Product Introduction

Anritsu

MT8820C

Radio Communication Analyzer

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Radio Communication Analyzer
Product Introduction

~ All-in-one tester for developing and manufacturing LTE mobile terminals ~

Version 9.00
December 2014

ANRITSU CORPORATION

Contents

What is MT8820C?

What is MT8820C?

New All-in-One Test Platform Supporting LTE-Advanced CA and Compatibility with Existing 3G/2G

The MT8820C is Anritsu's new all-in-one test platform for R&D and manufacturing of LTE/2G/3G UE (User Equipment); it is based on the popular MT8820B for the 2G/3G market.

The MT8820C supports manufacturing of LTE-Advanced DL CA mobiles, including RF calibration, RF parametric testing, and functional tests. It is backwards compatible with the MT8820B/15B.

It supports LTE-Advanced DL CA/3G/2G UE RF development as well as manufacturing of multi-systems. Backwards compatibility with the MT28820A/B helps reduce setup times and the MT8820B to MT8820C upgrade option cuts installation costs.

Key Features

Supports 2G/3G to LTE with Signalling

LTE-Advanced CA*3/LTE
W-CDMA/HSPA/HSPA Evolution/DC-HSPA/4C-HSDPA
GSM/GPRS/EGPRS
CDMA2000*1 1X/1xEV-DO Rev. A
TD-SCDMA/HSPA/HSDPA Evolution
PHS/ADVANCED PHS

- **Excellent TD-SCDMA functions**
- **Backwards compatibility with MT8820A/B**
- **Supports all manufacturing processes**
- **Parallelphone™ Measurement*2**
- **MT8820B to MT8820C Upgrade**

*1: CDMA2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).
*2: Parallelphone™ is a registered trademark of Anritsu Corporation.
*3: Please contact our sales representative about LTE-Advanced CA and LTE(FDD/TDD).

All-In-One LTE/3G/2G UE Development and Manufacturing

The all-in-one MT8820C supporting all test functions, including signalling, is the ideal solution for LTE/3G/2G UE R&D and manufacturing. It saves both costs and space over other solutions and, in addition to fully supporting LTE-Advanced CA from the first product roll-out, also supports 3G/2G, because it is based on the popular MT8820B.

- GSM/GPRS/EGPRS
- W-CDMA/HSPA/HSPA Evolution
- CDMA2000/1x EVDO Rev. A
- TD-SCDMA/HSPA
- PHS/ADVANCED PHS

- **LTE-Advanced DL CA/LTE**
- GSM/GPRS/EGPRS
- W-CDMA/HSPA/HSPA Evolution/DC-HDPA/4C-HSDPA
- CDMA2000/1x EVDO Rev. A
- TD-SCDMA/HSPA/HSDPA Evolution
- PHS/ADVANCED PHS

Supports All Manufacturing Processes

The MT8820C solution supports all tests ranging from RF parametric to UE function and performance tests.

Function and Performance Tests

- Voice Call, Video Call
- External Packet Data
- Current Consumption

RF Parametric Tests

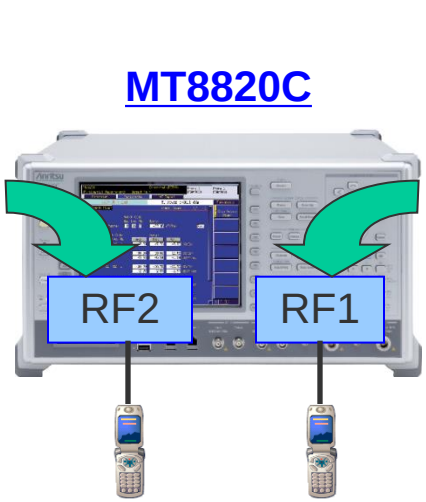
- UE Transmitter Test
- UE Receiver Test
- Signalling/Non-Signalling Mode
- UE Calibration

MT8820C

Cost and Space Saving Parallelphone Measurements

Using Parallelphone Measurement (PPM), one MT8820C can test two mobiles simultaneously and independently, cutting costs and saving space.

W-CDMA HSPA HSPA Evolution
GSM GPRS EGPRS
CDMA2000 1X 1xEV-DO Rev.A
TD-SCDMA HSPA HSDPA Evolution
LTE FDD/TDD



W-CDMA HSPA HSPA Evolution
GSM GPRS EGPRS
CDMA2000 1X 1xEV-DO Rev.A
TD-SCDMA HSPA HSDPA Evolution
LTE FDD/TDD

For example, two GSM mobiles can be tested simultaneously at RF1 and RF2, respectively.

*Since both phone terminals are occupied for LTE-Advanced FDD/TDD, 2x2 LTE MIMO and 4C-HSDPA/DC-HSPA, PPM measurements are not supported.

LTE FDD/TDD Features

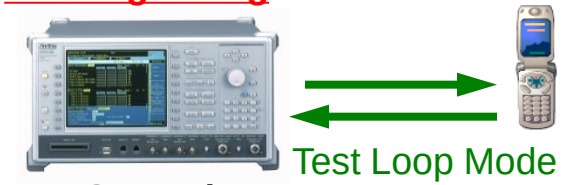
LTE FDD/TDD Options – 1/21

LTE Opt: with and without Signalling (DL Real Time)

The MT8820C can control the UE call processing to measure UE TX/RX characteristics in compliance with 3GPP test standards.

The MT8820C also supports non-call processing for RF Parametric Tests with the DL signal generated by real-time encoding. An external PC handles the UE test loop mode without signalling. This reduces test times.

With signalling



Test Loop Mode (Signalling)

UE Control
TX Measurement
Loopback Throughput

Without signalling

TX Measurement

UE Control
Single-end Throughput

MT8820C Radio Communication Analyzer
MT8820C-008 LTE Measurement Hardware
MX882012C LTE FDD Measurement Software

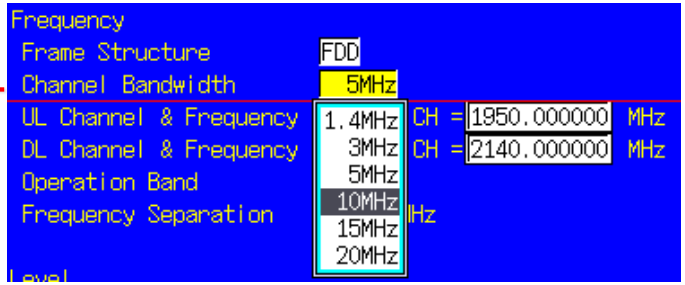
*The above option configuration shows LTE FDD.

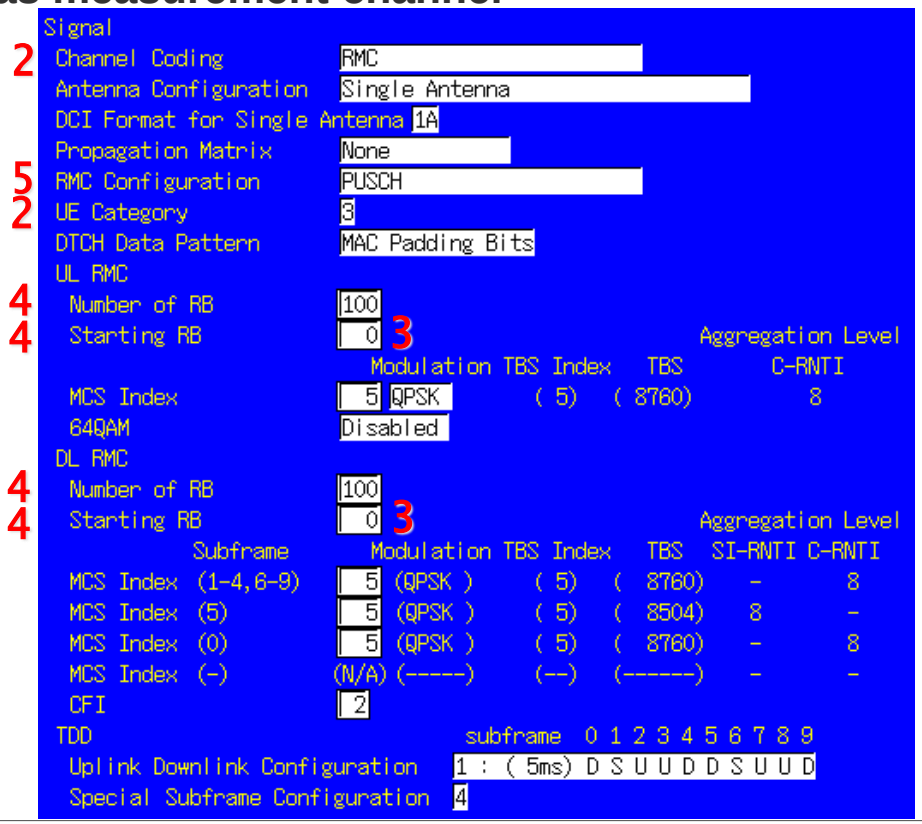
LTE FDD/TDD Options – 2/21

LTE: Example of parameters

As an example of parameter settings:

1. **Selectable Channel Bandwidth from 1.4/3/5/10/15/20 MHz**
2. **Supports FRC of UE Category 1 to 5 for TRX measurements at SISO connection**
3. **Supports QPSK and 16QAM modulation for uplink, and QPSK,16QAM and 64QAM for downlink**
4. **Settable Resource Block (RB) and start position**
5. **Selection of PUSCH or PUCCH as measurement channel**

