/Inritsu *envision : ensure*

Radio Communication Analyzer

MT8821C

30 MHz to 3.8 GHz
3.8 GHz to 6.0 GHz (Option)

Excellent Eco Product

Tomorrow's Wireless Test Capability Today

The Radio Communication Analyzer MT8821C is designed for R&D into mobile devices (User Equipment: UE), such as smartphones, tablets and M2M modules. It builds on the technologies of its popular predecessor, the MT8820C used worldwide by UE and chipset vendors. It operates as a base station simulator using standard call processing sequences compliant with test standards to support a versatile test lineup, starting with RF tests.

More Efficient RF Testing Supporting LTE-Advanced UE Measurement

With the introduction of LTE-Advanced, wireless communications are starting to use Carrier Aggregation (CA) technology offering continuing extendibility to wider bandwidths and more frequency bands.
Additionally, adoption of the latest in faster communications technologies, such as higher-order 4×4 and 8×8 Multiple Input Multiple Output (MIMO) to improve frequency usage efficiency, means that measurement technologies are also becoming increasingly complex.

4 CA 2×2MIMO Supports LTE-Advanced Carrier Aggregation 4CC 2×2 MIMO tests in one unit

4×4 MIMO Supports LTE-Advanced 3CC 4×4 MIMO/4×2 MIMO tests

160 MHz BW 160 MHz wide frequency bandwidth (Generator/Analyzer) supports evolving UE technologies

6 GHz Supports tests of 5 GHz Unlicensed Band used by WLAN and LTE-U (LAA)

MT8821C

Wireless Communication Tester for LTE-Advanced UE Development

LTE/LTE-Advanced
W-CDMA/HSPA
**GSM/EGPRS**
**TD-SCDMA/HSPA**
CDMA2000/EV-DO

Next-generation GUI with Large Touch Panel

Enhanced GUI for Efficient Operability

Better operability and visibility have been achieved using an enhanced next-generation GUI and easy-to-use large touch panel.

As well as operating screens by touching and swiping, easy operation is supported by one-touch switching between grouped/individual graph lists and results outline/detail displays.

Further, the efficiency lof complex setting work is improved by a parameter search function, bookmarking function for commonly used parameters, and a function for setting test parameters using one-touch button operation.

Parameter Search

HELP Display

3GPP Test Parameters

Graph Screen
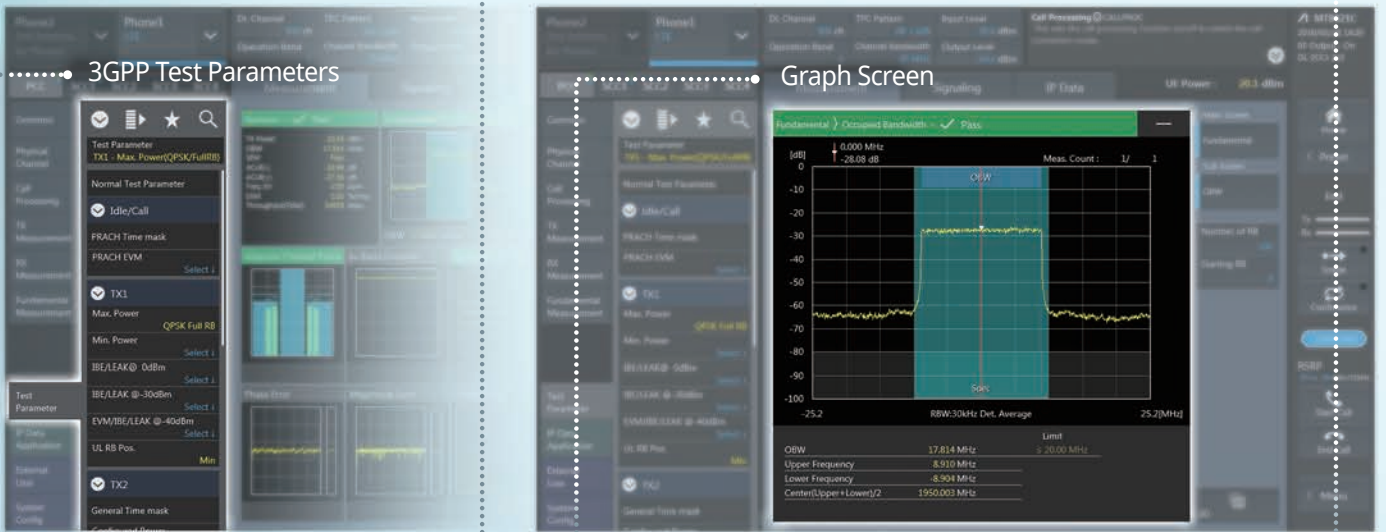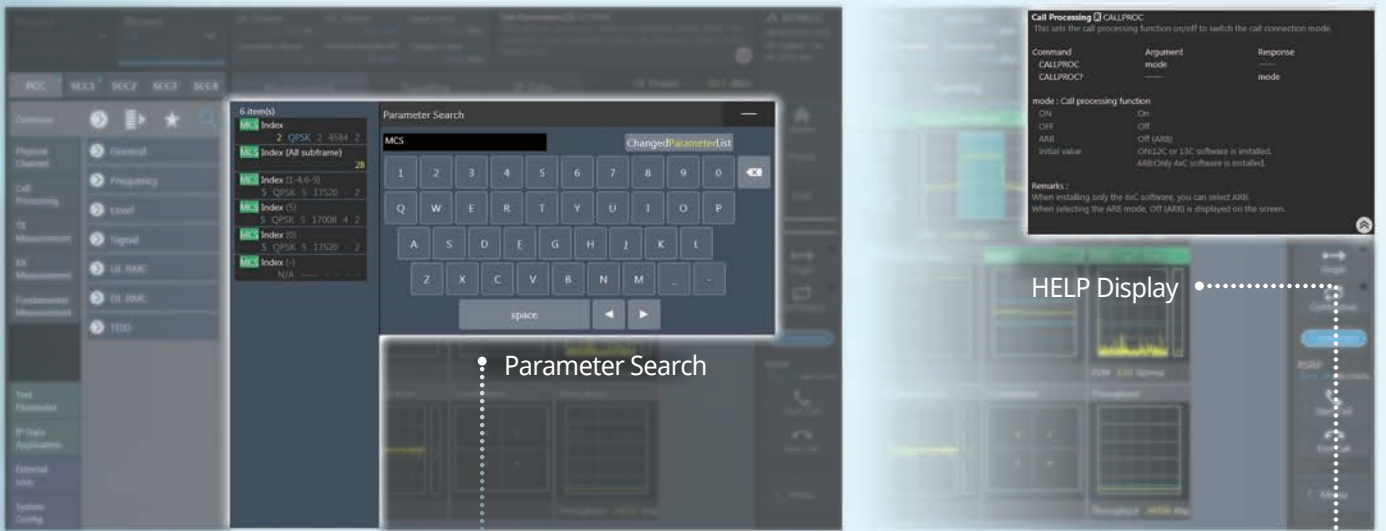
The Wireless Communication Tester for Future UE Development

RF
TRX Measurement / Calibration

Easy 3GPP/3GGP2 RF measurement and flexible support for changing detailed test conditions
Various fast RF calibrations offered by chipset vendors

OTA

Tests of UE antenna characteristics

Power Consumption Testing

Tests of UE power consumption

Inter-RAT Measurement

Supports confirmation of dual-mode UE operation

End-to-End Communication Testing

IP data throughput, Voice, and Video tests

VoLTE

Tests of VoLTE voice/video echoback

MT8821C

Radio Communication Analyzer MT8821C Features

RF TRX Measurement

3GPP UE RF Measurement

The UE TRX characteristics must be evaluated for compliance with 3GPP/3GPP2 standards at chipset and UE development, evaluation, and acceptance testing by network operators, etc. UE circuits are becoming increasingly complex as more communications technologies and frequency bands are supported; with built-in support for the UE RF TRX tests compliant with the various communications standards, the MT8821C is the ideal test solution whatever the measurement scenario.

