Anritsu envision:ensure

One Box Tester for LTE-Advanced UE Development

Radio Communication Analyzer

MT8821C

Radio Communication Analyzer MT8821C

The new MT8821C is an all-in-one tester designed for RF verification and functional tests of LTE-Advanced UE. It supports all systems supported by the MT8820C, as well as LTE-Advanced*.

- ✓ **LTE / LTE- Advanced**
  - DL CA 5CCs SISO
  - DL CA 4CCs with 2x2 MIMO
  - DL CA 2CCs with 4x4 MIMO
  - UL CA 2CCs
- ✓ W-CDMA
  - HSPA Evolution
  - DB / DC-HSDPA
  - 4C-HSDPA
  - DC-HSUPA
- ✓ GSM
  - GPRS
  - EGPRS
- ✓ CDMA 2000
  - EV-DO Rev.A
- ✓ TD-SCDMA
  - HSPA
  - HSPA Evolution

- ✓ Enhanced GUI with large touch panel
- ✓ ParallelPhone measurement
- ✓ Built-in applications/IMS server
- ✓ Compatibility with MT8820C

- ✓ Up to 8Tx RF/2 Rx RF
- ✓ Frequency Range:
  30 MHz to 3.8 GHz
  3.8 GHz to 6.0 GHz (Option)
- ✓ Built-in Front End

*: PHS not supported

All-In One Tester for LTE-Advanced UE Development

The all-in-one MT8821C supports RF parametric tests through to UE functional and performance tests in one box.
It is the perfect solution for development of RF chipsets and UE.

◆ RF Verification Tests

- UE TRX Tests
- UE Calibration
- RRM (Inter-RAT Measurements)

◆ Functional Tests

- OTA
- SAR
- IP Throughput
- Power Consumption
- VoLTE Voice/Video Echoback Tests

LTE FDD/TDD 4x4 MIMO DL MX882112C/13C-012

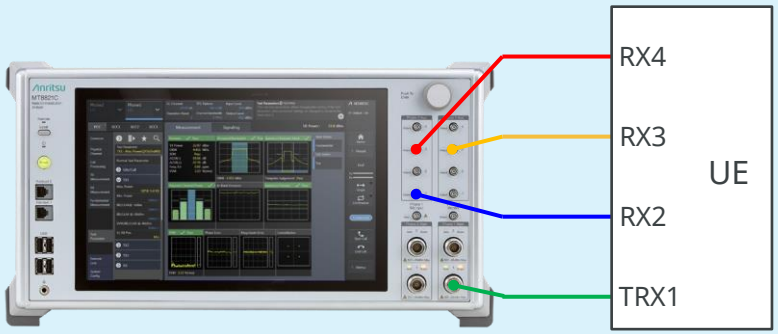
◆Product Overview

- 4x4 MIMO Option will be available by this option installed.*1
- Additionally, 4x4 MIMO UEs can be evaluated by OTA test systems offered by OTA vendors.

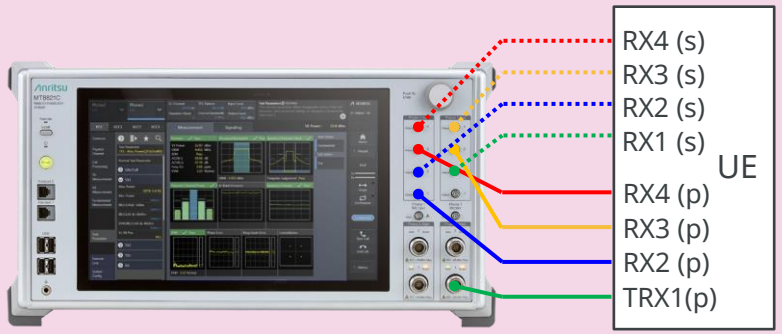
◆Specification

Antenna Configuration:	4x2 MIMO (TM3), 4x4 MIMO (TM3), 4x4 MIMO (TM9)
Component Carriers	Up to 2CCs :Maximum Physical Throughput : 600 Mbps
DL Modulation:	QPSK, 16QAM, 64QAM

DL 1CA 4x4 MIMO Connection



DL 2CA 4x4 MIMO Connection



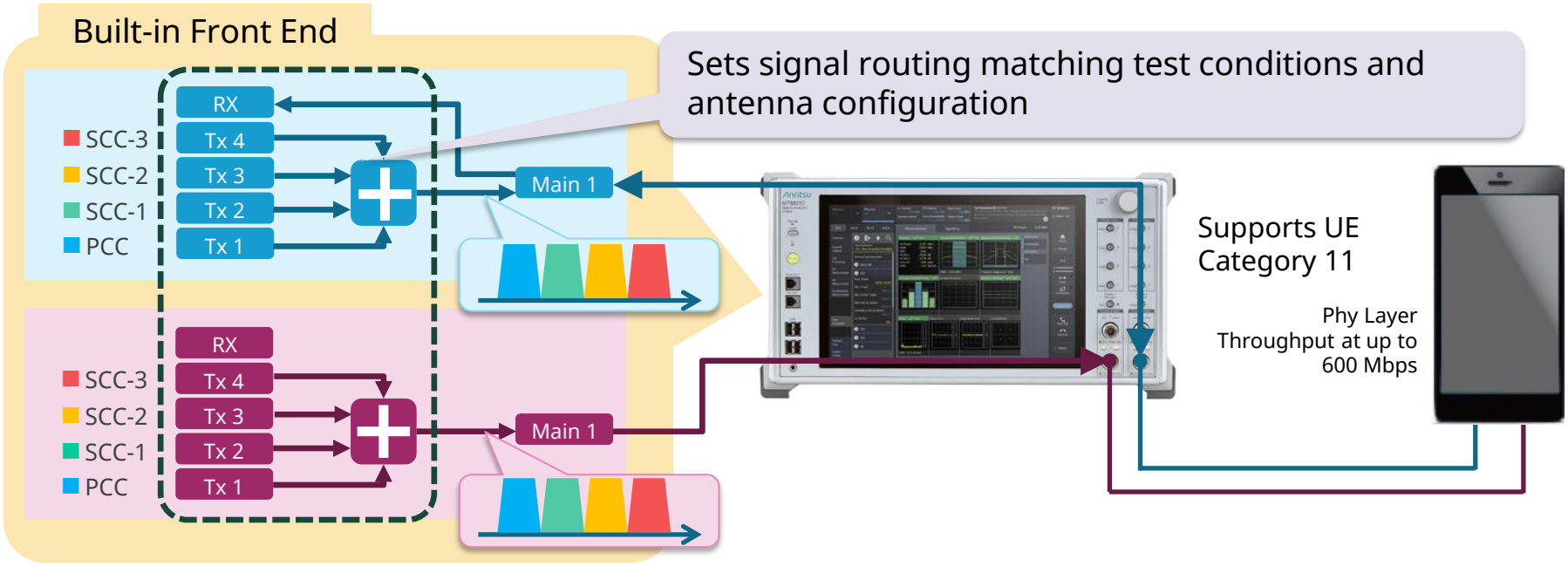
Limitation

- HARQ re-transmission does not supported
- UL/DL Configuration is fixed to 1 during FDD/TDD joint CA measurement when PCC is set to TDD.

*1: MT8821C does not support control by UEs feedback information. And MT8821 also does not support UE performance test defined by 3GPP TS 36.521 chapter 8.

