for inputting digital IQ signal

3 Digital IQ Output
Connector for outputting digital IQ signal

4 Clock Input
BNC connector for inputting system clock to operate using external clock

5 Clock Output
BNC Connector for outputting system clock

6 Sync Input
BNC Connector for inputting and operating using external sync signal

7 Sync Output
BNC Connector for outputting sync signal

8 Aux Input
BNC Input connector reserved for adding future functions

9 Ethernet
(1) Ethernet connector for connecting external PC controller
(2) Ethernet connector to control MD8480C, connecting with 'Control PC' connector on MD8480C
(3) Ethernet connector for server
(4) Ethernet connector for connecting MD8480C using '10/100BASE-T' connector

10 Sub (Simplex) Output
N connector for RF output

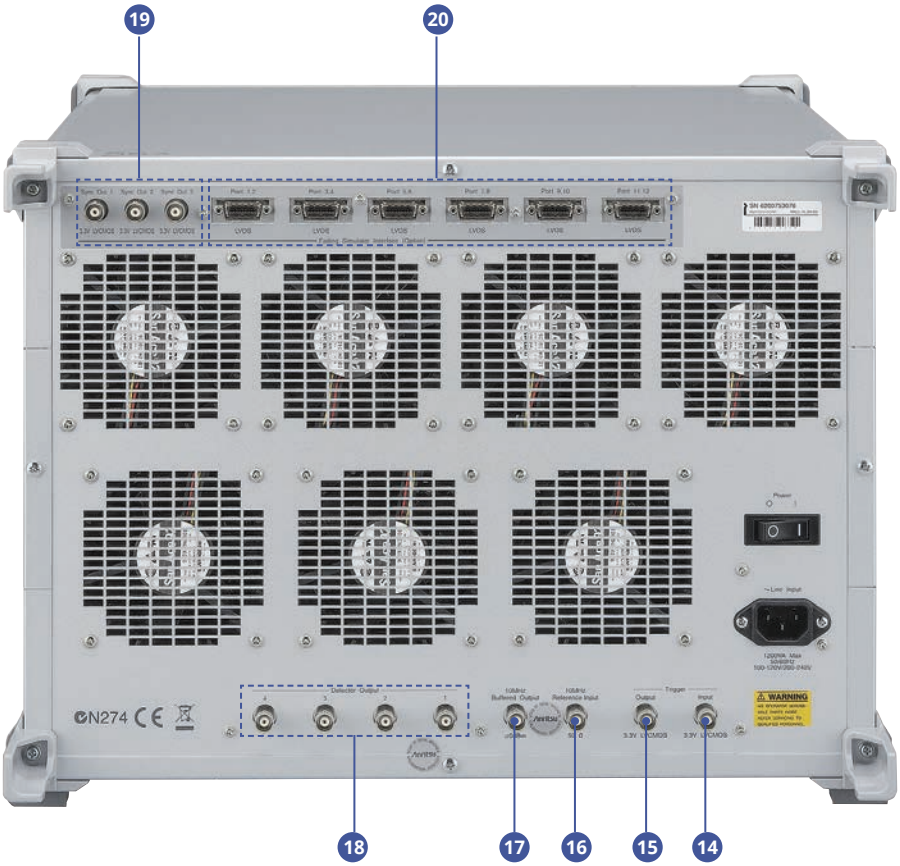
11 Sub (Simplex) Input
N connector for RF input

12 Main (Duplex) Input/Output
N connector for RF input/output

13 LCD
Screen displaying equipment information such as firmware selection and maintenance software screens

Signalling Tester MD8430A Panel Layout

Rear Panel



14 Trigger Input
BNC Connector for inputting a trigger signal from external equipment

15 Trigger Output
BNC Connector for outputting event timing to external equipment

16 10 MHz Reference Input
BNC Connector for inputting external reference signal

17 10 MHz Buffered Output
BNC Connector for outputting equipment reference signal

18 Detector Output
BNC Connector for outputting profile signal of RF signal power

19 Sync Out
BNC Connector for outputting sync signal to Fading Simulator

20 LVDS
Connector for connecting Fading Simulator using Digital IQ

Signalling Tester MD8430A Configurations

Test Models/Options/Software

Test Models

MD8430A-020 LTE Standard Test Model (STM)

MD8430A-025 Basic Test Model (BTM)

MD8430A-030 LTE Performance Test Model (PTM)

MD8430A-035 LTE Enhanced Test Model (ETM)

Choose one of the above four models.

