For MT8820C Radio Communication Analyzer

MX882001C
GSM Measurement Software

MX882001C-011
EGPRS Measurement Software
Advanced High-speed Measurement Method and Batch Measurement Supporting the Manufacture of GSM/GPRS Terminals

The MX882001C GSM Measurement Software supports measurement of transmitters and receivers of digital mobile terminals conforming to GSM/GPRS/EGPRS*-the world's most widely used digital mobile standard. When the MX882001C GSM Measurement Software and MX882000C W-CDMA Measurement Software are installed in the MT8820C main frame, the Tx and Rx characteristics of dual-mode W-CDMA/GSM terminals, which are becoming very popular worldwide, can be evaluated using a single MT8820C unit.

Anritsu's advanced DSP (Digital Signal Processing) and parallel-measurement technologies greatly reduce test times on automated production lines as well as when testing mobile terminals. Any combination of test parameters can be set, facilitating speedy batch measurement, and the number of measurements for each measurement item can be set independently.

At GSM measurement, selected measurement items can be batch-processed by one-touch operation, supporting easy, fast Pass/Fail evaluation of major test items including frequency error, modulation accuracy, transmit power, output RF spectrum, and BER.

At GPRS measurement, frequency error, modulation accuracy and transmit power are measured using a Test Mode A connection, while BLER with selected multislot class and coding scheme is measured using either a Test Mode B or BLER connection.

The built-in GPIB and Ethernet interface enables the MT8820C to be integrated into automated test systems for after-sales maintenance, as well as into automated production lines.

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* Require MX882001C-011 for EGPRS measurement

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Transmitter Measurement

Transmit Power

When two or more measurements are made, the maximum, average, and minimum results are displayed, supporting evaluation of the GSM terminal transmit power. This functionality is also supported for other measurements.

Power vs. Time

Power at six measuring points for each burst rise/fall edge can be measured, with measuring time set in increments of 0.1 µs resolution.

Burst Waveform Display

Burst waveforms can be displayed graphically, and a magnified display of the entire time slot and burst-on interval, as well as the rising and falling edges, supports easy evaluation of whether the burst waveform is within the limits of the power time template.
Modulation Analysis

The frequency, frequency error (in kHz and ppm), phase error, and peak phase error can be measured simultaneously. The amplitude error of the burst-on interval can be measured too.

Output RF Spectrum

The spectrum can be measured at a total of 25 frequency points within the range of ±2 MHz of the carrier frequency. “Modulation” is the spectrum resulting from the modulated signal around the center of the burst signal, while “Switching” is the spectrum resulting from the rising and falling edges of the burst signal. In addition to using advanced DSP technology, parallel measurement supports faster display of the output RF spectrum.

GSM Frequency Hopping Function

The frequency hopping is a function that changes the channel (ARFCN) used for communication between the base station (BS) and mobile station (MS) by each 4.62 ms frame. Frequency hopping is operated by the Measure Channel and Frequency set value of ‘hopping frequency table-ARFCNs’.

Receiver Measurement

Error Rate Test

The uplink RF signal, which is looped back from GSM terminal, is demodulated by controlling the GSM terminal in the loopback condition to measure the frame error, bit error, and CRC error rates. The error rate for TCH/FS, TCH/HS, TCH/EFS, TCH/AFS and TCH/AHS can be measured. The FAST BER mode is also available. Transmitter measurements can be run in parallel with error-rate measurements as well.
Mobile Terminal Report Monitor

The GSM terminal status can be displayed as a periodic report sent by the GSM terminal to the MT8820C. The downlink RF signal level at the GSM receiver can be checked with the Rx level reported from the GSM terminal.

GPRS

Multislot Class and Coding Scheme

Various combinations of uplink/downlink slots can be selected for GPRS terminals with class 1 to 11.

