For MT8820B Radio Communication Analyzer

**MX882000C**  W-CDMA Measurement Software

**MX882000C-011**  HSDPA Measurement Software

**MX882000C-021**  HSUPA Measurement Software

**MX882000C-031**  HSPA Evolution Measurement Software
Advanced High-speed Measurement Method and Batch Measurement Supporting the Manufacture of W-CDMA Terminals

The MX882000C W-CDMA Measurement Software is designed for measuring the transmitter and receiver of 3G W-CDMA terminals. When the MX882000C W-CDMA Measurement Software and MX882001C GSM Measurement Software are installed in the MT8820B Radio Communication Analyzer 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 MT8820B unit. Installing the MX88207xC W-CDMA Ciphering Software supports testing of coded voice communications between the MT8820B and W-CDMA terminal. And manufacturing and inspection test times have been dramatically cut by incorporating advanced DSP and parallel measurement technologies. Furthermore, several measurement items can be selected freely for batch measurement, and the number of measurements for each measurement item can be configured separately.

The one-touch operation supports easy and quick measurement of Tx and Rx characteristics, including transmit frequency, modulation accuracy, transmit power, spectrum emission mask, adjacent channel leakage power ratio, occupied bandwidth, and BER. The built-in GPIB interface enables the MT8820B to be integrated into automated test systems for after-sales maintenance, as well as into automated production lines.

*: Requires MX88205xC W-CDMA Call Processing Software.

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*: Only a single code
**Transmitter Measurements**

**Transmit Power**

The transmit power of the W-CDMA terminal can be measured when controlled to the maximum, minimum, and any other level. When two or more measurements are made, the maximum, average, and minimum results are displayed, supporting evaluation of the transmit power distribution. This functionality is also supported for other measurements.

**Frequency Error**

The frequency error of the W-CDMA terminal can be measured simultaneously as absolute error (kHz) and relative error (ppm).

**Occupied Bandwidth**

The occupied bandwidth of the W-CDMA terminal can be measured.

**Spectrum Emission Mask**

This support Go/No-Go testing of W-CDMA terminal spectrum emissions by checking whether the frequency components within ±12.5 MHz of the center frequency are within the limits of the power frequency template.

**Spectrum Monitor**

The spectrum of the W-CDMA terminal can be checked within the range of ±2.5 MHz and ±12.5 MHz of the carrier frequency. The peak spectrum in the zone can be detected by using the zone markers.
Adjacent Channel Leakage Power Ratio

The adjacent channel leakage power ratio of the W-CDMA terminal can be measured easily, and the advanced measurement architecture supports faster power measurement at points ±5 MHz and ±10 MHz from the center frequency.

Modulation Analysis

The modulation accuracy of the W-CDMA terminal can be measured. In addition to the 3GPP-specified error vector magnitude (EVM), the phase error, amplitude error, origin offset, I/Q level ratio, and peak code domain error can also be measured.

The vector error, phase error, and amplitude error at each chip point can be displayed as a waveform, which is very useful for R&D, repair and maintenance.
Open Loop Power Control

The transmit power for the RACH* preamble of the W-CDMA terminal is determined by the downlink RF signal power and RACH-related call processing parameters. The transmit power and template mask for the RACH preamble can be measured simultaneously in the time domain.

*: Random Access Channel

Receiver Measurements

Bit Error Rate Measurement

The bit error rate can be measured using the 3GPP-specified loopback test mode.

In addition, feeding the demodulated data and clock signals from the W-CDMA terminal directly to the MT8820B supports bit error rate measurement. Both PN9 and PN15 can be set as the downlink RF signal data pattern.

Inner Loop Power Control

Any specified TPC (Transmission Power Control) bits can be sent to the W-CDMA terminal. The transmit power response of the W-CDMA terminal to power control can be measured in the time domain, and the transmit power for up 1515 slots can be measured quickly as a batch.

