Product Introduction

MX882000C

W-CDMA Measurement Software

MT8820B
Radio Communication Analyzer

MX882000C
W-CDMA Measurement Software
Product Introduction

Including MT8820B-001/-011,
MX882000C-001/-011/-013/-021,031
MX88205xC, MX88205xC-002/-003/-008/-009/-011

Version 4.0
February 2009

ANRITSU CORPORATION

Contents

Key Features of MX882000C

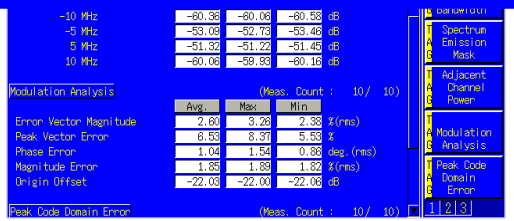
W-CDMA Measurement Software

Key Features of MX882000C W-CDMA Measurement Software

All-in-One Call Processing and RF Tx/Rx Testing of W-CDMA Mobiles

The MT8820B can easily test the basic RF Tx/Rx characteristics of W-CDMA mobiles. And it supports testing of call processing, such as origination and termination.

Mobile Tx/Rx Measurement
On-screen Mobile Measurement Report



Measurement Result Screen

Call Processing

Simple connection and operation

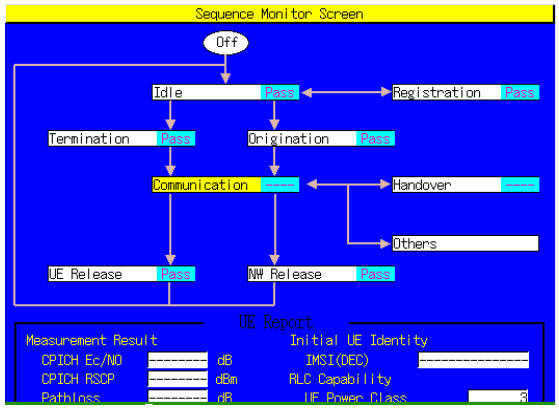
Termination

Origination

Connection

Voice
Audio & Visual
Packet
Test Loop Mode

Many Connection Modes



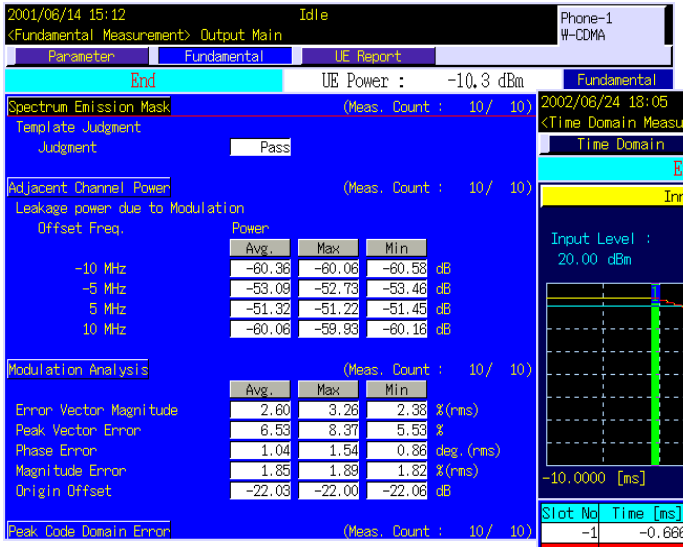
Sequence Monitor Screen

Key Features of MX882000C W-CDMA Measurement Software

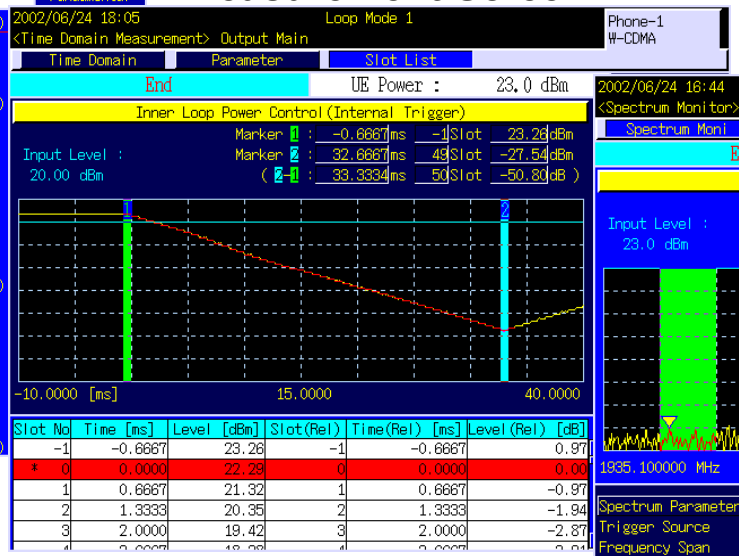
Wide Range of Measurement Functions

In addition to supporting basic Tx/Rx measurements of W-CDMA mobile terminals, power can be measured in the time domain and the spectrum can be checked at the Spectrum Monitor screen. A stable signal can be measured at the Fundamental Measurement screen while a signal changing over time can be measured at the Time Domain screen.

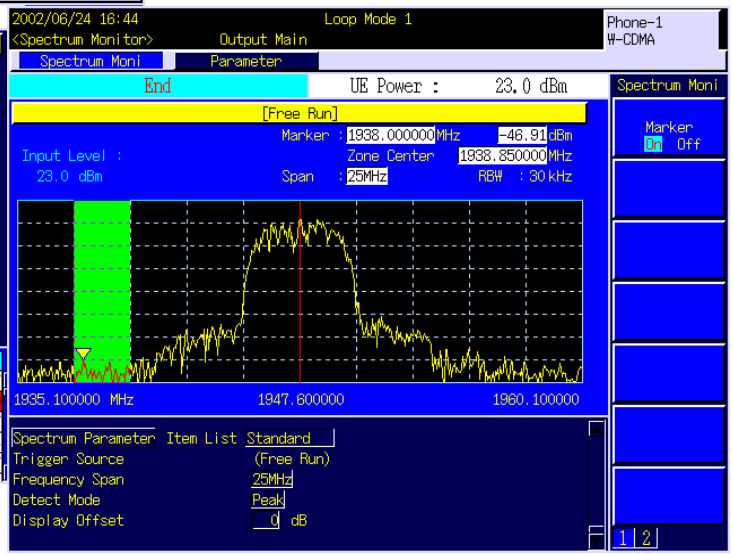
Fundamental Measurement Screen



Time Domain Measurement Screen



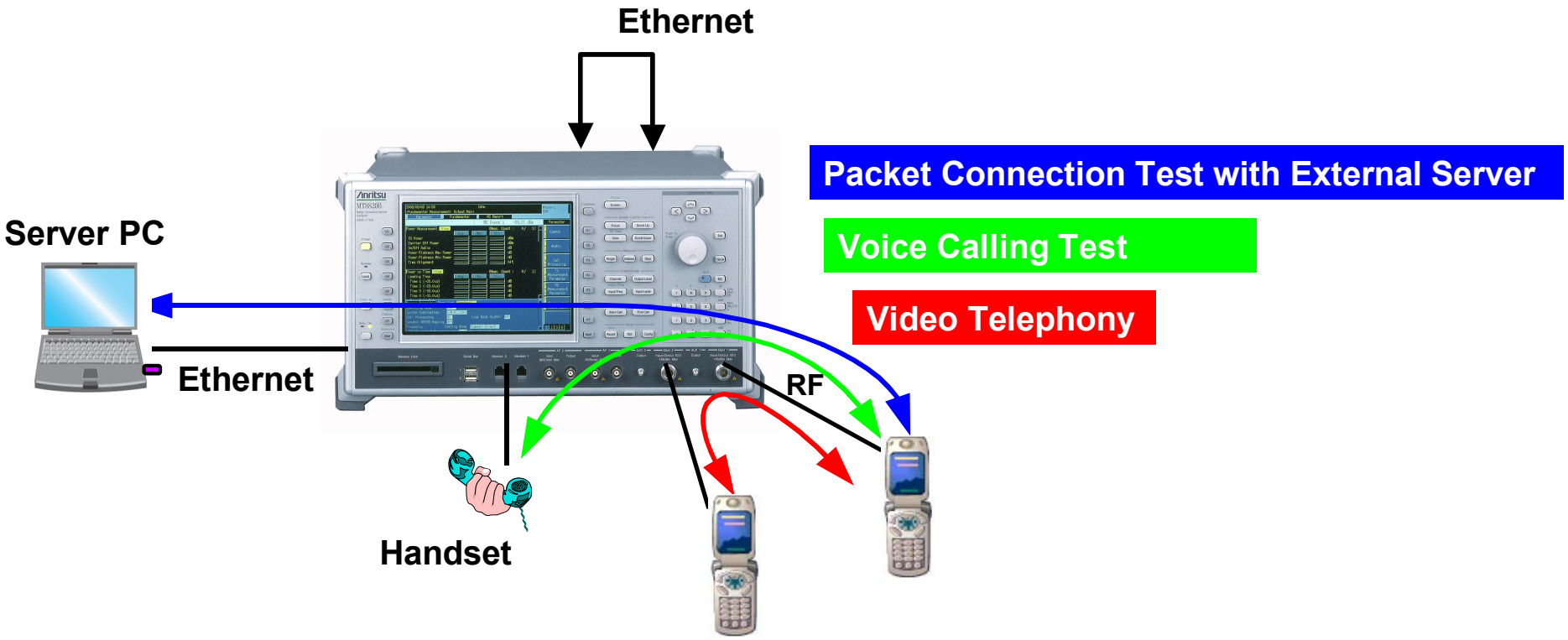
Spectrum Monitor Screen



Key Features of MX882000C W-CDMA Measurement Software

Functional Test of W-CDMA Mobiles

Installing optional software supports tests of W-CDMA supplementary functions such as voice calling, video telephony and PPP/IP packet communications with an external server.

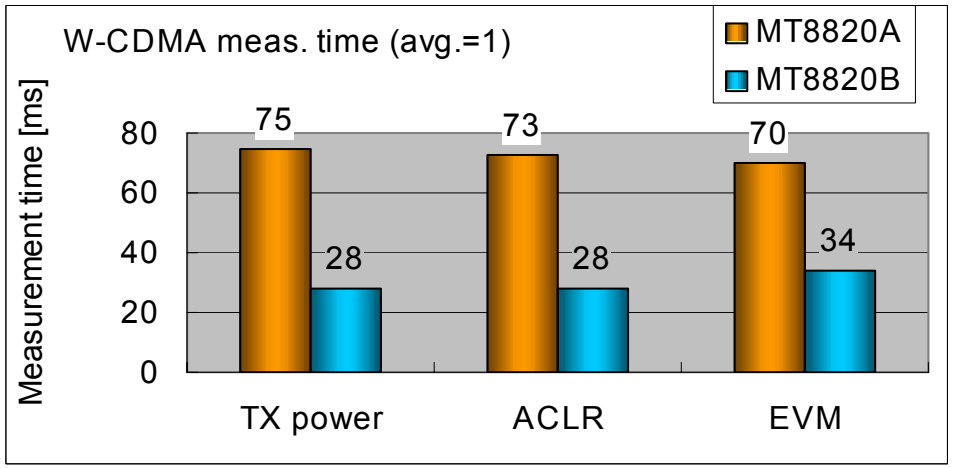


Key Features of MX882000C W-CDMA Measurement Software

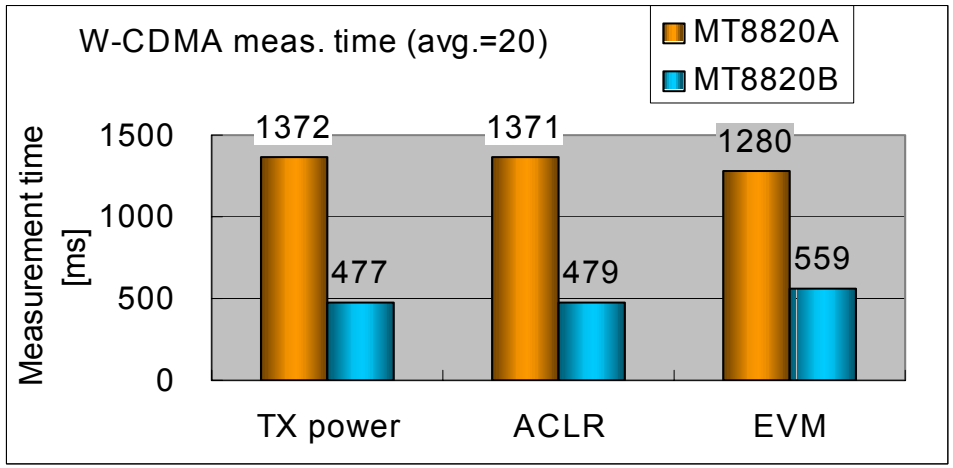
High-speed Tx Measurement

The Tx measurement times except signalling time are shown below. The MT8820B is two times faster than the MT8820A.