*: Please refer to page 6 for more details.

Test Model Upgrade

Required option when upgrading to higher order model.

Upgrade from Function Test Model (FTM)

Z1342A LTE FTM to STM Upgrade Kit
Z1344A LTE FTM to PTM Upgrade Kit
Z1670A LTE FTM to ETM Upgrade Kit
Z1789A LTE FTM to ETM Upgrade Kit (FO)

Upgrade from Standard Test Model (STM)

Z1343A LTE STM to PTM Upgrade Kit
Z1671A LTE STM to ETM Upgrade Kit
Z1790A LTE STM to ETM Upgrade Kit (FO)

Upgrade from Performance Test Model (STM)

Z1672A LTE PTM to ETM Upgrade Kit
Z1791A LTE PTM to ETM Upgrade Kit (FO)

Upgrade from Basic Test model

Z1873A LTE BTM to ETM Upgrade Kit

Options

MD8430A-002 Extended Frequency Range to 3.8 GHz

Required software option when extending maximum frequency of MD8430A (Tx/Rx) to 3.8 GHz.

MD8430A-003 Extended Frequency Range to 3.8 GHz Hardware

Required hardware option when extending maximum frequency of MD8430A (Tx/Rx) to 3.8 GHz.

MD8430A-005 Extended Frequency Range to 3.8 GHz Hardware 2

Required hardware option when extending maximum frequency of MD8430A (Tx/Rx) to 3.8 GHz. (Test Model: BTM, ETM)

MD8430A-006 Extended Frequency Range to 6 GHz

Required software option when extending maximum frequency of MD8430A (Tx/Rx) to 6 GHz.

MD8430A-007 Extended Frequency Range to 6 GHz Hardware

Required hardware option when extending maximum frequency of MD8430A (Tx/Rx) to 6 GHz.

MD8430A-052 W-CDMA Fading Option

Required software option when W-CDMA fading testing.

MD8430A-055 LTE 2 × 2 MIMO Fading Option

Required software option when LTE 2 × 2 MIMO fading testing.

MD8430A-056 LTE 4 × 2 MIMO Fading Option

Required software option when LTE 4 × 2 MIMO fading testing.

MD8430A-057 LTE 4 × 4 MIMO Fading Option

Required software option when LTE 4 × 4 MIMO fading testing.

MD8430A-058 LTE 8 × 2 MIMO Fading Option

Required software option when LTE 8 × 2 MIMO fading testing.

MD8430A-060 LTE FDD Option

Required option when simulating 3GPP LTE FDD.

MD8430A-061 LTE TDD Option

Required option when simulating TD-LTE.

MD8430A-065 W-CDMA Option

Required option when simulating W-CDMA.

MD8430A-066 GSM Option

Required option when simulating GSM.

MD8430A-067 RF/Fading Driver Option

Required software option when extending RF for MD8430A-025 BTM and executing the fading function (MD8430A-055, 056, 057, 058)

MD8430A-070 HSPA Multi Carrier Option

Required option when HSPA multi carrier testing.

MD8430A-071 W-CDMA/GSM Ciphering Option

Option for adding ciphering function for W-CDMA, GSM and GPRS. Supporting KASUMI and SNOW 3G to W-CDMA. A5/1, A5/2, A5/3 and A5/4 to GSM. GEA1, GEA2, GEA3 and GEA4 to GPRS.

MD8430A-075 LTE DL 4 × 4 MIMO Option

Required software option when LTE 4 × 4 MIMO testing.

MD8430A-080 LTE Ciphering Option

Option for adding ciphering function supporting EEA0, EEA1, and EEA2 (TS 33.401, TS 36.323) algorithms to LTE.

MD8430A-081 LTE ROHC Option

Option for adding LTE ROHC function supporting RTP/UDP/IP (RFC3095, RFC4815), UDP/IP (RFC3095, RFC4815), ESP/IP (RFC3095, RFC4815), and IP (RFC3843, RFC4815).
Required this option for VoLTE testing.