Supported 3GPP/3GPP2 Standards

Technologies	RF TRX Measurements
LTE FDD/TDD (DL CA 2CC/3CC/4CC/5CC, UL CA 2CC)	3GPP TS 36.521-1 Chapter 6, 7
W-CDMA (HSPA, HSPA Evolution, (DB-)DC-HSDPA, 3C/4C-HSDPA, DC-HSUPA)	3GPP TS 34.121-1 Chapter 5, 6
GSM (GPRS, EGPRS)	3GPP TS 51.010-1 Chapter 12, 13, 14
TD-SCDMA (HSPA, HSPA Evolution)	3GPP TS 34.122 Chapter 5, 6
CDMA2000/EV-DO	3GPP2 C.S0011-C Chapter 3, 4 3GPP2 C.S0033-B Chapter 3, 4

One-touch Settings and PASS/FAIL Judgment

With preset measurement parameters based on the 3GPP RF test standard cases, the MT8821C simplifies measurement. In addition, PASS/FAIL judgment of measurement results according to the test standard conditions is automated and results are confirmed at a glance.

Until now, LTE CA measurements have required complex Component Carrier (CC) settings, making operation difficult, but the MT8821C integrates multiple related parameters settings into one operation, greatly simplifying each operation stage to reduce setting operations and time.

For example, only the following three steps are required using the LTE measurement software to measure the 3GPP TS 36.521-1 6.5.2.1 Error Vector Magnitude (EVM):

1 Select test parameters
2 Start measurement
3 Confirm PASS/FAIL judgment

3GPP RF Test Example

Remote Control Sample Tool

The MT8821C can be configured in an automated test system using either GPIB or Ethernet for remote control. Anritsu also provides the 3GPP RF test standard compliant automatic remote control sample tool.

Operation is as simple as selecting the required test case from RF test items in the remote control sample tool, so even new users can easily configure automated test environment.
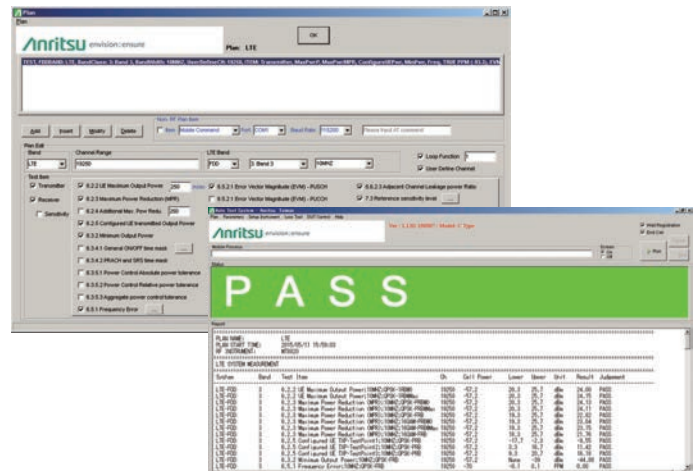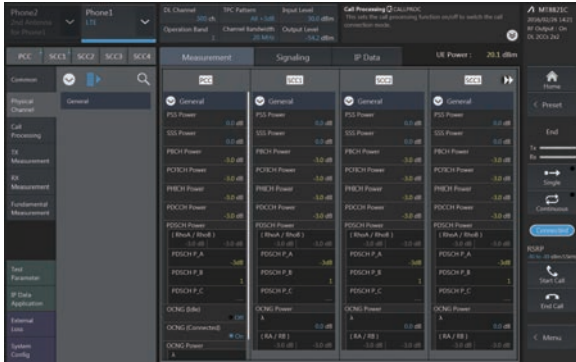

Remote Control Sample Tool

Radio Communication Analyzer MT8821C Features

RF TRX Measurement (continued)
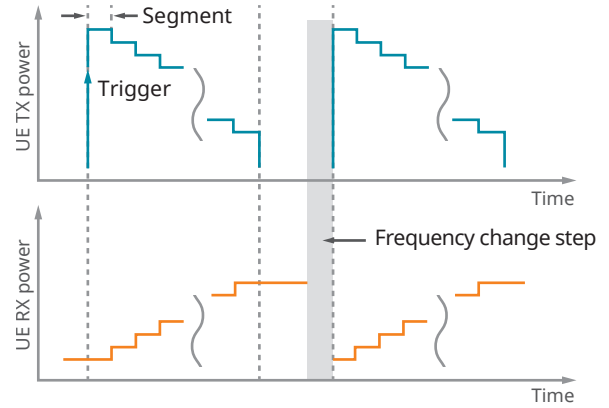
Flexible Parameter Setting

The MT8821C runs TRX measurements using parameters specified by the 3GPP/3GPP2 RF test standards. In addition, flexible parameter settings support both RF parametric and a range of protocol testing.

LTE Parameters

High Efficiency with Shorter Test Time

Test time is shortened for better efficiency by integrating multi-systems (several communications technologies) into one test by leveraging functions such as Circuit Switched fallback (CSFB), Inter-RAT handover, etc. These functions support testing without needing to switch between tester RF connectors or power-down and up again repeatedly.
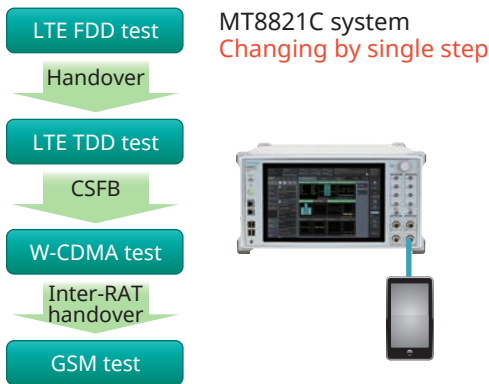

Test Example

RF Calibration

Recent UE designs support multiple frequency bands, requiring a lot of time for RF calibration. With high-speed measurement supported by chipsets vendors, the MT8821C increases measurement efficiency by reducing time required for RF calibration.

UE TRX Calibration
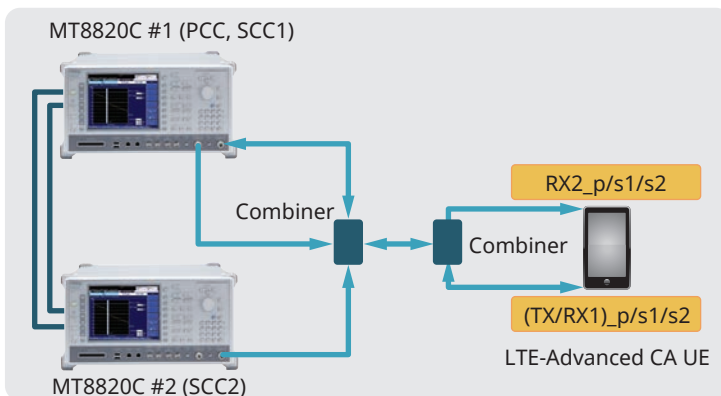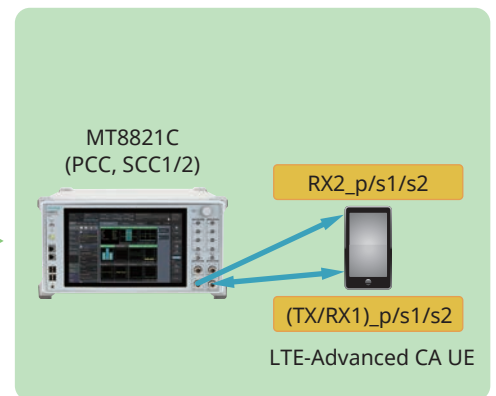
Built-in Combiner

With its built-in combiner, the MT8821C eliminates the need to configure a complex test system using external parts, as well as troublesome calibration.

LTE-Advanced DL CA 3CC (SISO) Connection

Radio Communication Analyzer MT8821C Features

Functional Testing

Over The Air (OTA) Testing

The UE TRX performance is affected by factors such as the antenna form and characteristics. The OTA test measures the total UE TRX performance using actual radio waves reaching the antennas.