Avg. = 1



Avg. = 20



MX882000C W-CDMA Measurement Software

MX882000C W-CDMA Measurement Software

Key Specifications

Frequency range	: 300 to 2700 MHz
Maximum input level	: +35 dBm
Amplitude measurement accuracy	: ±0.5 dB (–25 to +35 dBm) ±0.7 dB (–55 to –25 dBm) ±0.9 dB (–65 to –55 dBm) after calibration
EVM (residual vector error)	: ≤2.5%
ACLR	: >50 dB at ±5 MHz >55 dB at ±10 MHz
RF Output level range	: –140 to –10 dBm (MAIN) –130 to 0 dBm (AUX)
RF Output level accuracy	: ±1.0 dB (–120 to –10 dBm, MAIN) ±1.0 dB (–110 to 0 dBm, AUX) after calibration

MX882000C W-CDMA Measurement Software

Supported Tx Measurements

	Item	Comment	
5	**Transmitter Characteristics**		
5.2	Maximum Output Power		√√
5.3	Frequency Error		√√
5.4	**Output Power Dynamics in Uplink**		
5.4.1	Open Loop Power Control in Uplink		√√
5.4.2	Inner Loop Power Control in Uplink		√√
5.4.3	Minimum Output Power		√√
5.4.4	Out-of-Sync Handling of Output Power		√√
5.5	Transmit ON/OFF Power		√√
5.6	Change of TFC		√√
5.7	Power Setting in Uplink Compressed Mode		
5.8	Occupied Bandwidth (OBW)		√√
5.9	Spectrum Emission Mask		√√
5.10	Adjacent Channel Leakage Power		√√
5.11	Spurious Emissions	Requires SPA	√
5.12	Transmit Intermodulation	Requires SG and SPA	√
5.13	**Transmit Modulation**		
5.13.1	Error Vector Magnitude (EVM)		√√
5.13.2	Peak Code Domain Error	Single Code Only	√√
5.13.3	UE Phase Discontinuity		√√
5.13.4	PRACH Preamble Quality		√√

√√: Supported √: Requires external equipment (SPA or SG)

Supported Rx Measurements

	Item	Comment	
6	**Receiver Characteristics**		
6.2	Reference Sensitivity Level		√√
6.3	Maximum Input Level		√√
6.4	Adjacent Channel Selectivity (ACS)	Requires SG	√
6.5	Blocking Characteristics	Requires SG	√
6.6	Spurious Response	Requires SG	√
6.7	Intermodulation Characteristics	Requires SG	√
6.8	Spurious Emissions	Requires SPA	√

√√: Supported √: Requires external equipment (SPA or SG)

MX882000C W-CDMA Measurement Software

Batch Measurements at Fundamental Measurement Screen

The Tx/Rx measurement items below can be measured simultaneously (batch measurement), making measurement much faster.

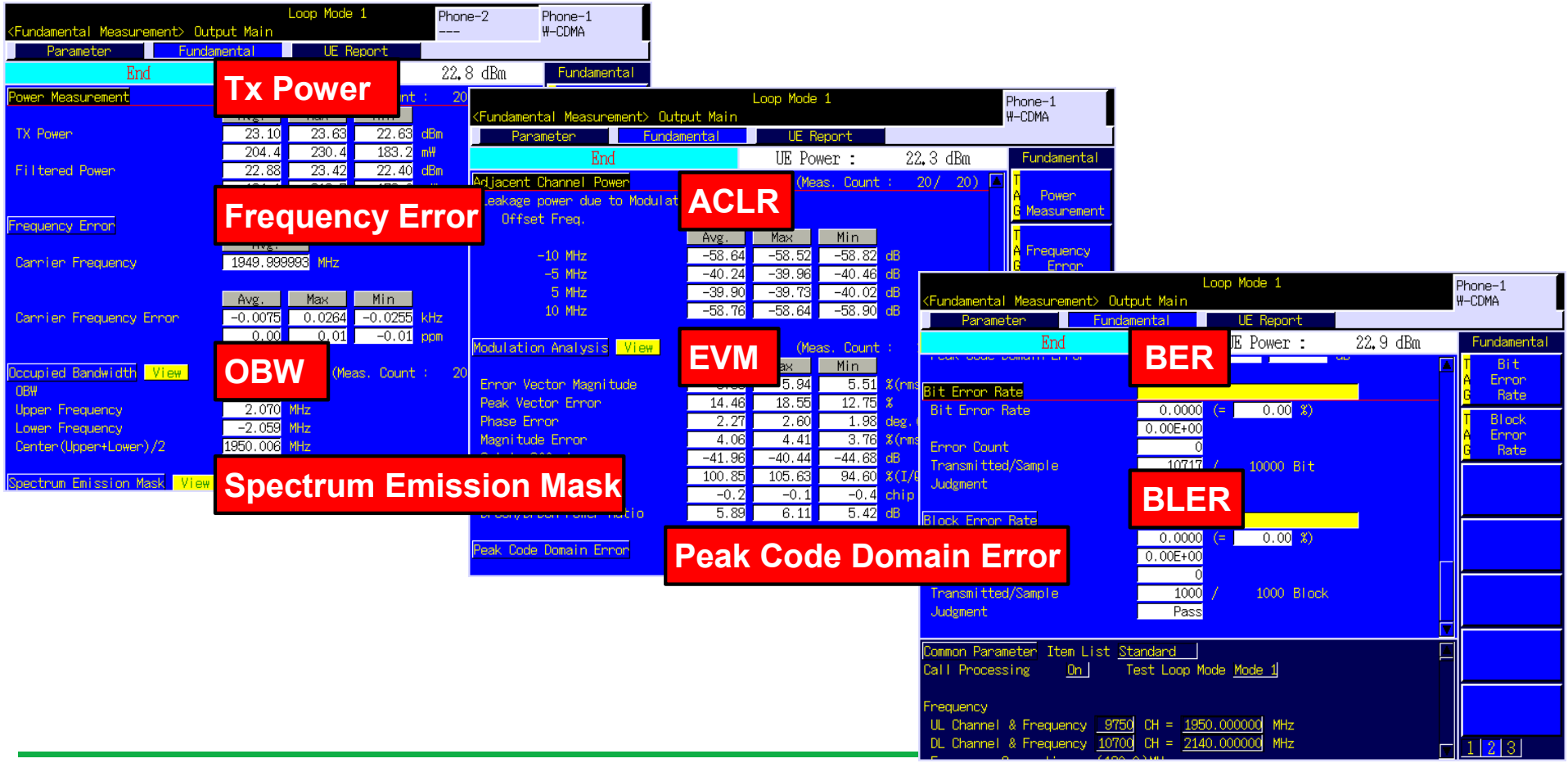
Measurement item	Comment
Transmitter Characteristics	
RRC Filtered Power and Mean Power	Power in RRC filter and 5-MHz bandwidth
Frequency Error	
Occupied Bandwidth (OBW)	
Spectrum Emission Mask	
Adjacent Channel Leakage Power	
Error Vector Magnitude (EVM)	
Peak Code Domain Error	
Receiver Characteristics	
BER	For sensitivity level and maximum input level Test Loop Mode 1 used
BLER	For performance test Test Loop Mode 2 used

MX882000C W-CDMA Measurement Software

Batch Measurements at Fundamental Measurement Screen

The batch measurement results screens for both Tx and Rx characteristics are shown below. The results can be read simultaneously via GPIB.

Batch Measurement Result Screen



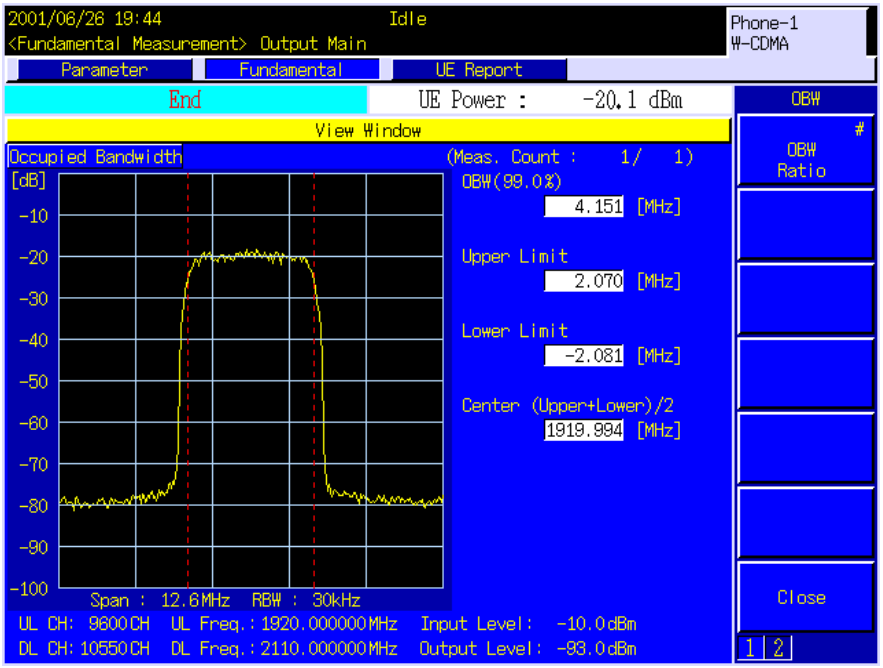
MX882000C W-CDMA Measurement Software

Graphical Spectrum Interface

The graphical interface supports faster maintenance because the Tx characteristics of W-CDMA mobiles can be understood at a glance by viewing the spectrum.

Efficient repair and maintenance

At-a-glance understanding because spectrum and template mask displayed simultaneously



Spectrum for OBW

Spectrum for Spectrum Emission Mask

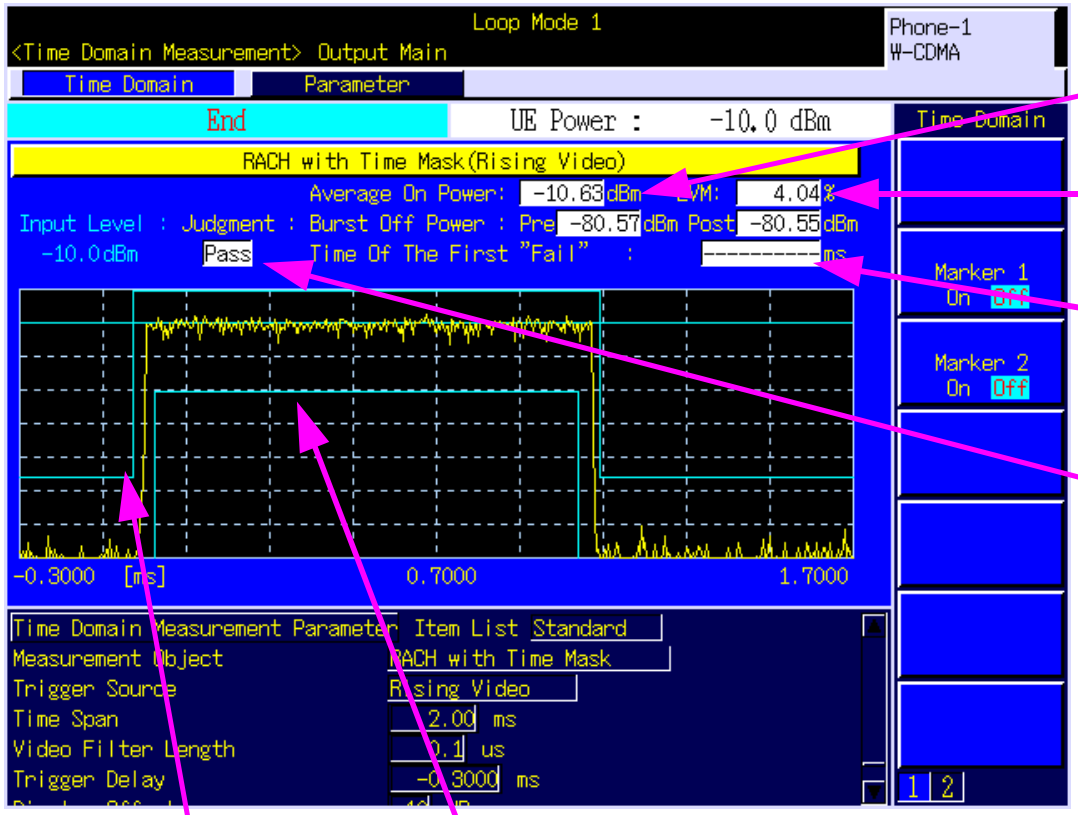
There are graphical interfaces for vector error vs. chip, phase error vs. chip, and magnitude error vs. chip. The waveform can be read via GPIB.

MX882000C W-CDMA Measurement Software

Graphical Interface for Power Change in Time Domain

The power of the RACH signal from the W-CDMA mobile and the EVM can be measured at the Time Domain screen. Template masking can be performed too.

RACH Measurement



RACH ON Power

RACH EVM

Time at First Fail

Template Mask Result

RACH Power, EVM, Template Mask Pass/Fail

Template Line

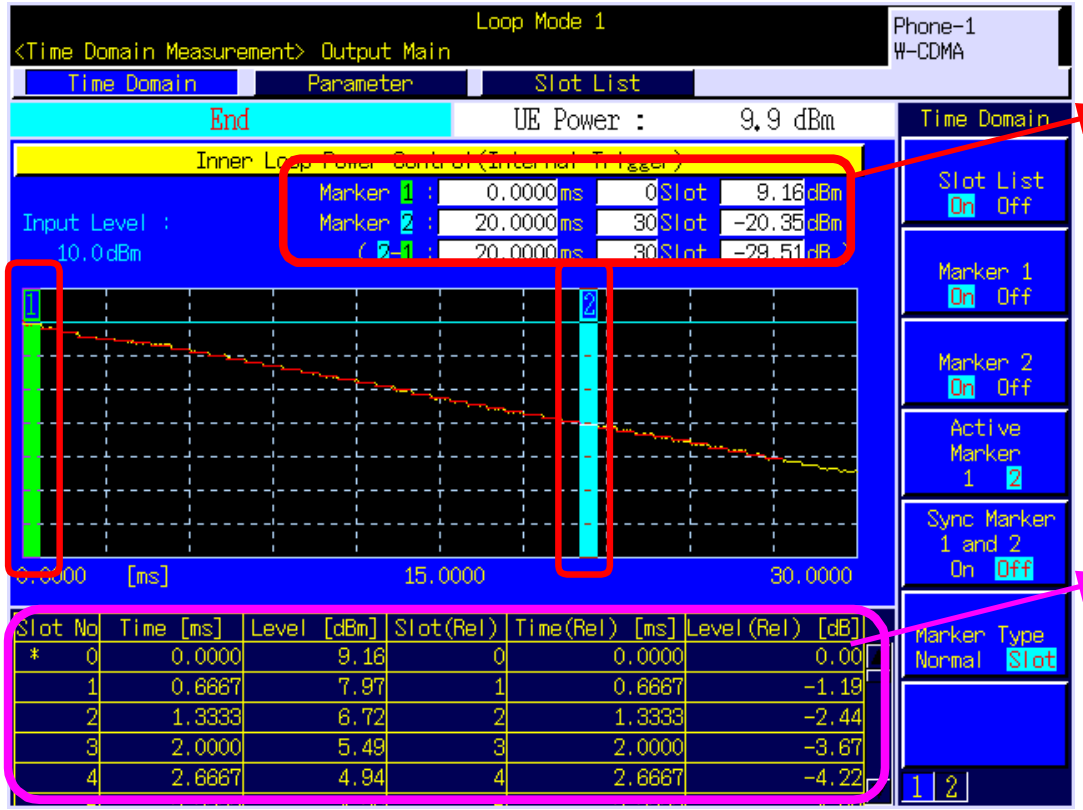
Template Line

MX882000C W-CDMA Measurement Software

Graphical Interface for Power Change in Time Domain

The change in power from the W-CDMA mobile with time can be measured at the Time Domain screen. The Slot Marker and Slot List functions help understand the the results easily.