Performance Tests

Block Error Rate Measurement

The block error rate can be measured using test loop mode 2, supporting testing of DCH* demodulation in accordance with section 7.2.1 of the TS34.121 3GPP specification.

*: Dedicated Channel
**Downlink RF Signal Generator Functionality**

The relative level of each of the CPICH\(^1\), P-CCPCH\(^2\), SCH\(^3\), PICH\(^4\), DPCH\(^5\), S-CCPCH\(^6\), and AICH\(^7\) code channels can be set within the range of –30 to 0 dB. In addition, OCNS\(^8\) and AWGN\(^9\) can also be provided, supporting generation of any downlink modulation signal required for Tx and Rx tests. The RF output level can be set within the range of –140 to –10 dBm (MAIN I/O connectors) in 0.1 dB steps.

- 1: Common Pilot Channel
- 2: Primary Common Control Physical Channel
- 3: Synchronization Channel
- 4: Paging Indicator Channel
- 5: Dedicated Physical Channel
- 6: Secondary Common Control Physical Channel
- 7: Acquisition Indication Channel
- 8: Orthogonal Channel Noise Simulator
- 9: Additive White Gaussian Noise

**Call Processing**

**Connection Tests**

Various connection tests, such as registration, origination, termination, handover, terminal disconnect and network disconnect, can be tested using the call processing functionality. Moreover, voice from the W-CDMA terminal can be echoed back while calling call to test simple voice communications.

**Mobile Terminal Report Monitor**

The W-CDMA terminal transmit power and power class can be checked using this function.
Higher Productivity
Reducing Test Time for W-CDMA/GSM Dual-Mode Mobiles

Intersystem Handover Control
Both the W-CDMA and GSM Tx and Rx characteristics of dual-mode W-CDMA/GSM terminals can be measured and voice handover from W-CDMA to GSM can be tested using the intersystem handover function, because the MT8820B application software switches quickly while the dual-mode terminal is handing over.

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

- Requires MT8820B-002 + MX882001C or MT8820B-032 + MX882031C + MX882031C-050.

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

* W-CDMA terminal
* GSM terminal

Handover from W-CDMA to GSM

W-CDMA measurement (Test loop mode or voice communications)

High-speed system change from W-CDMA to GSM

GSM measurement (Loopback mode or voice communications)
The MX882000C-001 W-CDMA 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 MT8820B-011 Audio Board. In addition, the audio transmitter and receiver can be tested while calling.

**End-to-End Communications Test**

This supports the end-to-end communications test between a handset connected to the RJ11 connector on the MT8820B and a W-CDMA terminal.

**Audio Transmitter Measurement**

The tone signal from the MT8820B AF Output connector is supplied to the microphone of the W-CDMA terminal and the audio transmitter characteristics of the W-CDMA terminal can be measured using the MT8820B to demodulate the uplink RF signal and measure the level, frequency, and distortion of demodulated tone signal.

**Audio Receiver Measurement**

The tone signal demodulated by the W-CDMA terminal is supplied to the MT8820B AF Input connector and the audio receiver characteristics of the W-CDMA terminal can be measured by using the MT8820B to measure the level, frequency, and distortion of the tone signal at the AF Input.
The MX882000C-002 W-CDMA External Packet Data option supports data transfer to/from external equipment via the Ethernet port. End-to-end data transfer between an application server connected to the MT8820B and the W-CDMA terminal or client PC connected to the W-CDMA terminal can be tested using the MX882050C-002 and MX882051C-002.

**External PPP Packet Test**

The MT8820B with PPP server terminates PPP packets from the W-CDMA terminal and sends IP packets to the application server via the Ethernet port. It also converts IP packets from the application server to PPP packets and sends them to the W-CDMA terminal.

**Protocol Stack for External PPP Packet Test**

**External IP Packet Test**

The MT8820B sends IP packets from the W-CDMA terminal to the application server. It also sends IP packets from the application server to the W-CDMA terminal.