The MT8821C supports the various OTA vendor test system configurations in compliance with the 3GPP TS 34.114 and CTIA Total Radiated Power (TRP), and Total Radiated Sensitivity (TRS) test standards.

Anechoic Chamber

Reverberation Chamber
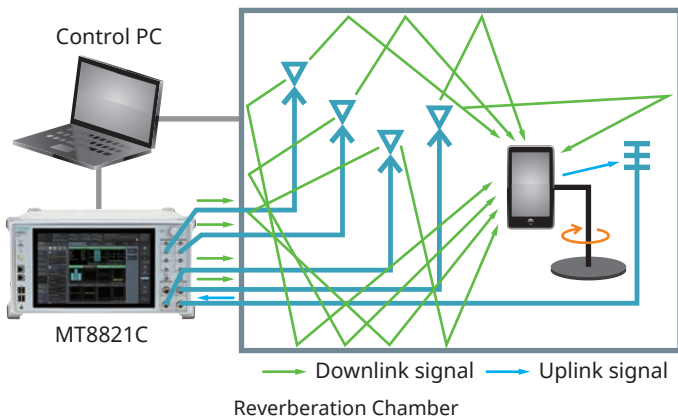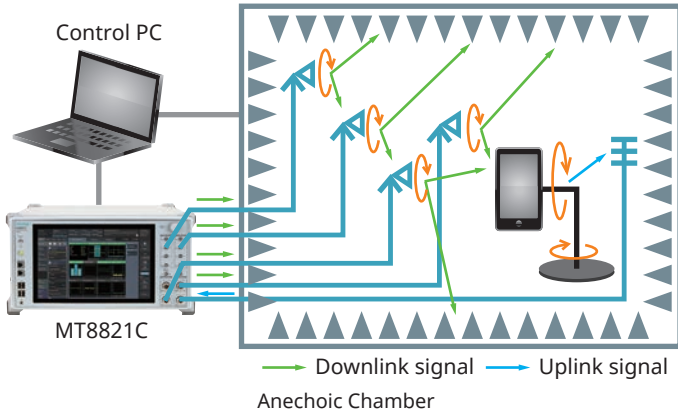
Moreover, it also supports the increasing number of test conditions demanded by higher antenna counts in UE units supporting LTE-Advanced CA and MIMO standards. Last, the shorter test time resulting from stable call processing performance is a key advantage of the MT8821C in various OTA test systems.

Technologies	TRP	TRS	Comment
LTE FDD	✓	✓	SISO, 2×2 MIMO, 4×4 MIMO, DL CA 2CC/3CC/4CC/5CC
LTE TDD	✓	✓	SISO, 2×2 MIMO, 4×4 MIMO, DL CA 2CC/3CC/4CC/5CC
W-CDMA	✓	✓	HSPA, HSPA Evolution, DC-HSDPA
GSM	✓	✓	
GPRS/EGPRS	✓	✓	
TD-SCDMA	✓	✓	HSPA
CDMA2000 1X	✓	✓	1xEV-DO

Although one MT8821C unit can output up to 8 independent signals, DL 3CA 4×4 MIMO measurements require output of 12 signals. Using two linked MT8821C units supports unrestricted frequency allocation and bandwidth settings for all three CCs, enabling DL 3CA 4×4 MIMO measurements.
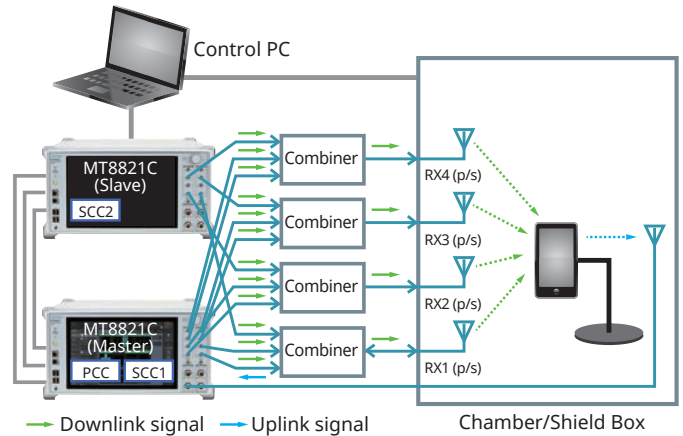
SAR (Specific Absorption Rate) Test

The SAR test evaluates the amount of energy in the electromagnetic waves radiated from a UE that is absorbed by a jig called a 'phantom' mimicking the human body. This test is designed to protect the health of UE users from the effects of electromagnetic waves.
The basic amount of absorbed energy is determined by the standard for each country and region.
The MT8821C supports the SAR test for each type of communication system.

SAR Test Setup
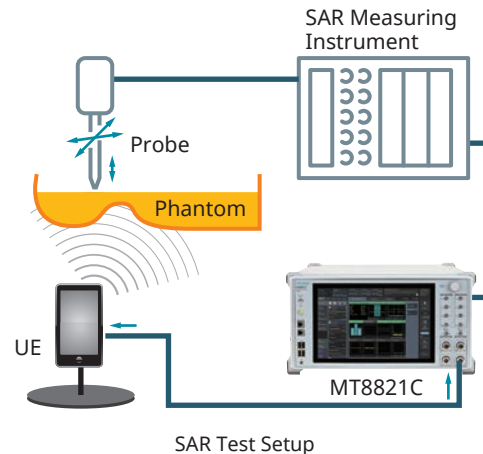
Radio Communication Analyzer MT8821C Features

Functional Testing (continued)

Power Consumption Testing

Battery power consumption is a key point in differentiating chipsets and smartphones. As well as supporting the GSMA-defined power consumption tests, the MT8821C also supports power consumption tests at the maximum IP data throughput.

Power Consumption Test

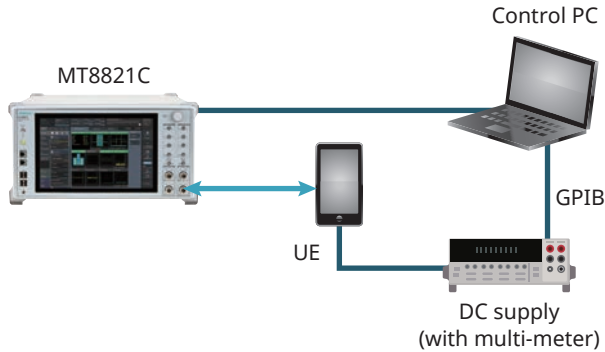| Category	Procedure	Technologies	Packet Rate (bps)
Power Consumption	Standby Time Test	GSM	
		W-CDMA	
		LTE	
	MOMR: Talk Time Test	GSM	
		W-CDMA	
	MTNR: Talk Time Test	GSM	
		W-CDMA	
	Video Telephony Test	W-CDMA	
	Packet Switch Transfer Test (Download)	LTE	DL 5.16M, UL 5.54M @ 10MHz
	Packet Switch Transfer Test (Upload)	LTE	DL 5.16M, UL 5.54M @ 10MHz
	Packet Switch Transfer Test (Download/Upload)	LTE	DL 21.4M, UL 22.9M @ 10MHz

Inter-RAT Measurement, DSDA RF Testing

The all-in-one MT8821C can test two communications technologies simultaneously. As well as testing two UE units at the same time, it can also perform RF tests of a Dual SIM Dual Active (DSDA) dual-mode UE with two separate communications technologies for standby and communications. It also supports Inter-RAT tests reporting the TX powers of base stations using different communications technologies to the UE.
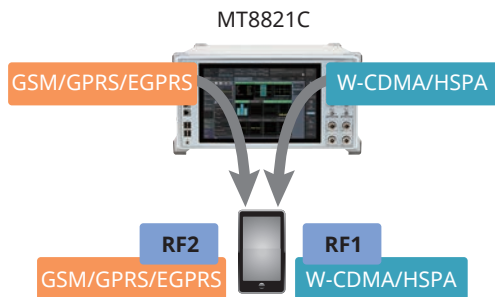
VoLTE Voice/Video Echoback Testing