Inner Loop Power Control Measurement



Slot Marker

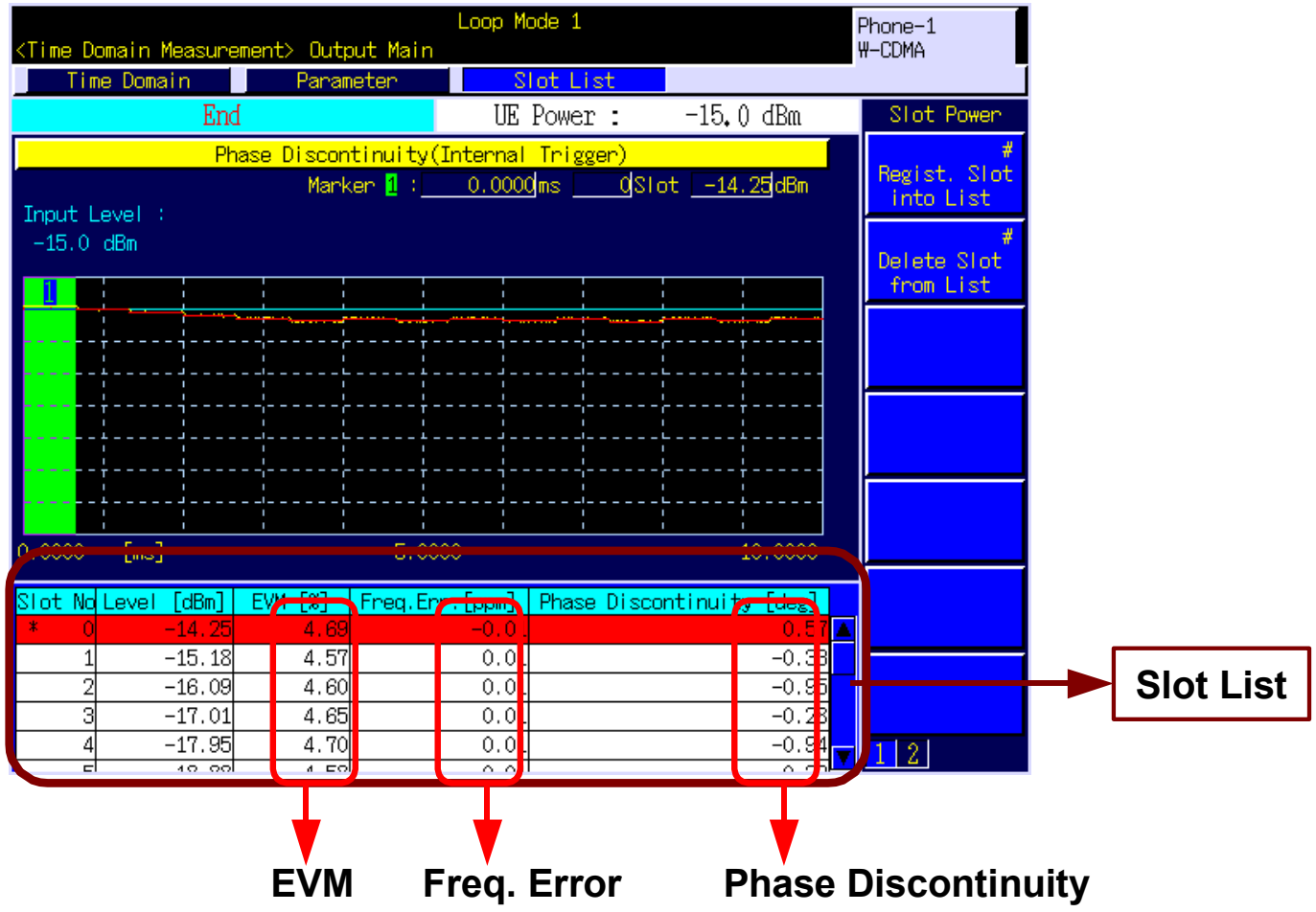
Slot List

MX882000C W-CDMA Measurement Software

Modulation Accuracy of Consecutive Slots

The EVM, frequency error, and phase discontinuity of consecutive slots can be measured. The Slot List function helps understand the results easily.

Phase Discontinuity Measurement



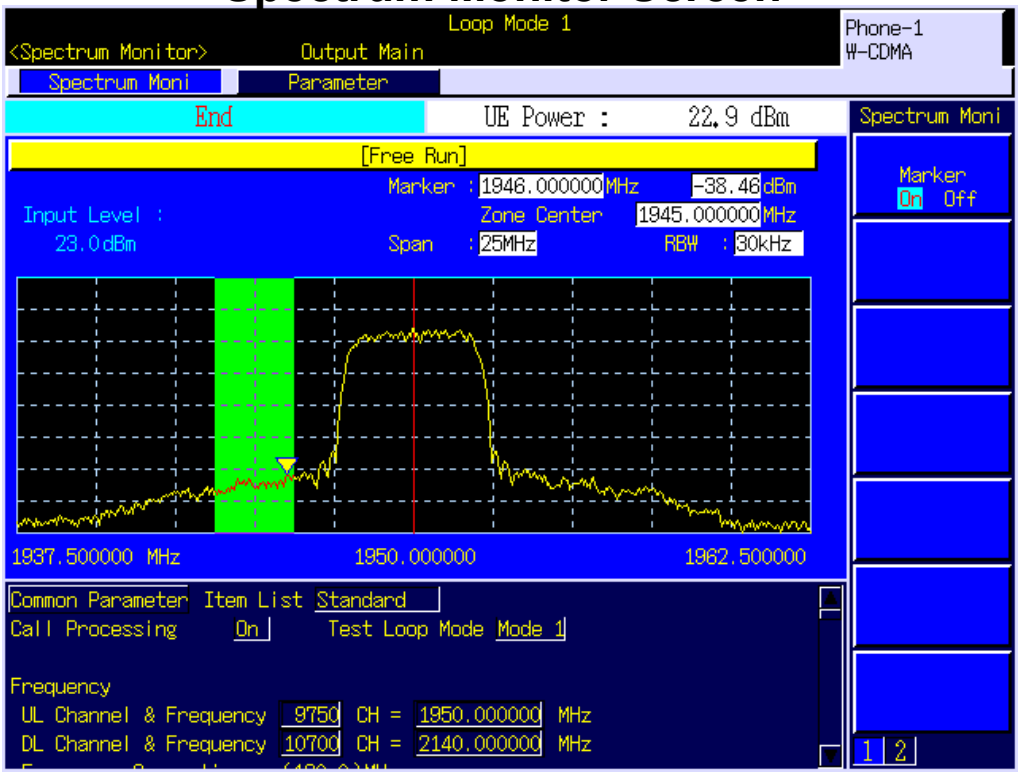
MX882000C W-CDMA Measurement Software

Spectrum Monitor

The spectrum in the 25-MHz bandwidth can be viewed using the spectrum monitor, and the in-band spurious and carrier leakage from the orthogonal modulator can be checked easily. The CW characteristics without AFC can be also measured using the Frequency Measurement function*1.

⇨ Effective adjustment and inspection

Spectrum Monitor Screen



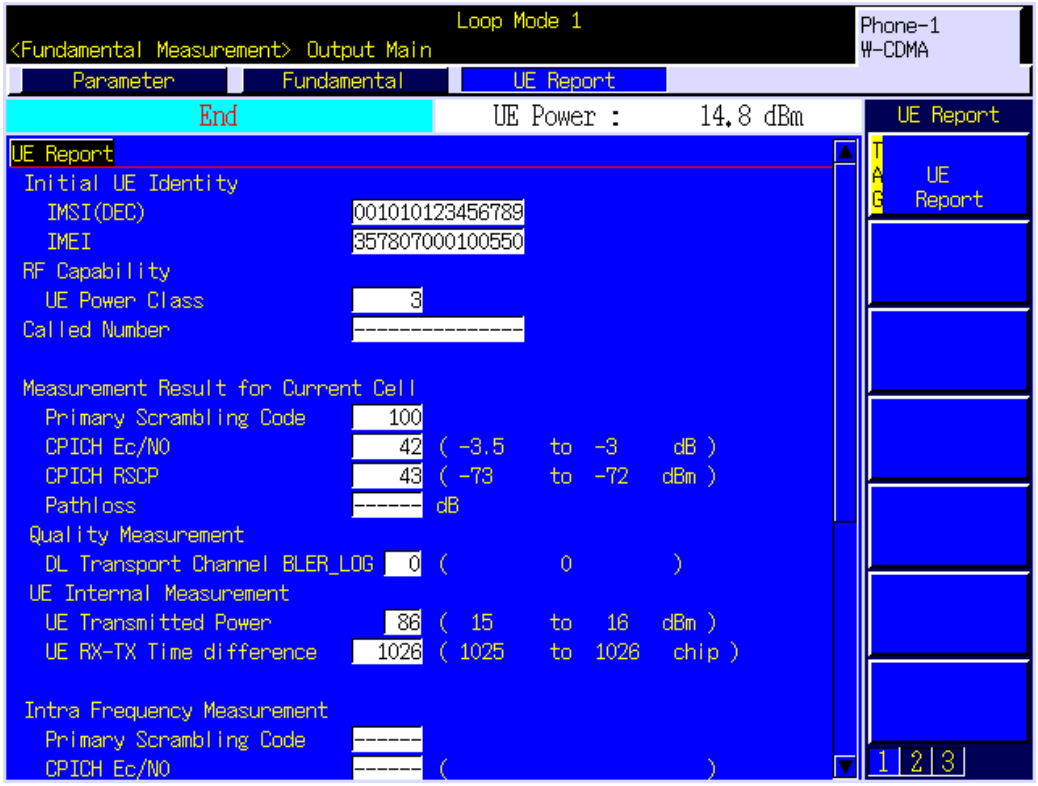
*1: With GPIB

MX882000C W-CDMA Measurement Software

UE Report

The mobile Tx power and power class can be checked at the UE Report screen. Moreover, reports from the mobile can be checked.

UE Report Screen



MX882000C W-CDMA Measurement Software

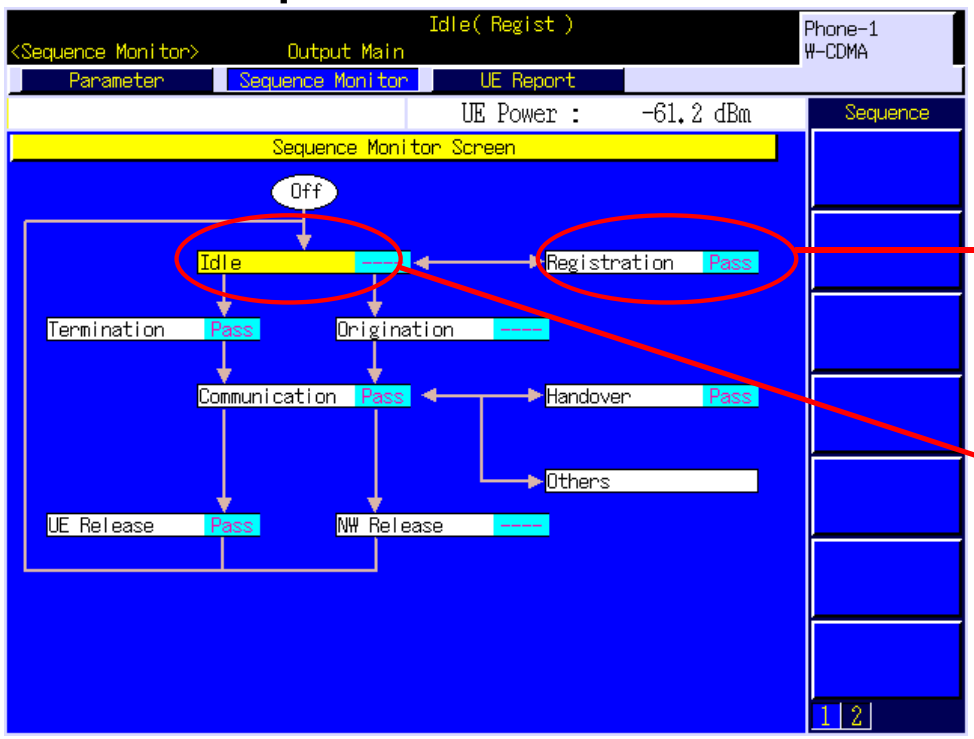
Call Processing Testing

The call processing test results can be checked easily at the Sequence Monitor screen.

Test Items

- Location registration
- Origination
- Termination
- Disconnect from UE
- Disconnect from network
- Hard handover

Sequence Monitor Screen



Pass/Fail

Current Status (yellow)

MX882000C-001 W-CDMA Voice CODEC

MX882000C-001 W-CDMA Voice Codec

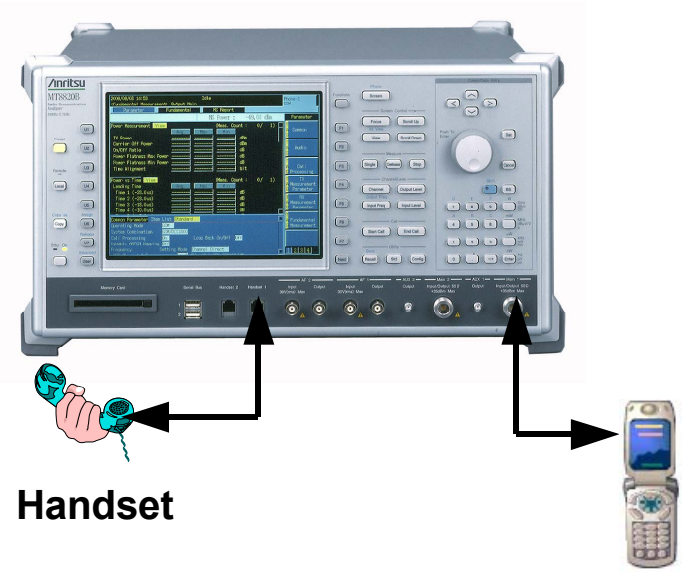
Overview

The MX882000C-001 W-CDMA Voice Codec software option adds real-time voice encoding/decoding to the W-CDMA measurement software. Live end-to-end communication tests between a handset and W-CDMA mobile are supported by installing the MT8820B-011 Audio Board. Moreover, the MT8820B can measure the audio Tx/Rx without an external audio analyzer and generator.