**Protocol Stack for External IP Packet Test**

**Sample MT8820B Connection**
MX882050C-003, MX882051C-003
W-CDMA Video Phone Test

End-to-End Video Phone Test

End-to-end video communication via the Ethernet port in the back panel of the MT8820B can be tested using the MX882050C-003 and MX882051C-003 W-CDMA Video Phone Test. End-to-end video communication with a single MT8820B can be tested by installing this software option and the Parallel Phone Measurement Hardware.

End-to-End Test

End-to-end video communications between W-CDMA terminals can be tested by originating a call from the W-CDMA terminal connected to Phone2 (or Phone1) while holding Phone1 (or Phone2) ready to receive a call using Start Call.

End-to-End Video Communication Test with Single MT8820B Configured with Parallel Phone Measurement Hardware

End-to-end video communication between W-CDMA terminals can be tested by originating a call from the W-CDMA terminal connected to the MT8820B Unit 2 (or MT8820B Unit 1) while holding the MT8820B Unit 1 (or MT8820B Unit 2) ready to receive a call using Start Call.

End-to-End Video Communication Test using Two MT8820B Units

HSDPA FRC Signals

HSDPA FRC Signal

FRC H-Set 1 to 5 can be set as test signal to measure Tx and Rx characteristics of HSDPA terminals, and both QPSK and 16QAM modulation types are supported too.

Parameters for HSDPA Measurement

The various for HSDPA measurement parameters, such as CQI feedback cycle and repetition factor can be configured.
Transmitter Measurements

**HS-DPCCH Power Control, Modulation Analysis, Code Domain Power**

At measurement in the time domain, the power step at the HS-DPCCH slot boundary, modulation, and code domain power are measured.

Transmit Power, Spectrum Emission Mask, Adjacent Channel Leakage Power

The transmit power, spectrum emission mask and adjacent channel leakage power ratio of the HS-DPCCH transmission slot are measured.

Receiver Measurement

**HSDPA Throughput**

The HSDPA throughput can be measured by counting the number of ACK blocks from the HSDPA terminal.

CQI Measurement

Statistical analysis can be performed on CQI values reported by the HSDPA terminal. The maximum, minimum, average, and median values can also be displayed.
**MX882000C-013 HSDPA High Data Rate**

Supports following signals for HSDPA throughput measurement

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<tr>
<th>Parameter (Channel Coding)</th>
<th>Maximum data rate</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-Set 6 (QPSK)</td>
<td>3219 kbps</td>
<td>H-Set 6 (QPSK) is a QPSK-defined signal to test throughput of HSDPA terminal for HS-DSCH categories 7 and 8 (7.2 Mbps class) with QPSK modulation.</td>
</tr>
<tr>
<td>H-Set 6 (16QAM)</td>
<td>4689 kbps</td>
<td>H-Set 6 (16QAM) is a 16QAM-defined signal to test throughput of HSDPA terminal for HS-DSCH categories 7 and 8 (7.2 Mbps class) with 16QAM modulation.</td>
</tr>
<tr>
<td>Category 6, Max.</td>
<td>3649 kbps</td>
<td>Category 6, Max. is a signal to test throughput of HSDPA terminal for 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>Category 8, Max. is a signal to test throughput of HSDPA terminal for HS-DSCH category 8 (7.2 Mbps class) with maximum data rate.</td>
</tr>
<tr>
<td>Category 10, Max.</td>
<td>13976 kbps</td>
<td>Category 10, Max. is a signal to test throughput of HSDPA terminal for HS-DSCH category 10 (14 Mbps class) with maximum data rate.</td>
</tr>
</tbody>
</table>

**Test Signal Parameter**

FRC H-Set 6 (QPSK/16QAM), Category 6, Max., Category 8, Max., Category 10, Max. test signals can be selected for HSDPA throughput measurement.

**HSDPA High Data Rate Throughput Measurements**

ACKs sent from the HSDPA terminal are counted and the throughput is measured.