All CS-1 to CS-4 coding schemes are supported.
Connection Type

Test Mode A, Test Mode B, and BLER connections are supported. In Test Mode A for transmitter measurements, the GPRS terminal generates pseudorandom data during uplink on PDTCH. At BLER measurement, the GPRS terminal calculates block errors in received data at downlink and reports the result to the MT8820C at uplink. The MT8820C calculates the block error rate using the report from the GPRS terminal.

Transmitter Measurement

The transmitter measurements listed below can be made with the Test Mode A connection as in GSM measurement.

- Power vs. Time (template mask)
- Frequency error
- Phase error (rms, peak)
- Output RF spectrum

Receiver Measurement

The block error rate can be measured using the block error reported from the GPRS terminal with the BLER connection.

Call Processing

The following functions can be tested using call processing.

- Location registration
- Connection
- Communication
- Disconnection

After connection, GPRS terminal generates uplink slot, enabling Transmission measurement and BLER measurement.
The optional MX882001C-001 GSM Voice Codec supports real-time voice encoding and decoding in software, so end-to-end communication with terminals can be tested by installing this option and the MT8820C-011 Audio Board option. In addition, the audio transmitter and receiver can be tested while calling.

### End-to-End Communications Test

Connection of an Anritsu handset (A0058A/A0013) to the MT8820C RJ11 connector enables end-to-end communications testing between the MT8820C and a GSM terminal. This option supports voice tests by dividing Tx and Rx paths.

### Audio Transmitter Measurement

The tone signal from the MT8820C AF Output connector is supplied to the microphone of the GSM terminal and the audio transmitter characteristics of the GSM terminal can be measured using the MT8820C to demodulate the uplink RF signal and to measure the level, frequency, and distortion of demodulated tone signal.

### Audio Receiver Measurement

The tone signal demodulated by the GSM terminal is supplied to the MT8820C AF Input connector and the audio receiver characteristics of the GSM terminal can be measured by using the MT8820C to measure the level, frequency, and distortion of the tone signal at the AF Input.
The MX882001C-002 GSM External Packet Data option supports data transfer to/from external equipment via the Ethernet port on the back panel of the MT8820C. The MX882001C-002 can test end-to-end data transfer both in the local environment, such as the connection between the application server connected to the MT8820C and GPRS terminal, as well as in an almost-real environment, such as the connection between equipment connected to a LAN and GPRS terminal.

**External Packet Test**

Sample MT8820C Connection
Advanced High-speed Measurement Method and Batch Measurement Supporting the Manufacture of EGPRS Terminals

The MX882001C-011 EGPRS Measurement Software supports Tx and Rx measurements of terminals supporting the enhanced GPRS system or EGPRS. It supports both the MCS-1 to MCS-4 coding schemes using GMSK modulation as well as the MCS-5 to MCS-9 coding schemes using 8PSK modulation. And installing the MX882001C-011 EGPRS Measurement Software supports EGPRS as the Operating Mode.

At EGPRS measurement, frequency error, modulation accuracy, and transmit power are measured using a Test Mode A connection, while BLER with selected multislot class and modulation and coding scheme is measured using a BLER connection; both transmitter and receiver are tested by loopback at the physical layer using an SRB loopback (Switched Radio Block loopback) connection.

• EGPRS Measurement

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<tr>
<th>Transmitter Tests</th>
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<tr>
<td>Transmit Power</td>
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<tr>
<td>Power vs. Time (template mask)</td>
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<tr>
<td>Frequency Error</td>
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<td>Phase Error (rms, peak) (GMSK)</td>
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<td>Modulation Accuracy (8PSK)</td>
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<tr>
<td>Output RF Spectrum</td>
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</tbody>
</table>
Transmitter Measurement

Transmit Power

When two or more measurements are made, the maximum, average, and minimum results are displayed, supporting evaluation of the transmit power distribution of the EGPRS terminal. This functionality is also supported for other measurements.