As VoLTE offering high-quality and low-latency voice calls becomes the de facto communications technology for recent UE, there is increasing demand for power consumption measurements during VoLTE calls as well as for confirmation of VoLTE call operations. However, setting the VoLTE IMS server is difficult.
With its built-in IMS server, the MT8821C reduces test preparation time and supports efficient VoLTE voice/video echoback tests, because the LTE measurement software GUI operations are also reflected at the IMS server.
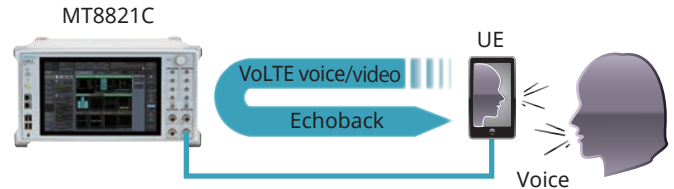
End-to-End Communication Testing

As well as evaluating UE RF performance, the MT8821C also supports functional tests, such as IP data throughput, audio/video tests, etc. Video calls between two UE units can be tested using one MT8821C with installed Parallel Phone measurement option. Furthermore, with its built-in application server function, smartphone and tablet IP data throughput tests require only the MT8821C and UE.
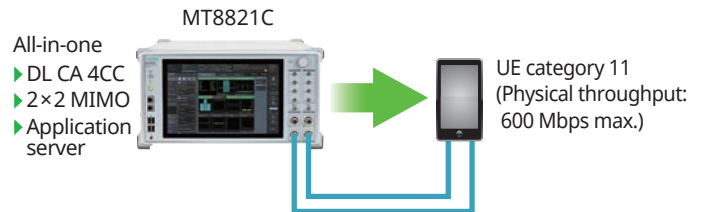
Backwards Compatibility

Remote Command

Since the MT8821C remote commands maintain good backwards compatibility with legacy MT8820 series, previously used remote tools are supported, helping reduce costs when configuring automated test environments.

Same PC tool can work
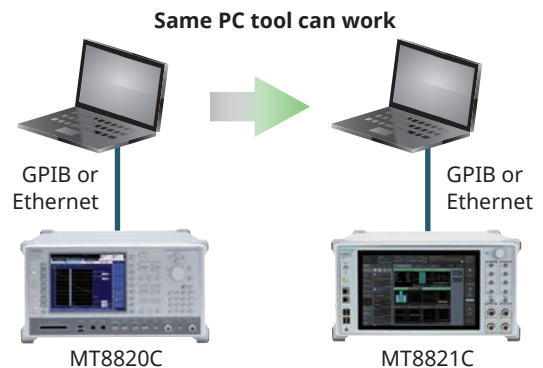
MT8820C to MT8821C Upgrade

Anritsu offers an upgrade path from the MT8820C to the MT8821C making full use of the existing MT8820C hardware and software to maximize previous investment in the MT8820C and keep MT8821C costs down.

Radio Communication Analyzer MT8821C Configurations

System Configurations/Options/Software

Technologies	LTE		W-CDMA	GSM	TD-SCDMA	CDMA2000	HSPA	SEQ
	FDD	TDD						
Main Frame	MT8821C Radio Communication Analyzer							
	MT8821C-012 Parallel Phone Measurement Hardware							
Unit Options	MT8821C-025 2nd RF for Phone1		—					
	MT8821C-026 3rd RF for Phone1							
	MT8821C-027 4th RF for Phone1							
	MT8821C-028 2nd RF for Phone2							
	MT8821C-029 3rd RF for Phone2							
	MT8821C-030 4th RF for Phone2							
	—		MT8821C-011 Audio Board				—	
	—					MT8821C-043 CDMA2000 Time Offset CAL for GPS SG	—	
Basic Configurations — Software	MX882112C LTE FDD Measurement Software	MX882113C LTE TDD Measurement Software	MX882100C W-CDMA Measurement Software	MX882101C GSM Measurement Software	MX882107C TD-SCDMA Measurement Software	MX882102C CDMA2000 Measurement Software	MX882115C W-CDMA HSPA Evolution IP Data Transfer	MX882120C Sequence Measurement Software
Basic Configurations — Hardware	MT8821C-008 LTE Measurement Hardware		MT8821C-001 W-CDMA Measurement Hardware	MT8821C-002 TDMA Measurement Hardware	MT8821C-001 W-CDMA Measurement Hardware; MT8821C-007 TD-SCDMA Measurement Hardware	MT8821C-003 CDMA2000 Measurement Hardware	MT8821C-008 LTE Measurement Hardware	—
Options	MX882164C LTE VoLTE Echoback		MX882100C-001 W-CDMA Voice Codec	MX882101C-001 GSM Voice Codec	MX882107C-001 TD-SCDMA Voice Codec	MX882102C-001 CDMA2000 Voice Codec	—	
	MX882112C-021 LTE-Advanced FDD DL CA Measurement Software	MX882113C-021 LTE-Advanced TDD DL CA Measurement Software	MX882100C-019 W-CDMA HSPA Measurement Software	MX882101C-011 EGPRS Measurement Software	MX882107C-011 TD-SCDMA HSDPA Measurement Software	MX882106C 1xEV-DO Measurement Software	MX882115C-001 DC-HSDPA IP Data Transfer	MX882120C-001 W-CDMA Measurement Software
	MX882112C-022 LTE-Advanced FDD UL CA Measurement Software	MX882113C-022 LTE-Advanced TDD UL CA Measurement Software	MX882100C-032 DC-HSDPA Measurement Software		MX882107C-021 TD-SCDMA HSUPA Measurement Software	MT8821C-005 1xEV-DO Measurement Hardware		MX882120C-002 GSM Measurement Software
	MX882112C-031 LTE-Advanced FDD DL CA 3CCs Measurement Software	MX882113C-031 LTE-Advanced TDD DL CA 3CCs Measurement Software	MX882100C-033 DC-HSUPA Measurement Software					MX882120C-003 CDMA20000 Measurement Software
	MX882112C-041 LTE-Advanced FDD DL CA 4CCs Measurement Software	MX882113C-041 LTE-Advanced TDD DL CA 4CCs Measurement Software	MX882100C-034 4C-HSDPA Measurement Software					MX882120C-004 LTE Measurement Software
	MX882112C-051 LTE-Advanced FDD DL CA 5CCs Measurement Software	MX882113C-051 LTE-Advanced TDD DL CA 5CCs Measurement Software						MX882120C-005 TD-SCDMA Measurement Software
	MX882112C-011 LTE FDD 2×2 MIMO DL	MX882113C-011 LTE TDD 2×2 MIMO DL	—	—	—	—	—	—
	MX882112C-012 LTE FDD 4×4 MIMO DL	MX882113C-012 LTE TDD 4×4 MIMO DL						
	MX882112C-006 LTE FDD IP Data Transfer	MX882113C-006 LTE TDD IP Data Transfer	—					
	MX882112C-026 LTE-Advanced FDD DL CA IP Data Transfer	MX882113C-026 LTE-Advanced TDD DL CA IP Data Transfer						
	MX882112C-036 LTE-Advanced FDD DL CA 3CCs IP Data Transfer	MX882113C-036 LTE-Advanced TDD DL CA 3CCs IP Data Transfer						—
	MX882112C-046 LTE-Advanced FDD DL CA 4CCs IP Data Transfer	MX882113C-046 LTE-Advanced TDD DL CA 4CCs IP Data Transfer						

Radio Communication Analyzer MT8821C Panel Layout

Front Panel

1 Local Key
Switches from remote control operation mode to local control mode.

2 Power Switch
Turns on the power and illuminates green when MT8821C is operating (power on state).

3 Handset 1/2 Connector
For connection to a handset used for voice call testing of Phone 1/2.

4 USB Connector
Four USB 2.0 interface ports for connection to USB memory, mouse and keyboard.

5 Ground Terminal
Functional ground terminal (electrostatic discharge).

6 Display
Displays MT8821C's operation screen, in which you can set measurement parameters and view measurement results, by touch operation.