DL 4CA RF Measurements

◆ **Combining one MT8821C set with the DL CA 4CCs and 2x2 MIMO options supports Throughput measurements of the Phy. layer at up to 600 Mbps.**



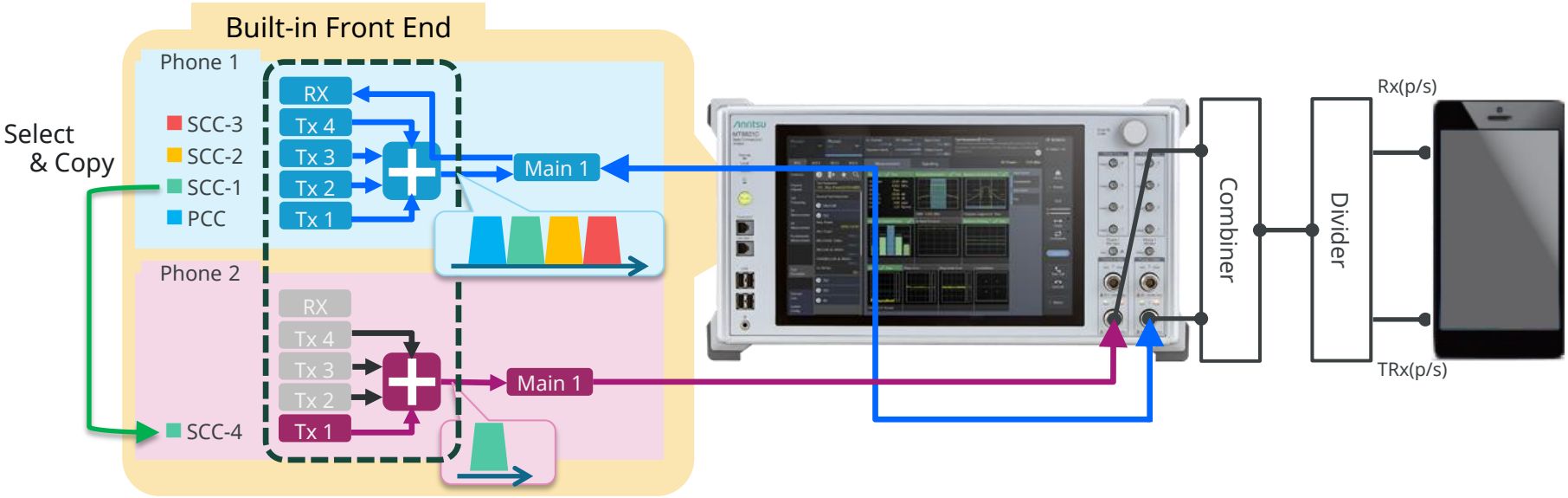
Supported 3GPP TS36.521-1 Tests[*1]

7.3A	Reference sensitivity level for CA	7.7A	Spurious response for CA[*2]
7.4A	Maximum input level for CA	7.8.1A	Wideband intermodulation for CA[*2]
7.5A	Adjacent Channel Selectivity (ACS) for CA[*2]	7.10A	Receiver image for CA[*2]
7.6.1A	In-band blocking for CA[*2]		
7.6.2A	Out-of-band blocking for CA[*2]		
7.6.3A	Narrowband blocking for CA[*2]		

*1: Specifications now being defined
*2: Requires SPA or SG

◆Product Overview

・With this option, one set supports RF measurement of DL CA 5CCs UEs.



Restrictions:

・To copy other SCC signals SCC 4 is the same configuration as the copy source.

Supported 3GPP TS36.521-1 Tests*1

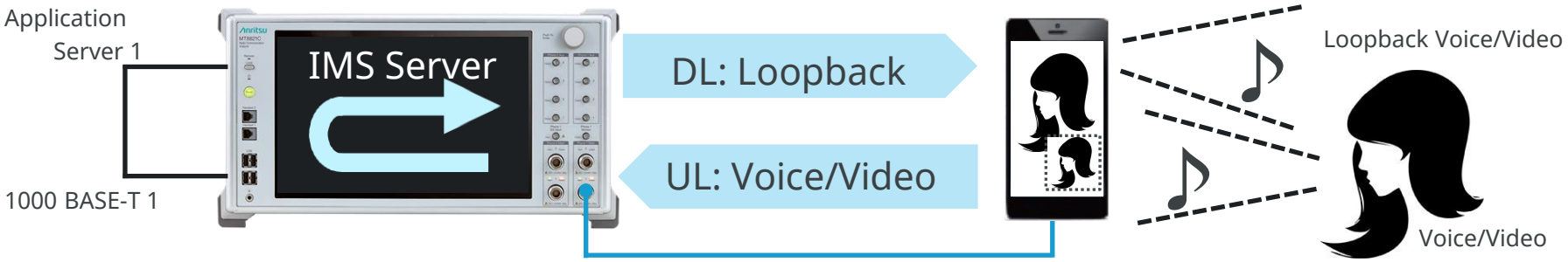
7.3A	Reference sensitivity level for CA	7.7A	Spurious response for CA*2
7.4A	Maximum input level for CA	7.8.1A	Wideband intermodulation for CA*2
7.5A	Adjacent Channel Selectivity (ACS) for CA*2	7.10A	Receiver image for CA*2
7.6.1A	In-band blocking for CA*2		
7.6.2A	Out-of-band blocking for CA*2		
7.6.3A	Narrowband blocking for CA*2		

*1: Specifications now being defined
*2: Requires SPA or SG

VoLTE Echoback MX882164C

Built-in IMS Server

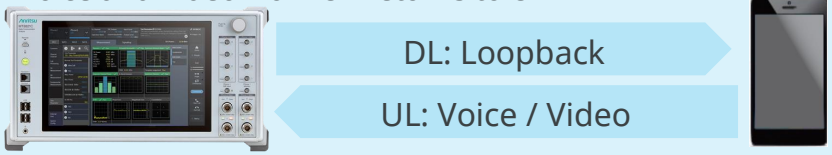
Simple Voice and Video Echoback Test



Functions

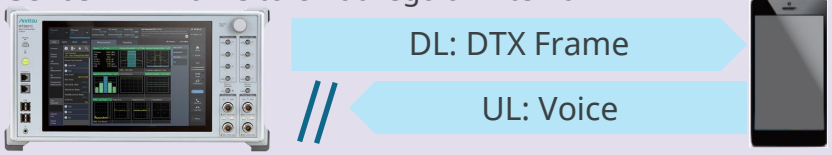
■Voice/Video Echoback

Voice and Video from UE returns to UE



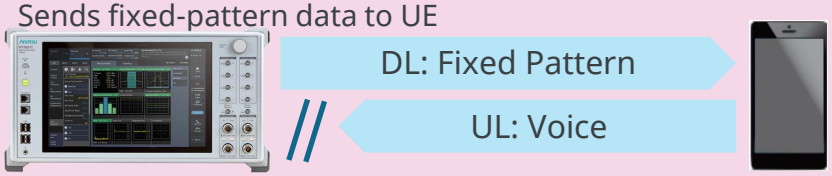
■DTX Frame

Sends DTX Frame to UE at regular interval



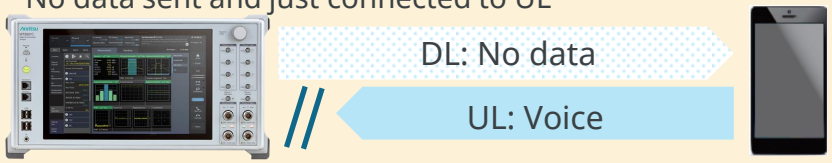
■Fixed Pattern

Sends fixed-pattern data to UE



■No Data

No data sent and just connected to UE



The following codec rates are supported by V30.30.