MX882000C-001 W-CDMA Voice Codec*

Live End-to-End Communication Test

When a handset is connected to the MT8820B RJ11 connector, live end-to-end communication between the handset and a W-CDMA mobile can be tested.

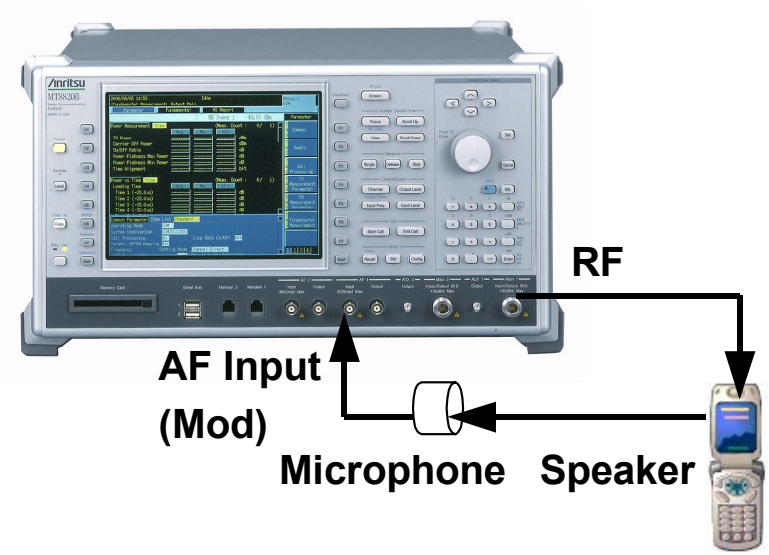


*: Requires MT8820B, MT8820B-001, MT8820B-011, MX882000C, MX882000C-001, and MX88205xC

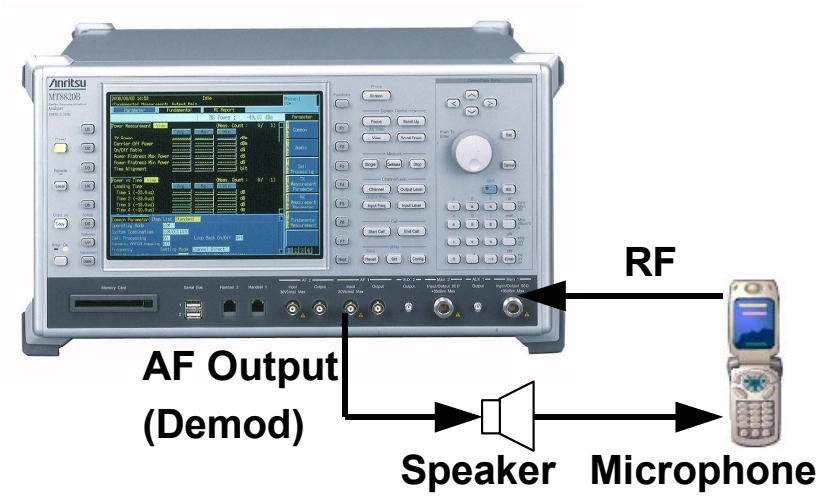
MX882000C-001 W-CDMA Voice Codec*

Audio Tx/Rx Measurement

The audio characteristics of the mobile can be measured with one MT8820B unit using the internal audio generator and audio meter.



<Audio Rx and Mobile Test>



<Audio Tx and Mobile Microphone Test>

*: Requires MT8820B, MT8820B-001, MT8820B-011, MX882000C, MX882000C-001, and MX88205xC

MX882000C-001 W-CDMA Voice Codec

Specifications

Voice codec	AMR 12.2 Kbps
Codec level adjustment	Encoder input gain: –3.00 to 3.00 dB, in increments of 0.01 dB Handset microphone volume: 0, 1, 2, 3, 4, 5 Handset speaker volume: 0, 1, 2, 3, 4, 5
AF Output	Frequency range: 30 Hz to 10 kHz, 1-Hz resolution Setting range: 0 Vpeak to 5 Vpeak (AF Output connector) Setting resolution: 1 mV (≤5 V peak), 100 µV (≤500 mVpeak), 10 µV (≤50 mVpeak) Accuracy: ±0.2 dB (≥10 mVpeak, ≥50 Hz), ±0.3 dB (≥10 mVpeak, <50 Hz) Waveform distortion: ≤30 kHz band –60 dB (≥500 mV peak, ≤5 kHz), ≤–54 dB (≥70 mVpeak) Output impedance: ≤1 Ω Max. output current: 100 mA
AF Input	Frequency range: 50 Hz to 10 kHz Input voltage range: 1 mVpeak to 5 Vpeak (AF Input connector) Max. allowable input voltage: 30 Vrms Input impedance: 100 kΩ
Frequency measurement	Accuracy: Reference oscillator accuracy + 0.5 Hz
Level measurement	Accuracy: ±0.2 dB (≥10 mVpeak), ±0.4 dB (≥1 mVpeak, ≥1 kHz)
SINAD Measurement	Frequency: 1 kHz in ≤30 kHz band ≥60 dB (≥1000 mVpeak), ≥54 dB (>50 mVpeak), ≥46 dB (≥10 mVpeak)
Distortion rate measurement	Frequency: 1 kHz in ≤30 kHz band ≤–60 dB (≥1000 mVpeak), ≤–54 dB (>50 mVpeak), ≤–46 dB (≥10 mVpeak)

MX88205xC-002 W-CDMA External Packet Data

MX88205xC-002 W-CDMA External Packet Data

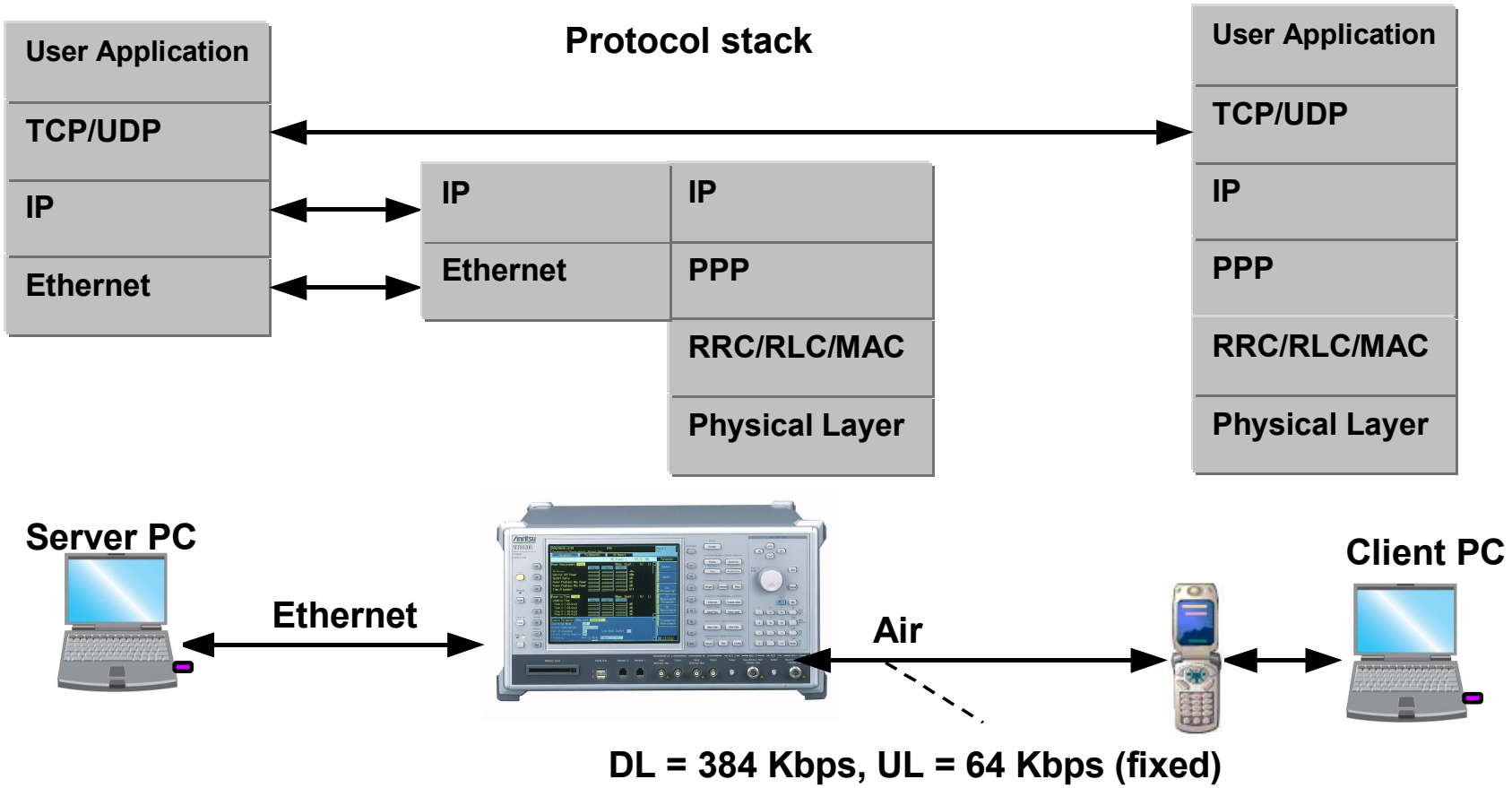
Overview

End-to-end data transfer between an application server connected to the MT8820B and a W-CDMA mobile or client PC connected to the W-CDMA mobile can be tested using the MX88205xC-002 W-CDMA External Packet Data Option. The transferred PPP and IP packet data can be measured.

MX88205xC-002 W-CDMA External Packet Data*

PPP Packet Data

As shown below, packet data transfer via the W-CDMA mobile PPP connection can be tested by a client PC using a server PC service such as FTP, HTPP, POP, or SMTP. The W-CDMA mobile operates as a modem for the client PC.

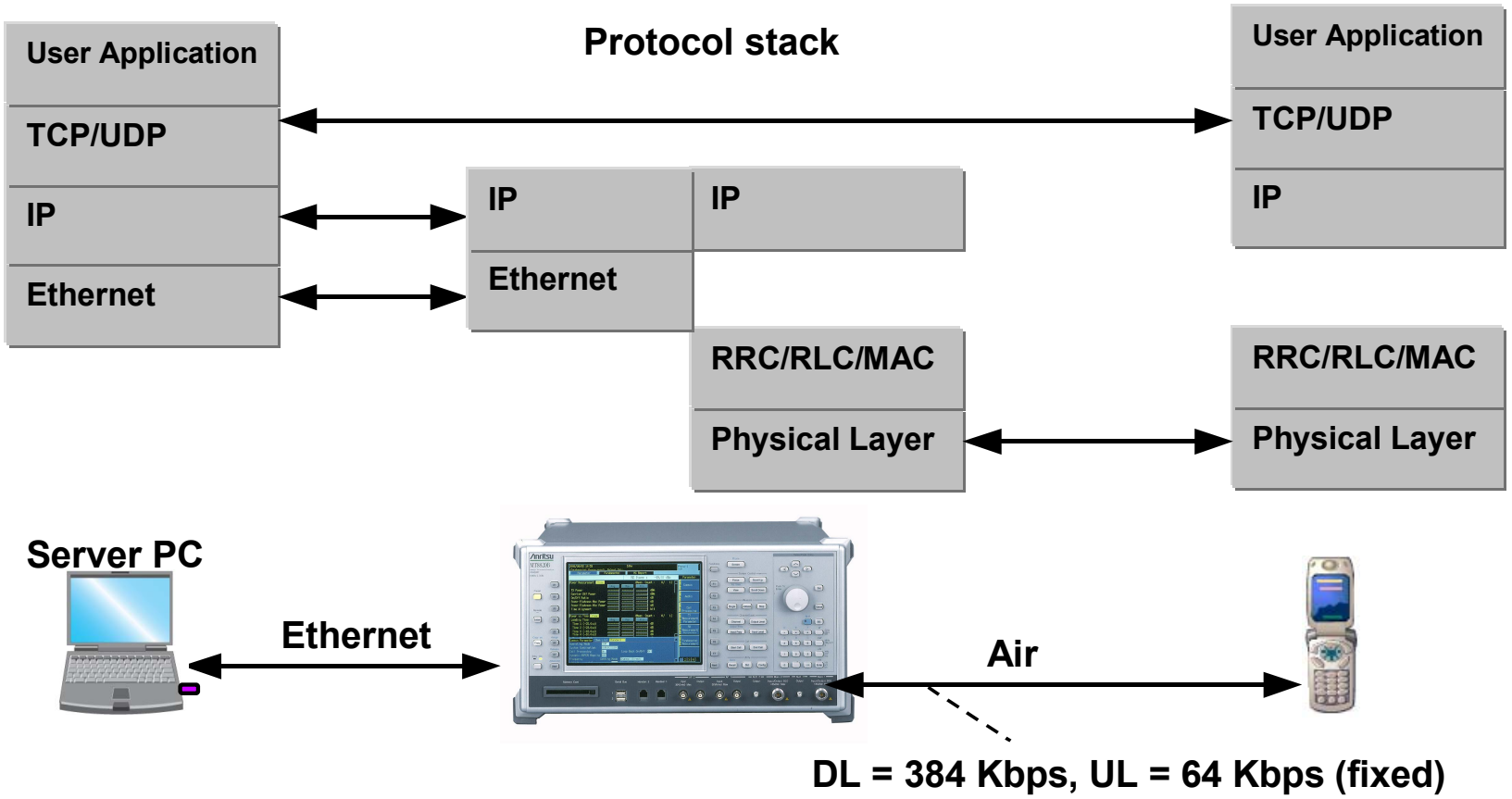


*: Requires MT8820B, MT8820B-001, MX882000C, MX88205xC, and MX88205xC-002

MX88205xC-002 W-CDMA External Packet Data*

IP Packet Data

As shown below, the operation of a W-CDMA mobile application based on IP packet transfer, such as I-mode, can be tested.