MD8430A-082 LTE MBMS Option

Option for adding LTE MBMS function supporting (P) MCH Transmission Scheduling, MCCH Message Transmission, MSI MAC control element Transmission and MTCH Message Transmission described in 3GPP (TS 36.211, TS36.221).

MD8430A-083 LTE ZUC Ciphering Option

Option for adding ciphering function supporting EEA3 and EIA3 (TS 33.401, TS 35.221) algorithms to LTE.

MD8430A-085 LTE Carrier Aggregation Option

Option for adding Carrier Aggregation (CA) function supporting transmission of up to two component carriers on downlink.

MD8430A-086 Ciphering Option

Option for adding ciphering function supporting EEA0, EEA1, EEA2, EEA3 and EIA3 (TS 33.401, TS 35.221, TS 36.323) algorithms to LTE.

MD8430A-087 LTE CoMP Option

Required software option when 3GPP Release 11 CoMP feature. It is available to test Dynamic Point Selection.

Test Models/Options/Software (Cont'd)

Application Products

MD8475A Signalling Tester

Base Station Simulator supporting CDMA2000 Multiple Sector/ Carrier or 1xEV-DO Rev.A. Realizes Inter-working tests between LTE and CDMA2000 by controlling MD8430A and MD8475A simultaneously from MX786201A Rapid Test Designer (RTD).

MD8480C W-CDMA Signalling Tester

Base Station Simulator supporting HSPA Evolution based on the 3GPP Release 8 specification, W-CDMA and GSM. Realizes Inter-RAT handover tests between LTE and UTRAN/GERAN by controlling MD8430A and MD8480C from MX786201A Rapid Test Designer (RTD).

CDMA2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).

Software

MX843010A LTE Control Software

Software for simulating L1 and L2 with test cases in C.

MX843010E LTE Control Software

Software for simulating L1 and L2 with test cases in C.
(Test Model: ETM)

MX843070E W-CDMA/GSM Control Software

Software for simulating L1 and L2 with test cases in C.
(Test Model: W-CDMA/GSM)

MX786201A Rapid Test Designer (RTD)

Software for simulating L1 to L3 with test cases described by GUI for automating testing, analyzing test cases and creating reports.

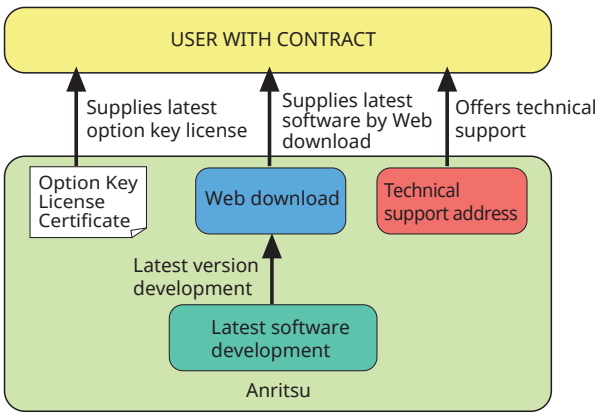
Software Maintenance Contract

Service Provided

- Contract for adding/revising software functions in line with 3GPP revisions
- Technical support for troubleshooting user problems

Annual Support Service (1 year)

Option providing 1 year of service support for LTE functions including web downloads of latest software and technical enquiries. Services depend on option configuration.



MD8430A Support Services

MD8430A Support (FDD)

MD8430A-SS120	1 Year Support Service LTE FDD (STM)
MD8430A-SS130	1 Year Support Service LTE FDD (PTM)
MD8430A-SS135	1 Year Support Service LTE FDD (ETM)

MD8430A Support (TDD)

MD8430A-SS121	1 Year Support Service LTE TDD (STM)
MD8430A-SS131	1 Year Support Service LTE TDD (PTM)
MD8430A-SS136	1 Year Support Service LTE TDD (ETM)

MD8430A Support (W-CDMA/GSM)

MD8430A-SS170	1 Year Support Service W-CDMA/GSM

MX843010A LTE Control Software Support

MX843010A-SS120	1 Year Support Service

MX843010E LTE Control Software Support

MX843010E-SS120	1 Year Support Service (Test Model: ETM)