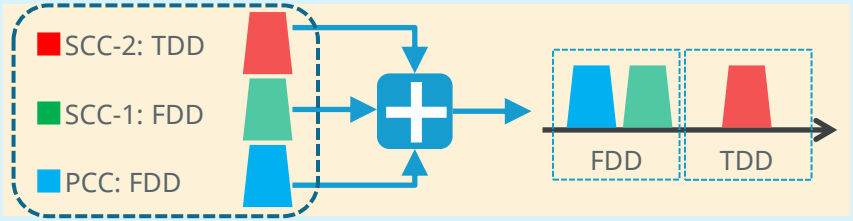
	Codec Rate
WB-AMR	6.60kbps, 8.85kbps, 12.65 kbps, 14.25 kbps, 15.85 kbps, 18.25 kbps, 19.85 kbps, 23.05 kbps, 23.85 kbps
NB-AMR	4.75 kbps, 5.15 kbps, 5.90 kbps, 6.70 kbps, 7.40 kbps, 7.95 kbps, 10.20 kbps, 12.20 kbps

New LTE-Advanced Features

Includes latest features based on 3GPP specifications as follows:

Joint 3CA

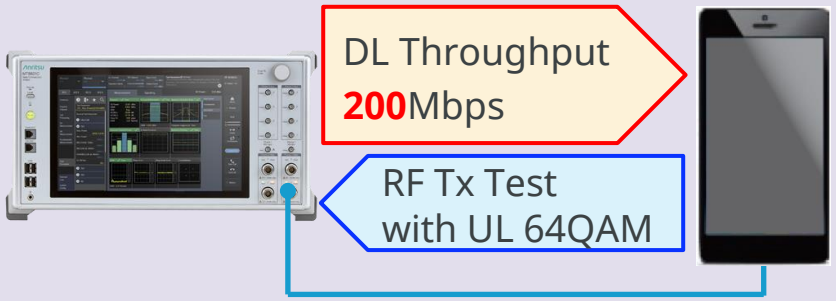
Mixed FDD and TDD DL CA 3CCs Connections*



*Joint 3CA supported by adding MX882112C/13C-031 option

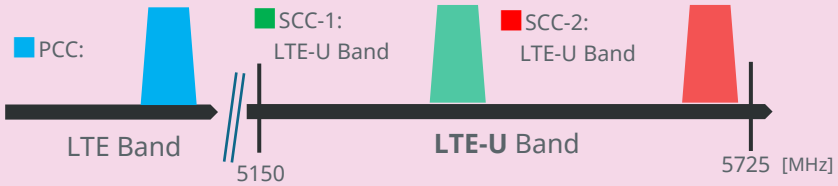
DL 256QAM/UL 64QAM

Throughput Measurements of 200 Mbps using DL 256QAM and support for UL 64 QAM RF TX Measurement.



LTE-U

RF Tests of LTE-U UE*



*LTE-U Band supported by adding MT8821C-019 option
RF measurement supported by adding MX882112C/13C-021, 031 or 041 options
IP data transfer supported by adding MX882112C/13C-026, 036 or 046 options

UE Category 0

RF Tests of UE Category 0 Modules

Key UE Category 0 Specifications

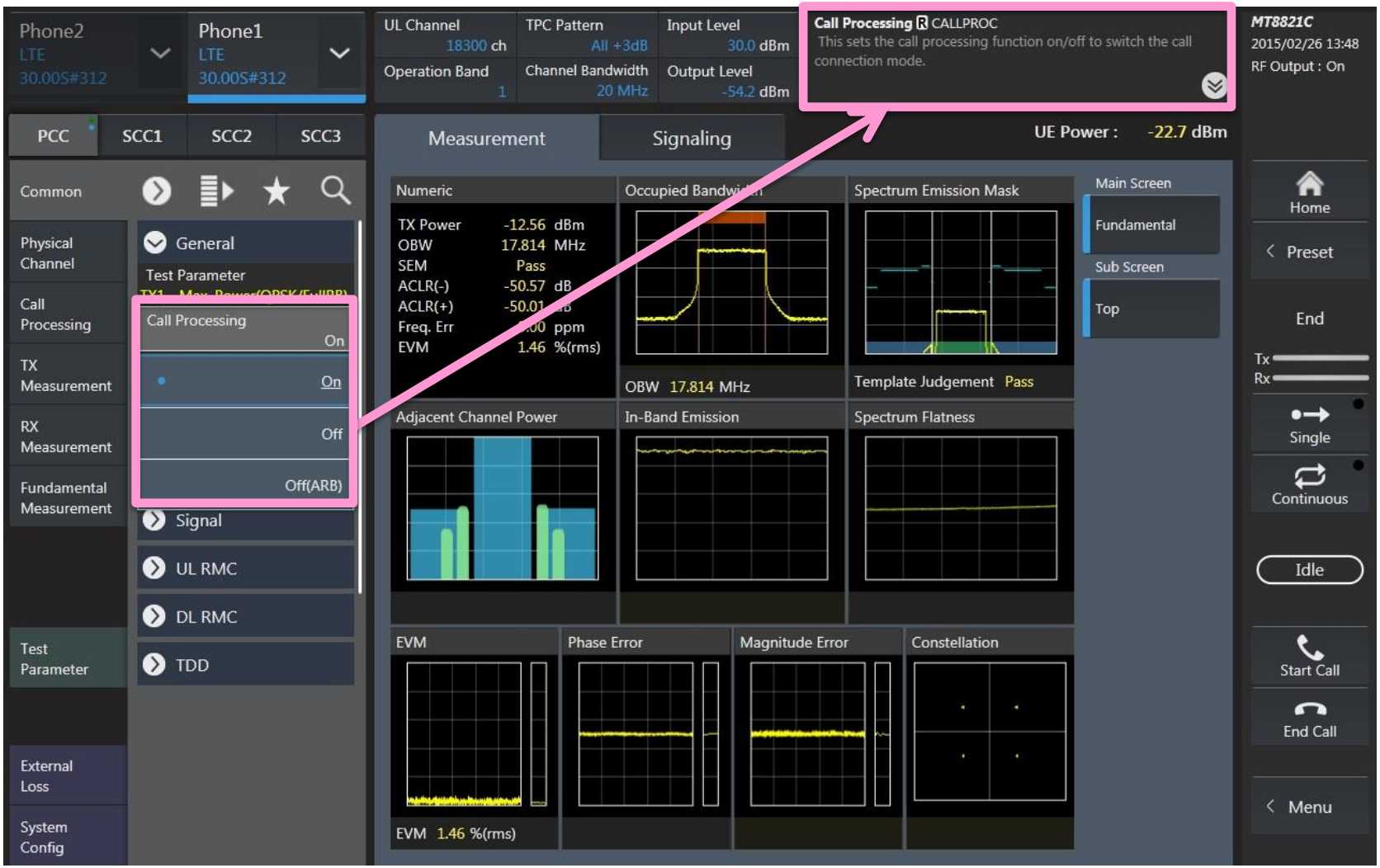
Parameter	Performance
Peak DL Rate	1 Mbps
Peak UL Rate	1 Mbps
MIMO	Not supported
Carrier Aggregation	Not supported
Duplex Mode	Full/Half*

*Half-duplex mode features to be added

Enhanced GUI: Measurement (All Results)