7 Rotary Control
Rotate: Moves the cursor and selects parameters.
Press: Allows the selected parameter to be edited and saves the new parameter setting.

8 Phone 1/2[*] Aux Output Connector
RF output connectors for RF measurement of Phone 1/2.

9 External SG Input Connector
Input connector for RF measurement signals for Phone 1 from an external signal generator.
The input signal is output from the Main connectors 1 and 2 by combining with output signals of Phone 1.
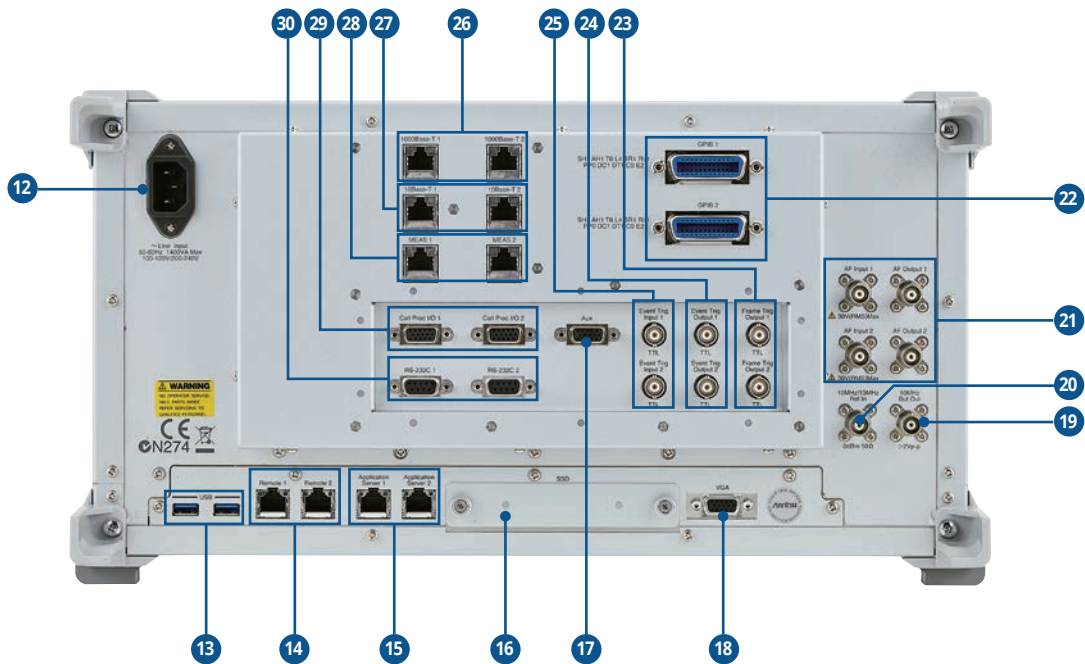
10 External SA Output Connector
Output connector for monitoring RF measurement signals for Phone 1 at the external measuring device.

11 Phone 1/2 Main Connector
Input/output connectors for RF measurement signals for Phone 1/2.

Radio Communication Analyzer MT8821C Panel Layout

Rear Panel

12 AC Inlet
AC power inlet for the power cable.
With automatic voltage switching: 100 V(ac) to 120 V(ac)/ 200 V(ac) to 240 V(ac).

13 USB Connector
Two USB 3.0 interface ports for connection to USB memory, mouse, and keyboard.

14 Remote 1/2*
For remote control of Phone 1/2 of MT8821C, via 10/100/1000BASE-T.

15 Application Server Port 1/2*
Interface for IP data transfer test.

16 SSD Slot
Slot for a 2.5-inch SSD.

17 Aux Connector
ARB input/output interface for Phone 1/2.

18 VGA Connector
Output interface for an external monitor.

19 Reference Signal Output Connector
Output connector for outputting reference signals from MT8821C.

20 Reference Signal Input Connector
Input connector for inputting external reference signals.

21 Audio Input/Output Connector 1/2*
Input/output connectors for AF measurement of Phone 1/2 (valid when the Voice Codec and Audio Board options are installed).

22 GPIB Connector 1/2*
For remote control of Phone 1/2 of MT8821C, via GPIB.

23 Frame Trigger Output Connector 1/2*
Output connectors for outputting frame-timing signals to an external device for Phone 1/2.

24 Event Trigger Output Connector 1/2*
Output connectors for outputting event-timing signals to an external device for Phone 1/2.

25 Event Trigger Input Connector 1/2*
Input connectors for inputting trigger signals from an external device to perform TX measurement of Phone 1/2, in synchronization with the external device.

26 1000BASE-T Port 1/2*
Interface for communication test of Phone 1/2. (for LTE)

27 10BASE-T Port 1/2*
Interface for communication test of Phone 1/2. (for W-CDMA, GSM, CDMA2000)

28 MEAS Port 1/2
Not available.

29 Call Processing I/O Port 1/2*
Interface for call processing test of Phone 1/2.

30 RS-232C Port 1/2*
Interface for communication test of Phone 1/2. (for CDMA2000)

*: Enabled when Parallel Phone Measurement option installed in MT8821C.

Radio Communication Analyzer MT8821C Specifications

★ Typical values are only for reference and are not guaranteed specifications.

Receiver	Frequency range: 30 MHz to 3.8 GHz
	                       30 MHz to 6.0 GHz (with MT8821C-019)
	Maximum input level: +35 dBm (Main 1, 2)
	                          +10 dBm (SG Input)

Transmitter	Frequency
	  Output frequency range: 30 MHz to 3.8 GHz
	                             30 MHz to 6.0 GHz (with MT8821C-019)
	  Setting resolution: 1 Hz
	  Accuracy: Depends on reference oscillator accuracy
	Output level
	  Level range
	    Main 1, 2: –140 to –10 dBm (Internal signal generator TX 1 output)
	               –140 to –16 dBm (Internal signal generator TX 2, 3, or 4 output)
	               (with MT8821C-025, 026, 027 or with MT8821C-012, 028, 029, 030)
	    Aux 1, 2, 3, 4: –125 to +5 dBm (Aux 2, 3, 4: With MT8821C-025, 026, 027 or with MT8821C-012, 028, 029, 030)
	  Resolution: 0.1 dB
	  Level accuracy
	    10° to 40°C, After Cal
	    Main 1, 2
	      Level: ≥–120 dBm, SG Input: Off
	      When outputting from either of Main 1 or 2.
	      Except effect of noise floor from the other internal signal generators.
	        ±1.5 dB (Frequency < 350 MHz, Internal signal generator TX 1 output)
	        ±1.0 dB, ±0.7 dB (typ.) (350 MHz ≤ Frequency ≤ 3.8 GHz)
	        ±1.3 dB, ±1.0 dB (typ.) (3.8 GHz < Frequency ≤ 6.0 GHz)
	    Aux 1, 2, 3, 4
	      Level: ≥–110 dBm
	        ±1.5 dB (Frequency < 350 MHz)
	        ±1.0 dB, ±0.7 dB (typ.) (350 MHz ≤ Frequency ≤ 3.8 GHz)
	        ±1.3 dB, ±1.0 dB (typ.) (3.8 GHz < Frequency ≤ 6.0 GHz)
	Signal purity
	  Non-harmonic spurious: ≤–30 dBc (offset frequency: ≥100 kHz)
	  Harmonics: ≤–25 dBc

Reference Oscillator	Reference oscillator
	  Frequency: 10 MHz
	  Start-up characteristics: ≤5 × 10^{-8} (10 min. after power-on referenced to frequency 24-hour after power-on)
	  Aging rate: ≤2 × 10^{-8}/day, ≤1 × 10^{-7}/year (referenced to frequency 24-hour after power-on)
	  Temperature characteristics: ≤5 × 10^{-8}
	  Frequency accuracy before shipment: ±2.2 × 10^{-8} (20° to 30°C, 1 hour after power-on)
	  Output connector: BNC-J, Level: TTL
	External reference input
	  Frequency: 10 MHz or 13 MHz
	  Operating rate: ±1 ppm

Display	12.1-inch WXGA, 1280 × 800 pixels, color TFT LCD Touch panel: Projected capacitive type, multi-touch gestures