Power vs. Time

The power can be measured with 0.1 µs resolution at five measurement points within the rising and falling edges of the burst signal. Burst waveforms can be displayed graphically, and a magnified display of the entire time slot and burst-on interval as well as the rising and falling edges supports easy evaluation of whether the burst waveform is within the limits of the power time template.

Output RF Spectrum

The spectrum can be measured at a total of 25 frequency points within the range of ±2 MHz of the carrier frequency. “Modulation” is the spectrum resulting from the modulated signal around the center of the burst signal, while “Switching” is the spectrum resulting from the rising and falling edges of the burst signal. In addition to using advanced DSP technology, parallel measurement supports faster display of the output RF spectrum.

Modulation Analysis

The frequency, frequency error (in kHz and ppm), phase error, and peak phase error of GMSK modulated signals can be measured simultaneously. The EVM, peak EVM, 95th percentile EVM and origin offset of 8PSK modulated signals can also be measured.
Recevier Measurement

Bit Error Rate (BER)

At SRB loopback, the bit error rate can be measured using the MT8820C-demodulated uplink RF signal looped back from the EGPRS terminal. The error rate can be measured in parallel with transmitter measurements.

Block Error Rate (BLER)

At BLER connection, the EGPRS terminal calculates block errors in received data at downlink and reports the result to the MT8820C at uplink. The MT8820C calculates the block error rate using the report from the EGPRS terminal.

Call Processing

Connection Test

The following functions can be tested using call processing.
• Location registration
• Connection
• Communication
• Disconnection

After connection, EGPRS terminal generates uplink slot, enabling transmission measurement and BLER measurement.

Mobile Terminal Report Monitor

The EGPRS terminal status can be displayed as a periodic report sent by the EGPRS terminal to the MT8820C for checking information such as Multislot Class and BEP (Bit Error Probability).
Reduced RF Adjustment Times, Linked with Chipset Adjustment Function

Installing the MX882001C-041 GSM High-speed Adjustment cuts the RF adjustment time, running in synchronization with the chipset adjustment function on GSM terminal. And it runs IQ Capturing Measurement.

The measurement runs Fundamental Measurement screen. The measurement can’t run Fundamental Measurement, and IQ Capturing Measurement, or High-Speed Adjustment Measurement when the measurement is effective. The measurement runs with Remote Control only.

**IQ Capturing Measurement**

IQ Capturing Measurement converts from Tx signal to Band-limited Base band signal and output sampling IQ binary data.

**High-speed Adjustment Measurement**

GSM High-speed Adjustment Measurement function adjusts both Tx and Rx. This function consists of Rx Sweep used for Rx adjustment and Tx Sweep used for Tx adjustment.

- **One sequence including 100 steps max.**
  - **Burst**
  - **Power**
  - **TDMA Frame**
  - **Step 1**
  - **Step 2**
  - **Step 3**
  - **Step 4**
  - **Step 5**
  - **Step 6**
  - **Time**

**Sequence of Rx Sweep**

- **One sequence including 100 steps max.**
  - **TDMA Frame**
  - **Reference Level**
  - **Trigger**
  - **Step 1**
  - **Step 2**
  - **Step 3**
  - **Step 4**
  - **Frequency**

**Sequence of Tx Sweep**
## Specifications

* Typical values are for reference only; specifications are not guaranteed.