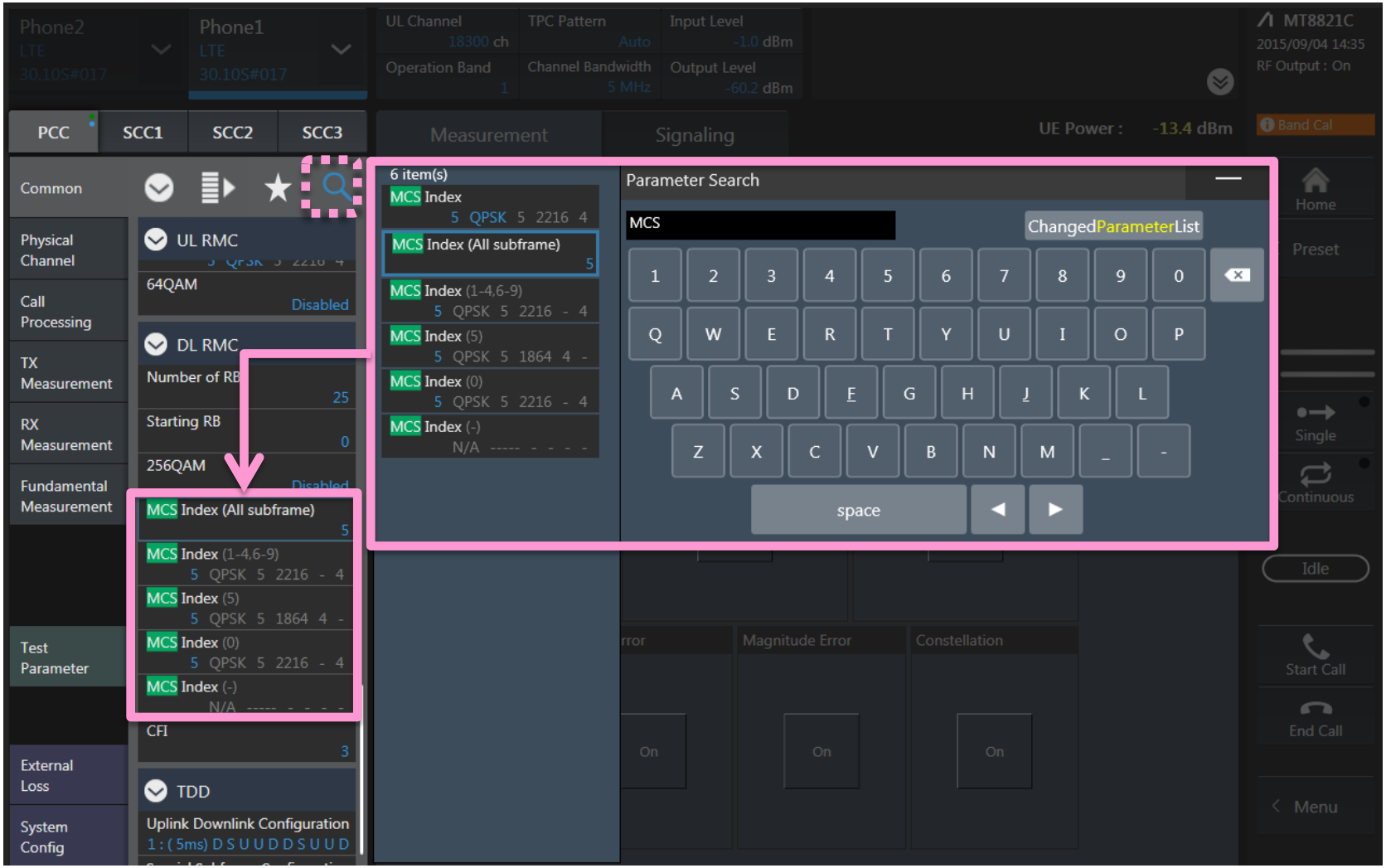
Enhanced GUI: Automatic Help Display

Touching the test parameter/measurement results displays an explanation or remote commands in the Help window.



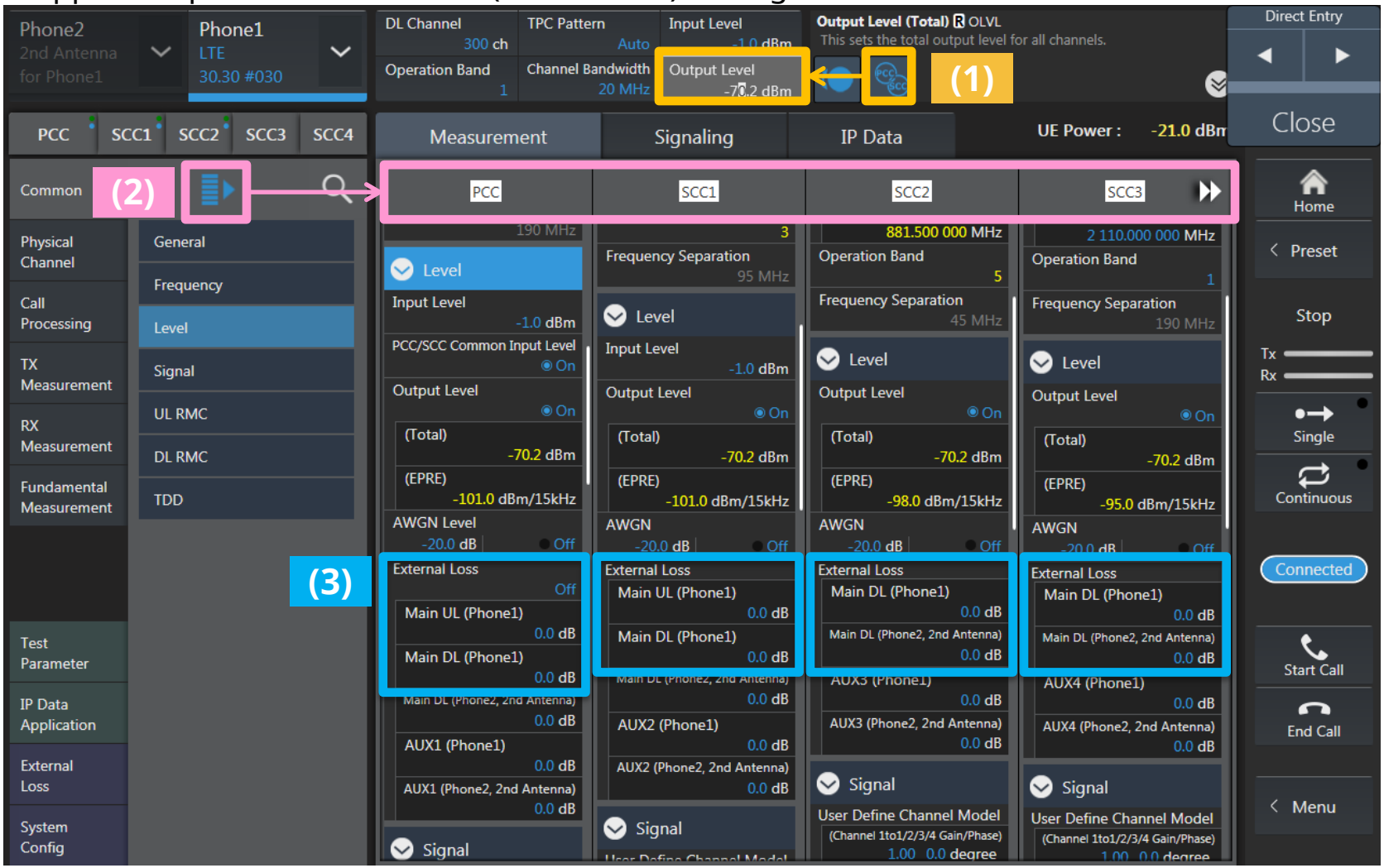
Enhanced GUI: Parameter Search

Parameters can be searched by text and settings can be changed.