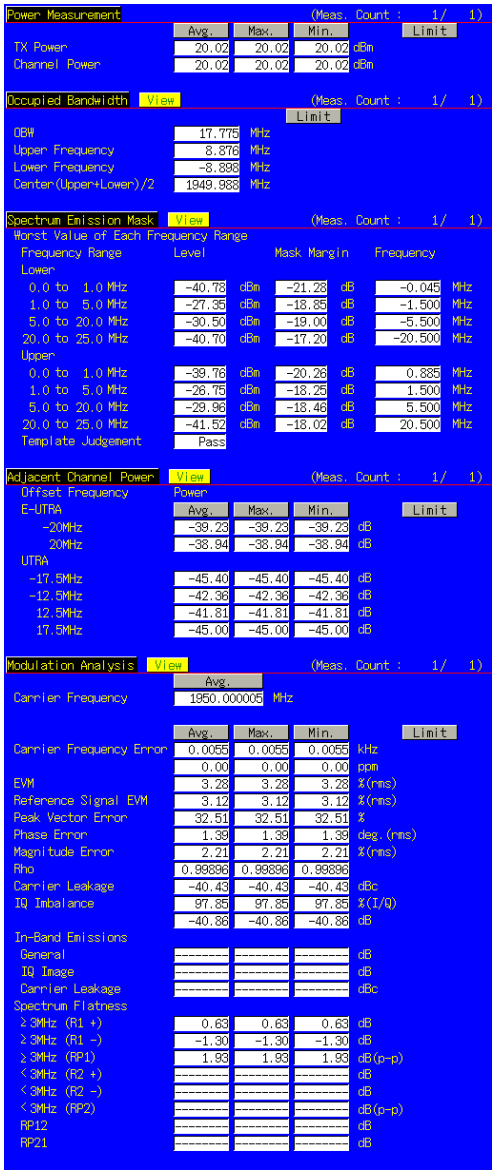




*The above example shows LTE FDD (MX882012C).

LTE FDD/TDD Options – 3/21

TX Measurements



Power Measurement (Meas. Count : 1/ 1)

	Avg.	Max.	Min.		Limit
TX Power	20.02	20.02	20.02	dBm	
Channel Power	20.02	20.02	20.02	dBm	

Occupied Bandwidth View (Meas. Count : 1/ 1)

			Limit
OBW	17.775	MHz	
Upper Frequency	8.876	MHz	
Lower Frequency	-8.898	MHz	
Center(Upper+Lower)/2	1848.988	MHz	

Spectrum Emission Mask View (Meas. Count : 1/ 1)

Worst Value of Each Frequency Range

Frequency Range	Level		Mask Margin		Frequency	
Lower						
0.0 to 1.0 MHz	-40.78	dBm	-21.28	dB	-0.045	MHz
1.0 to 5.0 MHz	-27.35	dBm	-18.85	dB	-1.500	MHz
5.0 to 20.0 MHz	-30.50	dBm	-19.00	dB	-5.500	MHz
20.0 to 25.0 MHz	-40.70	dBm	-17.20	dB	-20.500	MHz
Upper						
0.0 to 1.0 MHz	-39.76	dBm	-20.26	dB	0.885	MHz
1.0 to 5.0 MHz	-26.75	dBm	-18.25	dB	1.500	MHz
5.0 to 20.0 MHz	-29.96	dBm	-18.46	dB	5.500	MHz
20.0 to 25.0 MHz	-41.52	dBm	-18.02	dB	20.500	MHz
Template Judgement	Pass					

Adjacent Channel Power View (Meas. Count : 1/ 1)

Offset Frequency	Power				
E-UTRA	Avg.	Max.	Min.		Limit
-20MHz	-38.23	-38.23	-38.23	dB	
20MHz	-38.94	-38.84	-38.94	dB	
UTRA					
-17.5MHz	-45.40	-45.40	-45.40	dB	
-12.5MHz	-42.36	-42.36	-42.36	dB	
12.5MHz	-41.81	-41.81	-41.81	dB	
17.5MHz	-45.00	-45.00	-45.00	dB	

Modulation Analysis View (Meas. Count : 1/ 1)

	Avg.		
Carrier Frequency	1950.000005	MHz	

	Avg.	Max.	Min.		Limit
Carrier Frequency Error	0.0055	0.0055	0.0055	kHz	
	0.00	0.00	0.00	ppm	
EVM	3.28	3.28	3.28	%(rms)	
Reference Signal EVM	3.12	3.12	3.12	%(rms)	
Peak Vector Error	32.51	32.51	32.51	%	
Phase Error	1.39	1.39	1.39	deg.(rms)	
Magnitude Error	2.21	2.21	2.21	%(rms)	
Rho	0.99896	0.99896	0.99896		
Carrier Leakage	-40.43	-40.43	-40.43	dBc	
IQ Imbalance	97.85	97.85	97.85	%(I/Q)	
	-40.86	-40.86	-40.86	dB	
In-Band Emissions					
General	--------	--------	--------	dB	
IQ Image	--------	--------	--------	dB	
Carrier Leakage	--------	--------	--------	dBc	
Spectrum Flatness					
≥3MHz (R1 +)	0.63	0.63	0.63	dB	
≥3MHz (R1 -)	-1.30	-1.30	-1.30	dB	
≥3MHz (RP1)	1.93	1.93	1.93	dB(p-p)	
<3MHz (R2 +)	--------	--------	--------	dB	
<3MHz (R2 -)	--------	--------	--------	dB	
<3MHz (RP2)	--------	--------	--------	dB(p-p)	
RP12	--------	--------	--------	dB	
RP21	--------	--------	--------	dB	

Power Measurement

Occupied Bandwidth

Spectrum Emission Mask

Adjacent Channel Power Ratio

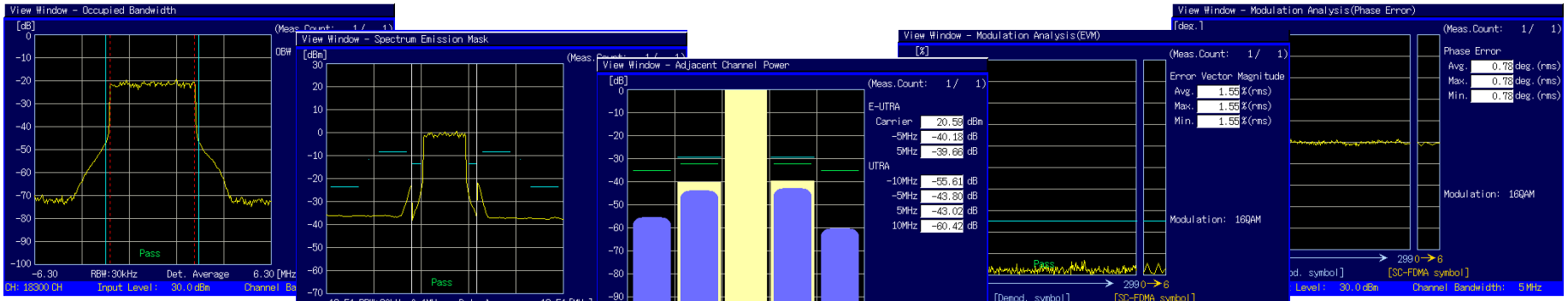
Modulation Analysis
- ***Frequency Error***
- ***EVM***
- ***Phase Error***
- ***Magnitude Error***
- ***Carrier Leakage***
- ***In-Band Emissions***
- ***Spectrum Flatness***

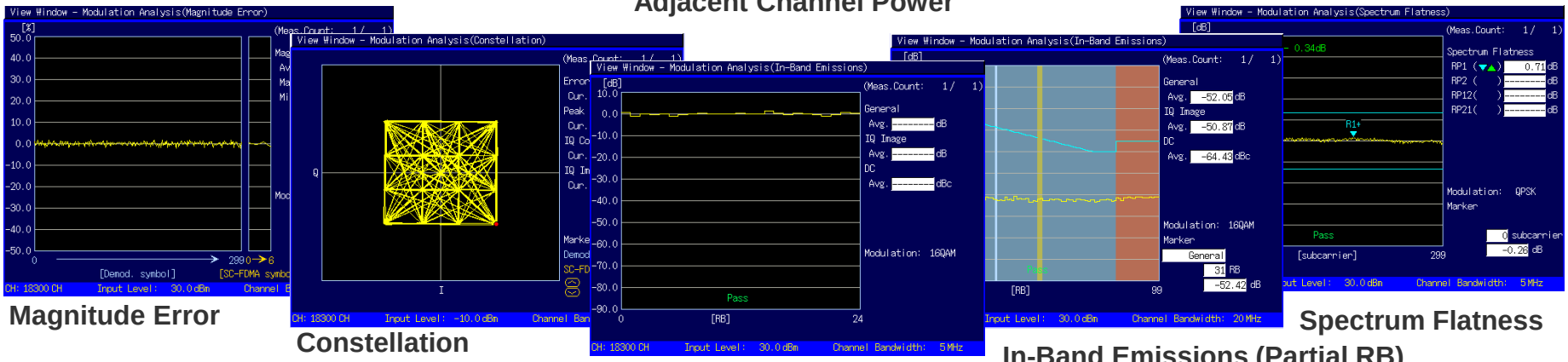
*MX882012C example

LTE FDD/TDD Options – 4/21

Screen Views – 1/2

The LTE FDD option supports various screens, such as Occupied Bandwidth, Spectrum Emission Mask, Adjacent Channel Power and Modulation Analysis (EVM, Phase Error, Magnitude Error Constellation, In-Band Emissions and Spectrum Flatness) for verifying detailed RF characteristics.





*The above example shows LTE FDD (MX882012C).

