MT8820B
Radio Communication Analyzer
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Product Introduction

Version 7.0
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ANRITSU CORPORATION
The MT8820B is the new Anritsu all-in-one tester platform for manufacturing mobile terminals. The cost of manufacturing mobile terminals depends heavily on equipment costs and manufacturing throughput. The Anritsu Parallelphone™ Measurement function helps cut equipment costs and space, and the lower power consumption cuts running costs too. Moreover, the Tx measurement speed is twice that of the MT8820A, greatly improving manufacturing throughput.

Since the all-in-one MT8820B supports all manufacturing processes, including calibration, RF parametric testing, and functional/quality tests, it can be incorporated easily into existing production lines.
MT8820B Overview

Effective Combination of Signalling and RF Measurement Technology

The MT8820B combines signalling and high-performance RF measuring technologies to provide wide support for R&D, manufacturing, and maintenance.
Supports All Manufacturing Processes

The various MT8820B functions, such as calibration, RF parametric testing, signalling, voice calling, and packet communications, support all manufacturing processes shown below, so it can be incorporated easily into existing production lines.
High-Speed Tx Measurement

The W-CDMA, CDMA2000, GSM (GMSK modulation), and EGPRS (8PSK modulation) Tx measurement times excluding signalling time are shown below. The MT8820B is two times faster than the MT8820A.

W-CDMA (avg. = 1 and avg. = 20)

- **W-CDMA meas. time (avg.=1)**
  - TX power: 75, 73, 70
  - ACLR: 28, 28, 34
  - EVM: 0, 0, 0

- **W-CDMA meas. time (avg.=20)**
  - TX power: 1372, 1371, 1280
  - ACLR: 477, 479, 559
  - EVM: 0, 0, 0

CDMA2000 (avg. = 1 and avg. = 20)

- **CDMA2000 meas. time (avg.=1)**
  - TX power: 103, 43
  - Spurious: 49, 23
  - Rho: 78, 30

- **CDMA2000 meas. time (avg.=20)**
  - TX power: 1979, 779
  - Spurious: 578, 223
  - Rho: 1466, 508
High-Speed Tx Measurement

GSM (GMSK Modulation) (avg. = 1 and avg. = 20)

EGPRS (8PSK Modulation) (avg. = 1 and avg. = 20)
**High-Speed Tx Measurement**

The reduced Tx measurement time of the MT8820B increases manufacturing throughput. It is particularly effective at the calibration and RF parametric test phases without signalling.
Parallelphone Measurement

Using Anritsu’s unique Parallelphone™ Measurement (PPM) function, two measurement functions can be installed in one MT8820B to test two mobile terminals simultaneously and independently.

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

Parallelphone Measurement cuts capital costs by 20%, power consumption by 30%, and benchtop space per port (RF) by 50%.

**Space Saving**
- Two MT8820 units with single RF
- MT8820B
- MT8820B
- One MT8820 unit with PPM
- MT8820B

**Equipment Cost Saving**
- Two MT8820 units with single port
- About 20% down
- One MT8820 unit with PPM
- Incremental costs drop as production increases.

Parallelphone Measurement cuts capital costs by 20%, power consumption by 30%, and benchtop space per port (RF) by 50%.

Incremental costs drop as production increases.
MT8820A Compatibility

Because the MT8820B is compatible with MT8820A functions, GPIB commands, and operations (GUI), investment in existing assets is maintained.

Compatible
- Functions
- GPIB Commands
- Operation (GUI)

Same jig
Same control software
Same operation (GUI)
Quality Improvement (Lower Power Consumption)

The MT8820B cuts power consumption by 30% to reduce running costs.

- **Power Consumption**
  - **Model A**:
    - Upper power consumption: 100
    - Lower line power consumption: 70
  - **Model B**:
    - Lower power consumption: 70
- **Lower line power consumption**:

  - **Power Consumption**:  
    - MT8820A_UMTS/port = 185 W typ. 
    - MT8820B_UMTS/port = 125 W typ.
Less Fan Noise and Rerouted Exhaust

The MT8820B has less fan noise for a better working environment.

The MT8820A heat exhaust air flow is side-to-side, but the MT8820B exhaust flow is side-to-back, allowing MT8820B units to be placed closer to each other and saving space.
MX882000C W-CDMA Measurement Software
MX882000C-011 HSDPA Measurement Software
MX882000C-013 HSDPA High Data Rate
MX882000C-021 HSUPA Measurement Software
MX882000C-031 HSPA Evolution Measurement Software

*1: Available in the near future
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 Measurement screen.
**MX882000C W-CDMA Measurement Software**

When the audio board and voice codec options are installed, the MT8820B can perform the tests shown below.