### MT8820C-002 TDMA Measurement Hardware, MX882001C GSM Measurement Software

| Frequency/Modulation measurement | Frequency: 300 MHz to 2.7 GHz  
Input level: –30 to +40 dBm (Average power of burst signal, Main)  
Measurement items: Normal burst, RACH  
Carrier frequency accuracy:  
± (Setting frequency × Reference oscillator accuracy +10 Hz) (When measuring Normal Burst)  
± (Setting frequency × Reference oscillator accuracy +20 Hz) (When measuring RACH)  
Residual phase error: ≤0.5˚ rms, 2˚ peak |
|----------------------------------|-------------------------------------------------------------------------------------------------|
| Amplitude measurement | Frequency: 300 MHz to 2.7 GHz  
Input level: –30 to +40 dBm (Average power of burst signal, Main)  
Measurement items: Normal burst, RACH  
Measurement accuracy: ±0.3 dB (typ.), ±0.5 dB (–20 to +40 dBm), ±0.7 dB (–30 to –20 dBm) +After calibration, 10° to 40°C  
Linearity: ±0.2 dB (–40 to 0 dB, ≥–30 dBm)  
Carrier-off power: ≥65 dB (Input level ≥–10 dBm), ≥45 dB (–30 dBm ≤ Input level ≤ 10 dBm)  
Burst waveform display: Rise, Fall, Time slot, Burst-on |
| Output RF spectrum measurement | Frequency: 300 MHz to 2.7 GHz  
Input level: –10 to +40 dBm (Average power of burst signal, Main)  
Measurement item: Normal burst  
Measurement range in modulation area: ≤–55 dB (≤250 kHz offset), ≤–66 dB (≥400 kHz offset)  
* Average of 10 measurements  
Measurement range in transient area: ≤–57 dB (≥400 kHz offset)  
Measurement points: ±100, ±200, ±250, ±400, ±500, ±600, ±800, ±1000, ±1200, ±1400, ±1600, ±1800, ±2000 kHz |
| RF signal generator | Output frequency: 300 MHz to 2.7 GHz (1 Hz step)  
Phase error: ≤1˚ rms, ≤4˚ peak  
Output patterns: CCH, TCH, CCH + TCH  
TCH Data: PN9, PN15, ALL 0, ALL 1, Fixed pattern (PAT0 to PAT9)  
USF: 0 to 7 (at GPRS) |
| Error rate measurement | Functions: frame, bit and CRC error measurement  
Measurement object: Loopback data imposed on uplink TCH  
Serial data input from rear panel call processing I/O port  
Number of blocks received from terminal imposed on uplink TCH for GPRS  
Number of USF blocks received from terminal for GPRS |
| Call processing | Call controlling:  
GSM  
Location registration, Terminal call origination, Network call origination, Network disconnect, Terminal disconnect  
GPRS  
Connection, Disconnection, Data transfer  
Terminal controlling:  
GSM  
Output level, Time slot, Timing advance, Loopback on/off  
GPRS  
Test Mode A, Test Mode B, BLER |
| Channel coding | FS, EFS, HS0, HS1, AFS, AHS0, AHS1 |
| Coding scheme | CS-1, CS-2, CS-3, CS-4 |
| Frequency bands | GSM450, GSM480, GSM710, GSM750, T-GSM810, GSM850, P-GSM, E-GSM, R-GSM, DCS1800, PCS1900 |
**MT8820C-011 Audio Board, MX882001C-001 GSM Voice Codec**

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</table>
| **Codec level adjustment** | Encoder input gain: –3 to +3 dB, 0.01 dB step  
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 step  
Frequency accuracy: ± (Setting frequency × Reference oscillator accuracy +0.1 Hz)  
Setting range: 0 to 5 Vpeak (AF Output)  
Setting resolution: 1 mV (≤5 Vpeak), 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: In ≤30 kHz band, ≤–60 dB (≥500 mVpeak, ≤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)  
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, ≥50 Hz), ±0.4 dB (≥1 mVpeak, ≥1 kHz) |
| **SINAD measurement** | At frequency 1 kHz in ≤30 kHz band, ≥50 dB (≥1000 mVpeak), ≥54 dB (≥700 mVpeak), ≥46 dB (≥10 mVpeak) |
| **Distortion rate measurement** | At frequency 1 kHz in ≤30 kHz band, ≤–60 dB (≥1000 mVpeak), ≤–54 dB (≥700 mVpeak), ≤–46 dB (≥10 mVpeak) |