*: Requires MT8820B, MT8820B-001, MX882000C, MX88205xC, and MX88205xC-002

MX88205xC-002 W-CDMA External Packet Data

Specifications

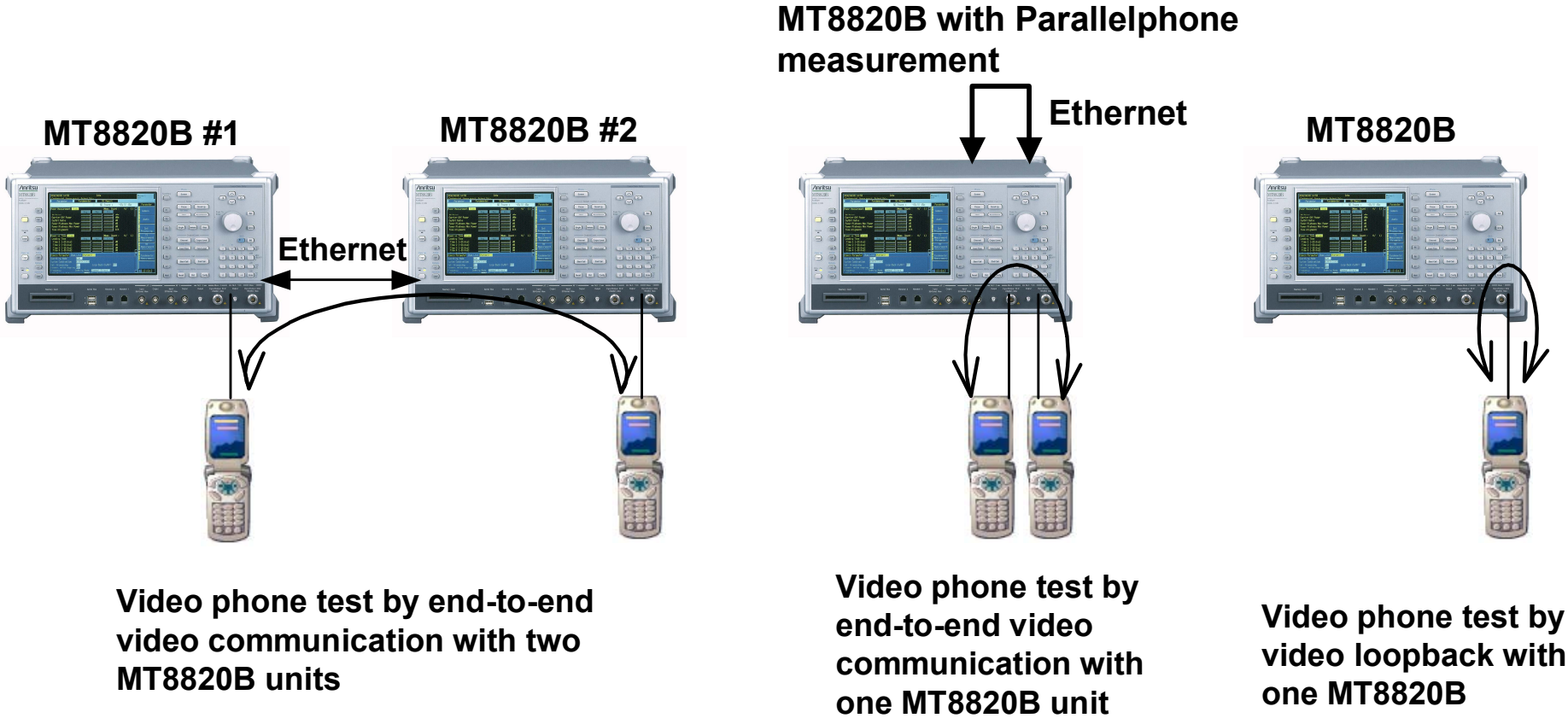
Ethernet	10BASE-T
Data Rate	Downlink: 384 Kbps, Uplink: 64 Kbps
Server IP Address	0.0.0.0 to 255.255.255.255
Client IP Address	0.0.0.0 to 255.255.255.255
Channel Coding	Interactive or background/UL: 64 DL: 384 Kbps/PS RAB
DTCH Data Pattern	External PPP Packet, External IP Packet

MX88205xC-003 W-CDMA Video Telephony Test

MX88205xC-003 W-CDMA Video Phone Test

Outline

The MX88205xC-003 W-CDMA Video Phone Test option can test end-to-end video communication between two W-CDMA mobiles using either two MT8820B units or one MT8820B unit with the Parallelphone Measurement option. Moreover, video communication can be tested with a single W-CDMA mobile using the video loopback function.



Video phone test by end-to-end video communication with two MT8820B units

Video phone test by end-to-end video communication with one MT8820B unit

Video phone test by video loopback with one MT8820B

MX88205xC-003 W-CDMA Video Phone Test

Specifications

MX88205xA-03 W-CDMA Video Phone Test

Ethernet	10BASE-T
Data Rate	Downlink: 64 Kbps, Uplink: 64 Kbps
Channel Coding	Conversation/Unknown/UL: 64 DL: 64 Kbps/CS RAB

MX882050C-008 W-CDMA Band XI

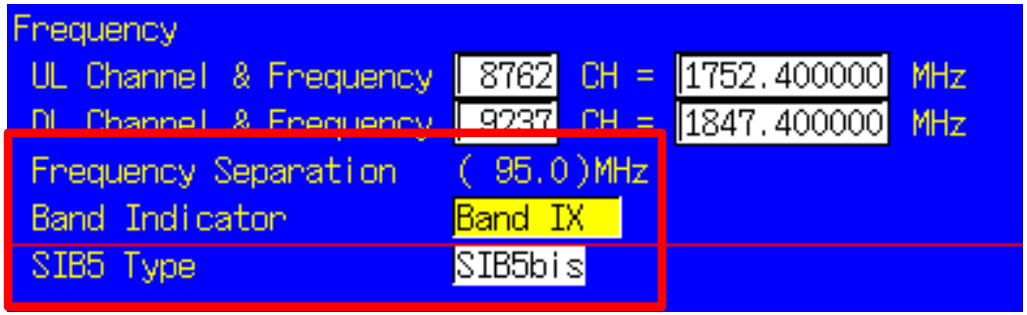
MX882050C-009 W-CDMA Band IX

MX882050C-008/-009 W-CDMA Band XI/IX

Outline

The MX882050C-008 W-CDMA Band XI option supports 3GPP Band XI in the call processing mode. In addition, the MX882050C-009 W-CDMA Band IX option supports 3GPP Band IX in the call processing mode.

Parameter Settings



MX882050C-008 W-CDMA Band XI

Frequency Separation	**Linked with Channel and set to 48.0 MHz**
Band Indicator	**Band XI can be selected**

MX882050C-009 W-CDMA Band IX

Band Indicator	**Band IX can be selected**
SIB 5 Type	**Auto, SIB5, and SIB5bis can be selected**

MX882000C-011 HSDPA Measurement Software

MX882000C-011 HSDPA Measurement Software

Overview

- Easy to connect to HSDPA terminal with call processing
- HSDPA Tx/Rx measurements for up to 3.6-Mbps class HSDPA terminals

MX882000C-011 HSDPA Measurement Software

Features

- **Upgrade via software*1**
- **Transmit and receive HSDPA physical channels**
  - **Support Fixed Reference Channel specified (RFC) in 3GPP**
  - **(FRC used for HSDPA Tx/Rx measurement)**
- **HSDPA Tx/Rx Measurement**
  - **Throughput, CQI, Tx measurements with HS-DPCCH**
- **Easy to connect to HSDPA-UE and easy to measure Tx/Rx**
- **Supports Tx/Rx measurements of categories 1 to 6, 11, and 12**
  - **Supports H-Set 1 to 5 and QPSK and 16QAM modulation**

*1: MT8820B, MT8820B-001, MX882000C, MX882000C-011, and MX882050C

MX882000C-011 HSDPA Measurement Software*

Connections for HSDPA Measurements

3GPP specifies a connection with RMC12.2K plus FRC for HSDPA Tx/Rx measurements. The various HSDPA measurements can be performed after establishing a RMC12.2K connection with the HSDPA terminal and then generating an FRC signal from the MT8820B.

*1: MT8820B, MT8820B-001, MX882000C, MX882000C-011, and MX882050C

MX882000C-011 HSDPA Measurement Software

HSDPA Tx/Rx Measurements

The MX882000C-011 supports the RF Tx/Rx measurement items shown below.

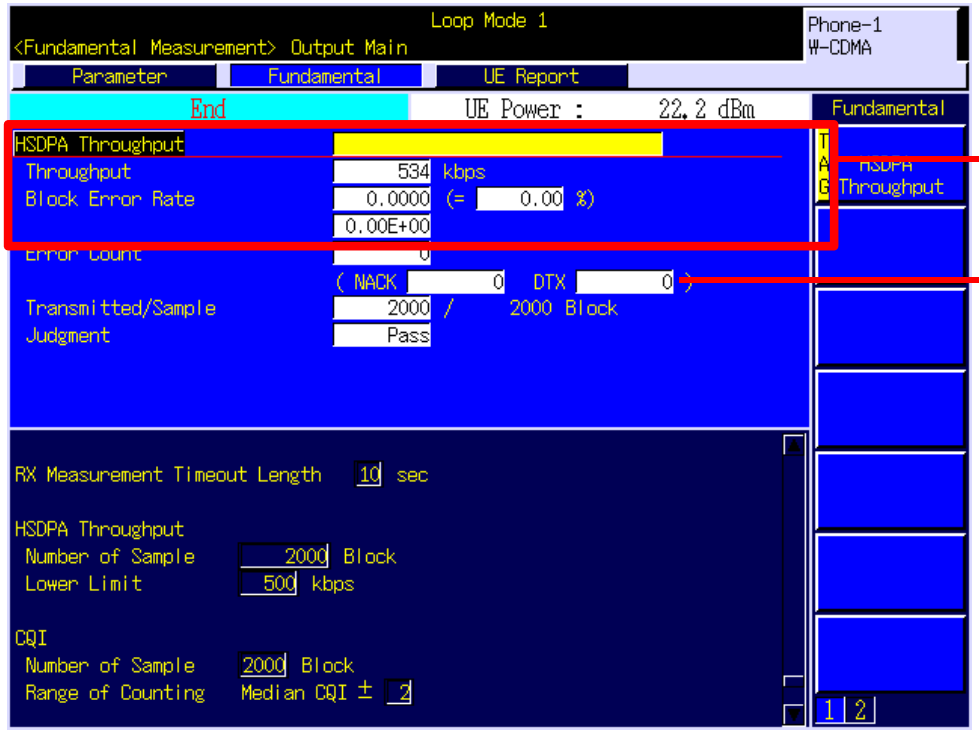
	3GPP TS34.121	Test Items
Transmitter Tests	5.2A	Maximum Output Power with HS-DPCCH (Release 5 Only)
	5.2AA	Maximum Output Power with HS-DPCCH (Release 6 and later)
	5.2C	UE relative code domain power accuracy
	5.7A	HS-DPCCH power control
	5.9A	Spectrum Emission Mask with HS-DPCCH
	5.10A	Adjacent Channel Leakage Power Ratio (ACLR) with HS-DPCCH
	5.13.1A	Error Vector Magnitude (EVM) with HS-DPCCH
	5.13.1AA	Error Vector Magnitude (EVM) and phase discontinuity with HS-DPCCH
	5.13.2A	Relative Code Domain Error with HS-DPCCH
Receiver Tests	6.3A	Maximum Input Level with HS-PDSCH Reception (16QAM)

MX882000C-011 HSDPA Measurement Software

Throughput Measurement

Throughput is measured using the MT8820B to calculate ACK, NACK, and DTx reported from the HSDPA terminal. The throughput of categories 1 to 6, 11, and 12 HSDPA terminals can be measured by selecting H-Set 1 to 5 and the modulation QPSK or 16QAM as a test signal.

Throughput Measurement



Throughput (Kbps) and Block Error Measurement

Error Type, NACK or DTx

MX882000C-011 HSDPA Measurement Software

CQI Measurement

The MT8820B decodes the CQI value from the HSDPA terminal, calculates the statistical results (average, median, maximum, minimum, etc.) and displays the histogram shown below. The CQI value reported from the HSDPA terminal can be checked using this functionality.

CQI Measurement

CQI Statistical Results

- **Average**
- **Median**
- **Maximum**
- **Minimum**
- **Number of CQI samples within specified range centered on median value**
- **Number of received samples**

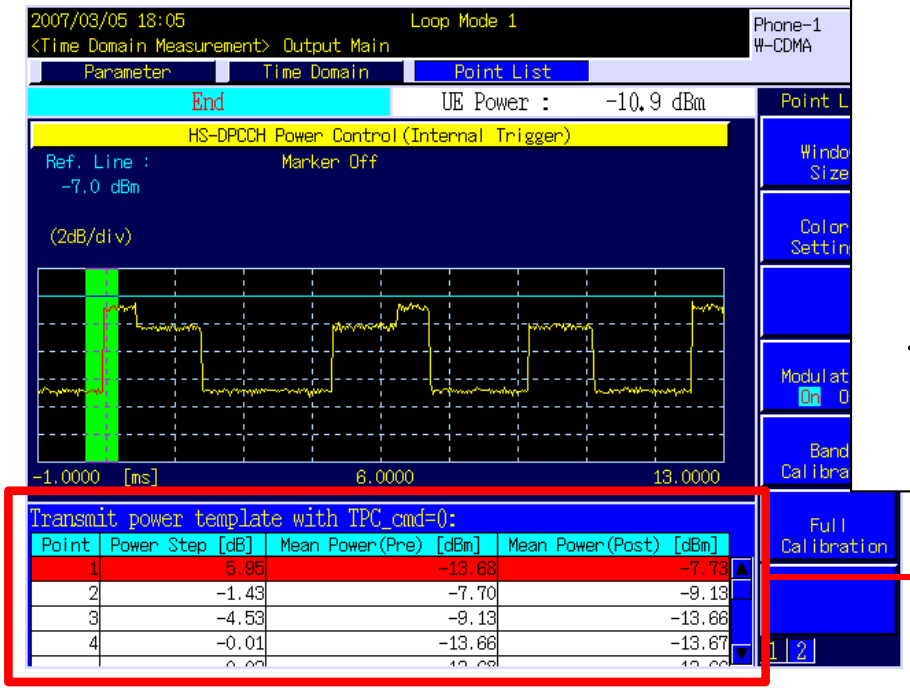
The number of CQI samples can be checked easily with a marker.