**Voice End-to-End Test**
Voice calling between a W-CDMA mobile and handset can be tested.

**Audio Tx/Rx Measurement**
The audio characteristics of a W-CDMA terminal can be measured with one MT8820B unit with built-in audio generator and audio analyzer.
MX882000C W-CDMA Measurement Software

Installing this optional software supports tests of W-CDMA supplementary functions, such as video telephony and PPP/IP packet communications with an external server.
The Tx characteristics at HS-DPCCH sending, throughput, and burst power variation at HS-DPCCH sending can be measured with this software.

Power, SEM, ACLR, EVM

Throughput

HS-DPCCH Power Control
This option supports the following signals for testing HSDPA throughput with high-speed data rates, including 14 Mbps.

### Throughput: Ex. Category 8, Max.

<table>
<thead>
<tr>
<th>Parameter (Channel Coding)</th>
<th>Maximum data rate (Prioritised RABs DL Max)</th>
<th>Explanation of signal</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-Set 6 (QPSK)</td>
<td>3219 kbps</td>
<td>Signal defined by 3GPP to test throughput of HSDPA terminal of HS-DSCH category 7, 8 (7.2 Mbps class). (QPSK modulation)</td>
</tr>
<tr>
<td>H-Set 6 (16QAM)</td>
<td>4689 kbps</td>
<td>Signal defined by 3GPP to test throughput of HSDPA terminal of HS-DSCH category 7, 8 (7.2 Mbps class). (16QAM modulation)</td>
</tr>
<tr>
<td>Category 6, Max.</td>
<td>3649 kbps</td>
<td>Signal to test throughput of HS-DSCH category 6 (3.6 Mbps class) with maximum data rate.</td>
</tr>
<tr>
<td>Category 8, Max.</td>
<td>7205.5 kbps</td>
<td>Signal to test throughput of HS-DSCH category 8 (7.2 Mbps class) HSDPA terminal with maximum data rate.</td>
</tr>
<tr>
<td>Category 10, Max.</td>
<td>13976 kbps</td>
<td>Signal to test throughput of HS-DSCH category 10 (14 Mbps class) HSDPA terminal with maximum data rate.</td>
</tr>
</tbody>
</table>
MX882000C-021 HSUPA Measurement Software

The E-DCH Tx characteristics can be measured with this software. Terminals supporting categories 1 to 6, and 2- and 10-ms TTI can be tested. E-DCH throughput can be monitored too.

*Throughput monitor value is calculated based on bit rate information of E-TFCI value.*
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.

*1: For terminal connectivity, contact your Anritsu sales representative.
MX882001C GSM Measurement Software
MX882001C-011 EGPRS Measurement Software
In addition to basic RF Tx/Rx measurements of GSM/GPRS terminals, the spectrum can be checked at the Spectrum Monitor screen to adjust the IQ modulator. Furthermore, installing the optional software supports tests of packet communications between GPRS mobiles and an external server.

**Fundamental Measurement Screen (Tx)**

**Fundamental Measurement Screen (Rx)**

**Spectrum Monitor Screen**
MX882001C GSM Measurement Software

When the audio board and voice codec options are installed, the MT8820B can perform the tests shown below.

**Voice End-to-End Test**
Voice calling between a GSM mobile and handset can be tested.

**Audio Tx/Rx Measurement**
The audio characteristics of a GSM terminal can be measured with one MT8820B unit with built-in audio generator and audio analyzer.
The Tx/Rx characteristics of EGPRS terminals using 8PSK modulation can be measured along with the 8PSK modulation accuracy, such as EVM and origin offset, using this software. BER at SRB loopback plus BLER can be measured for Rx too.
MX882002C CDMA2000 1X Measurement Software
MX882006C 1xEV-DO Measurement Software
MX882006C-011 1xEV-DO Rev. A Measurement Software

*The MX882006C is compatible with the MX882003C measurement items; the MX882006C supports RF tests for 1xEV-DO (Rev. 0) mobiles. To perform RF tests for 1xEV-DO Rev. A mobiles, add the MX882006-011 software option.