Reference Oscillator	Reference frequency: 10 MHz Start-up characteristics: 25°C, referenced to frequency 24-hour after power-on ±5 × 10^{-7} (2 min. after power-on) ±5 × 10^{-8} (5 min. after power-on) Aging rate: ±1 × 10^{-8}/day (referenced to frequency 48-hour after power-on) ±1 × 10^{-7}/year (referenced to frequency 10-day after power-on) Temperature characteristics: ±2 × 10^{-8} (0° to 45°C, referenced to frequency at 25°C) Internal reference output Frequency adjusted at shipment: 10 MHz ±0.02 ppm Output level: ≥0 dBm (50Ω, AC coupling) Connector: BNC-J, 50Ω (nom.) External reference input Frequency: 10 MHz Operating range: ±1 ppm Input level: –15 dBm ≤ level ≤ +20 dBm (50Ω, AC coupling) Connector: BNC-J, 50Ω (nom.)
Transmission Signal	Frequency Frequency range: LTE: 350 MHz to 3.0 GHz, 350 MHz to 3.8 GHz (with MD8430A-002), 350 MHz to 6.0 GHz (with MD8430A-006) W-CDMA: 400 MHz to 3.0 GHz, 400 MHz to 3.8 GHz (with MD8430A-002/006) GSM: 400 MHz to 2.0 GHz Setting resolution: 100 kHz Output level Maximum output level: –40 dBm (Main connector) (Maximum setting level: –20 dBm) 0 dBm (Sub connector) Level accuracy: ±1.5 dB (Frequency Range: ≥350 MHz to ≤3800 MHz) ±2.0 dB (Frequency Range: >3800 MHz to ≤6000 MHz) 18° to 28°C, after Cal, for calibration CW Output level: –113 to –40 dBm, all ports output: ≤ –40 dBm (Main connector) –113 to 0 dBm (Sub connector) Modulation Access method LTE: OFDMA, W-CDMA: CDMA, GSM: TDMA Modulation method LTE: QPSK, 16QAM, 64QAM, 256QAM W-CDMA: QPSK, 16QAM, 64QAM GSM: GMSK, 8PSK Modulation accuracy LTE: ≤2%, 18° to 28°C, Sub output: 0 dBm, LTE (OFDM, 64QAM, 20 MHz band) W-CDMA: ≤3.5%, 18° to 28°C, Sub output: 0 dBm, W-CDMA (transmitting CPICH, ICH) GSM: ≤1.5 deg., 18° to 28°C, Sub output: 0 dBm, GMSK ≤3.5%, 18° to 28°C, Sub output: 0 dBm, 8PSK
Received Signal	Frequency Frequency range LTE: 350 MHz to 3.0 GHz, 350 MHz to 3.8 GHz (with MD8430A-002), 350 MHz to 6.0 GHz (with MD8430A-006) W-CDMA: 400 MHz to 3.0 GHz, 400 MHz to 3.8 GHz (with MD8430A-002/006) GSM: 400 MHz to 2.0 GHz Setting resolution: 100 kHz Input level Demodulation range: –28 to +15 dB (QPSK), –21 to +15 dB (16QAM), –15 to +15 dB (64QAM) Referenced to reference power setting value Input signal: EVM ≤1%, BER ≤1 × 10^{-12}, 20 MHz band, SC-FDMA Reference Power: −20 to +20 dBm, Input level: −30 to +35 dBm (Main connector) Reference power: −35 to +5 dBm, Input level: −45 to +20 dBm (Sub connector) Level accuracy: ±3.0 dB 18° to 28°C, after Cal, for calibration CW Input level: –30 to +35 dBm (Main connector) –45 to +20 dBm, Reference power: ±15 dB (Sub connector) Modulation Access method LTE: SC-FDMA, W-CDMA: CDMA, GSM: TDMA Modulation method LTE: QPSK, 16QAM, 64QAM W-CDMA: BPSK, 4PAM GSM: GMSK, 8PSK Synchronization acquirable range LTE: ±100 µs (PRACH), ±30 µs (PUSCH) W-CDMA: ±100 chips (PRACH), ±100 chips (DPCCH) GSM: 0 to 63 symbols (SACCH)