MX882000C-011 HSDPA Measurement Software

HS-DPCCH Power Control Measurement

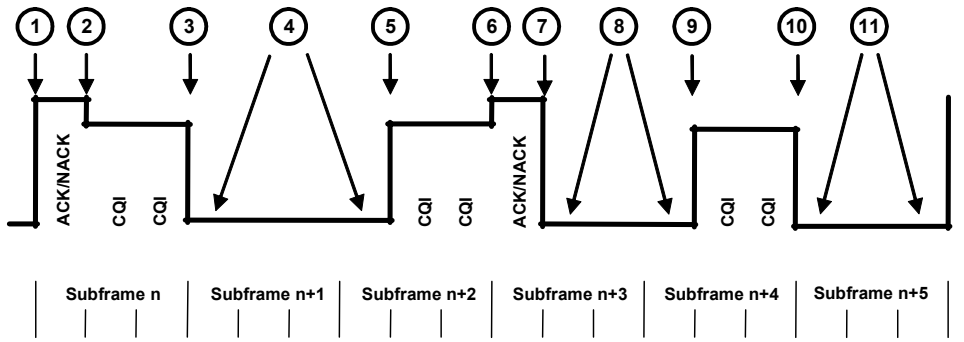
The changes in power due to the HS-DPCCH (ACK/NACK and CQI) send burst can be measured. The power difference at each power step point can be viewed using the slot list function.

HS-DPCCH Power Control Measurement



Test Requirements in 3GPP

The power difference at power step points 1 to 11 below is measured.

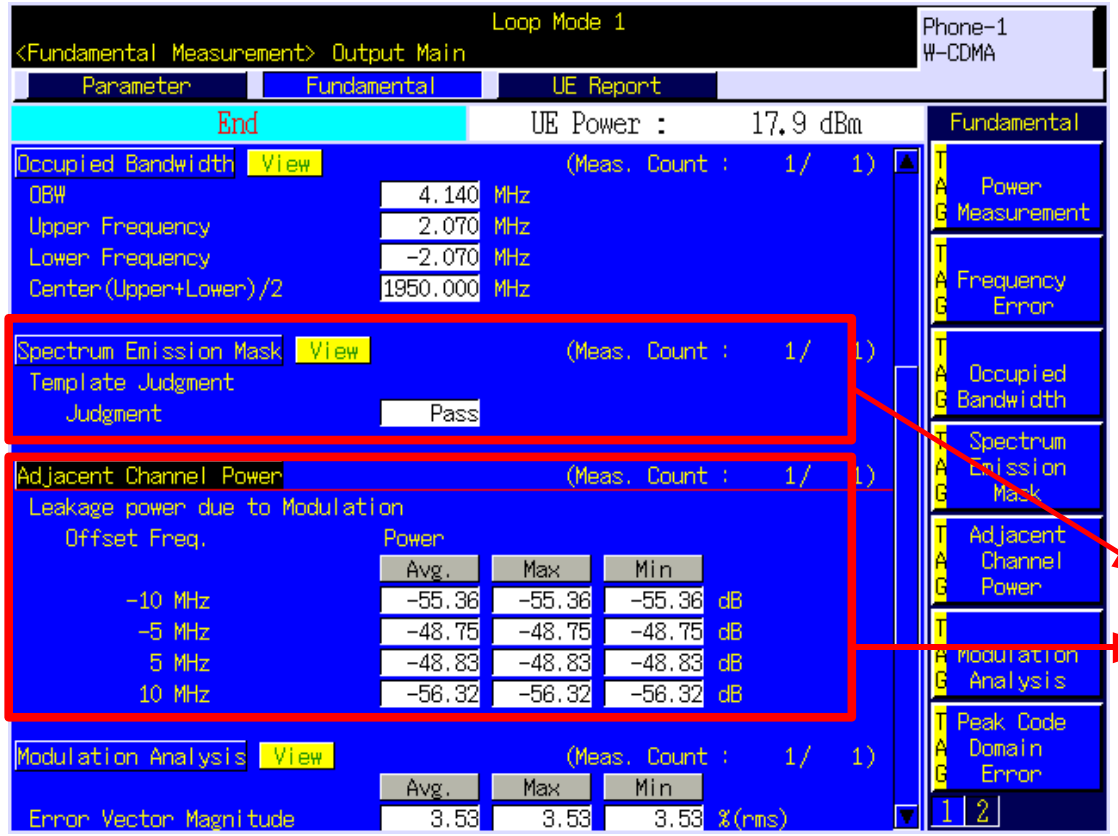


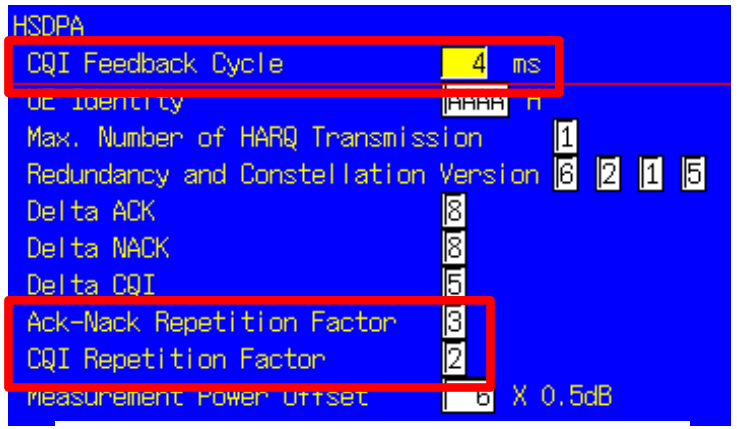
Slot List Function

MX882000C-011 HSDPA Measurement Software

Tx Measurement at HS-DPCCH Transmission

The transmit power, SEM, and ACLR during HS-DPCCH transmission can be measured. To perform these measurements using the ACK/NACK repetition factor, CQI repetition factor, and CQI feedback cycle, the HS-DPCCH must be sending continuously.





HSDPA Call Processing Parameters

SEM with HS-DPCCH

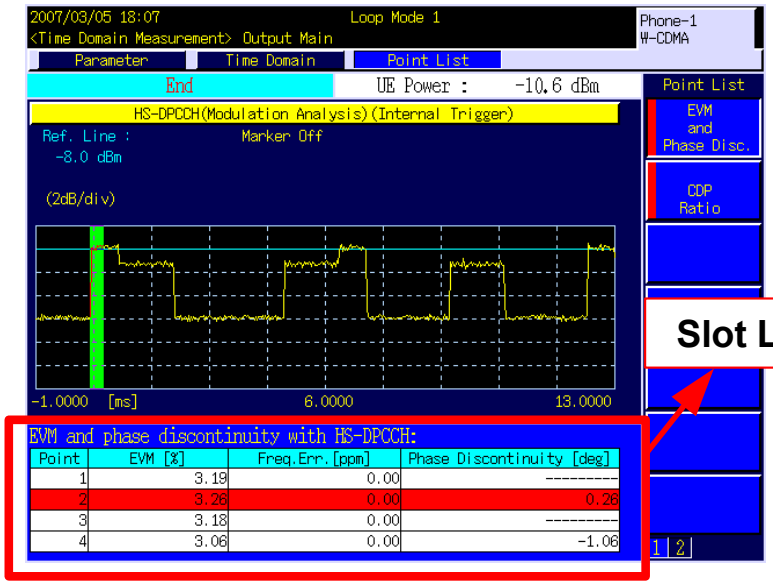
ACLR with HS-DPCCH

MX882000C-011 HSDPA Measurement Software

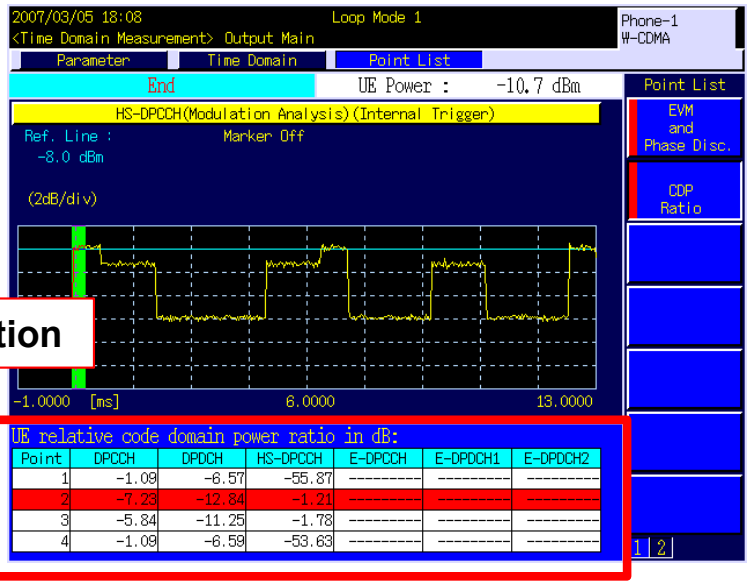
EVM and CDP Measurement

EVM and code domain power (CDP) can be measured in the periods when HS-DPCCH is transmitted and before and after HS-DPCCH transmission. EVM and CDP in each period can be viewed using the slot list function.

EVM



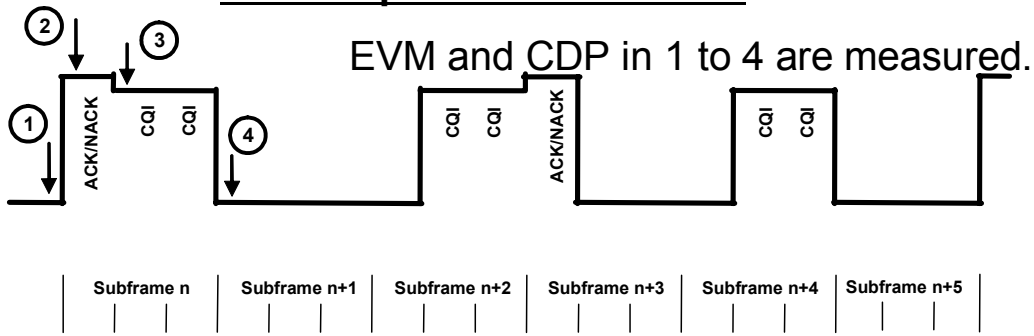
CDP



Slot List Function

Test Requirements in 3GPP

EVM and CDP in 1 to 4 are measured.

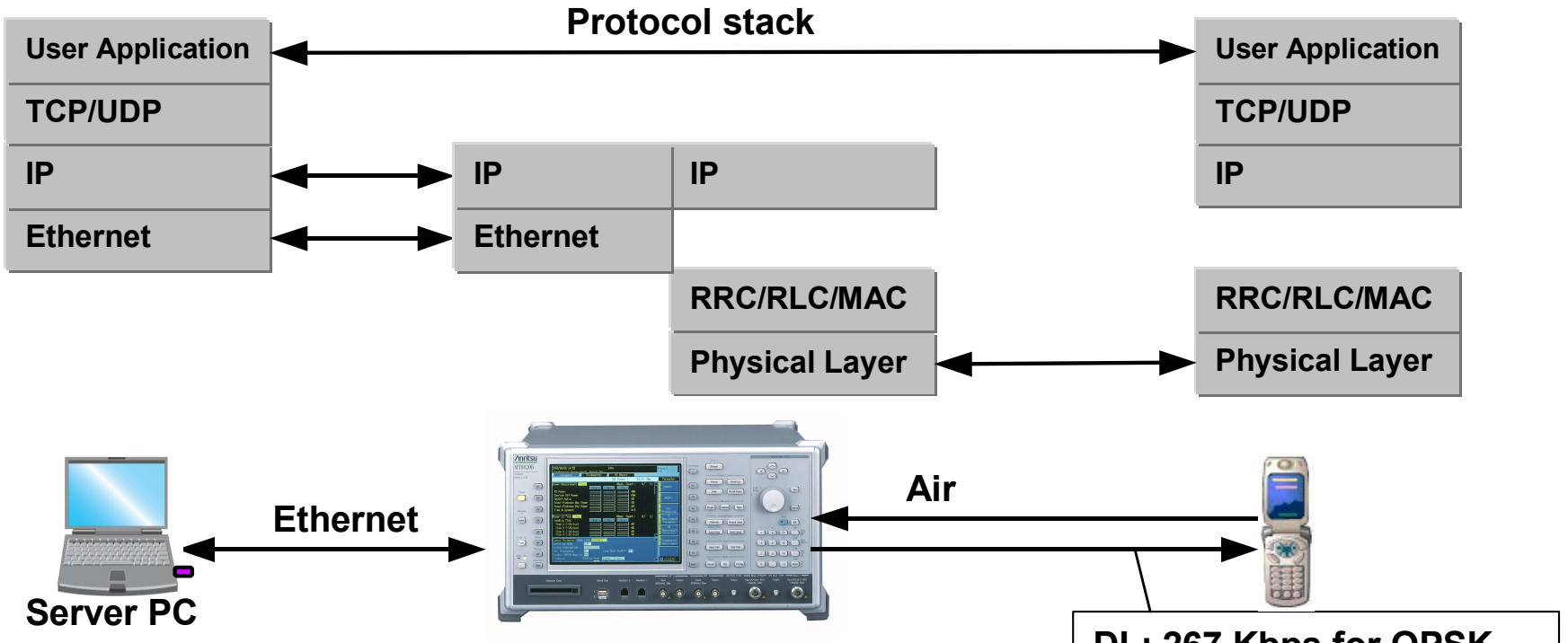


MX882050C-011 HSDPA External Packet Data

MX882050C-011 HSDPA External Packet Data*

Outline

The MX882050C-011 HSDPA External Packet Data option can test the end-to-end IP packet data transfer between an external server and a HSDPA terminal. This option supports QPSK and 16QAM modulation as the downlink signal. The maximum downlink data rate is 267 Kbps for QPSK and 388 Kbps for 16QAM.