LTE FDD/TDD Options – 5/21

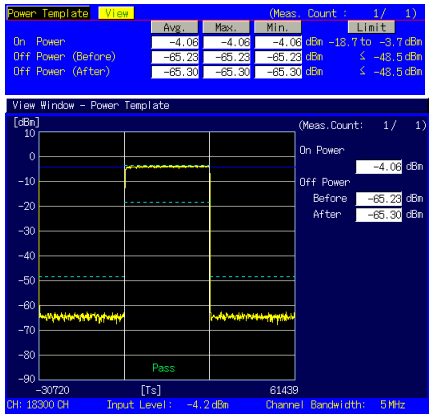
Screen Views – 2/2

TX Measurement - Power Control Tolerance/Power Template

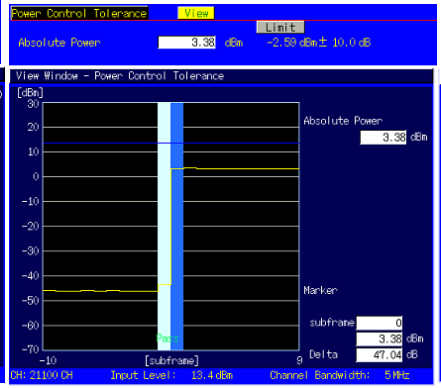
The following items are difficult to execute without call processing, because conditions during communications are controlled by signaling messages, but the MT8820C makes these tests very easy.

- **6.2.5 Configured UE Transmitted Output Power**
- **6.3.4.1 General ON/OFF time mask***
- **6.3.5.1 Power Control Absolute power tolerance**
- **6.3.5.2 Power Control Relative power tolerance**
- **6.3.5.3 Aggregate power control tolerance**

*2010-06 version already supported.

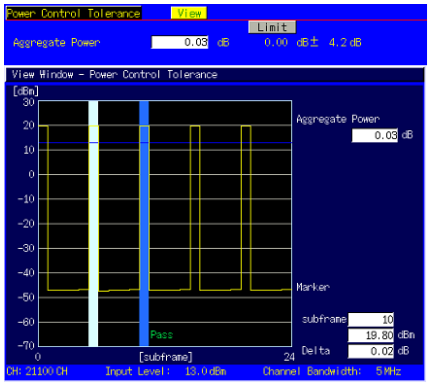


Power Template



Absolute Power

Relative Power

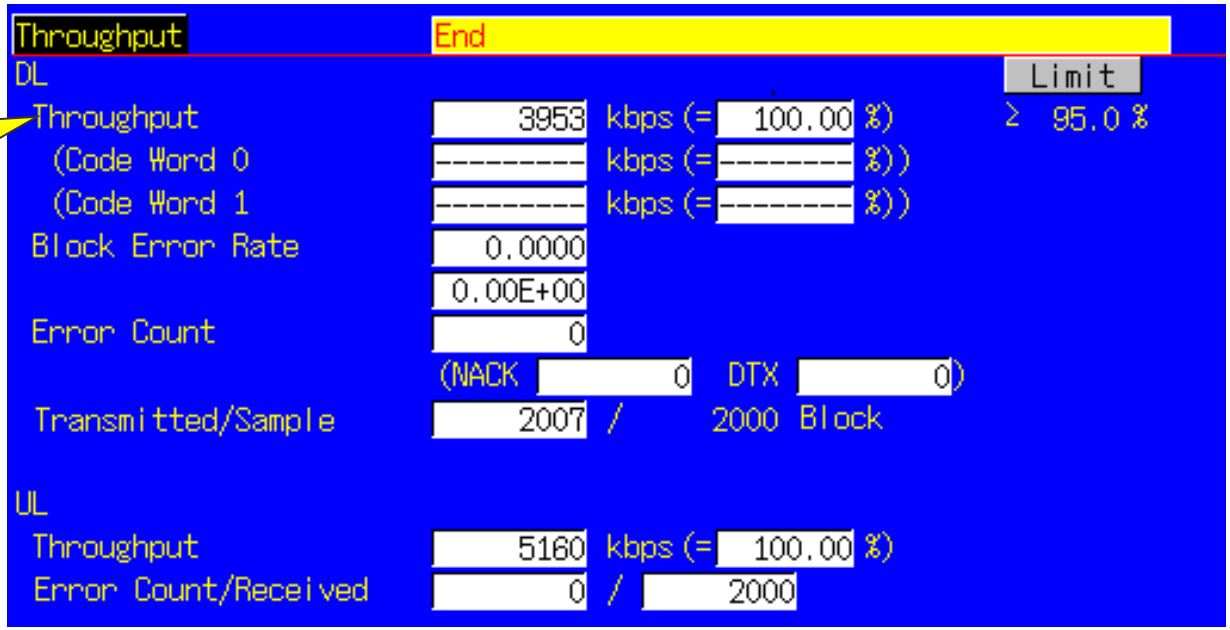


Aggregate Power

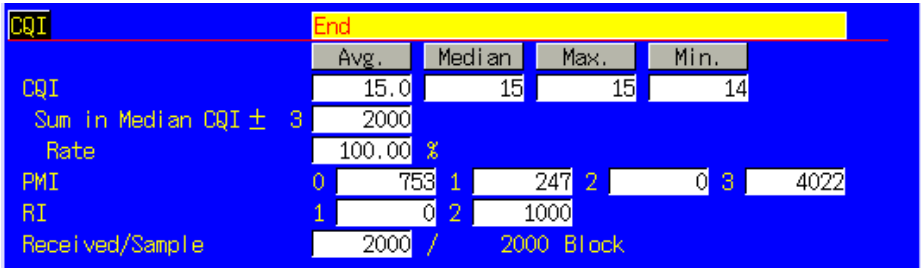
RX Measurements

RX Measurements – RF Throughput

Example: Single antenna, 10 MHz BW



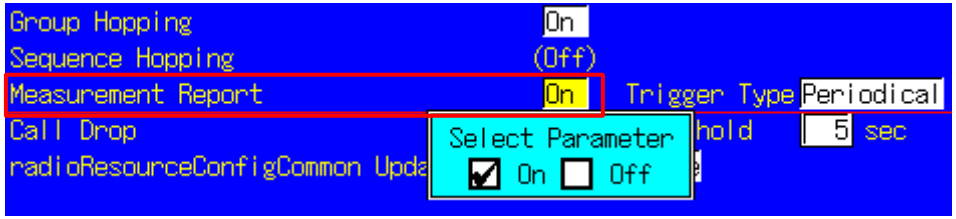
RX Measurements – CQI

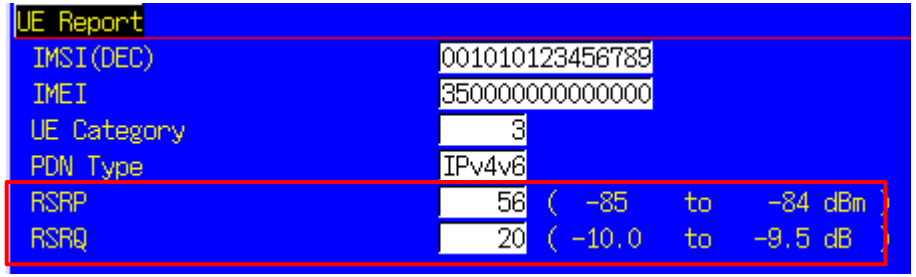


*The above example shows LTE FDD (MX882012C).