<table>
<thead>
<tr>
<th>Model</th>
<th>Protocol Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX882006C</td>
<td>IS-856-0 (1xEVDO Rev. 0)</td>
</tr>
<tr>
<td>MX882006C-002</td>
<td>IS-856-0 (1xEVDO Rev. 0)</td>
</tr>
<tr>
<td>MX882006C-011</td>
<td>IS-856-A (1xEVDO Rev. A)</td>
</tr>
</tbody>
</table>
MX882002C CDMA2000 1X Measurement Software

In addition to the basic RF Tx/Rx measurements of CDMA2000 1X terminals, the access probe power and open loop time response can be measured with this software. Moreover, it supports testing of packet communications between CDMA2000 1X terminals and an external server.

Fundamental Measurement Screen (Tx)

Fundamental Measurement Screen (Rx)

Access Probe Measurement Screen
**MX882002C CDMA2000 1X Measurement Software**

When the audio board and voice codec options are installed, the MT8820B can perform the tests shown below.

*Voice End-to-End Test*
- Audio signal input from AF 1 Input connector of MT8820B
- Audio signal output to AF 1 Output connector of MT8820B

**Voice End-to-End Test**

Voice calling between a CDMA2000 1X mobile and handset can be tested.

**Audio Signal Input and Output Function**

The MT8820B can output and input an audio signal at the AF 1 Input/Output connector.

*The MX882002C-001 does not support Audio Tx/Rx Measurement like the other system.*
MX882006C 1xEV-DO Measurement Software

In addition to the basic RF Tx/Rx measurements of CDMA2000 1xEV-DO (Rev. 0) terminals, the access probe power and open loop time response can be measured using this software. Moreover, it supports testing of packet communications between CDMA2000 1xEV-DO (Rev. 0) terminals and an external server.
This software supports call processing (ETAP) with IS-865-A (1xEV-DO Rev. A) for Tx/Rx signals under test. In addition, the MT8820B can measure DSC and Aux Pilot added to 1xEV-DO Rev. A Code Domain Power Measurement.

*PER Measurement can be tested with FETAP. However, Anritsu approves Rx measurement in the non-call processing mode.
MX882007C TD-SCDMA Measurement Software
MX882007C-001 TD-SCDMA Voice Codec
MX882007C-003 TD-SCDMA Video Phone Test
MX882007C-011 TD-SCDMA HSDPA Measurement Software
MX882007C-021 TD-SCDMA HSUPA Measurement Software
The main RF Tx/Rx measurements of TD-SCDMA (1.28 Mcps TDD) terminal can be performed with call-processing. Settings for the main Tx/Rx tests are made easy by one-touch operation, and closed-loop power control supports automated measurements for simple, 3GPP-compliant testing. In addition, the mobile terminal report function, spectrum monitor function plus test plan function offering batch measurements are all supported along with a multi-power measurement function for fast adjustment of the terminal Tx output level.

**Tx/Rx Measurement Example:**
- Power Template
- Automatic closed-loop power control measurement
- One-touch test condition setting menu
- Batch measurement test plan

**MX882007C TD-SCDMA Measurement Software**
MX882007C-001 TD-SCDMA Voice Codec

When the audio board and voice codec options are installed, the MT8820B can perform the tests shown below.

**Voice End-to-End Test**

Voice calling between a TD-SCDMA mobile and handset can be tested.

**Audio Tx/Rx Measurement**

The audio characteristics of a TD-SCDMA terminal can be measured with one MT8820B unit with built-in audio generator and audio analyzer.
The MX882007C-003 TD-SCDMA Video Phone Test option can test end-to-end video communication between two TD-SCDMA mobiles using either two MT8820B units or one MT8820B unit with the Parallelphone measurement option. Moreover, video communication can be tested with a single TD-SCDMA mobile using the video loopback function.
MX882007C-011 TD-SCDMA HSDPA Measurement Software

3GPP-compliant Rx throughput measurements and CQI measurement are supported at connection to TD-SCDMA HSDPA mobile terminals. Both RMC signals supporting TD-SCDMA HSDPA all categories and maximum data rate (2.8 Mbps) signals for category-15 are provided as DUT throughput test signals.

TD-SCDMA HSDPA Throughput / CQI Measurement

* For terminal connectivity, contact your Anritsu sales representative
This software supports RF Tx characteristics tests of HSUPA terminals specified in TS34.122 chapter 5 and evaluating the RF performance of HSUPA terminals. Both RMC signals supporting TD-SCDMA HSUPA category 1 to 6 (2.23 Mbps UE class) are provided as DUT throughput test signals.

*For terminal connectivity, contact your Anritsu sales representative

*Throughput monitor value is calculated based on bit rate information of E-DCH TE Index value.
Note