Enhanced GUI: External Loss separate setting for each of the CC/ PCC,SCC Link setting

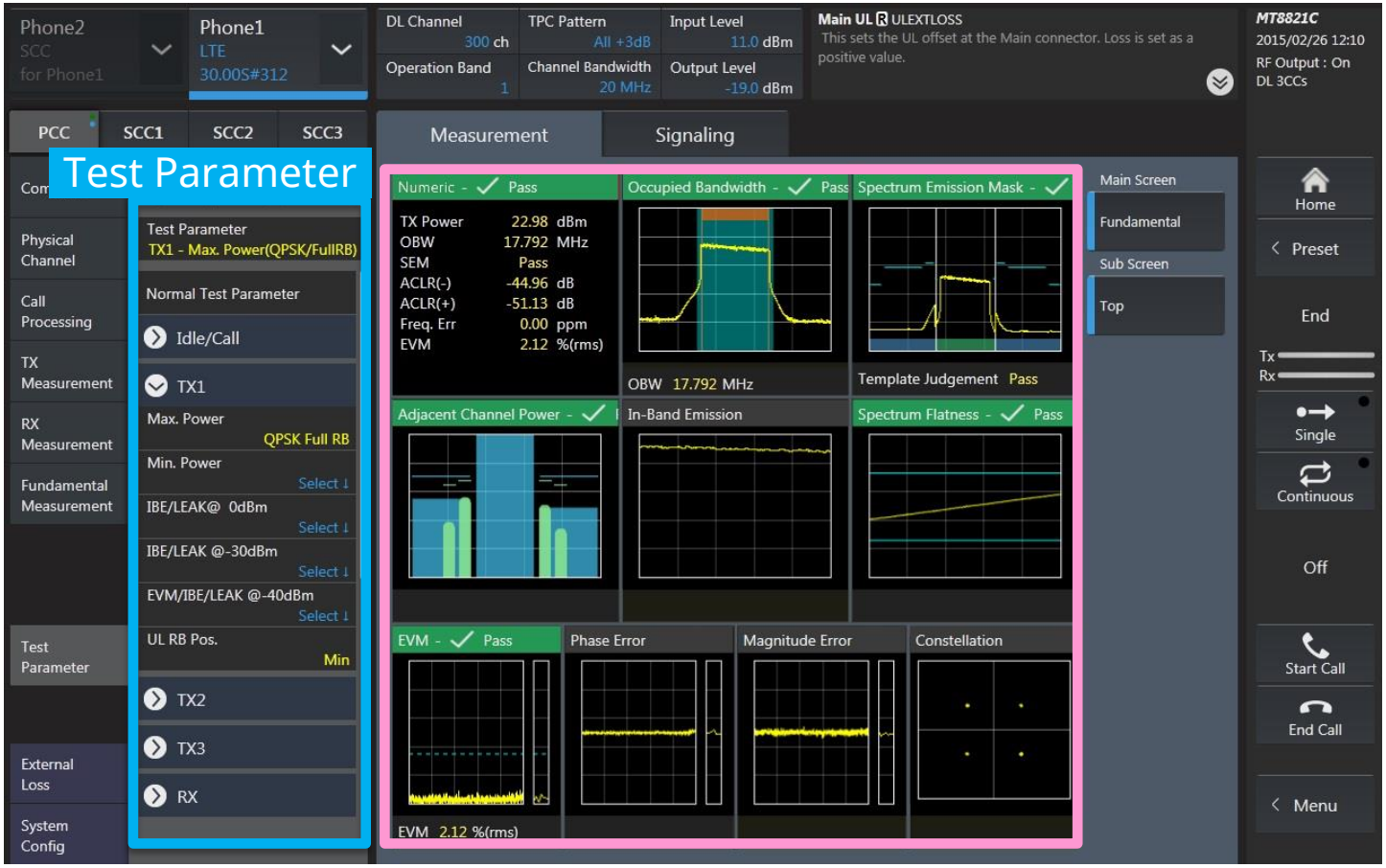
(1) Added function linking PCC and SCC parameter settings
(only some parameters, such as Output Level)
(2) Pressing list button at CA connection setting displays PCC and SCC settings simultaneously
(3) Supports separate External Loss (Main UL/DL) setting for each CC



RF TRX Measurement (Test Parameters)

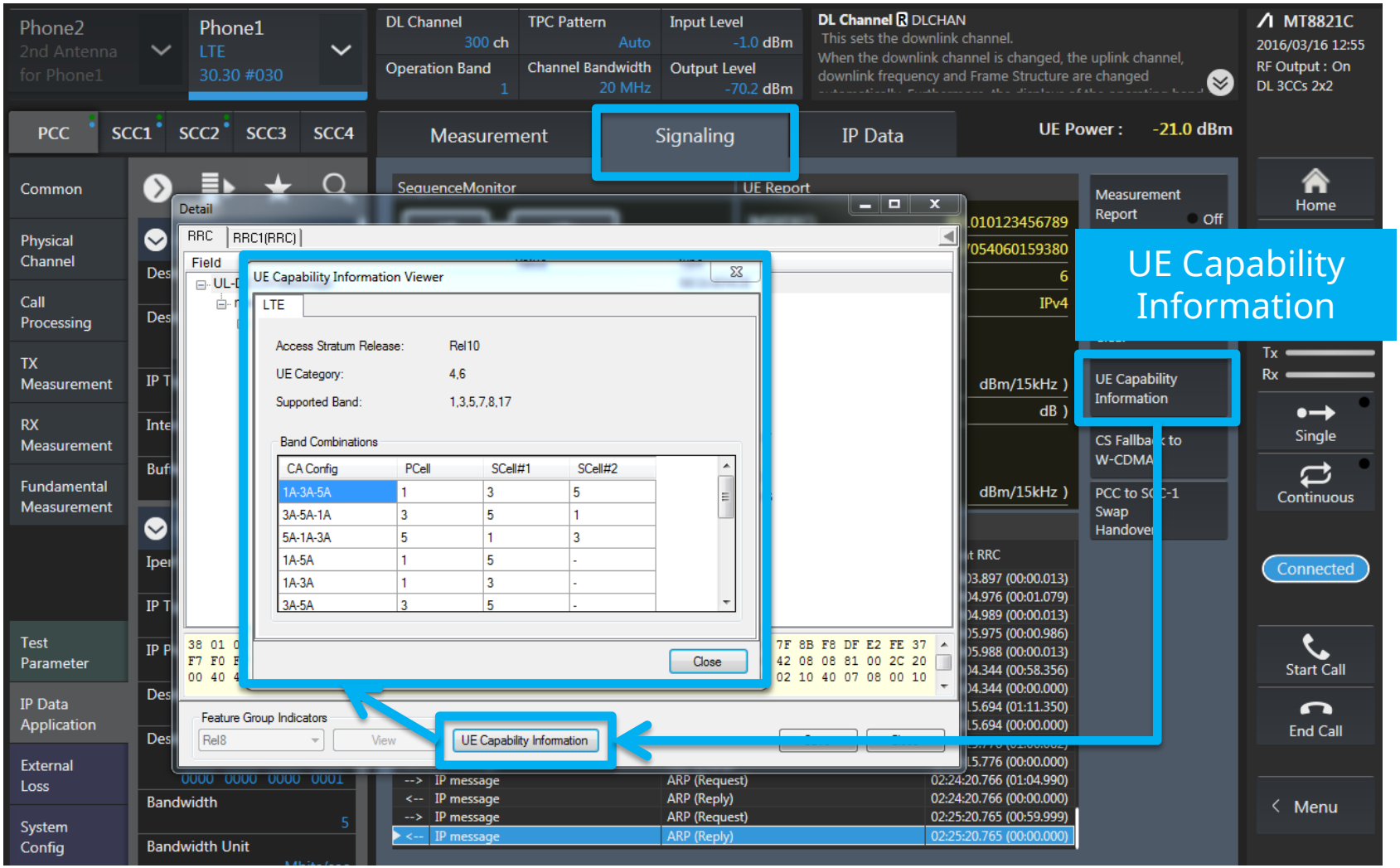
The MT8821C has a “Test Parameter” function for 3GPP RF tests.
It supports following features.