**MT8820C-002 TDMA Measurement Hardware, MX882001C-011 EGPRS Measurement Software**

| Frequency/Modulation measurement | Frequency: 300 MHz to 2.7 GHz  
Input level: –30 to +40 dBm (Average power of burst signal, Main)  
Measurement items: Normal burst (GMSK, 8PSK), RACH  
Carrier frequency accuracy: ± (Setting frequency × Reference oscillator accuracy +10 Hz) (When measuring Normal Burst)  
± (Setting frequency × Reference oscillator accuracy +20 Hz) (When measuring RACH)  
Residual phase error (GMSK): ≤0.5˚ rms, 2˚ peak  
Residual EVM (8PSK): ≤1.5% rms  
Waveform display: Phase error vs. Bit number, Amplitude error vs. Bit number, EVM vs. Bit number |
| Amplitude measurement | Frequency: 300 MHz to 2.7 GHz  
Input level: –30 to +40 dBm (Average power of burst signal, Main)  
Measurement items: Normal burst (GMSK, 8PSK), RACH  
Measurement accuracy: ±0.3 dB (typ.), ±0.5 dB (–20 to +40 dBm)  
+ After calibration, 10˚ to 40˚C  
Linearity: ±0.2 dB (–20 to 0 dB, ≥–30 dBm)  
Carrier-off power: ±65 dB (Input level ≥–10 dBm), ≥45 dB (–30 dBm ≤ Input level ≤ –10 dBm)  
Burst waveform display: Rise, Fall, Time slot, Burst-on |
| Output RF spectrum measurement | Frequency: 300 MHz to 2.7 GHz  
Input level: –10 to +40 dBm (Average power of burst signal, Main)  
Measurement item: Normal burst (GMSK, 8PSK)  
Measurement range in modulation area: ≤–55 dB (≤250 kHz offset), ≤–66 dB (≥400 kHz offset)  
+ Average of 10 measurements  
Measurement range in transient area: ≤–57 dB (≥400 kHz offset)  
Measurement points: ±100, ±200, ±250, ±400, ±800, ±1000, ±1200, ±1400, ±1600, ±1800, ±2000 kHz |
| RF signal generator | Output frequency: 300 MHz to 2.7 GHz (1 Hz step)  
Phase error: ≤1˚ rms, ≤4˚ peak  
Modulation accuracy (8PSK): ≤3% rms  
Output patterns: OCH, TCH, OCH + TCH  
TCH Data: PN9, PN15, ALL 0, ALL 1, Fixed pattern (PAT0 to PAT9) |
| Error rate measurement | Functions: bit and CRC error measurement  
Measurement object: Loopback data imposed on uplink TCH (GMSK, 8PSK)  
Number of blocks received from terminal imposed on uplink TCH for EGPRS  
Number of USF blocks received from terminal for EGPRS |
| Call processing | Call controlling: Location registration, Connection, Termination, Data transfer via EGPRS  
Terminal controlling: Output level, Time slot, Timing advance, Test Mode A, BLER, SRB loopback |
<p>| Coding scheme | MCS1 to MCS4 (GMSK), MCS5 to MCS9 (8PSK) |
| Puncturing scheme | P1, P2, P3 |
| Frequency bands | GSM450, GSM850, GSM900, GSM1800, GSM1900, T-GSM850, GSM850, P-GSM, E-GSM, R-GSM, DCS1800, PCS1900 |</p>
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<td>Radio Communication Analyzer</td>
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**Standard accessories**
- Power Cord: 1 pc
- CF Card: 1 pc
- PC Card Adapter (For CF card): 1 pc

**Options**
- Extended RF Hardware (requires MT8820C-117, MT8820C-119, or MT8820C-120)
- TD-SCDMA Measurement Hardware Retrofit (requires MT8820C-103, MT8820C-117, MT8820C-119, or MT8820C-120)
- Audio Board
- Parallel Phone Measurement Hardware Retrofit
- MDMA Measurement Hardware Retrofit (requires MT8820C-117, MT8820C-119, or MT8820C-120)
- TD-SCDMA Measurement Hardware Retrofit (requires MT8820C-103, MT8820C-117, MT8820C-119, or MT8820C-120)
- Audio Board Retrofit
- Parallel Phone Measurement Hardware Retrofit
- Extended RF Hardware for PSM Retrofit
- Extended RF Hardware for PPRM Retrofit
- TD-SCDMA Measurement Retrofit (requires MT8820C-001)