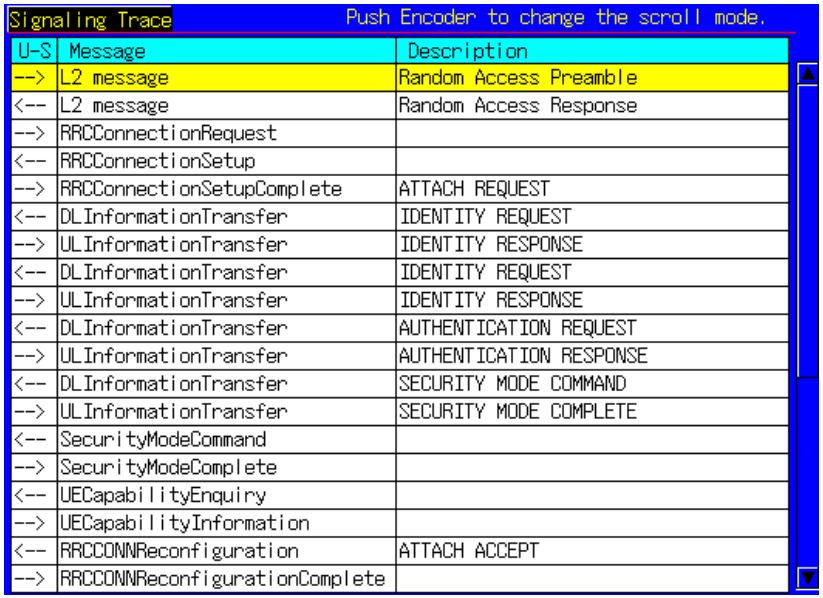
Other Functions

Measurement Report – RSRP/RSRQ





Signalling Trace

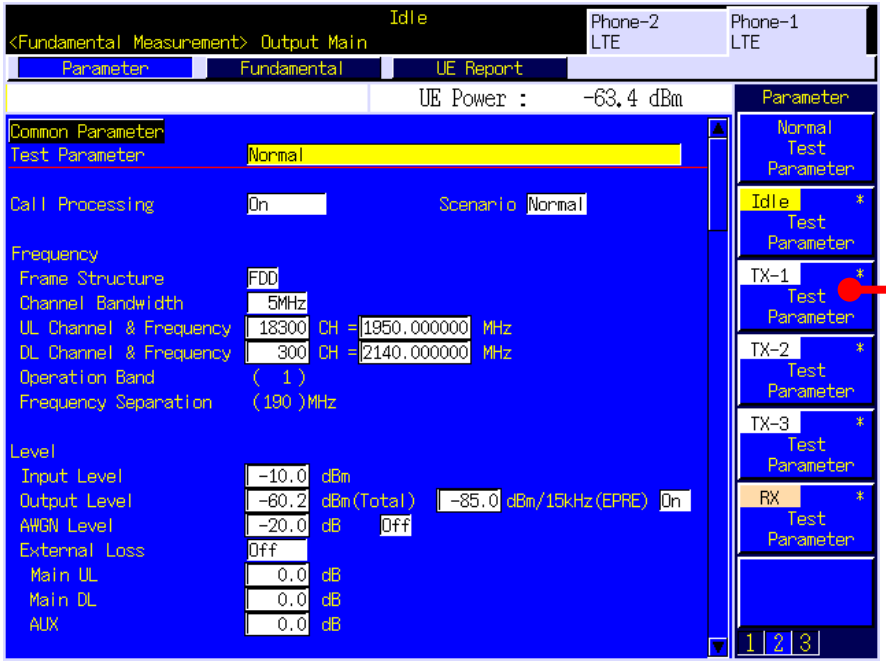


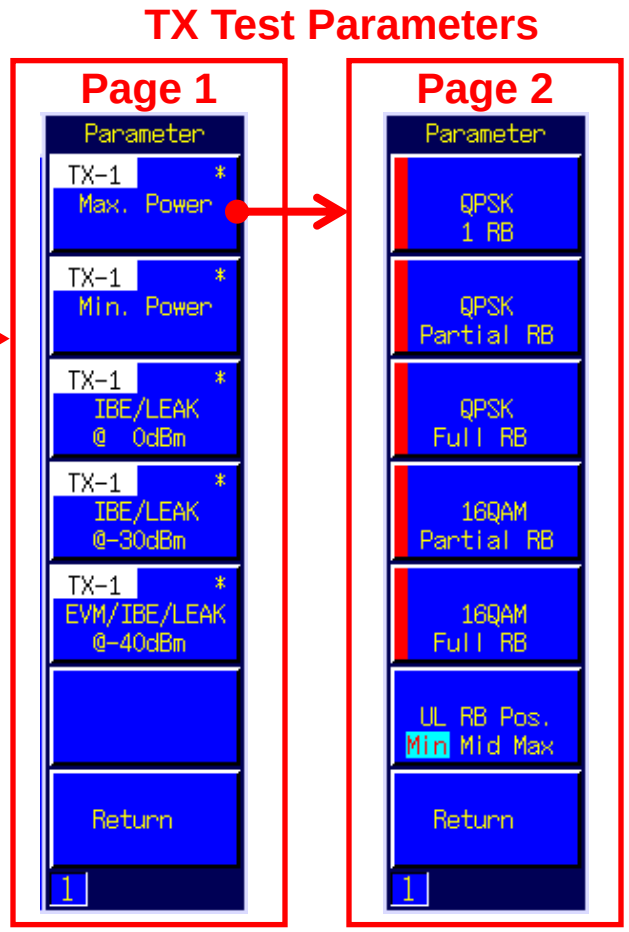
*The above example shows LTE FDD (MX882012C).

LTE FDD/TDD Options – 8/21

One-touch 3GPP TS36.521-1 Settings – 1/3

One-touch setting supports the main 3GPP 36.521-1 TX test conditions, eliminating complex parameter settings and providing easy standard tests. In addition, GPIB commands offer simple and fast control.

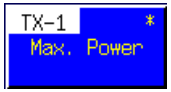




*MX882012C example

LTE FDD/TDD Options – 9/21

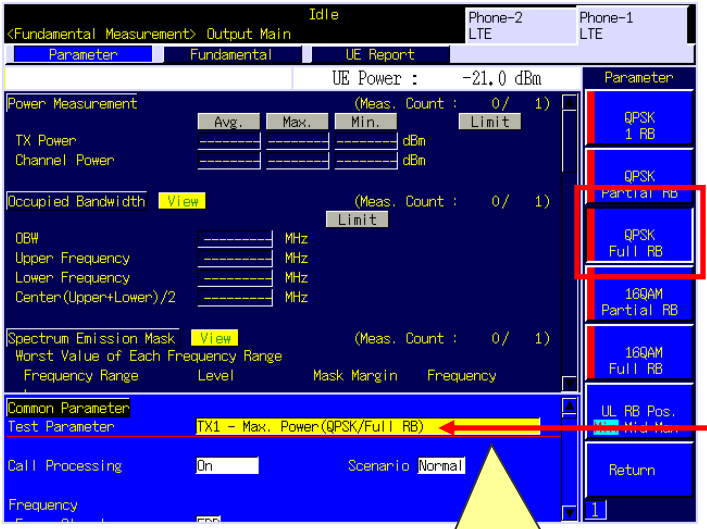
One-touch 3GPP TS36.521-1 Settings – 2/3

For example, pressing 

, 

sets the parameters to measure the UE maximum output (QPSL Full RB) automatically and simultaneously. The overall evaluation, and pass/fail items (displayed in red) can be seen at a glance at measurement completion.

Setting



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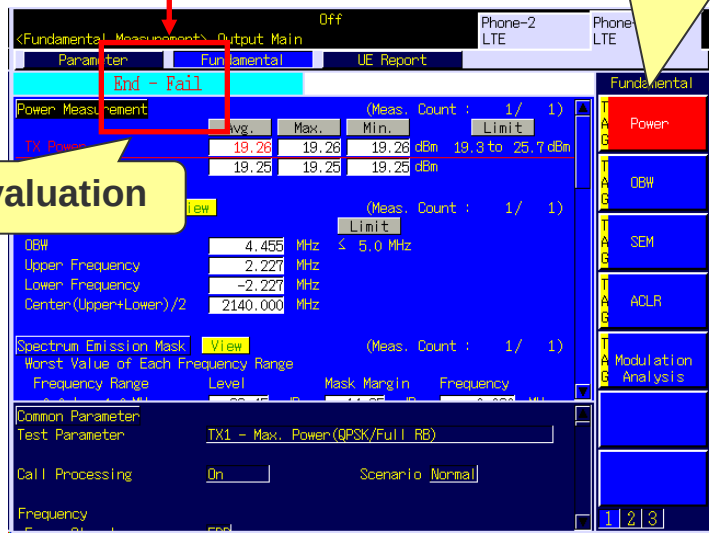
Measuring

Single

Result



Failed Items (Red)

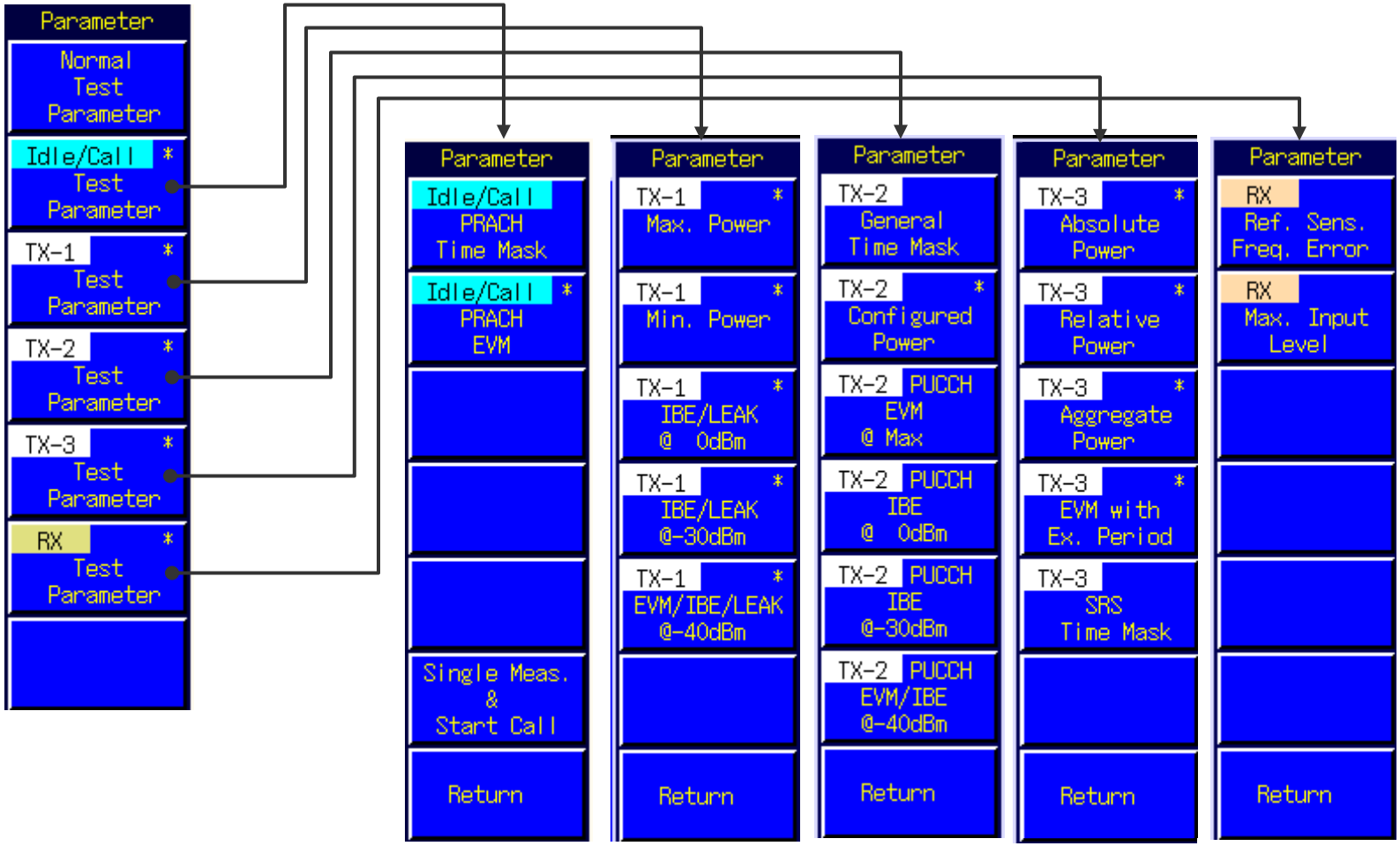
Overall Evaluation

Sets Related Parameters and Measurement Items

*MX882012C example

One-touch 3GPP TS36.521-1 Settings – 3/3

All One-touch keys



*The above example shows LTE FDD (MX882012C).