*: Requires MT8820B, MT8820B-001, MX882000C, MX882000C-011, MX882050C, and MX88205C-011

MX882050C-011 HSDPA External Packet Data

Specifications

MX882050C-011 HSDPA External Packet Data

Ethernet	10Base-T
Data Rate	Downlink: 267 Kbps max. for QPSK, 388 Kbps max. for 16QAM Uplink: 64 Kbps
Server IP Address	0.0.0.0 ~ 255.255.255.255
Client IP Address	0.0.0.0 ~ 255.255.255.255
Channel Coding	Interactive or background/UL: 64 DL: 267 Kbps/PS RAB for QPSK, 388 Kbps/PS RAB for 16QAM
DTCH Data Pattern	External PPP Packet, External IP Packet

MX882000C-013 HSDPA High Data Rate

MX882000C-013 HSDPA High Data Rate

Overview

- This option supports the Throughput Test for HSDPA terminals supporting the 3.6-Mbps (category 6), 7.2-Mbps (categories 7 and 8), and 14-Mbps (category 10) classes.

Features

- Upgrade via software*

- Supports following signals for HSDPA Throughput Test

Parameter (Channel Coding)	Maximum data rate (Prioritised RABs DL Max Rate)	Explanation
H-Set 6 (QPSK)	3219 kbps	Signal defined by 3GPP to test throughput of HSDPA terminal of HS-DSCH category 7, 8 (7.2 Mbps class). (QPSK modulation)
H-Set 6 (16QAM)	4689 kbps	Signal defined by 3GPP to test throughput of HSDPA terminal of HS-DSCH category 7, 8 (7.2Mbps class). (16QAM modulation)
Category 6, Max.	3649 kbps	Signal to test throughput of HSDPA terminal of HS-DSCH category 6 (3.6 Mbps class) with maximum data rate.
Category 8, Max.	7205.5 kbps	Signal to test throughput of HS-DSCH category 8 (7.2 Mbps class) HSDPA terminal with maximum data rate.
Category 10, Max.	13976 kbps	Signal to test throughput of HS-DSCH category 10 (14 Mbps class) HSDPA terminal with maximum data rate.

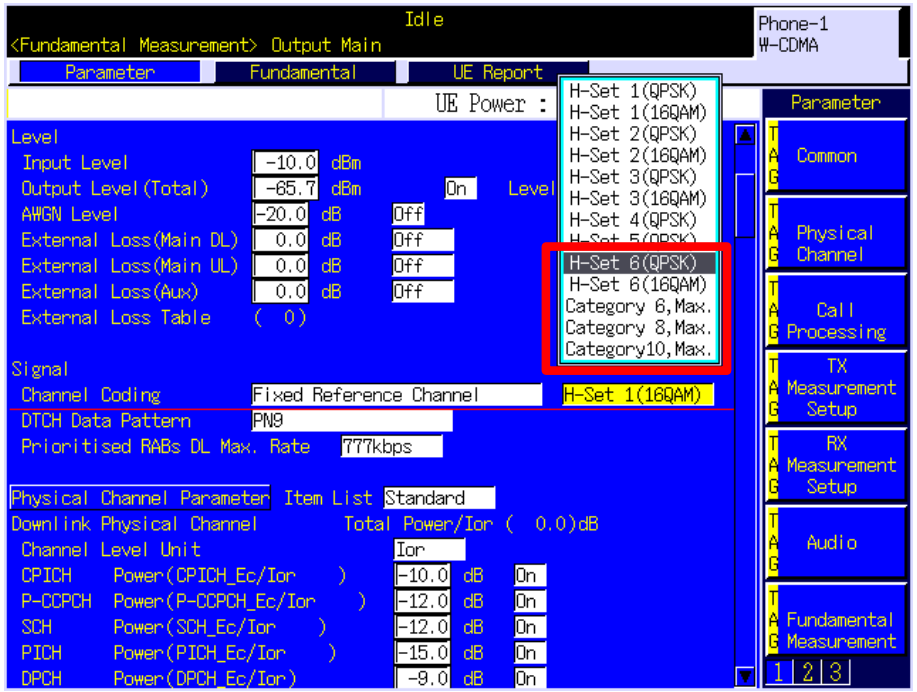
*: Requires MT8820B, MT8820B-001, MX882000C, MX882000C-011, MX882000C-013, and MX882050C

MX882000C-013 HSDPA High Data Rate

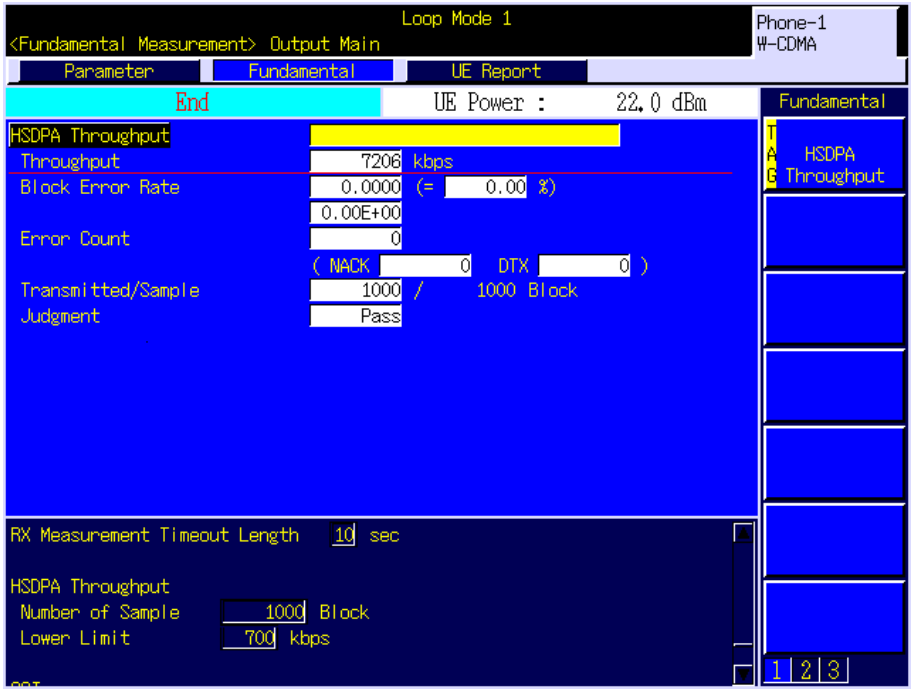
High-speed Throughput Measurement

Throughput is measured using the MT8820B to calculate ACK, NACK, and DTx reported from the HSDPA terminal. The throughput can be measured for 7.2-Mbps class HSDPA terminals with FRC H-Set 6 (QPSK/6QAM) defined by 3GPP and 3.6/7.2/14-Mbps class HSDPA terminals with maximum data rate.

Parameter Setting



Throughput Measurement (Ex. Category 8, Max.)



MX882000C-021 HSUPA Measurement Software

MX882000C-021 HSUPA Measurement Software

Overview

- Easy to connect to HSUPA terminal with call processing
- HSUPA Tx measurements for up to 5.76-Mbps class HSUPA terminals

  Supports categories 1 to 6, and 2 and 10 ms TTI

MX882000C-021 HSUPA Measurement Software

Features

- Upgrade via software*
- Transmit and receive HSUPA physical channels
- HSUPA Tx Measurements

  Transmit power, spectrum emission mask, adjacent channel leakage power ratio with E-DCH
- Easy to connect to HSUPA UE and easy to measure Tx characteristics
- Throughput Monitor

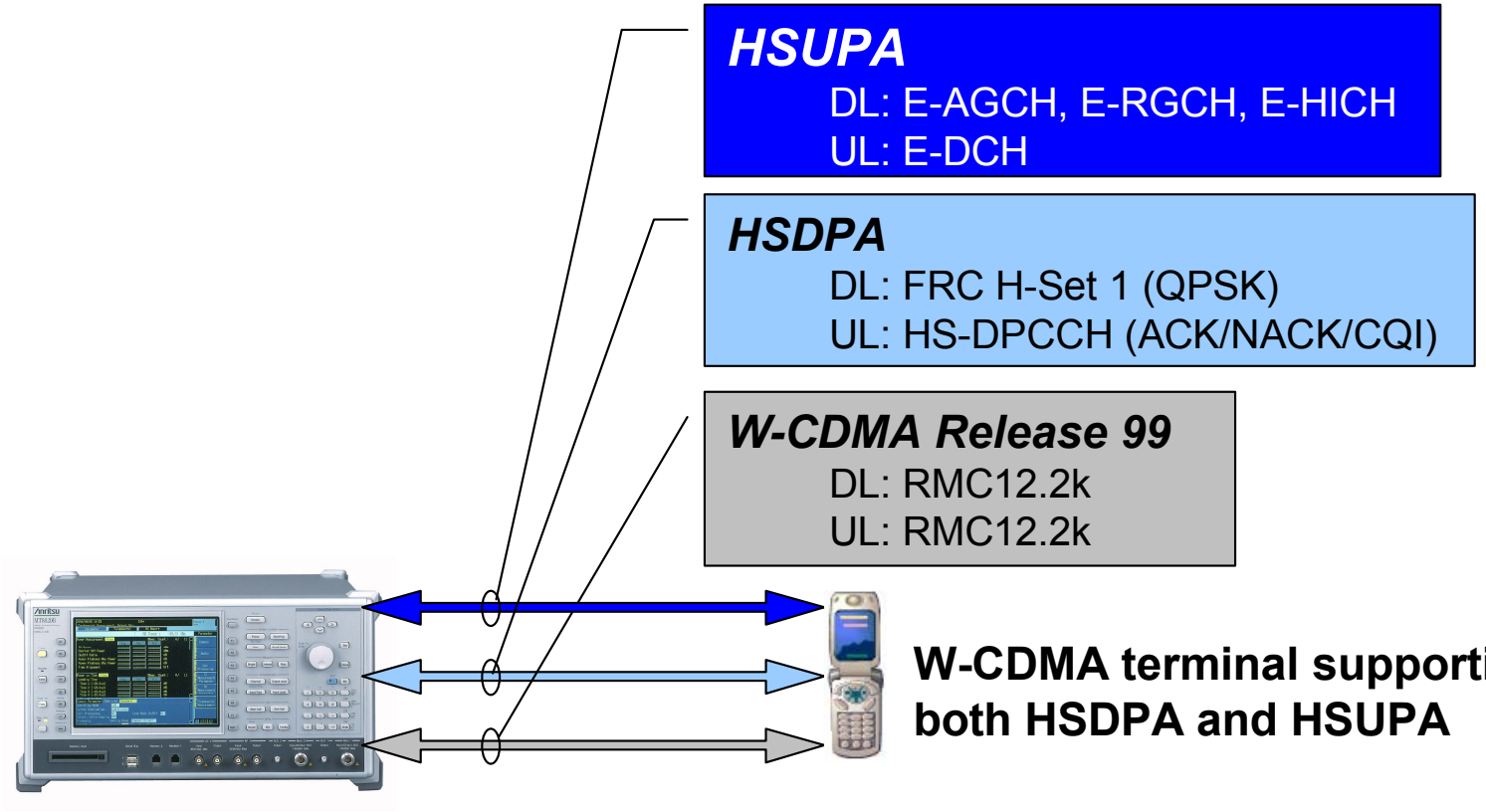
  Measures E-DCH throughput from E-TFCI reported from HSUPA terminal

*: Requires MT8820B, MT8820B-001, MX882000C, MX882000C-011, MX882000C-021, and MX882050C

MX882000C-021 HSUPA Measurement Software

Connections for HSUPA RF Tx Measurements

3GPP specifies a connection with RMC 12.2k, FRC H-Set 1 (QPSK), HS-DPCCH and E-DCH for HSUPA Tx measurements. The various HSUPA measurements can be performed by the MT8820B establishing a RMC 12.2k connection with the terminal and then transmitting data with FRC, and the terminal transmitting data on E-DCH.



MX882000C-021 HSUPA Measurement Software

HSUPA Tx Measurement Items

The MX882000C-021 supports the RF Tx measurement items shown below.

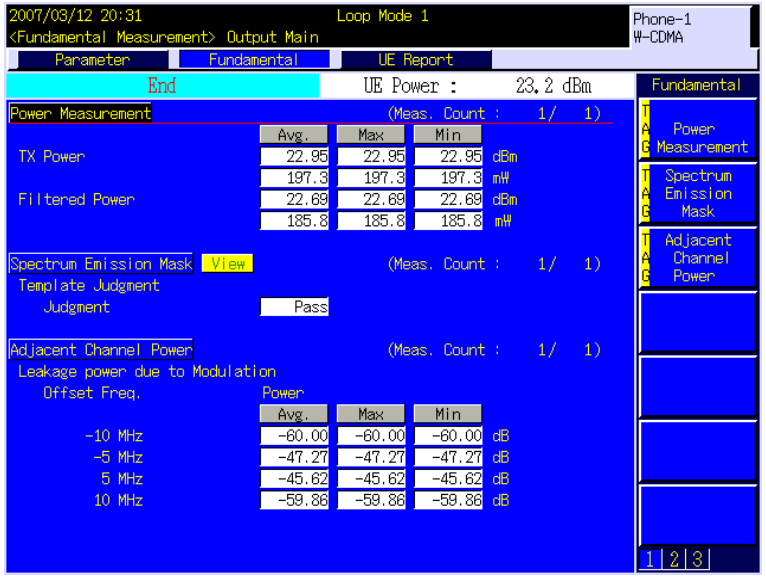
	3GPP TS34.121	Test Items
Transmitter Tests	5.2B	Maximum Output Power with HS-DPCCH and E-DCH
	5.2D	UE Relative Code Domain Power Accuracy for HS-DPCCH and E-DCH
	5.9B	Spectrum Emission Mask with E-DCH
	5.10B	Adjacent Channel Leakage Power Ratio (ACLR) with E-DCH
	5.13.2B	Relative Code Domain Error with HS-DPCCH and E-DCH

MX882000C-021 HSUPA Measurement Software

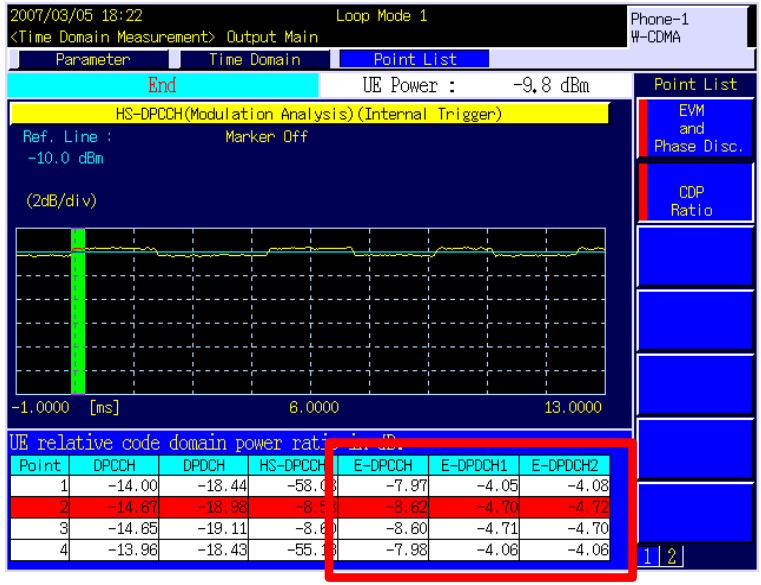
HSUPA Tx Measurement Items

The transmit power, SEM, and ACLR during HS-DPCCH and E-DCH transmission can be measured. The code domain power (CDP) of E-DCH can be also measured.