**Software options**
- W-CDMA Measurement Software (requires MT8820C-001 and MX882000C)
- W-CDMA Voice Codec (requires MT8820C-001 and MX882000C)
- HSDPA Measurement Software (requires MT8820C-001, MX882000C, MX882000C-001, and MX882005C)
- CDMA2000 Measurement Software (requires MT8820C-001, MX882000C, MX882000C-001, and MX882005C)
- HSPA Evolution Measurement Software (requires MT8820C-001, MX882000C, MX882000C-001, and MX882005C)
- GSM Measurement Software (requires MT8820C-002)
- EGPRS Measurement Software (requires MX882001C)
- High-speed Adjustment (requires MX882001C)
- CDMA2000 Voice Codec (requires MT8820C-002)
- CDMA2000 External Packet Data (requires MX882002C)
- PHS Measurement Software (requires MT8820C-002)
- PHS Measurement Software (requires MT8820C-002)
- TD-SCDMA Measurement Software (requires MT8820C-001 and MT8820C-007)
- SDMA Codec Voice (requires MT8820C-002)
- HSDPA Measurement Software (requires MT8820C-005C)
- TD-SCDMA SDMA Voice (requires MT8820C-001 and MT8820C-007)
- SDMA Codec Voice (requires MT8820C-002)
- HSDPA Measurement Software (requires MT8820C-005C)

**Extra information**
- **3 years Extended Warranty Service**
- **5 years Extended Warranty Service**
- **2 years Extended Warranty Service**
- **3 years Extended Warranty Service**

**Application parts**
- **W-CDMA/GSM Test USIM**
- **CDMA2000 Test USIM**
- **Anritsu Test UICC GM (Micro UICC size)**
- **Anritsu Test UICC GM (Nano UICC size)**
- **Anritsu Test UICC GT (Micro UICC size)**
- **Anritsu Test UICC GT (Nano UICC size)**
- **Anritsu Test UICC GA (Micro UICC size)**
- **Anritsu Test UICC GA (Nano UICC size)**

**Product Brochure MX882001C**

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**Ordering Information**

Please specify the model/order number, name, and quantity when ordering. The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

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<th>Main frame</th>
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<td>Radio Communication Analyzer</td>
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**Model/Order No. | Name                             |
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<td>W-CDMA Measurement Software</td>
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<td>W-CDMA Voice Codec (requires MT8820C-001 and MX882000C)</td>
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</tbody>
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**Options**
- Extended RF Hardware (requires MT8820C-117, MT8820C-119, or MT8820C-120)
- TD-SCDMA Measurement Hardware Retrofit (requires MT8820C-103, MT8820C-117, MT8820C-119, or MT8820C-120)
- Audio Board Retrofit
- Parallel Phone Measurement Hardware Retrofit
- Extended RF Hardware for PSM Retrofit
- Extended RF Hardware for PPRM Retrofit
- TD-SCDMA Measurement Retrofit (requires MT8820C-001)