Radio Communication Analyzer MT8821C Specifications

Front-panel Connectors	RF input/output
	  Main 1, 2
	    Connector: N-J, 50Ω (nom.)
	    VSWR: ≤1.35 (30 MHz ≤ Frequency < 350 MHz)
	            ≤1.30 (350 MHz ≤ Frequency < 450 MHz)
	            ≤1.20 (450 MHz ≤ Frequency ≤ 1.6 GHz)
	            ≤1.30 (1.6 GHz < Frequency ≤ 3.8 GHz) (Main 1)
	            ≤1.30 (1.6 GHz < Frequency ≤ 2.7 GHz) (Main 2)
	            ≤1.35 (2.7 GHz < Frequency < 2.9 GHz) (Main 2)
	            ≤1.30 (2.9 GHz ≤ Frequency ≤ 3.8 GHz) (Main 2)
	            ≤1.40 (3.8 GHz < Frequency ≤ 6.0 GHz)
	  Aux 1, 2, 3, 4
	    Connector: SMA-J, 50Ω (nom.)
	    VSWR:
	      SG output level: ≤−10 dBm
	            ≤1.40 (30 MHz ≤ Frequency < 300 MHz)
	            ≤1.30 (300 MHz ≤ Frequency ≤ 3.8 GHz)
	            ≤1.60 (3.8 GHz < Frequency ≤ 6.0 GHz)
	  SG Input
	    Connector: SMA-J, 50Ω (nom.)
	    VSWR: ≤1.40 (300 MHz ≤ Frequency ≤ 3.8 GHz)
	            ≤1.60 (3.8 GHz < Frequency ≤ 6.0 GHz)
	  Monitor
	    Connector: SMA-J, 50Ω (nom.)
	    VSWR: ≤1.30 (300 MHz ≤ Frequency ≤ 3.8 GHz)
	            ≤1.60 (3.8 GHz < Frequency ≤ 6.0 GHz)
	Other
	  Handset 1, 2: For dedicated handset
	    Connector: RJ-12
	  USB
	    Connector: USB 2.0, 4 ports

Rear-panel Connectors	Reference signal
	  10 MHz Buf Out: For internal reference oscillator output
	    Connector: BNC-J
	    Frequency: 10 MHz
	    Level: TTL
	  10 MHz/13 MHz Ref In: For external reference signal input
	    Connector: BNC-J, 50Ω (nom.)
	    Level: ≥0 dBm
	Control
	  GPIB 1, 2: For remote control
	    Interface function: SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, C0, E2
	    Connector: GPIB (IEEE 488)
	  Remote 1, 2 (Ethernet): For remote control
	    Connector: RJ-45 (10/100/1000BASE-T)
	Data input/output
	  Application Server 1, 2: For data transfer tests
	    Connector: RJ-45 (1000BASE-T)
	  RS-232C 1, 2: For data transfer tests
	    Connector: D-sub 9-pin (RS-232)
	  Call Proc I/O 1, 2: For call processing timing signal input/output
	    Connector: Mini D-sub 15-pin
	    Signal level: TTL, LVCMOS
	  10BASE-T 1, 2: For data transfer tests
	    Connector: RJ-45 (10BASE-T)
	  1000BASE-T 1, 2: For data transfer tests
	    Connector: RJ-45 (1000BASE-T)
	  Aux: For ARB input/output
	    Connector: Mini D-sub 15-pin
	    Signal level: LVCMOS
	Trigger
	  Frame Trig Output 1, 2: For frame trigger output
	  Event Trig Input 1, 2: For event trigger input
	  Event Trig Output 1, 2: For event trigger output
	    Connector: BNC-J
	    Signal level: TTL
	Audio
	  AF Output 1, 2: For AF output
	    Connector: BNC-J
	  AF Input 1, 2: For AF input
	    Connector: BNC-J
	    Maximum input level: 30 V (RMS)
	Other
	  USB: For general-purpose I/F
	    Connector: USB 3.0, 2 ports
	  VGA: For external display
	    Connector: Mini D-sub 15-pin
	    Signal level: Analog RGB
	  MEAS 1, 2: Not used
	    Connector: RJ-45

Storage Device	2.5-inch SSD
Power Supply	100 V(ac) to 120 V(ac)/200 V(ac) to 240 V(ac) (250 V max.), 50 Hz/60 Hz ≤1200 VA (with all options)
Dimensions and Mass	426 (W) × 221.5 (H) × 578 (D) mm (excluding projections) ≤40 kg (with all options)

Environmental Conditions	Temperature and Humidity
	  Operating: +5° to +40°C, ≤90% RH (no condensation)
	  Storage: –20° to +60°C, ≤85% RH (no condensation)
	EMC: EN61326-1, EN61000-3-2
	LVD: EN61010-1

Radio Communication Analyzer MT8821C 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	Remarks
	Main Frame	
MT8821C	Radio Communication Analyzer	
	Standard Accessories	
	Power Cord: 1 pc	
P0031A	USB Memory: 1 pc	
W3753AE	MT8821C Operation Manual: 1 pc	USB
	Options	
MT8821C-001	W-CDMA Measurement Hardware	
MT8821C-002	TDMA Measurement Hardware	
MT8821C-003	CDMA2000 Measurement Hardware	
MT8821C-005	1xEV-DO Measurement Hardware*1	Requires MT8821C-003
MT8821C-007	TD-SCDMA Measurement Hardware	Requires MT8821C-001
MT8821C-008	LTE Measurement Hardware	
MT8821C-011	Audio Board	
MT8821C-012	Parallel Phone Measurement Hardware*2	
MT8821C-019	Extended RF 3.8 GHz to 6 GHz	
MT8821C-025	2nd RF for Phone1	
MT8821C-026	3rd RF for Phone1	Requires MT8821C-025
MT8821C-027	4th RF for Phone1	Requires MT8821C-026
MT8821C-028	2nd RF for Phone2	Requires MT8821C-012
MT8821C-029	3rd RF for Phone2	Requires MT8821C-028
MT8821C-030	4th RF for Phone2	Requires MT8821C-029
MT8821C-043	CDMA2000 Time Offset CAL for GPS SG	Requires MT8821C-003 and MX882102C
	Retrofit Options*3	
MT8821C-□01	W-CDMA Measurement Hardware Retrofit	
MT8821C-□02	TDMA Measurement Hardware Retrofit	
MT8821C-□03	CDMA2000 Measurement Hardware Retrofit	
MT8821C-□05	1xEV-DO Measurement Hardware Retrofit*1	Requires MT8821C-003
MT8821C-□07	TD-SCDMA Measurement Hardware Retrofit	Requires MT8821C-001
MT8821C-□08	LTE Measurement Hardware Retrofit	
MT8821C-□11	Audio Board Retrofit	
MT8821C-□12	Parallel Phone Measurement Hardware Retrofit*2	
MT8821C-□43	CDMA2000 Time Offset CAL for GPS SG Retrofit	Requires MT8821C-003 and MX882102C
	Software Options	
MX882100C	W-CDMA Measurement Software	Requires MT8821C-001
MX882100C-001	W-CDMA Voice Codec	Requires MT8821C-011 and MX882100C
MX882100C-002	W-CDMA External Packet Data	Requires MX882100C
MX882100C-003	W-CDMA Video Phone Test*4	Requires MX882100C
MX882100C-005	W-CDMA A-GPS	Requires MX882100C
MX882100C-019	W-CDMA HSPA Measurement Software*4	Requires MX882100C
MX882100C-032	DC-HSDPA Measurement Software	Requires MT8821C-001 (2 sets), MT8821C-012, MX882100C and MX882100C-019
MX882100C-033	DC-HSUPA Measurement Software	Requires MX882100C-032
MX882100C-034	4C-HSDPA Measurement Software	Requires MX882100C-032
MX882170C	W-CDMA Ciphering Software*4	Requires MX882100C
MX882101C	GSM Measurement Software	Requires MT8821C-002
MX882101C-001	GSM Voice Codec	Requires MT8821C-011 and MX882101C
MX882101C-002	GSM External Packet Data	Requires MX882101C
MX882101C-005	GSM A-GPS	Requires MX882101C
MX882101C-011	EGPRS Measurement Software	Requires MX882101C
MX882102C	CDMA2000 Measurement Software	Requires MT8821C-003
MX882102C-001	CDMA2000 Voice Codec	Requires MT8821C-011 and MX882102C
MX882102C-002	CDMA2000 External Packet Data	Requires MX882102C
MX882106C	1xEV-DO Measurement Software	Requires MT8821C-005 and MX882102C
MX882106C-002	1xEV-DO External Packet Data	Requires MX882106C
MX882107C	TD-SCDMA Measurement Software	Requires MT8821C-007
MX882107C-001	TD-SCDMA Voice Codec	Requires MT8821C-011 and MX882107C
MX882107C-002	TD-SCDMA External Packet Data	Requires MX882107C
MX882107C-003	TD-SCDMA Video Phone Test	Requires MX882107C
MX882107C-011	TD-SCDMA HSDPA Measurement Software	Requires MX882107C
MX882107C-012	TD-SCDMA HSDPA Evolution Measurement Software	Requires MX882107C-011
MX882107C-021	TD-SCDMA HSUPA Measurement Software	Requires MX882107C-011