- One-button parameter setting for 3GPP RF TRX tests
- PASS/FAIL judgment



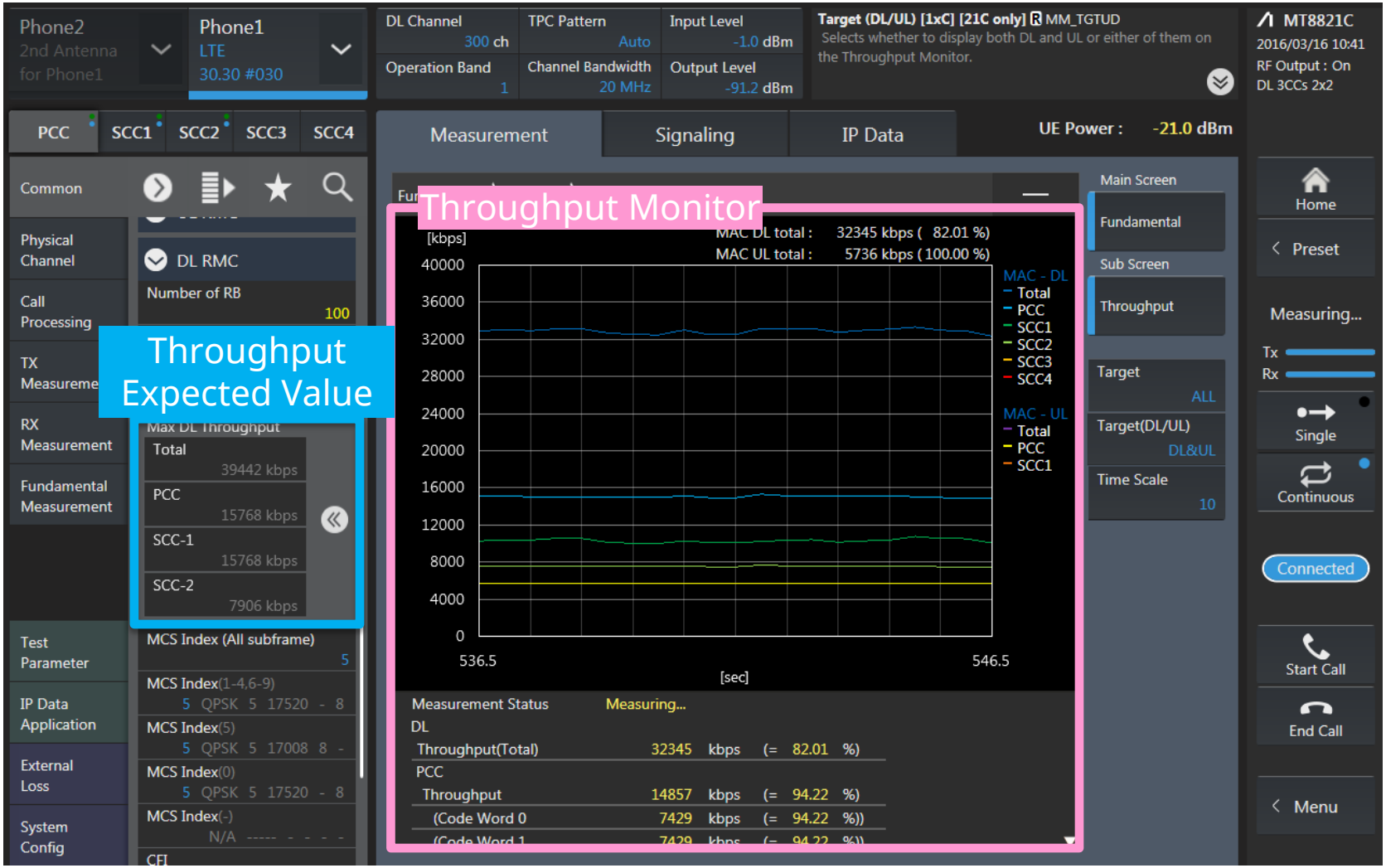
UE Capability Information

- Pressing the UE Capability Information button at the Result – Signaling tab displays a pop-up window to confirm the UE Capability (currently only supports up to Rel-11).
- In addition to message decode results, a list of Bands and Band Combinations supported by the UE can be displayed.



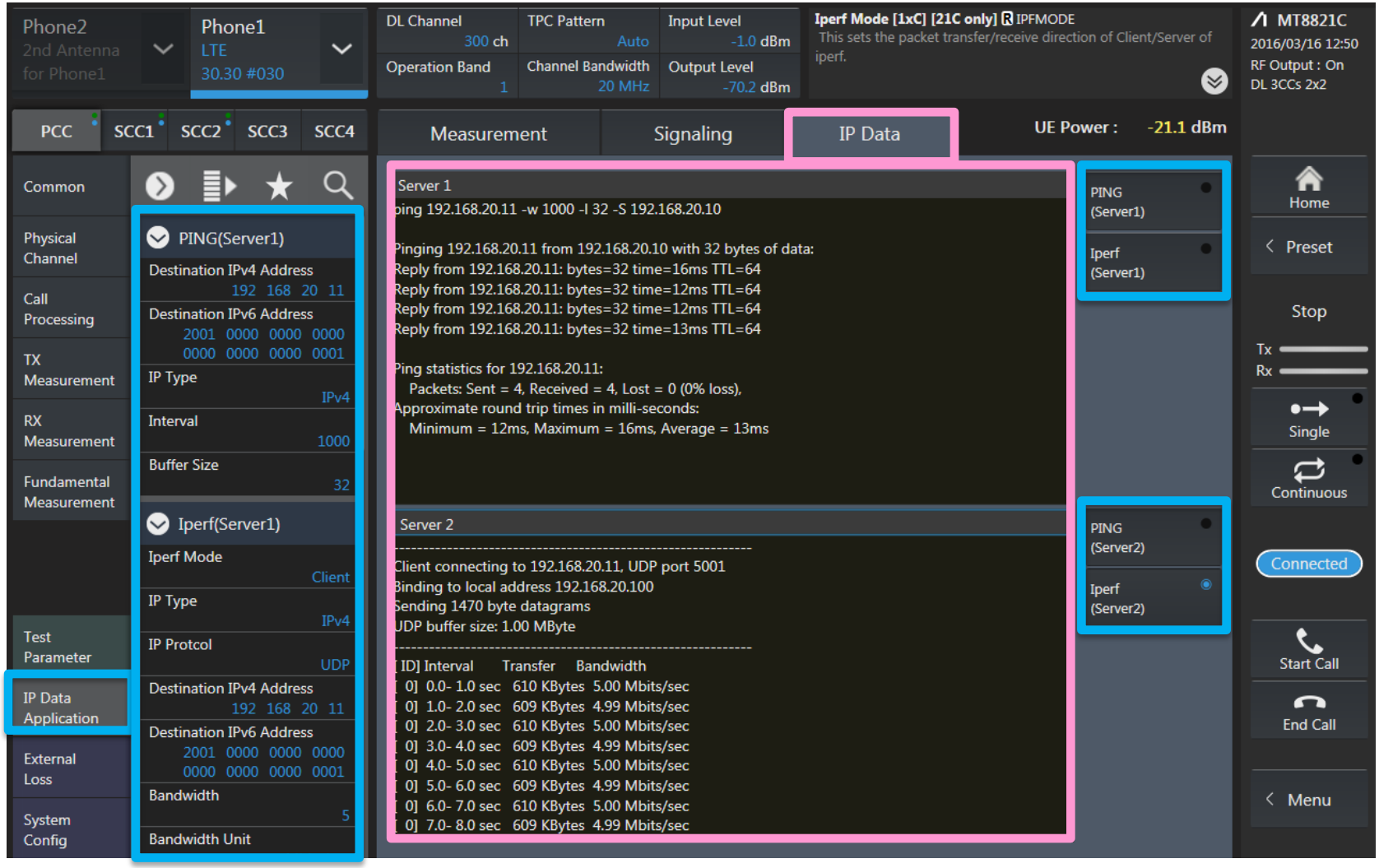
Throughput Monitor/Display Expected Throughput

The MAC layer Throughput measurement results can be displayed as a graph.
In addition, a function has been added for displaying expected Throughput values.