**MX882050C-011 HSDPA External Packet Data**

The MX882050C-011 HSDPA External Packet Data option supports data transfer to/from external equipment via the Ethernet port in the back panel of the MT8820B. End-to-end data transfer between the application server connected to the MT8820B and the HSDPA terminal or client PC connected to the HSDPA terminal can be tested using the MX882050C-011 option. The maximum data rate is 388 kbps.

**External IP Packet Test**

The MT8820B sends IP packets from the HSDPA terminal to the application server. It also sends IP packets from the application server to the HSDPA terminal.

**Sample MT8820B Connection**

![Diagram of MT8820B connection](image)
The MX882000C-021 HSUPA Measurement Software supports Tx measurements of HSUPA terminals. It can generate the signals used for testing HSUPA terminals with E-DCH category 1 to 6 (5.76 Mbps), and TTI 2 and 10 ms.

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<td>5.9B</td>
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<td>5.10B</td>
<td>Adjacent Channel Leakage Power Ratio (ACLR) with E-DCH</td>
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<tr>
<td>5.13.2B</td>
<td>Relative Code Domain Error with HS-DPCCH and E-DCH</td>
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</tr>
</tbody>
</table>

**HSUPA Parameters**

**HSUPA RF Transmitter Measurement Signals**

The TTI 2, 10 ms can be selected as test signals including E-DCH for Tx measurements of HSUPA terminal supporting categories 1 to 6.

**Transmitter Measurements**

**Transmit Power, Spectrum Emission Mask, Adjacent Channel Leakage Power**

The transmit power, spectrum emission mask, and adjacent channel leakage power ratio at HS-DPCCH and E-DCH transmission are measured.

**Code Domain Power**

The code domain power of the E-DCH are measured.

**Throughput Monitor**

The E-DCH throughput is calculated from the E-TFCI notification from the HSUPA terminal. In addition, the E-TFCI statistic (average, median, maximum and minimum) are displayed.
MX882000C-031 HSPA Evolution Measurement Software

HSPA Evolution terminals RF TRx and Throughput Measurement

MX882000C-031 HSPA Evolution Measurement Software supports TRx measurements (measurement items defined in 3GPP TS34.121 shown in Table 1) of HSPA Evolution terminals.

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<th>3GPP TS34.121 Test items</th>
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<td>Receiver</td>
<td>Maximum Input Level for HS-PDSCH Reception (64QAM)</td>
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</table>

**Transmitter Measurements**

**UE Relative Code Domain Power Accuracy, Relative Code Domain Error**

UE Relative Code Domain Power Accuracy and Relative Code Domain Error for HS-DPCCH and E-DCH with 16QAM are measured.

**Receiver Measurements**

**HSDPA Throughput with 64QAM**

The HSDPA throughput with 64QAM can be measured by counting the number of ACK blocks from the terminal.

**Test Signal Parameter**

FRC H-Set 8 (64QAM), and Category 14, Max. test signals can be selected for throughput measurement.

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<th>Parameter (Channel Coding)</th>
<th>Maximum data rate (Prioritized RABs)</th>
<th>Explanation</th>
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<tr>
<td>H-Set 8 (64QAM)</td>
<td>13245 kbps</td>
<td>3GPP-defined signal to test throughput of HSDPA terminal for HS-DSCH category 13 (17.6 Mbps class) and category 14 (21 Mbps class) (64QAM modulation)</td>
</tr>
<tr>
<td>Category 14, Max.</td>
<td>21098 kbps</td>
<td>Signal to test throughput of HSDPA terminal for HS-DSCH category 14 (21 Mbps class) with maximum data rate</td>
</tr>
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</table>

* For terminal connectivity, contact your Anritsu sales representative.
### Specifications