Radio Communication Analyzer MT8821C Ordering Information

Model/Order No.	Name	Remarks
MX882112C	LTE FDD Measurement Software	Requires MT8821C-008
MX882112C-006	LTE FDD IP Data Transfer	Requires MX882112C
MX882112C-011	LTE FDD 2×2 MIMO DL	Requires MT8821C-012 and MX882112C
MX882112C-012	LTE FDD 4×4 MIMO DL	Requires MT8821C-026, MT8821C-029 and MX882112C-011
MX882112C-016	LTE FDD CS Fallback to W-CDMA/GSM	Requires MX882112C and MX882100C or MX882101C
MX882112C-017	LTE FDD CS Fallback to CDMA2000	Requires MX882112C and MX882102C
MX882112C-021	LTE-Advanced FDD DL CA Measurement Software	Requires MT8821C-025 and MX882112C Requires MT8821C-028 when MX882112C-011 installed
MX882112C-022	LTE-Advanced FDD UL CA Measurement Software	Requires MX882112C-021
MX882112C-026	LTE-Advanced FDD DL CA IP Data Transfer	Requires MX882112C-006 and MX882112C-021
MX882112C-031	LTE-Advanced FDD DL CA 3CCs Measurement Software	Requires MT8821C-008 (2 sets), MT8821C-026 and MX882112C-021 Requires MT8821C-029 when MX882112C-011 installed
MX882112C-036	LTE-Advanced FDD DL CA 3CCs IP Data Transfer	Requires MX882112C-026 and MX882112C-031
MX882112C-041	LTE-Advanced FDD DL CA 4CCs Measurement Software	Requires MT8821C-027 and MX882112C-031 Requires MT8821C-030 when MX882112C-011 installed
MX882112C-046	LTE-Advanced FDD DL CA 4CCs IP Data Transfer	Requires MX882112C-036 and MX882112C-041
MX882112C-051	LTE-Advanced FDD DL CA 5CCs Measurement Software	Requires MT8821C-012 and MX882112C-041
MX882113C	LTE TDD Measurement Software	Requires MT8821C-008
MX882113C-006	LTE TDD IP Data Transfer	Requires MX882113C
MX882113C-011	LTE TDD 2×2 MIMO DL	Requires MT8821C-012 and MX882113C
MX882113C-012	LTE TDD 4×4 MIMO DL	Requires MT8821C-026, MT8821C-029 and MX882113C-011
MX882113C-016	LTE TDD CS Fallback to W-CDMA/GSM	Requires MX882113C and MX882100C or MX882101C
MX882113C-017	LTE TDD CS Fallback to CDMA2000	Requires MX882113C and MX882102C
MX882113C-018	LTE TDD CS Fallback to TD-SCDMA/GSM	Requires MX882113C and MX882101C or MX882107C
MX882113C-021	LTE-Advanced TDD DL CA Measurement Software	Requires MT8821C-025 and MX882113C Requires MT8821C-028 when MX882113C-011 installed
MX882113C-022	LTE-Advanced TDD UL CA Measurement Software	Requires MX882113C-021
MX882113C-026	LTE-Advanced TDD DL CA IP Data Transfer	Requires MX882113C-006 and MX882113C-021
MX882113C-031	LTE-Advanced TDD DL CA 3CCs Measurement Software	Requires MT8821C-008 (2 sets), MT8821C-026 and MX882113C-021 Requires MT8821C-029 when MX882113C-011 installed
MX882113C-036	LTE-Advanced TDD DL CA 3CCs IP Data Transfer	Requires MX882113C-026 and MX882113C-031
MX882113C-041	LTE-Advanced TDD DL CA 4CCs Measurement Software	Requires MT8821C-027 and MX882113C-031 Requires MT8821C-030 when MX882113C-011 installed
MX882113C-046	LTE-Advanced TDD DL CA 4CCs IP Data Transfer	Requires MX882113C-036 and MX882113C-041
MX882113C-051	LTE-Advanced TDD DL CA 5CCs Measurement Software	Requires MT8821C-012 and MX882113C-041
MX882115C	W-CDMA HSPA Evolution IP Data Transfer	Requires MT8821C-008
MX882115C-001	DC-HSDPA IP Data Transfer	Requires MX882115C
MX882120C	Sequence Measurement Software	
MX882120C-001	W-CDMA Measurement Software	Requires MX882120C
MX882120C-002	GSM Measurement Software	Requires MX882120C
MX882120C-003	CDMA20000 Measurement Software	Requires MX882120C
MX882120C-004	LTE Measurement Software	Requires MX882120C
MX882120C-005	TD-SCDMA Measurement Software	Requires MX882120C
MX882132C	CDMA2000 Measurement Software Lite	
MX882136C	1xEV-DO Measurement Software Lite	
MX882142C	LTE FDD Measurement Software Lite	
MX882143C	LTE TDD Measurement Software Lite	
MX882164C	LTE VoLTE Echoback	Requires MX882112C for LTE FDD, requires MX882113C for LTE TDD
	Upgrade Kits [3]	
MT8821C-UG□01	SPM Upgrade Kit from MT8820C	
MT8821C-UG□02	PPM Upgrade Kit from MT8820C	
MT8821C-UG□03	SPM Upgrade Kit from MT8820C with MX88207xC	
MT8821C-UG□04	PPM Upgrade Kit from MT8820C with MX88207xC	
MT8821C-UG011	Software Upgrade Kit	Required for additional purchase of software options, etc.
	Warranty Service	
MT8821C-ES210	2 years Extended Warranty Service	
MT8821C-ES310	3 years Extended Warranty Service	
MT8821C-ES510	5 years Extended Warranty Service	