LTE FDD/TDD Options – 11/21

MT8820C Specifications

Parameter	Specification
Frequency Range	30 MHz to 2.7 GHz(3.4 GHz to 3.8 GHz Option)
Interface	MAIN: RF In/Out (Standard 1 port, max. 2 ports) AUX: RF Out (Standard 1 port, max. 2 ports)
System	- LTE-Advanced DL CA, LTE(FDD/TDD) - WCDMA (HSDPA/HSUPA/HSPA Evolution /DC-HSPA/4C-HSDPA) - GSM (GSM/GPRS/EGPRS) - CDMA2000 (EV-DO) - TD-SCDMA (HSDPA/HSUPA/HSDPA Evolution) - PHS (Advanced PHS)
Remote Control	GPIB, Ethernet

LTE FDD/TDD Options – 12/21

MX882012C LTE FDD/MX882013C LTE TDD Measurement Software

Parameter	Specification
TX Measurements	Power Frequency Error Error Vector Magnitude (EVM) Phase Error In-band Emissions for Non-allocated RB Carrier Leakage Spectrum Flatness Occupied Bandwidth Spectrum Emission Mask Adjacent Channel Leakage Power Ratio
RX Measurements	Reference Sensitivity level Maximum Input Level

3GPP LTE FDD/TDD Compliance – 1/2

3GPP TS 36.521-1 V12.3.0 (2014-09) Compliance Table

Section	Measurement Item	MX882012C(13C) LTE FDD(TDD) Call Processing	MT8820C Measuremet Item
6	**Transmitter characteristics**		
6.2	Transmit Power		
6.2.2	UE Maximum Output Power	Yes	Power Measurement
6.2.2_1	UE Maximum Output Power for HPUE	Yes	Power Measurement
6.2.3	Maximum Power Reduction (MPR)	Yes	Power Measurement
6.2.3_1	Maximum Power Reduction (MPR) for HPUE	Yes	Power Measurement
6.2.4	Additional Maximum Power Reduction (A-MPR)	Yes	Power Measurement
6.2.4_1	Additional Maximum Power Reduction (A-MPR)for HPUE	Yes	Power Measurement
6.2.5	Configured UE transmitted Output Power	Yes	Power Measurement
6.2.5_1	Configured UE transmitted Output Power for HPUE	Yes	Power Measurement
6.3	Output Power Dynamics		
6.3.1	Void		
6.3.2	Minimum Output Power	Yes	Power Measurement
6.3.3	Transmit Off power	Yes	Power Measurement
6.3.4	ON/OFF time mask		
6.3.4.1	General ON/OFF time mask	Yes	---
6.3.4.2	PRACH and SRS time mask		
6.3.4.2.1	PRACH time mask	Yes	---
6.3.4.2.2	SRS time mask	Yes	---
6.3.5	Power Control		
6.3.5.1	Power Control Absolute power tolerance	Yes	Power Control Measurement
6.3.5.2	Power Control Relative power tolerance	Yes	Power Control Measurement
6.3.5.3	Aggregate power control tolerance	Yes	Power Control Measurement
6.3.5_1	Power Control for HPUE		
6.3.5_1.1	Power Control Absolute power tolerance for HPUE	Yes	Power Control Measurement
6.3.5_1.2	Power Control Absolute power tolerance for HPUE	Yes	Power Control Measurement
6.3.5_1.3	Aggregate power control tolerance for HPUE	Yes	Power Control Measurement
6.4	Void		
6.5	Transmit signal quality		
6.5.1	Frequency Error	Yes	Modulation Analysis
6.5.2	Transmit modulation		
6.5.2.1	Error Vector Magnitude (EVM)	Yes	Modulation Analysis
6.5.2.1A	PUSCH-EVM with exclusion period	Yes	
6.5.2.2	Carrier leakage	Yes	Modulation Analysis
6.5.2.3	In-band emissions for non allocated RB	Yes	Modulation Analysis
6.5.2.4	Spectrum flatness	Yes	Modulation Analysis

3GPP LTE FDD/TDD Compliance – 2/2

3GPP TS 36.521-1 V12.3.0 (2014-09) Compliance Table

Section	Measurement Item	MX882012C(13C) LTE FDD(TDD) Call Processing	MT8820C Measuremet Item
6	**Transmitter characteristics**		
6.6	Output RF spectrum emissions		
6.6.1	Occupied bandwidth	Yes	OBW
6.6.2	Out of band emission		
6.6.2.1	Spectrum Emission Mask	Yes	SEM
6.6.2.2	Additional Spectrum Emission Mask	Yes	SEM
6.6.2.3	Adjacent Channel Leakage power Ratio	Yes	ACLR
6.6.2.3_1	Adjacent Channel Leakage power Ratio for HPUE	Yes	ACLR
6.6.2.4	Additional ACLR requirements		
6.6.3	Spurious emissions		
6.6.3.1	Transmitter Spurious emissions (*1)	Yes	---
6.6.3.2	Spurious emission band UE co-existence (*1)	Yes	---
6.6.3.3	Additional spurious emissions (*1)	Yes	---
6.7	Tranmit Intermodulation (*1)	Yes	---
7	**Receiver characteristics**		
7.3	Reference sensitivity level	Yes	Throughput
7.4	Maximum input level	Yes	Throughput
7.5	Adjacent Channel Selectivity (ACS) (*1)	Yes	Throughput
7.6	Blocking Characteristics		
7.6.1	In-band blocking (*1)	Yes	Throughput
7.6.2	Out-of-band blocking (*1)	Yes	Throughput
7.6.3	Narrow band blocking (*1)	Yes	Throughput
7.7	Spurious response (*1)	Yes	Throughput
7.8	Intermodulation characteristics		
7.8.1	Wide band Intermodulation (*1)	Yes	Throughput
7.8.2	Void		
7.9	Spurious emissions (*1)	Yes	---

(*1): Requires external equipment (eg. signal generator) for interference signal, etc.

LTE FDD/TDD Options – 15/21

LTE FDD/TDD Bands

3GPP TS 36.101-1 V11.7.0 (2013-12) Table 5.5-1E-UTRA operating bands

E-UTRA Operating Band	Uplink (UL) operating band BS receive UE transmit F_{UL_low} – F_{UL_high}	Downlink (DL) operating band BS transmit F_{DL_low} – F_{DL_high}	Duplex Mode	MX882012C LTE FDD Meas. SW v23.10
1	1920 MHz – 1980 MHz	2110 MHz – 2170 MHz	FDD	X
2	1850 MHz – 1910 MHz	1930 MHz – 1990 MHz	FDD	X
3	1710 MHz – 1785 MHz	1805 MHz – 1880 MHz	FDD	X
4	1710 MHz – 1755 MHz	2110 MHz – 2155 MHz	FDD	X
5	824 MHz – 849 MHz	869 MHz – 894MHz	FDD	X
6 NOTE 1	830 MHz – 840 MHz	875 MHz – 885 MHz	FDD	X
7	2500 MHz – 2570 MHz	2620 MHz – 2690 MHz	FDD	X
8	880 MHz – 915 MHz	925 MHz – 960 MHz	FDD	X
9	1749.9 MHz – 1784.9 MHz	1844.9 MHz – 1879.9 MHz	FDD	X
10	1710 MHz – 1770 MHz	2110 MHz – 2170 MHz	FDD	X
11	1427.9 MHz – 1447.9 MHz	1475.9 MHz – 1495.9 MHz	FDD	X
12	698 MHz – 716 MHz	728 MHz – 746 MHz	FDD	X
13	777 MHz – 787 MHz	746 MHz – 756 MHz	FDD	X
14	788 MHz – 798 MHz	758 MHz – 768 MHz	FDD	X
15	Reserved	Reserved	FDD	-
16	Reserved	Reserved	FDD	-
17	704 MHz – 716 MHz	734 MHz – 746 MHz	FDD	X
18	815 MHz – 830 MHz	860 MHz – 875 MHz	FDD	X
19	830 MHz – 845 MHz	875 MHz – 890 MHz	FDD	X
20	832 MHz – 862 MHz	791 MHz – 821 MHz	FDD	X
21	1447.9 MHz – 1462.9 MHz	1495.9 MHz – 1510.9 MHz	FDD	X
22	3410 MHz – 3490 MHz	3510 MHz – 3590 MHz	FDD	X*1
23	2000 MHz – 2020 MHz	2180 MHz – 2200 MHz	FDD	X
24	1626.5 MHz – 1660.5 MHz	1525 MHz – 1559 MHz	FDD	X
25	1850 MHz – 1915 MHz	1930 MHz – 1995 MHz	FDD	X
26	814 MHz – 849 MHz	859 MHz – 894 MHz	FDD	X
27	807 MHz – 824 MHz	852 MHz – 869 MHz	FDD	X
28	703 MHz – 748 MHz	758 MHz – 803 MHz	FDD	X
29	NA	717 MHz – 728 MHz	FDD	X
30	2305 MHz – 2315 MHz	2350 MHz – 2360 MHz	FDD	X
31	452.5 MHz – 457.5 MHz	462.5 MHz – 467.5 MHz	FDD	X
...				