**Software options**
- W-CDMA Measurement Software (requires MT8820C-001 and MX882000C)
- W-CDMA Voice Codec (requires MT8820C-001 and MX882000C)
- HSDPA Measurement Software (requires MT8820C-001, MX882000C, MX882000C-001, and MX882005C)
- CDMA2000 Measurement Software (requires MT8820C-001, MX882000C, MX882000C-001, and MX882005C)
- HSPA Evolution Measurement Software (requires MT8820C-001, MX882000C, MX882000C-001, and MX882005C)
- GSM Measurement Software (requires MT8820C-002)
- EGPRS Measurement Software (requires MX882001C)
- High-speed Adjustment (requires MX882001C)
- CDMA2000 Voice Codec (requires MT8820C-002)
- CDMA2000 External Packet Data (requires MX882002C)
- PHS Measurement Software (requires MT8820C-002)
- PHS Measurement Software (requires MT8820C-002)
- TD-SCDMA Measurement Software (requires MT8820C-001 and MT8820C-007)
- SDMA Codec Voice (requires MT8820C-002)
- HSDPA Measurement Software (requires MT8820C-005C)
- TD-SCDMA SDMA Voice (requires MT8820C-001 and MT8820C-007)
- SDMA Codec Voice (requires MT8820C-002)
- HSDPA Measurement Software (requires MT8820C-005C)

**Extra information**
- **3 years Extended Warranty Service**
- **5 years Extended Warranty Service**

**Application parts**
- **W-CDMA/GSM Test USIM**
- **CDMA2000 Test USIM**
- **Anritsu Test UICC GM (Micro UICC size)**
- **Anritsu Test UICC GM (Nano UICC size)**
- **Anritsu Test UICC GT (Micro UICC size)**
- **Anritsu Test UICC GT (Nano UICC size)**
- **Anritsu Test UICC GA (Micro UICC size)**
- **Anritsu Test UICC GA (Nano UICC size)**
- **Anritsu Test UICC GM (Micro UICC size)**
- **Anritsu Test UICC GM (Nano UICC size)**
- **Anritsu Test UICC GM (Micro UICC size)**
- **Anritsu Test UICC GM (Nano UICC size)**
- **Handset**
1: MT8820C-017 has been a standard option that MT8820C are shipped with until July 2012 (Simultaneous order is required MT8820C and MT8820C-017).
2: For terminal connectivity, contact your Anritsu sales representative.
3: MX882000C-032 is required a Parallelphone measurement configuration of WCDMA HSPA Evolution.
   For use MT8820C 2 units, contact your Anritsu sales representative.
4: MX882000C-003 (O34) is required a WCDMA DC-HSDPA configuration.
5: The following measurement hardware supports the Parallelphone measurement option: MT8820C-001, MT8820C-002, MT8820C-003, MT8820C-007, MT8820C-008.
   All the measurement hardware can be installed simultaneously.

6: MX882012C-011 is required MT8820C-012.
7: The MX882012C-016 (017) LTE FDD CS Fallback to W-CDMA/GSM (CDMA2000) requires a separate MT8820C with the W-CDMA/GSM (CDMA2000) configuration. Contact your Anritsu sales representative for the CS Fallback function test configuration.
8: MX882012C (12O)-S21 is required a Parallelphone measurement configuration of LTE FDD (TDD).
   For use MT8820C 2 units, contact your Anritsu sales representative.
9: MX882012C (13C)-O26 function test is required external server PCs (2 sets), LTE Advanced FDD (TDD) CA IP Data Transfer (2CCs, 2Layer) is required MT8820C LTE 2+2 MIMO DL configuration (2 sets) and external server PCs (2 sets).
10: One is required LTE FDD (TDD) ParallelPhone Configuration.
   The other is required LTE FDD Single Phone Configuration.
11: For use MT8820C 3 units, contact your Anritsu sales representative.
12: These options preinstall the integrity protection function.
13: MX882050C-007 supports W-CDMA Band 12, 13, 14, 19, 20, 21.
14: The P0035B7 MicroSIM is a cut-down P0035B W-CDMA/GSM Test USIM. The P0035B7 Test USIM is a microSIM. It CANNOT be used in a normal size USIM card slot. A commercial SIM adapter CANNOT be used with the P0035B7. If used, it may jam and break in the terminal.
15: Refer to the P0135Ax/P0250Ax/P0260Ax leaflet for details.
16: J1267 (J1606A) cable can use for LTE-Advanced DLCA synchronized cable. Contact your Anritsu sales representative for details.

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Specifications are subject to change without notice.