- **MT8820B-001 W-CDMA Measurement Hardware, MX882000C W-CDMA Measurement Software, MX88205xC W-CDMA Call Processing Software**

| Modulation Analysis | Frequency: 300 to 2700 MHz  
|                     | Input level: –30 to +35 dBm (Main)  
|                     | Carrier frequency accuracy: ± (Setting frequency × Reference oscillator accuracy + 10 Hz)  
<table>
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<th>Modulation accuracy (residual vector error): ≤2.5% (at input of single DPCCH and single DPDCH)</th>
</tr>
</thead>
</table>
| RF Power            | Frequency: 300 to 2700 MHz  
|                     | Input level: –65 to +35 dBm (Main)  
|                     | Measurement accuracy: ±0.5 dB (–25 to +35 dBm), ±0.7 dB (–55 to –25 dBm), ±0.9 dB (–65 to –55 dBm)  
|                     | Linearity: ±0.2 dB (–40 to 0 dB, ≥–55 dBm), ±0.4 dB (–40 to 0 dB, ≥–65 dBm)  
|                     | Measurement object: DPCH, PRACH |
| Occupied Bandwidth  | Frequency: 300 to 2700 MHz  
|                     | Input level: –10 to +35 dBm (Main) |
| Adjacent Channel Leakage Power Ratio | Frequency: 300 to 2700 MHz  
|                     | Input level: –10 to +35 dBm (Main)  
|                     | Measurement points: ±5, ±10 MHz  
|                     | Measurement range: ≥50 dB (at ±5 MHz), ≥55 dB (at ±10 MHz) |
| RF Signal Generator | Output frequency: 300 to 2700 MHz (1 Hz step)  
|                     | Channel level  
|                     | CPICH, P-CCPCH, SCH, PICH, DPCH, S-CCPCH, AICH  
|                     | : Off, –30 to 0 dB [0.1 dB step, relative level for Ior (total level)]  
|                     | OCNS: Off, Auto-setting  
|                     | Channel level accuracy: ±0.2 dB (relative level accuracy for Ior)  
|                     | AWGN level: Off, –20 to +5 dB [0.1 dB step, relative level for Ior (total level)]  
|                     | AWGN level accuracy: ±0.2 dB (relative level accuracy for Ior) |
| Error Rate Measurement | Functions: Insert PN9 or PN15 pattern in DTCH  
|                     | Measurement items: BER, BLER  
|                     | Measurement object: Loopback data imposed on uplink DTCH (BER, BLER), Serial data input from back-panel call processing I/O port (BER) |
| Call Processing     | Call control: Registration, Origination, Termination, Handover, Network disconnect, Terminal disconnect (executes each processing conforming to 3GPP standards and performs pass/fail evaluation)  
|                     | Mobile terminal control: Output level, Loopback (executes each terminal control conforming to 3GPP standards) |
• **MX882000C-011 HSDPA Measurement Software**

| RF Power | Frequency: 300 to 2700 MHz  
|          | Input level: –65 to +35 dBm (Main)  
|          | Measurement accuracy: ±0.5 dB (–25 to +35 dBm), ±0.7 dB (–55 to –25 dBm), ±0.9 dB (–65 to –55 dBm)  
|          | Linearity: ±0.2 dB (–40 to 0 dB, ≥–55 dBm), ±0.4 dB (–40 to 0 dB, ≥–65 dBm)  
|          | Measurement object: HS-DPCCH  
| CQI Measurement | Statistical analysis of CQI values reported from a mobile terminal  
| Call Processing | Call control: Registration, Call processing for Fixed Reference Channel (executes each processing conforming to 3GPP standards and performs pass/fail evaluation)  
|          | Mobile terminal control: Output level (executes each terminal control conforming to 3GPP standards)  

• **MX882000C-013 HSDPA High Data Rate**

| Throughput Measurement | Functions: HS-SCCH and HS-PDSCH transfer according to fixed reference channel (H-Set 6)  
|                        | and HS-PDSCH transfer according to HSDPA Full Rate for category 6, 8, and 10  
|                        | Measured items: BLER, Throughput  
|                        | Measurement object: ACK and NACK data imposed on uplink HS-DPCCH  
| Call Processing | Call control: Fixed Reference Channel (H-Set 6), HSDPA Full Rate (category 6, 8, and 10)(executes each processing conforming to 3GPP standards and performs pass/fail evaluation)  