Connector	RF Connector Main Connector: N-J, 50Ω (nom.) VSWR: ≤1.3 (Frequency Range: ≥350 MHz to ≤3800 MHz) ≤1.4 (Frequency Range: >3800 MHz to ≤6000 MHz) Sub (Downlink) Connector: N-J, 50Ω (nom.) VSWR: ≤1.5 (Frequency Range: ≥350 MHz to ≤3800 MHz) ≤1.6 (Frequency Range: >3800 MHz to ≤6000 MHz) Sub (Uplink) Connector: N-J, 50Ω (nom.) VSWR: ≤1.5 (Frequency Range: ≥350 MHz to ≤3800 MHz) ≤1.6 (Frequency Range: >3800 MHz to ≤6000 MHz) Other Digital IQ: Digital IQ signal Connector: DX20 (50-pin) × 8 IQ: 16-bit Monitor: Connection with the Monitor board (G0091) Connector: DX20 (80-pin) Signal level: 3.3V-CMOS Sync Output: Internal sync start signal output Connector: BNC Signal level: 3.3V-CMOS Sync Input: External sync start signal output Connector: BNC Signal level: 3.3V-CMOS Clock Output: Internal clock signal output Connector: BNC Signal level: 3.3V-CMOS Clock Input: External clock signal input Connector: BNC Signal level: 3.3V-CMOS Frequency: 10 kHz to 30.72 MHz Fading simulator interface Sync Out: Connection with the fading simulator (Sync start signal) Without MD8430A-008/108/208 Connector: BNC × 3 Signal level: 3.3V-CMOS With MD8430A-008/108/208 Connector: BNC × 2 Signal level: 3.3V-CMOS Port: Connection with the fading simulator (Digital IQ signal) Without MD8430A-008/108/208 Connector: HIB-B16LFYGA × 6 Signal level: LVDS With MD8430A-008/108/208 Connector: HIB-B16LFYGA × 2 (Digital IQ signal: 2 ports/connector) Signal level: LVDS Connector: HIB-B16LFYGA × 4 (Digital IQ signal: 8 ports/connector) Signal level: LVDS
Power Supply	100 V (ac) to 120 V (ac)/200 V (ac) to 240 V (ac), 50 Hz/60 Hz ≤1200 VA
Dimensions and Mass	426 (W) × 310 (H) × 500 (D) mm ≤40 kg
Environmental Conditions	Temperature Operating: 0° to +45°C, ≤90% RH (no condensation) 0° to +40°C, ≤90% RH (no condensation) (with MD8430A-005/007) Storage: –20° to +60°C, ≤85% RH (no condensation) EMC: EN61326-1, EN61000-3-2 LVD: EN61010-1

Signalling Tester MD8430A 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
	LTE Standard Test Model
MD8430A	Signalling Tester
MD8430A-003	Extended Frequency Range to 3.8 GHz Hardware
MD8430A-020	LTE Standard Test Model (STM)
	LTE Performance Test Model
MD8430A	Signalling Tester
MD8430A-003	Extended Frequency Range to 3.8 GHz Hardware
MD8430A-030	LTE Performance Test Model (PTM)
	LTE Basic Test Model
MD8430A	Signalling Tester
MD8430A-005	Extended Frequency Range to 3.8 GHz Hardware 2
MD8430A-025	Basic Test Model (BTM)
	LTE Enhanced Test Model
MD8430A	Signalling Tester
MD8430A-005	Extended Frequency Range to 3.8 GHz Hardware 2
MD8430A-035	LTE Enhanced Test Model (ETM)
	Standard Accessories
	CD-ROM (Operation Manual and Maintenance Software): 1 pc
J1440A	LAN Cable: 2 pcs
J1211	Power Cord, 3.0 m (15 A): 1 pc
J0127A	Coaxial Cord, 1.0 m (BNC-P · RG58A/U · BNC-P): 1 pc
J0576B	Coaxial Cord, 1.0 m (N-P · 5D-2W · N-P): 2 pcs
J1398A	N-SMA Adaptor: 6 units
G0091	Monitor Board: 1 pc
J1005	Monitor Cable 80: 1 pc
J1459A	Digital IQ Cable (50 cm): 1 pc
	Options
MD8430A-002	Extended Frequency Range to 3.8 GHz
MD8430A-006	Extended Frequency Range to 6 GHz
MD8430A-052	W-CDMA Fading Option
MD8430A-055	LTE 2 × 2 MIMO Fading Option
MD8430A-056	LTE 4 × 2 MIMO Fading Option
MD8430A-057	LTE 4 × 4 MIMO Fading Option
MD8430A-058	LTE 8 × 2 MIMO Fading Option
MD8430A-060	LTE FDD Option
MD8430A-061	LTE TDD Option
MD8430A-065	W-CDMA Option
MD8430A-066	GSM Option
MD8430A-067	RF/Fading Driver Option
MD8430A-070	HSPA Multi Carrier Option
MD8430A-071	W-CDMA/GSM Ciphering Option
MD8430A-075	LTE DL 4 × 4 MIMO Option
MD8430A-080	LTE Ciphering Option
MD8430A-081	LTE ROHC Option
MD8430A-082	LTE MBMS Option
MD8430A-083	LTE ZUC Ciphering Option
MD8430A-085	LTE Carrier Aggregation Option
MD8430A-086	Ciphering Option
MD8430A-087	LTE CoMP Option
MD8430A-103	Extended Frequency Range to 3.8 GHz Hardware Retrofit (for Asia, Oceania)
MD8430A-107	Extended Frequency Range 3 GHz to 6 GHz Hardware Retrofit (for Asia, Oceania)
MD8430A-117	Extended Frequency Range 3.8 GHz to 6 GHz Hardware Retrofit (for Asia, Oceania)
MD8430A-203	Extended Frequency Range to 3.8 GHz Hardware Retrofit (FO)
MD8430A-207	Extended Frequency Range 3 GHz to 6 GHz Hardware Retrofit (FO)
MD8430A-217	Extended Frequency Range 3.8 GHz to 6 GHz Hardware Retrofit (FO)