Note 1: Band 6 is not applicable

E-UTRA Operating Band	Uplink (UL) operating band BS receive UE transmit F_{UL_low} – F_{UL_high}	Downlink (DL) operating band BS transmit F_{DL_low} – F_{DL_high}	Duplex Mode	MX882013C LTE TDD Meas. SW v23.10
33	1900 MHz – 1920 MHz	1900 MHz – 1920 MHz	TDD	X
34	2010 MHz – 2025 MHz	2010 MHz – 2025 MHz	TDD	X
35	1850 MHz – 1910 MHz	1850 MHz – 1910 MHz	TDD	X
36	1930 MHz – 1990 MHz	1930 MHz – 1990 MHz	TDD	X
37	1910 MHz – 1930 MHz	1910 MHz – 1930 MHz	TDD	X
38	2570 MHz – 2620 MHz	2570 MHz – 2620 MHz	TDD	X
39	1880 MHz – 1920 MHz	1880 MHz – 1920 MHz	TDD	X
40	2300 MHz – 2400 MHz	2300 MHz – 2400 MHz	TDD	X
41	2496 MHz – 2690 MHz	2496 MHz – 2690 MHz	TDD	X
42	3400 MHz – 3600 MHz	3400 MHz – 3600 MHz	TDD	X*1
43	3600 MHz – 3800 MHz	3600 MHz – 3800 MHz	TDD	X*1
44	703 MHz – 803 MHz	703 MHz – 803 MHz	TDD	X

X: Support

*1: Requires MT8820C-018

LTE FDD/TDD Options – 16/21

LTE FDD/TDD 2x2 MIMO RF Throughput – 1/2

One MT8820C with two ports supports RF throughput tests with 2x2 MIMO RX for LTE FDD UE Category 3 (DL 100 Mbps)

RF Throughput Measurement (@physical layer)

Condition: 2x2 MIMO RX

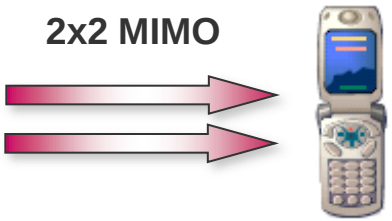
DL Signal: Fixed reference channel two antenna ports*

Changeable data rate up to UE Category 3 DL Max.(100 Mbps)

*: Defined in TS36.521-1 A.3.3.2.1 Two antenna ports

RF Throughput Measurement
Up to UE Category 3 DL Max.
(LTE FDD, 100 Mbps)

MT8820C



Connection example

2x2 MIMO RF Throughput Configuration

MX882012C-011 LTE FDD 2x2 MIMO DL
MX882012C LTE FDD Measurement Software
MT8820C-008 LTE Measurement Hardware
MT8820C-012 Parallelphone Measurement Hardware
MT8820C Radio Communication Analyzer

- ***Hardware configuration***
  - ***Uses two RF ports***
  - ***Requires one instrument supporting LTE***

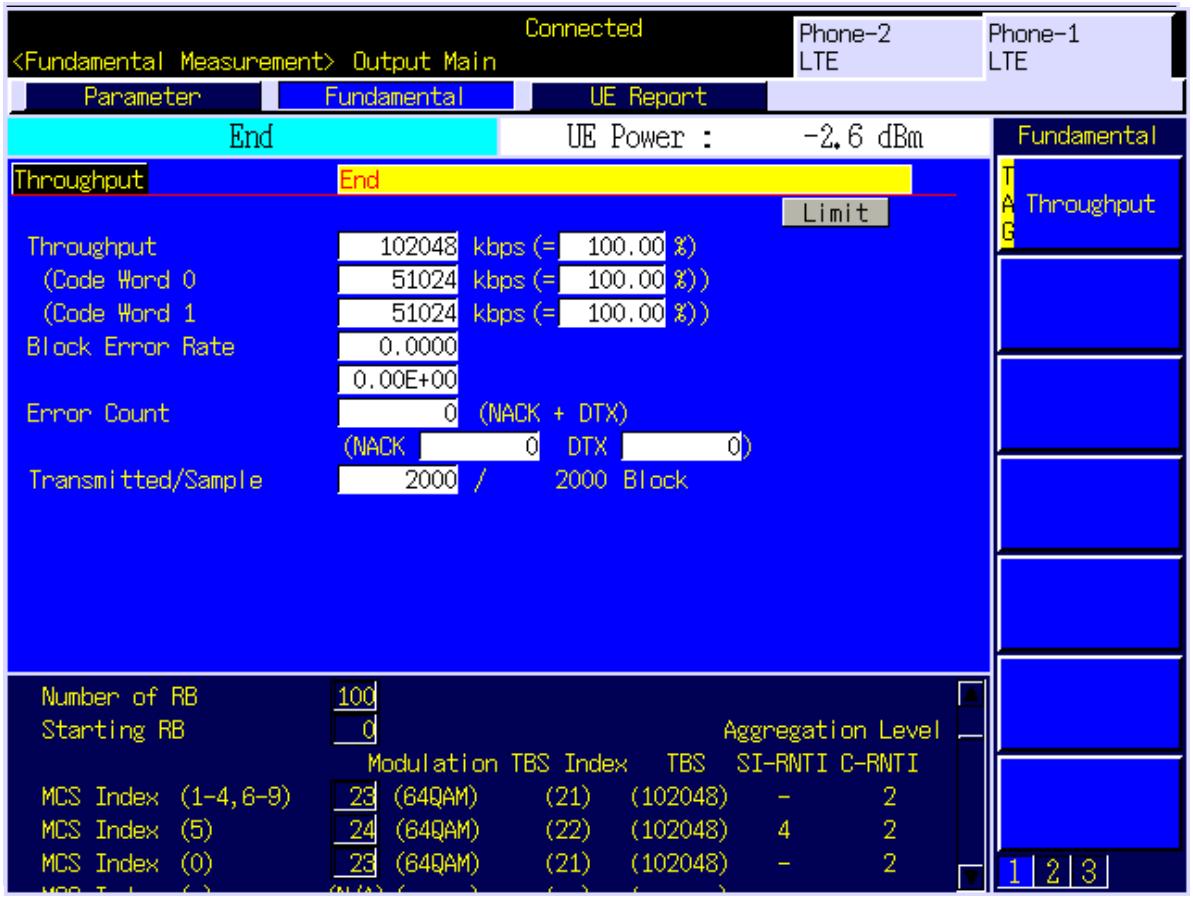
***Supported by PPM configuration (with two MT8820C-008) as well. Note, 2x2 MIMO uses both phone terminals.**

*The above example shows LTE FDD (MX882012C).
*The maximum LTE TDD 2x2MIMO download rate for UE Category 3 is 91.8 Mbps (ideal value).

LTE FDD/TDD Options – 17/21

LTE FDD/TDD 2x2 MIMO RF Throughput – 2/2

Example: 2x2 MIMO, 20 MHz BW, UE Category 3, Maximum DL Rate 100 Mbps (LTE FDD)



The 100% throughput value can be changed by setting MCS Index parameters.

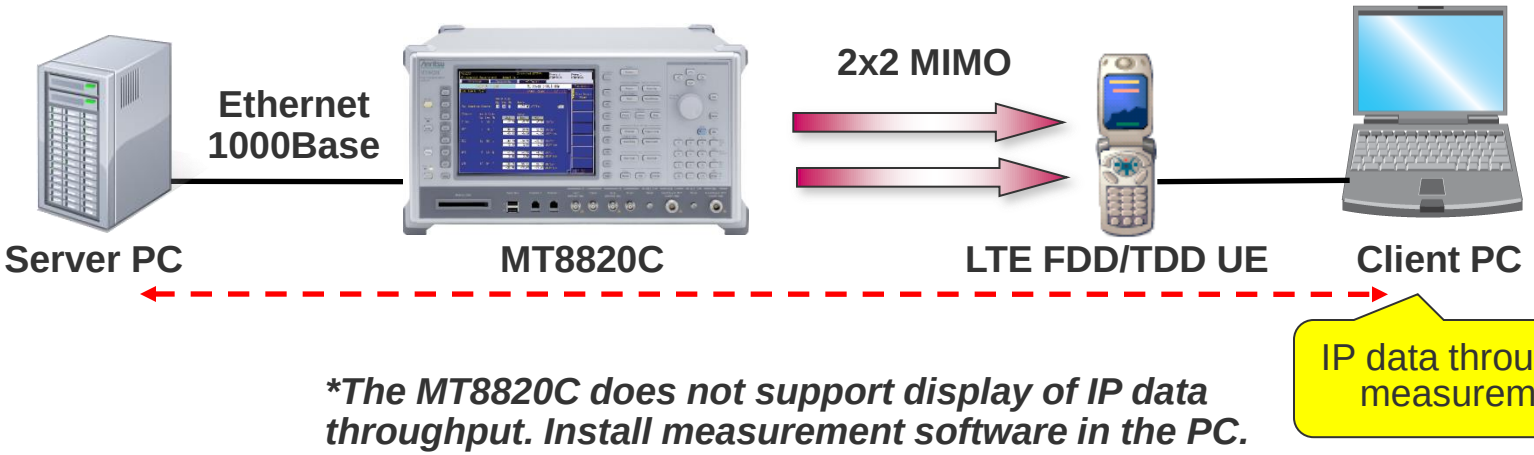
*The above example shows LTE FDD (MX882012C/-006/-011).

LTE FDD/TDD 2x2 MIMO IP Data Throughput – 1/2

Using the LTE FDD/TDD IP data transfer software option, the MT8820C can verify IP data communications between an external application server and LTE FDD/TDD UE. Moreover, in the 2x2 MIMO configuration, IP data throughput*1 is measured at the max. data rate*2 (LTE FDD, DL 100 Mbps, UL 50 Mbps) by an external client PC.