Transmit Power, SEM, ACLR



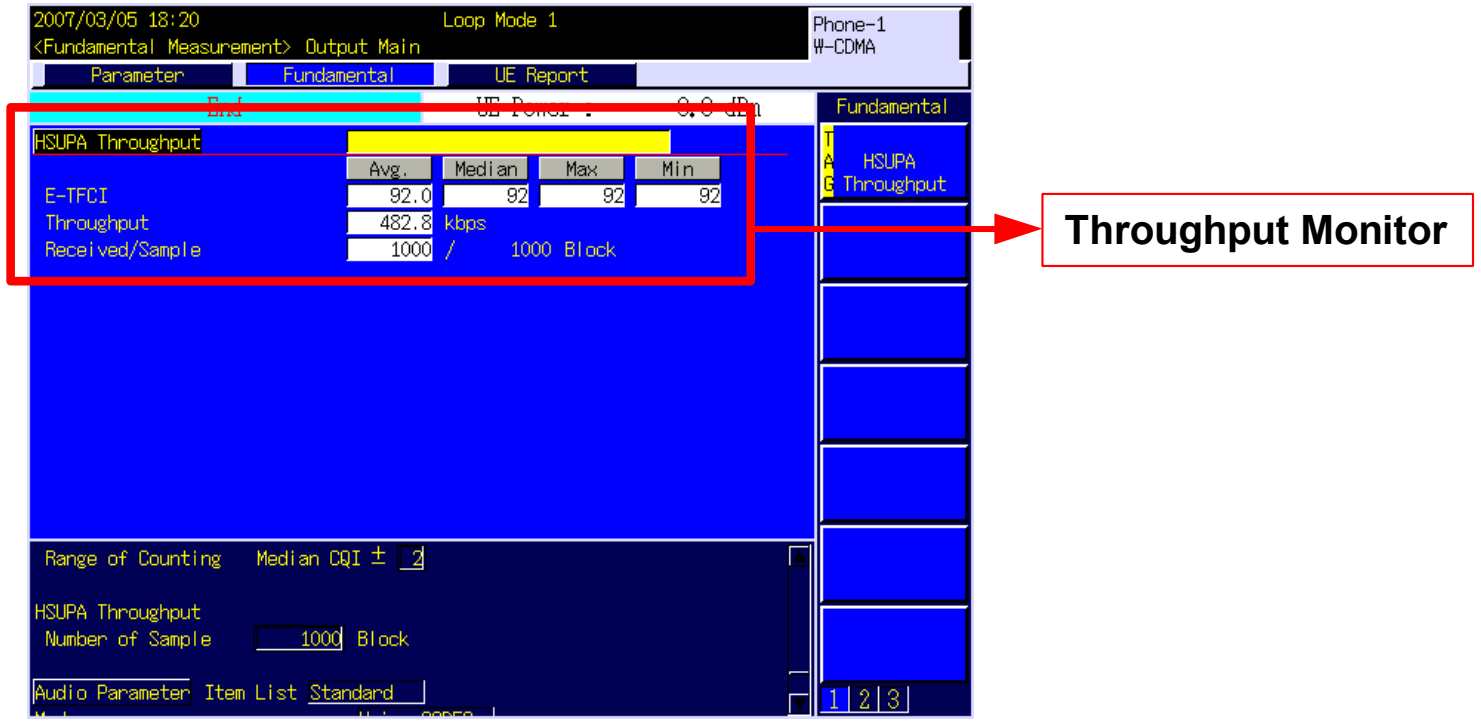
Relative Code Domain Power



MX882000C-021 HSUPA Measurement Software

Throughput Monitor

Throughput is calculated from E-TFCI reported from the HSUPA terminal. The statistical results (average, median, maximum and minimum) of E-TFCI can be also viewed.



MX882000C-031 HSPA Evolution Measurement Software

MX882000C-031 HSPA Evolution Measurement Software

Overview

- Easy to connect to HSPA terminal with call processing
- HSPA Tx and Rx measurements for up to 21-Mbps class HSPA terminals
  Supports HS-DSCH Category 14

MX882000C-031 HSPA Evolution Measurement Software

Features

- **HSPA Tx and Rx Measurements***

  UE Relative Code Domain Power Accuracy for HS-DPCCH and E-DCH with 16QAM, Relative Code Domain Error for HS-DPCCH and E-DCH with 16QAM, and Maximum Input Level for HS-PDSCH Reception (64QAM)

- **Transmit and receive HSPA physical channels**

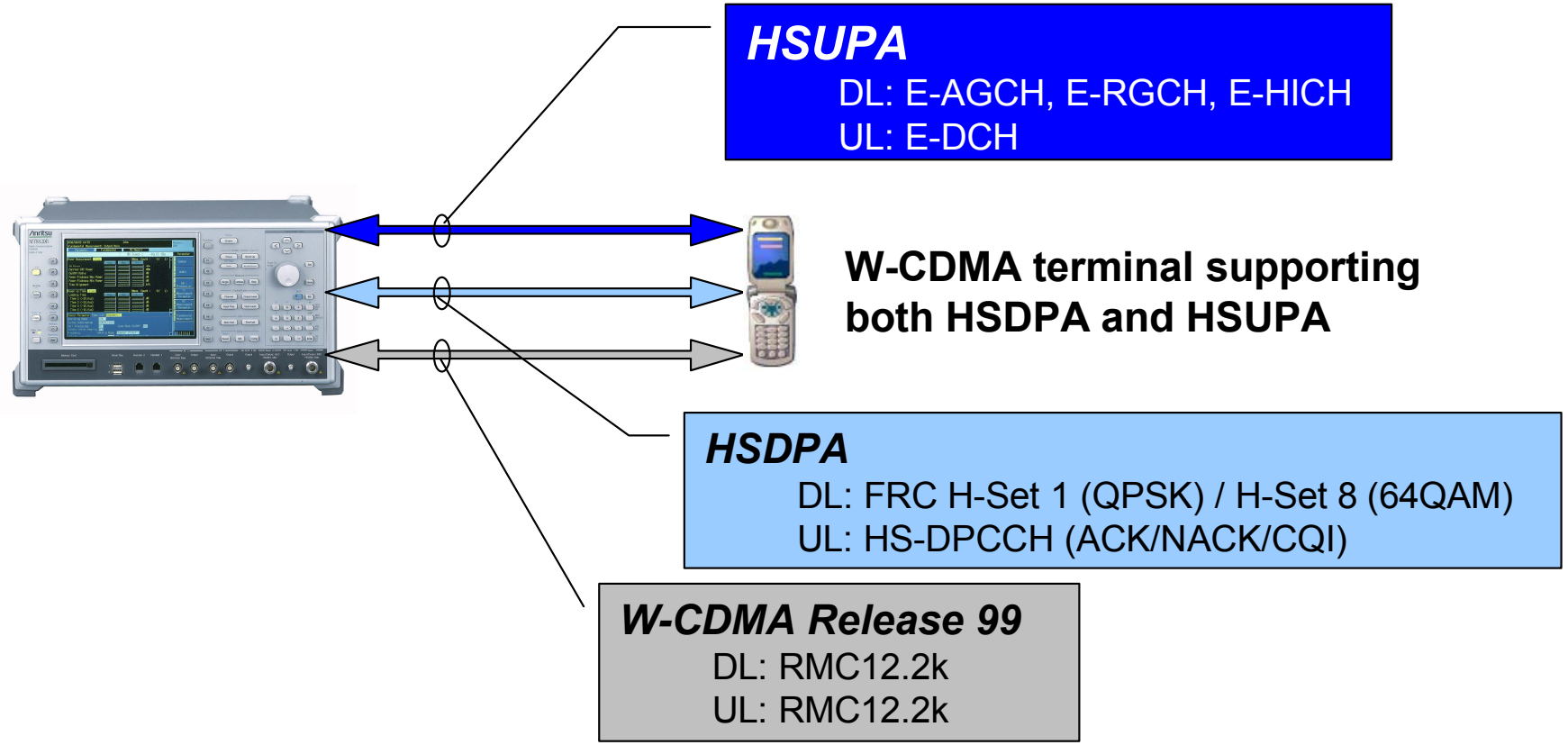
- **Easy to connect to HSPA UE and to measure Tx and Rx characteristics**

*: Requires MT8820B, MT8820B-001, MX882000C, MX882000C-011, MX882000C-021, MX882000C-031, and MX882050C

MX882000C-031 HSPA Evolution Measurement Software

Connections for HSPA RF Tx and Rx Measurements

3GPP specifies a connection with RMC 12.2k, FRC H-Set 1 (QPSK), H-Set 8 (64QAM), HS-DPCCH and E-DCH for HSPA Tx and Rx measurements. The various HSPA measurements can be performed by the MT8820B establishing a RMC 12.2k connection with the terminal and then transmitting data with FRC.



MX882000C-031 HSPA Evolution Measurement Software

HSPA Tx and Rx Measurement Items

The MX882000C-031 supports the RF Tx and Rx measurement items shown below.

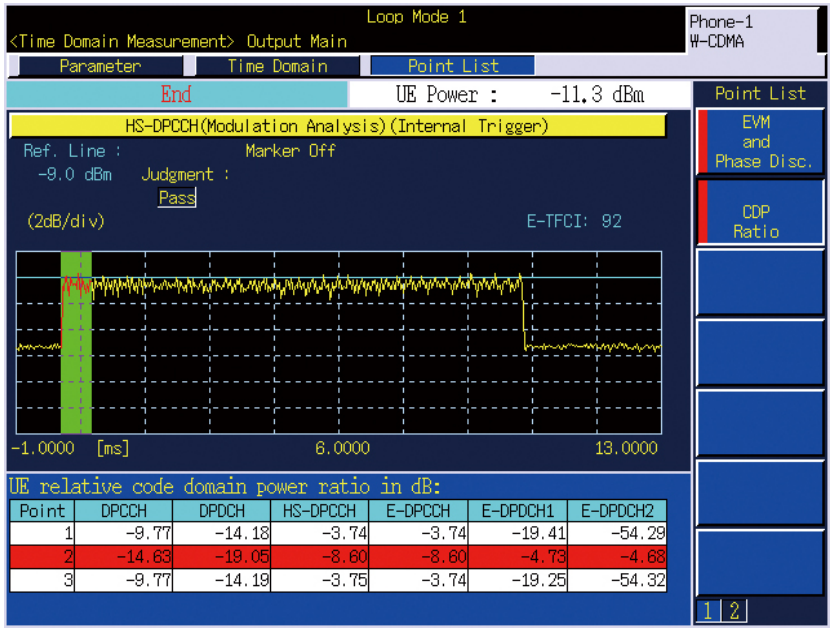
	3GPP TS34.121	Test Items
Transmitter Tests	5.2E	UE Relative Code Domain Power Accuracy for HS-DPCCH and E-DCH with 16QAM
	5.13.2C	Relative Code Domain Error for HS-DPCCH and E-DCH with 16QAM
Receiver Tests	6.3B	Maximum Input Level for HS-PDSCH Reception (64QAM)

MX882000C-031 HSPA Evolution Measurement Software

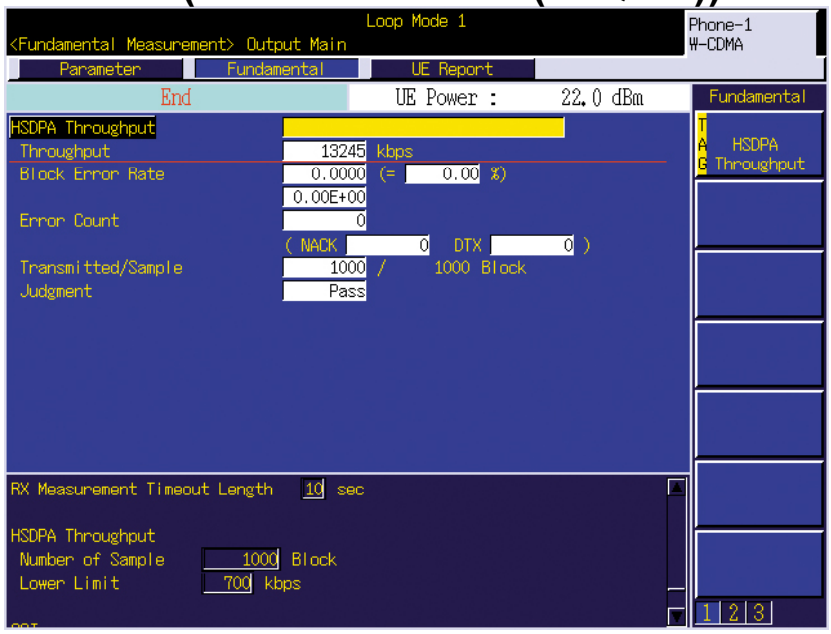
HSPA Tx and Rx Measurements

UE Relative Code Domain Power Accuracy and Relative Code Domain Error for HS-DPCCH and E-DCH with 16QAM can be measured. The HSDPA throughput with FRC H-Set 8 (64QAM) can be measured. The throughput can be measured for 21-Mbps class HSDPA terminals with Category 14 with maximum data rate.

UE Relative Code Domain Power Accuracy



Throughput Measurement (Ex. FRC H-Set 8 (64QAM))



*: For terminal connectivity, contact your Anritsu sales representative

Anritsu

Specifications are subject to change without notice.

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Printed on Recycled Paper

No. MX882000C-E-L-1-(4.00) 公知 Printed in Japan 2009-2 PSD