Model/Order No	Name
	Software Options
MX843010A	LTE Control Software
MX843010E	LTE Control Software
MX843070E	W-CDMA/GSM Control Software
MX786201A	Rapid Test Designer (RTD)
	Main frame Support Service
	[FDD]
MD8430A-SS120	1 Year Support Service for LTE FDD (STM)
MD8430A-SS125	1 Year Support Service for LTE FDD (BTM)
MD8430A-SS130	1 Year Support Service for LTE FDD (PTM)
MD8430A-SS135	1 Year Support Service for LTE FDD (ETM)
	[TDD]
MD8430A-SS121	1 Year Support Service for LTE TDD (STM)
MD8430A-SS126	1 Year Support Service for LTE TDD (BTM)
MD8430A-SS131	1 Year Support Service for LTE TDD (PTM)
MD8430A-SS136	1 Year Support Service for LTE TDD (ETM)
	[W-CDMA/GSM]
MD8430A-SS170	1 Year Support Service for W-CDMA/GSM
	LTE Control Software Support Service
MX843010A-SS120	1 Year Support Service
MX843010E-SS120	1 Year Support Service
	Upgrade Options
Z1342A	LTE FTM to STM Upgrade Kit
Z1344A	LTE FTM to PTM Upgrade Kit
Z1343A	LTE STM to PTM Upgrade Kit
Z1670A	LTE FTM to ETM Upgrade Kit
Z1789A	LTE FTM to ETM Upgrade Kit (FO)
Z1671A	LTE STM to ETM Upgrade Kit
Z1790A	LTE STM to ETM Upgrade Kit (FO)
Z1672A	LTE PTM to ETM Upgrade Kit
Z1791A	LTE PTM to ETM Upgrade Kit (FO)
Z1873A	LTE BTM to ETM Upgrade Kit
	Application Products
MD8475A	Signalling Tester
MD8480C	W-CDMA Signalling Tester
MN8150A	RF Combiner Unit
J1416A	LVDS CABLE
J1609A	Signal Divider

★: A PC★[1] running Microsoft Visual C++ 2008 Express Edition, Microsoft Visual C++ 2010 Express Edition or Microsoft Visual Studio Express 2012 is required to use the MD8430A.
It must be supplied by the customer.

The PC controller for the MD8430A must meet or exceed the following specifications:
OS: Windows 7 (64 bit) or later
CPU: Intel Core i5 processer 2.6 GHz or more
RAM: 4 GB or more
NIC: 1000BASE-T

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Intel®, Core™ 2 Duo is registered trademarks of Intel Corporation or its subsidiaries in the USA and other countries.

Note:

Anritsu envision : ensure

Specifications are subject to change without notice.

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