Radio Communication Analyzer MT8821C Ordering Information

Model/Order No.	Name	Remarks
	Application Parts	
P0035B	W-CDMA/GSM Test USIM*[5, 6]	
P0035B7	W-CDMA/GSM Test USIM*[5, 6]	Micro UICC size
P0135A6	Anritsu Test UICC GA*[5, 6]	Nano UICC size
P0135A7	Anritsu Test UICC GA*[5, 6]	Micro UICC size
P0135B6	Anritsu Test UICC GA*[5, 6]	Nano UICC size
P0135B7	Anritsu Test UICC GA*[5, 6]	Micro UICC size
P0250A6	Anritsu Test UICC GT*[5, 6]	Nano UICC size
P0250A7	Anritsu Test UICC GT*[5, 6]	Micro UICC size
P0250B6	Anritsu Test UICC GT*[5, 6]	Nano UICC size
P0250B7	Anritsu Test UICC GT*[5, 6]	Micro UICC size
P0260A6	Anritsu Test UICC GM*[5, 6]	Nano UICC size
P0260A7	Anritsu Test UICC GM*[5, 6]	Micro UICC size
P0260B6	Anritsu Test UICC GM*[5, 6]	Nano UICC size
P0260B7	Anritsu Test UICC GM*[5, 6]	Micro UICC size
A0058A	Handset	
P0031A	USB Memory	
Z0541A	USB Mouse	
Z0975A	Keyboard	USB connection
Z1898A	Connector Cap	
J1643A	U Link	N-P · UT-141 · SMA-P (for connecting Phone 2 Main1 - SG input)
J1644A	U Link	N-P · UT-141 · SMA-P (for connecting Phone 2 Main1 - Monitor)
J0004	Coaxial Adaptor	
J1195A	PP2S Output Cable	
J1249	CDMA2000 Cable	D-sub (15-pin, P-type) · D-sub (15-pin, P-type), used in combination with J1267 (sold separately)
J1267	CDMA2000 Cross Cable	D-sub (9-pin, P-type) · D-sub (9-pin, P-type), reverse cable used in combination with J1249 (sold separately)
J0576B	Coaxial Cord, 1 m	N-P · 5D-2W · N-P
J0576D	Coaxial Cord, 2 m	N-P · 5D-2W · N-P
J0127A	Coaxial Cord, 1 m	BNC-P · RG58A/U · BNC-P
J0127C	Coaxial Cord, 0.5 m	BNC-P · RG58A/U · BNC-P
J0007	GPIB Cable, 1 m	
J0008	GPIB Cable, 2 m	
MN8110B	I/O Adapter	For call processing I/O
B0332	Joint Plate	4 pcs/set
B0703A	Rack Mount Kit (MT8821C)	
B0701A	Carrying Case	Hard type (with protective cover and casters)
B0702A	Carrying Case	Hard type (with protective cover, without casters)
Z1858A	Divider	2-way divider
Z1859A	Divider	3-way divider
J0322A	Coaxial Cord, 0.5 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0322B	Coaxial Cord, 1.0 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0322C	Coaxial Cord, 1.5 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J0322D	Coaxial Cord, 2.0 m	SMA-P · SMA-P, DC to 18 GHz, 50Ω
J1398A	N-SMA ADAPTOR	

*1: The MT8821C-005 hardware supports both IS-856-0 (1xEV-DO Rev. 0) and IS-856-A (1xEV-DO Rev. A) RF measurements.

*2: The following measurement hardware support the Parallelphone measurement option: MT8821C-001, MT8821C-002, MT8821C-003, MT8821C-005, MT8821C-007 and MT8821C-008.
All the measurement hardware can be installed simultaneously.

*3: MT8821C- □ ##
□: Select from the following according to the option type.
1: Retrofit option (Must be returned to factory in Japan)
2: Retrofit option (Must be returned to service center outside of Japan)

*4: For UE connectivity, contact your Anritsu sales representative.

*5: A commercial SIM adapter CANNOT be used. If used, it may jam and break in the UE.

*6: Refer to the P0135Ax/P0250Ax/P0260Ax/P0135Bx/P0250Bx/P0260Bx leaflet for details.

Parallelphone™ is a trademark of Anritsu Corporation.

Anritsu envision : ensure

● **United States**
Anritsu Company
1155 East Collins Blvd., Suite 100, Richardson,
TX 75081, U.S.A.
Toll Free: 1-800-267-4878
Phone: +1-972-644-1777
Fax: +1-972-671-1877

● **Canada**
Anritsu Electronics Ltd.
700 Silver Seven Road, Suite 120, Kanata,
Ontario K2V 1C3, Canada
Phone: +1-613-591-2003
Fax: +1-613-591-1006

● **Brazil**
Anritsu Eletronica Ltda.
Praça Amadeu Amaral, 27 - 1 Andar
01327-010 - Bela Vista - Sao Paulo - SP
Brazil
Phone: +55-11-3283-2511
Fax: +55-11-3288-6940

● **Mexico**
Anritsu Company, S.A. de C.V.
Av. Ejército Nacional No. 579 Piso 9, Col. Granada
11520 México, D.F., México
Phone: +52-55-1101-2370
Fax: +52-55-5254-3147

● **United Kingdom**
Anritsu EMEA Ltd.
200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.
Phone: +44-1582-433200
Fax: +44-1582-731303

● **France**
Anritsu S.A.
12 avenue du Québec, Bâtiment Iris 1- Silic 612,
91140 VILLEBON SUR YVETTE, France
Phone: +33-1-60-92-15-50
Fax: +33-1-64-46-10-65

● **Germany**
Anritsu GmbH
Nemetschek Haus, Konrad-Zuse-Platz 1
81829 München, Germany
Phone: +49-89-442308-0
Fax: +49-89-442308-55

● **Italy**
Anritsu S.r.l.
Via Elio Vittorini 129, 00144 Roma, Italy
Phone: +39-6-509-9711
Fax: +39-6-502-2425

● **Sweden**
Anritsu AB
Kistagången 20B, 164 40 KISTA, Sweden
Phone: +46-8-534-707-00
Fax: +46-8-534-707-30

● **Finland**
Anritsu AB
Teknobulevardi 3-5, FI-01530 VANTAA, Finland
Phone: +358-20-741-8100
Fax: +358-20-741-8111

● **Denmark**
Anritsu A/S
Kay Fiskers Plads 9, 2300 Copenhagen S, Denmark
Phone: +45-7211-2200
Fax: +45-7211-2210

● **Russia**
Anritsu EMEA Ltd.
Representation Office in Russia
Tverskaya str. 16/2, bld. 1, 7th floor.
Moscow, 125009, Russia
Phone: +7-495-363-1694
Fax: +7-495-935-8962

● **Spain**
Anritsu EMEA Ltd.
Representation Office in Spain
Edificio Cuzco IV, Po. de la Castellana, 141, Pta. 5
28046, Madrid, Spain
Phone: +34-915-726-761
Fax: +34-915-726-621

● **United Arab Emirates**
Anritsu EMEA Ltd.
Dubai Liaison Office
902, Aurora Tower,
P O Box: 500311- Dubai Internet City
Dubai, United Arab Emirates
Phone: +971-4-3758479
Fax: +971-4-4249036

● **India**
Anritsu India Private Limited
2nd & 3rd Floor, #837/1, Binnamangla 1st Stage,
Indiranagar, 100ft Road, Bangalore - 560038, India
Phone: +91-80-4058-1300
Fax: +91-80-4058-1301

● **Singapore**
Anritsu Pte. Ltd.
11 Chang Charn Road, #04-01, Shriro House
Singapore 159640
Phone: +65-6282-2400
Fax: +65-6282-2533

● **P.R. China (Shanghai)**
Anritsu (China) Co., Ltd.
Room 2701-2705, Tower A,
New Caohejing International Business Center
No. 391 Gui Ping Road Shanghai, 200233, P.R. China
Phone: +86-21-6237-0898
Fax: +86-21-6237-0899

● **P.R. China (Hong Kong)**
Anritsu Company Ltd.
Unit 1006-7, 10/F., Greenfield Tower, Concordia Plaza,
No. 1 Science Museum Road, Tsim Sha Tsui East,
Kowloon, Hong Kong, P.R. China
Phone: +852-2301-4980
Fax: +852-2301-3545

● **Japan**
Anritsu Corporation
8-5, Tamura-cho, Atsugi-shi, Kanagawa, 243-0016 Japan
Phone: +81-46-296-6509
Fax: +81-46-225-8359

● **Korea**
Anritsu Corporation, Ltd.
5FL, 235 Pangyoyeok-ro, Bundang-gu, Seongnam-si,
Gyeonggi-do, 13494 Korea
Phone: +82-31-696-7750
Fax: +82-31-696-7751

● **Australia**
Anritsu Pty. Ltd.
Unit 20, 21-35 Ricketts Road,
Mount Waverley, Victoria 3149, Australia
Phone: +61-3-9558-8177
Fax: +61-3-9558-8255

● **Taiwan**
Anritsu Company Inc.
7F, No. 316, Sec. 1, NeiHu Rd., Taipei 114, Taiwan
Phone: +886-2-8751-1816
Fax: +886-2-8751-1817

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