• **MX882000C-021 HSUPA Measurement Software**

| RF Power | Frequency: 300 to 2700 MHz  
|          | Input level: –65 to +35 dBm (Main)  
|          | Measurement accuracy: ±0.5 dB (–25 to +35 dBm), ±0.7 dB (–55 to –25 dBm), ±0.9 dB (–65 to –55 dBm)  
|          | ±0.2 dB (–40 to 0 dB, ≥–55 dBm), ±0.4 dB (–40 to 0 dB, ≥–65 dBm)  
|          | Measurement object: DPCH, HS-DPCCH, E-DPCCH, E-DPDCH  
| Call Processing | Call control: Registration, Call processing for E-DCH RF Test  
|          | (executes each processing conforming to 3GPP standards and performs pass/fail evaluation)  
|          | Mobile terminal control: Output level (executes each terminal control conforming to 3GPP standards)  

• **MX882000C-031 HSPA Evolution Measurement Software**

| RF Power | Frequency: 300 to 2700 MHz  
|          | Input level: –65 to +35 dBm (Main)  
|          | Measurement accuracy: ±0.5 dB (–25 to +35 dBm), ±0.7 dB (–55 to –25 dBm), ±0.9 dB (–65 to –55 dBm)  
|          | ±0.2 dB (–40 to 0 dB, ≥–55 dBm), ±0.4 dB (–40 to 0 dB, ≥–65 dBm)  
|          | Measurement object: DPCH, HS-DPCCH, E-DPCCH, E-DPDCH  
| Throughput Measurement | Functions: Transmit HS-SCCH and HS-PDSCH based on Fixed Reference Channel (H-Set 8)  
|                        | Transmit HS-SCCH and HS-PDSCH based on HSDPA Full Data Rate for category 14  
|                        | Measurement items: BLER, Throughput  
|                        | Measurement object: ACK and NACK data imposed on uplink HS-DPCCH  
| CQI Measurement | Statistical analysis of CQI values reported from a mobile terminal  
| Call Processing | Call control: Registration, Call processing for Fixed Reference Channel and E-DCH RF Test (executes each processing conforming to 3GPP standards and performs pass/fail evaluation)  
|          | Mobile terminal control: Output level (executes each terminal control conforming to 3GPP standards)
• MT8820B-011 Audio Board, MX882000C-001 W-CDMA Voice Codec

<table>
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<tr>
<th>Codec Level Adjustment</th>
<th>AMR 12.2 kbps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Encoder input gain: –3 to +3 dB, 0.01 dB step</td>
<td></td>
</tr>
<tr>
<td>Handset microphone volume: 0, 1, 2, 3, 4, 5</td>
<td></td>
</tr>
<tr>
<td>Handset speaker volume: 0, 1, 2, 3, 4, 5</td>
<td></td>
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<table>
<thead>
<tr>
<th>AF Output</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Frequency range: 30 Hz to 10 kHz, 1 Hz step</td>
<td></td>
</tr>
<tr>
<td>Setting range: 0 to 5 Vpeak (AF Output)</td>
<td></td>
</tr>
<tr>
<td>Setting resolution: 1 mV (≤500 mVpeak), 10 µV (≤50 mVpeak)</td>
<td></td>
</tr>
<tr>
<td>Accuracy: ±0.2 dB (≥10 mVpeak, ≥50 Hz), ±0.3 dB (≥10 mVpeak, &lt;50 Hz)</td>
<td></td>
</tr>
<tr>
<td>Waveform distortion: ≤–60 dB (500 mVpeak, ≤5 kHz), ≤–54 dB (≥70 mVpeak)</td>
<td></td>
</tr>
<tr>
<td>Output impedance: ≤1 Ω</td>
<td></td>
</tr>
<tr>
<td>Max. output current: 100 mA</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AF Input</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range: 50 Hz to 10 kHz</td>
<td></td>
</tr>
<tr>
<td>Input voltage range: 1 mVpeak to 5 Vpeak (AF Input)</td>
<td></td>
</tr>
<tr>
<td>Max. allowable input voltage: 30 Vrms</td>
<td></td>
</tr>
<tr>
<td>Input impedance: 100 kΩ</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Frequency Measurement</th>
<th>Accuracy: Reference oscillator accuracy + 0.5 Hz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level Measurement</td>
<td>Accuracy: ±0.2 dB (≥10 mVpeak, ≥50 Hz), ±0.4 dB (≥1 mVpeak, ≥1 kHz)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>SINAD Measurement</th>
<th>Accuracy: ±0.2 dB (≥10 mVpeak, ≥50 Hz), ±0.4 dB (≥1 mVpeak, ≥1 kHz)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Distortion Rate Measurement</td>
<td>Accuracy: ±0.2 dB (≥10 mVpeak, ≥50 Hz), ±0.4 dB (≥1 mVpeak, ≥1 kHz)</td>
</tr>
</tbody>
</table>