IP Data Application

Data Application (PING/Iperf) operations can be performed from the MT8821C GUI using the Result – IP Data tab. Settings are made at the Parameter – IP Data Application tab.

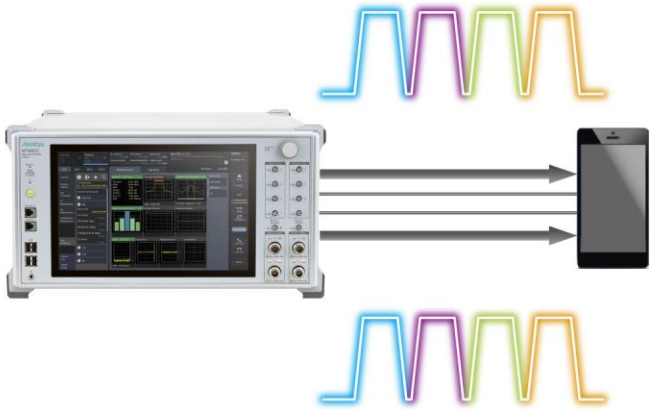


Internal RF Frontend

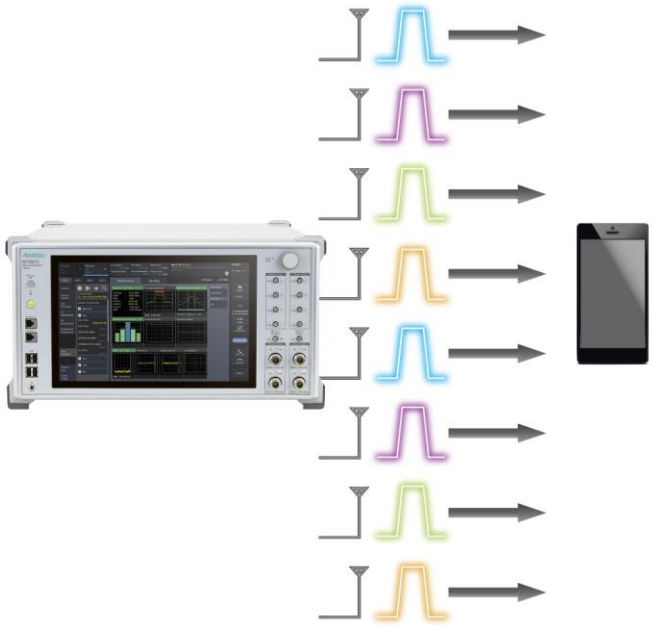
The MT8821C supports up to 8 TX RF (when AUX ports used).
It can also combine RF signals using the built-in RF frontend for LTE CA.

◆Combining RF signals

The following combination can be selected according to the customer's purpose.



[4CC 2x2 MIMO for throughput measurement]



[4CC 2x2 MIMO for OTA]

Multi-RAT Measurement

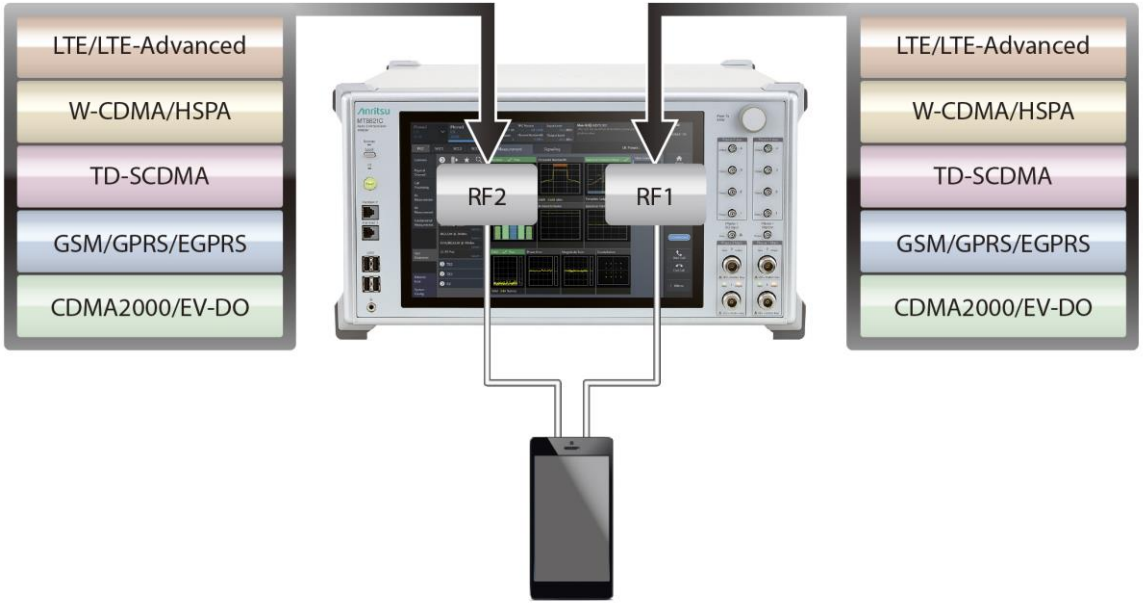
One MT8821C can perform two measurements simultaneously. Anritsu calls this function Parallelphone Measurement or PPM.
It supports simultaneous and independent testing of two UEs.

The MT8821C supports the following tests.

- SGLTE/SVLTE

- DSDA

- RRM (Inter-RAT measurement)



Compatibility with MT8820C

The MT8821C is compatible with MT8820C functions, performance, remote commands, etc. Previously developed control software and test sequences can be used with the MT8821C.

- **Reduces costs for test equipment and test environment configuration**
- **No risks rebuilding existing LTE and 3G/2G test environment**

Compatibility
- Functions and performance
- Remote commands

MT8820C

Control software and test environment can be reutilized.

MT8821C

MT8821C Options

Hardware No.	Hardware Name
MT8821C	Radio Communication Analyzer
MT8821C-001	W-CDMA Measurement Hardware
MT8821C-002	TDMA Measurement Hardware
MT8821C-003	CDMA2000 Measurement Hardware
MT8821C-005	1xEV-DO Measurement Hardware
MT8821C-007	TD-SCDMA Measurement Hardware
MT8821C-008	LTE Measurement Hardware
MT8821C-011	Audio Board
MT8821C-012	Parallel Phone Measurement Hardware
MT8821C-019	Extended RF 3.8GHz - 6GHz
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-043	CDMA2000 Time Offset CAL for GPS SG