**1: IP data throughput measured by external equipment such as PC.*

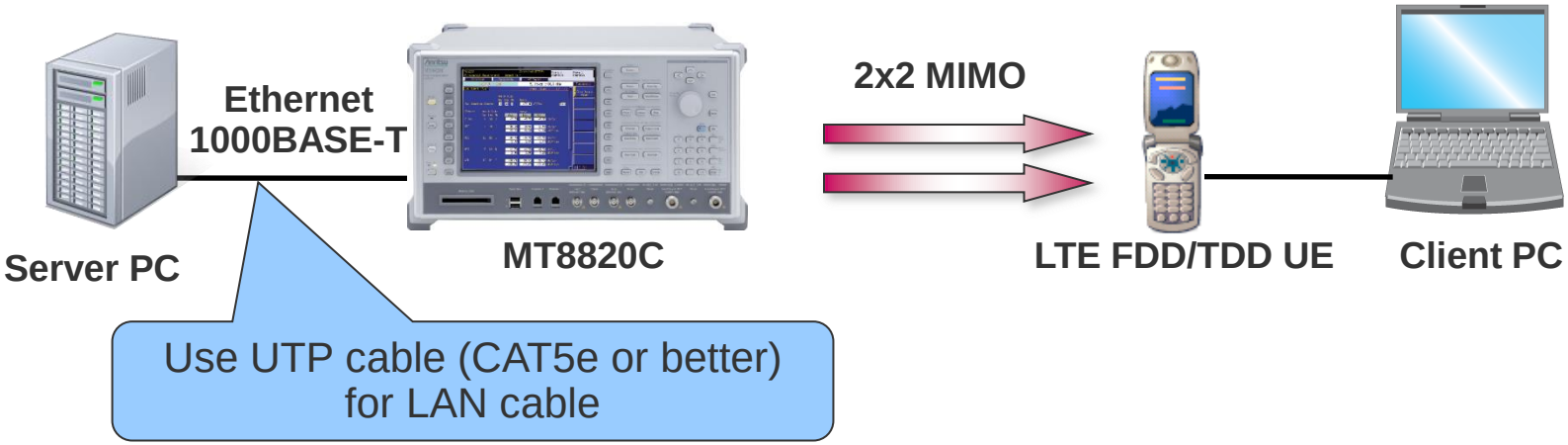
**2: Theoretical maximum data rate*



**The MT8820C does not support display of IP data throughput. Install measurement software in the PC.*

LTE TDD/FDD Options – 19/21

LTE FDD/TDD 2x2 MIMO IP Data Throughput – 2/2



UTP: Unshielded Twisted Pair Cable
CAT5e: Enhanced Category 5 twisted pair cable

2x2 MIMO IP Data Throughput Configuration

MX882012C-011 LTE FDD 2x2 MIMO DL
MX882012C-006 LTE FDD IP Data Transfer
MX882012C LTE FDD Measurement Software
MT8820C-008 LTE Measurement Hardware
MT8820C-012 Parallelphone Measurement Hardware
MT8820C Radio Communication Analyzer

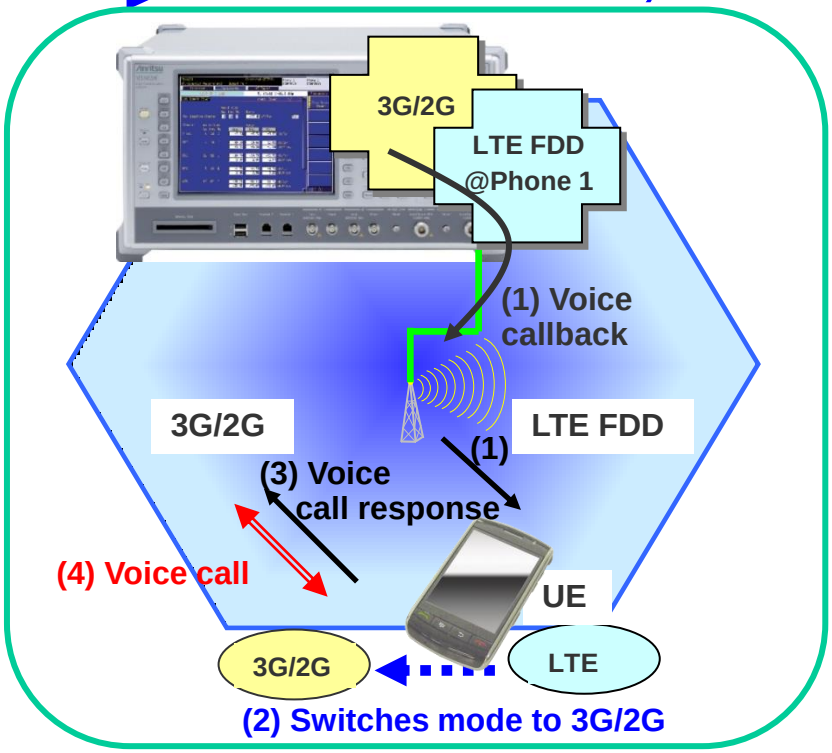
*The above example shows LTE FDD (MX882012C).

LTE TDD/FDD Options – 20/21

LTE FDD CS Fallback to W-CDMA/GSM/CDMA2000 Function – 1/2

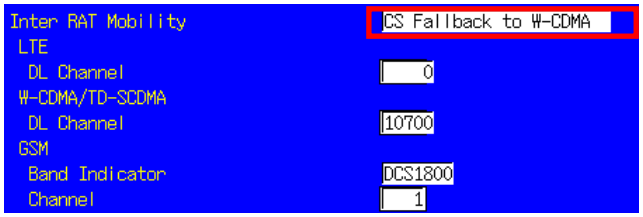
The LTE FDD CS Fallback to W-CDMA/GSM/CDMA2000 option supports simple CS Fallback function tests (redirection base)*1 with LTE FDD/3G/2G UEs.

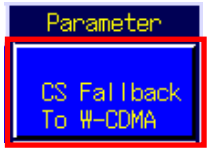
⇨ Efficient for R&D, service and maintenance departments



*LTE FDD CS Fallback example

[LTE system]





Test execution key

*Above shows parameter setting example for MX882012C-016 LTE FDD CS Fallback to W-CDMA/GSM.
The "1 Port CS Fallback function" is effective at the time of Standard Change [On].

[W-CDMA system]

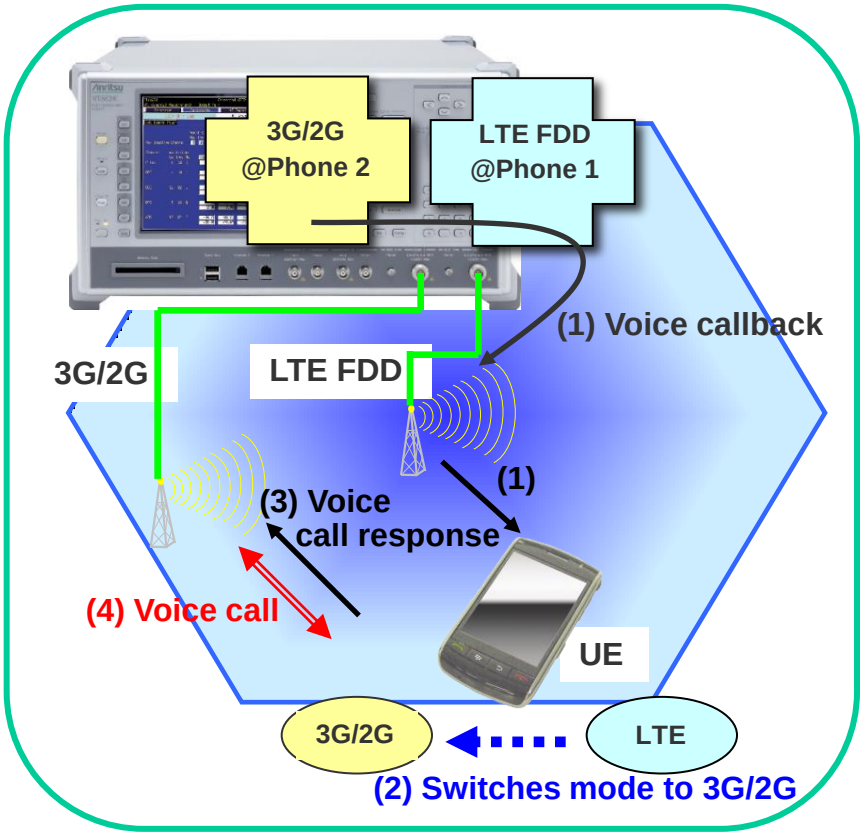
*Above shows parameter setting example for MX882000C W-CDMA Measurement Software.

(1) Voice callback made by LTE FDD
(2) LTE FDD/3G/2G UEs switch mode from LTE FDD to 3G/2G
(3) UE answers voice call from base station
(4) UE and base station start voice call.

*1: LTE/3G/2G UEs must support CS Fallback function.

LTE TDD/FDD Options – 21/21

LTE FDD CS Fallback to W-CDMA/GSM/CDMA2000 Function – 2/2



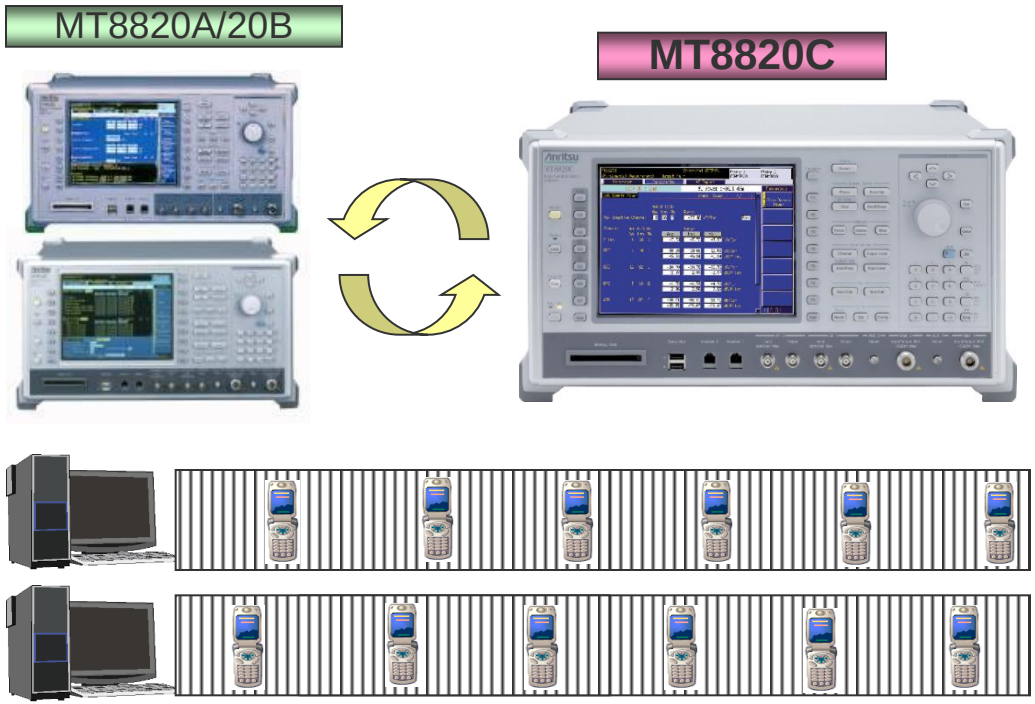
*LTE FDD CS Fallback example

Benefits of MT8820C

MT8820A/B Compatibility

All functions, performance, and remote commands are backwards compatible with the MT8820A/B, so customers can easily reusecontrol software developed for the MT8820A/B.

- **Cuts setup time and costs**
- **No reconfiguration of 3G/2G test environment**



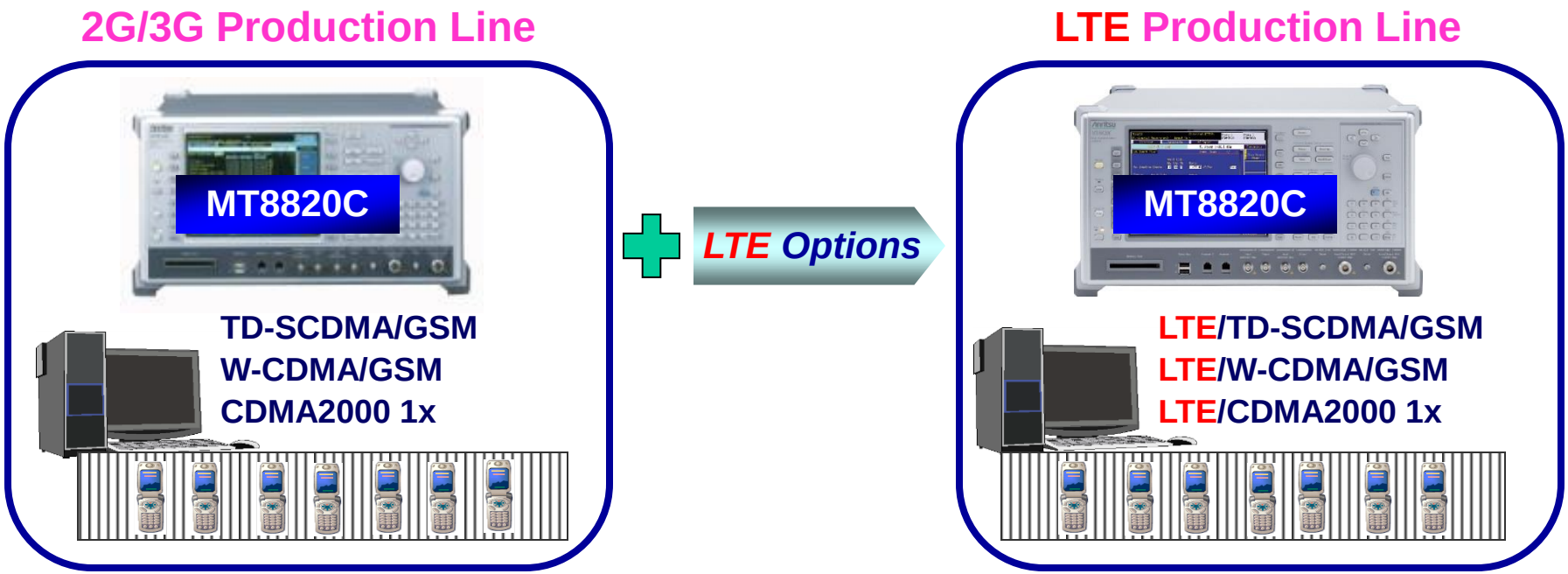
Compatibility
Functions and performance
Remote commands

Reuse control software and test environment

Cuts replacement costs

LTE Extensibility

The MT8820C platform is designed as an ideal manufacturing solution for LTE and 2G/3G mobiles. Just add the LTE option to start manufacturing LTE mobile terminals.



LTE-Advanced DL CA 3CCs Extensibility

MT8820C with LTE-Advanced DL CA options

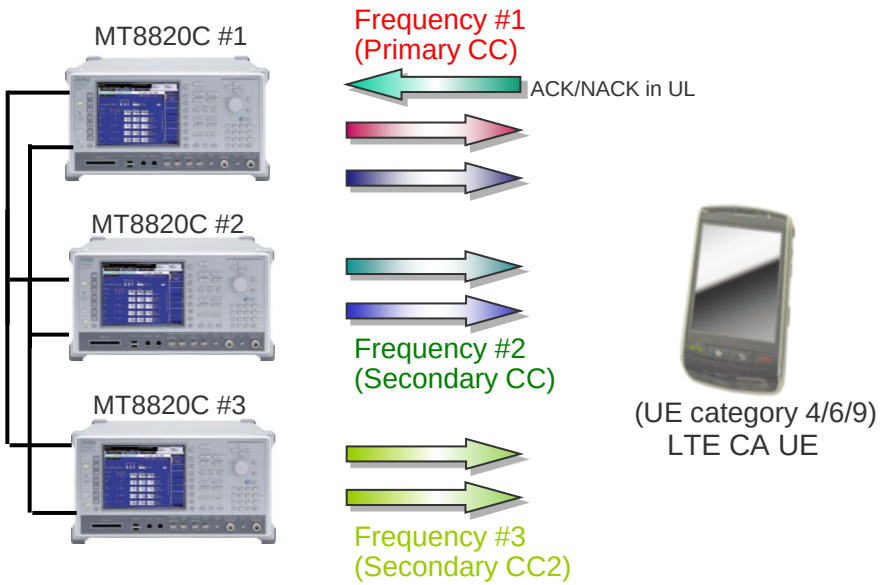
The MT8820C has supported LTE-Advanced FDD DL CA 2CCS since Jan. 2013, and its contribution to LTE-Advanced CA development is well-known.

*1: MT8820C supports LTE-Advanced FDD/TDD DL CA 2CCs and FDD/TDD DL CA 3CCs.

Key Features

- **Reliable LTE-Advanced DL CA 2CCs/3CCs with signalling**
- **3GPP TS36.521-1 TRX test items*2**
- **Supports LTE-Advanced FDD(TDD) DL CA plus MIMO Physical throughput**

*2: 3GPP TS36.521-1 test description are not yet defined.



Example of DL CA 3CCs（2x2 MIMO) Connection

*CA: Carrier Aggregation
*CC: Component Carrier

Upgrade to MT8820C

The MT8820B/15B hardware and software can be upgraded to the MT8820C, helping maximize investment efficiency.

Upgrade

MT8815B/20B	MT8820C
CDMA2000 Measurement S/W	CDMA2000 Measurement S/W
CDMA2000 Measurement H/W	CDMA2000 Measurement H/W
GSM Measurement S/W	GSM Measurement S/W
TDMA Measurement H/W	TDMA Measurement H/W
W-CDMA Measurement S/W	W-CDMA Measurement S/W
W-CDMA Measurement H/W	W-CDMA Measurement H/W
	Scalable for LTE solutions

Cost Saving

*Contact your Anritsu sales representative for upgrade details.

TD-SCDMA Extensibility

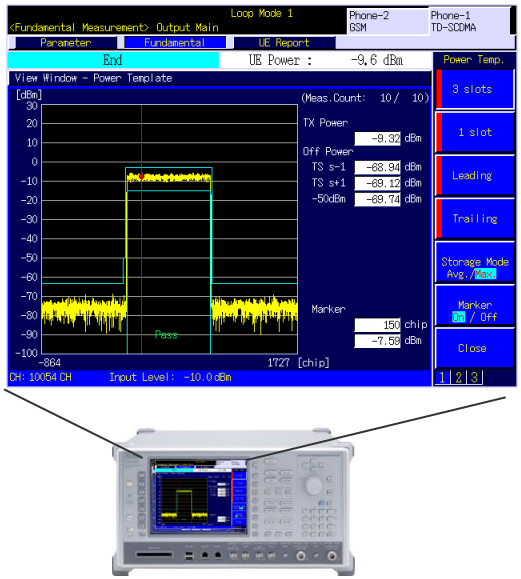
MT8820x with TD-CDMA options

The MT8820B has supported TD-SCDMA since 2007, and its contribution to TD-SCDMA development is well-known.

The new MT8820C is also the ideal platform for R&D, manufacturing and service of TD-SCDMA/GSM mobiles.

Key Features

- Reliable TD-SCDMA with signalling
- TD-SCDMA HSDPA/HSUPA tests
- 3GPP TRX test items and one-touch 3GPP TS34.122 settings
- Voice codec and videophone tests



Note

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