Software No.	Software Name
MX882100C	W-CDMA Measurement Software
MX882100C-001	W-CDMA Voice Codec
MX882100C-002	W-CDMA External Packet Data
MX882100C-003	W-CDMA Video Phone Test
MX882100C-005	W-CDMA A-GPS
MX882100C-019	WCDMA HSPA Measurement Software
MX882100C-032	DC-HSDPA Measurement Software
MX882100C-033	DC-HSUPA Measurement Software
MX882100C-034	4C-HSDPA Measurement Software
MX882170C	W-CDMA Ciphering Software
MX882101C	GSM Measurement Software
MX882101C-001	GSM Voice Codec
MX882101C-002	GSM External Packet Data
MX882101C-005	GSM A-GPS
MX882101C-011	EGPRS Measurement Software
MX882102C	CDMA2000 Measurement Software
MX882102C-001	CDMA2000 Voice Codec
MX882102C-002	CDMA2000 External Packet Data
MX882106C	1xEV-DO Measurement Software
MX882106C-002	1xEV-DO External Packet Data
MX882107C	TD-SCDMA Measurement Software
MX882107C-001	TD-SCDMA Voice Codec
MX882107C-002	TD-SCDMA External Packet Data
MX882107C-003	TD-SCDMA Video Phone Test
MX882107C-011	TD-SCDMA HSDPA Measurement Software
MX882107C-012	TD-SCDMA HSDPA Evolution Measurement Software
MX882107C-021	TD-SCDMA HSUPA Measurement Software

Software No.	Software Name
MX882112C	LTE FDD Measurement Software
MX882112C-006	LTE FDD IP Data Transfer
MX882112C-011	LTE FDD 2x2 MIMO DL
MX882112C-012	LTE FDD 4x4 MIMO DL
MX882112C-016	LTE FDD CS Fallback to W-CDMA/GSM
MX882112C-017	LTE FDD CS Fallback to CDMA2000
MX882112C-021	LTE-Advanced FDD DL CA Measurement Software
MX882112C-022	LTE-Advanced FDD UL CA Measurement Software
MX882112C-026	LTE-Advanced FDD DL CA IP Data Transfer
MX882112C-031	LTE-Advanced FDD DL CA 3CCs Measurement Software
MX882112C-036	LTE-Advanced FDD DL CA 3CCs IP Data Transfer
MX882112C-041	LTE-Advanced FDD DL CA 4CCs Measurement Software
MX882112C-046	LTE-Advanced FDD DL CA 4CCs IP Data Transfer
MX882112C-051	LTE-Advanced FDD DL CA 5CCs Measurement Software
MX882113C	LTE TDD Measurement Software
MX882113C-006	LTE TDD IP Data Transfer
MX882113C-011	LTE TDD 2x2 MIMO DL
MX882113C-012	LTE TDD 4x4 MIMO DL
MX882113C-016	LTE TDD CS Fallback to W-CDMA/GSM
MX882113C-017	LTE TDD CS Fallback to CDMA2000
MX882113C-018	LTE TDD CS Fallback to TD-SCDMA/GSM
MX882113C-021	LTE-Advanced TDD DL CA Measurement Software
MX882113C-022	LTE-Advanced TDD UL CA Measurement Software
MX882113C-026	LTE-Advanced TDD DL CA IP Data Transfer
MX882113C-031	LTE-Advanced TDD DL CA 3CCs Measurement Software
MX882113C-036	LTE-Advanced TDD DL CA 3CCs IP Data Transfer
MX882113C-041	LTE-Advanced TDD DL CA 4CCs Measurement Software
MX882113C-046	LTE-Advanced TDD DL CA 4CCs IP Data Transfer
MX882113C-051	LTE-Advanced TDD DL CA 5CCs Measurement Software
MX882115C	W-CDMA HSPA IP Data Transfer
MX882115C-001	W-CDMA DC-HSPA IP Data Transfer
MX882120C	SEQ Measurement Software
MX882120C-001	W-CDMA Measurement Software
MX882120C-002	GSM Measurement Software
MX882120C-003	CDMA2000 Measurement Software
MX882120C-004	LTE Measurement Software
MX882120C-005	TD-SCDMA Measurement Software
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

* Red are MT8821C new options.
* Blue consolidate some MT8820C options.

MT8820C to MT8821C Upgrade

The MT8821C is upgradeable from the MT8820C. The existing MT8820C hardware and all measurement software can be re-used to make the most efficient use of your investment.

MT8820C

Hardware
Software

Upgrade kit

MT8821C

MT8821C Specifications

Parameter	Specification
Frequency Range	30 MHz to 3.8 GHz (3.8 GHz to 6.0 GHz Option)
Interface	Main: RF In/Out (Max. 4 ports) Aux: RF Out (Max. 8 ports)
Output Level (CW)	–140 to –10 dBm (Main) –125 to +5 dBm (Aux)
Output Level (LTE)	–140 to –12 dBm (Main, LTE 1CC case) –140 to –18 dBm (Main, each CC in 4CCs case) –125 to +3 dBm (Aux)
VSWR	<1.4 (30 MHz to 300 MHz), <1.3 (300 MHz to 3.8 GHz), <1.6 (3.8 GHz to 6 GHz)
Bandwidth	Generator bandwidth: 160 MHz Analyzer bandwidth: 160 MHz
System	- LTE FDD/TDD - LTE CA (DL CA 5CCs (with SISO) / DL CA 4CCs (with 2x2 MIMO) / DL CA 2CCs (with 4x4 MIMO) / UL CA 2CCs, LTE in unlicensed spectrum : 5 GHz) - W-CDMA/HSPA/HSPA Evolution/(DB-)DC-HSDPA/4C-HSDPA/DC-HSUPA - GSM/GPRS/EGPRS - CDMA2000/EV-DO - TD-SCDMA/HSPA/HSDPA Evolution
Remote Control	Ethernet, GPIB
GUI	Windows 7 OS, touch panel, USB interface
Dimensions	426 (W) × 221.5 (H) × 578 (D) mm (excluding protrusions)

Blue indicates improvements over the MT8820C

APPENDIX

MT8821C vs. MT8820C

	MT8821C	MT8820C
Frequency Range	30 MHz to 6.0 GHz (3.8 GHz to 6.0 GHz Option)	30 MHz to 2.7 GHz, 3.4 GHz to 3.8 GHz (3.4 GHz to 3.8 GHz Option)
Interface	Main: RF In/Out (Max. 4 ports) Aux: RF Out (Max. 8 ports)	Main: RF In/Out (Max. 2 ports) Aux: RF Out (Max. 2 ports)
Output Level	–140 to –10 dBm (Main) –125 to +5 dBm (Aux)	–140 to – 10 dBm (Main) –130 to 0 dBm (Aux)
Bandwidth	Generator bandwidth: 160 MHz Analyzer bandwidth: 160 MHz	Generator bandwidth: 25 MHz Analyzer bandwidth: 25 MHz
System	- LTE FDD/TDD - LTE CA (DL CA 5CCs (with SISO) / DL CA 4CCs (with 2x2 MIMO) / DL CA 2CCs (with 4x4 MIMO) / UL CA 2CCs / LTE in unlicensed spectrum : 5 GHz) - WCDMA/HSPA/HSPA Evolution/ (DB-)DC-HSDPA/4C-HSDPA/DC-HSUPA - GSM/GPRS/EGPRS - CDMA2000/EVDO - TD-SCDMA/HSPA/HSDPA Evolution	- LTE FDD/TDD (up to 2x2 MIMO) - LTE CA (DL 3CC + 2x2 MIMO by 3units/ UL 2CC) - WCDMA/HSPA/HSPA Evolution/ (DB-)DC-HSDPA/4C-HSDPA/DC-HSUPA - GSM/GPRS/EGPRS - CDMA2000/EVDO - TD-SCDMA/HSPA/HSDPA Evolution
GUI	Windows 7 OS, touch panel, USB interface	Unix OS, key panel, CF interface
Dimensions	426 (W) × 221.5 (H) × 578 (D) mm (excluding protrusions)	426 (W) × 221.5 (H) × 498 (D) mm (excluding protrusions)

Anritsu

envision : ensure

公知 2016-5 MG No. MT8821C-E-L-1-(4.00)