• MX882050C-002, MX882051C-002 W-CDMA External Packet Data

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>10BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Rate</td>
<td>DL: 384 kbps, UL: 64 kbps</td>
</tr>
<tr>
<td>Server IP Address</td>
<td>0.0.0.0 to 255.255.255.255</td>
</tr>
<tr>
<td>Client IP Address</td>
<td>0.0.0.0 to 255.255.255.255</td>
</tr>
<tr>
<td>Channel Coding</td>
<td>Interactive or background</td>
</tr>
<tr>
<td>UL: 64 kbps</td>
<td></td>
</tr>
<tr>
<td>DL: 384 kbps/PS RAB</td>
<td></td>
</tr>
<tr>
<td>DTCH Data Pattern</td>
<td>External PPP packet, External IP packet</td>
</tr>
</tbody>
</table>

• MX882050C-011 HSDPA External Packet Data

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>10BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Rate</td>
<td>DL: 267 kbps maximum for QPSK</td>
</tr>
<tr>
<td></td>
<td>388 kbps maximum for 16QAM</td>
</tr>
<tr>
<td></td>
<td>UL: 64 kbps</td>
</tr>
<tr>
<td>Server IP Address</td>
<td>0.0.0.0 to 255.255.255.255</td>
</tr>
<tr>
<td>Client IP Address</td>
<td>0.0.0.0 to 255.255.255.255</td>
</tr>
<tr>
<td>Channel Coding</td>
<td>Interactive or background</td>
</tr>
<tr>
<td>UL: 64 kbps</td>
<td></td>
</tr>
<tr>
<td>DL: 267 kbps/PS RAB for QPSK</td>
<td></td>
</tr>
<tr>
<td>388 kbps/PS RAB for 16QAM</td>
<td></td>
</tr>
<tr>
<td>DTCH Data Pattern</td>
<td>External IP packet</td>
</tr>
</tbody>
</table>
### MX882050C-003, MX882051C-003 W-CDMA Video Phone Test

<table>
<thead>
<tr>
<th>Ethernet</th>
<th>10BASE-T</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Rate</td>
<td>DL: 64 kbps, UL: 64 kbps</td>
</tr>
</tbody>
</table>
| Channel Coding | Conversation/unknown  
|                | UL: 64 kbps  
|                | DL: 64 kbps/CS RAB |

### MX882050C-008 W-CDMA Band XI

<table>
<thead>
<tr>
<th>Frequency Separation</th>
<th>Linked with Channel and set to 48.0 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Band Indicator</td>
<td>Band XI can be selected</td>
</tr>
</tbody>
</table>

### MX882050C-009 W-CDMA Band IX

<table>
<thead>
<tr>
<th>Band Indicator</th>
<th>Band IX can be selected</th>
</tr>
</thead>
<tbody>
<tr>
<td>SIB5 Type</td>
<td>Auto, SIB5, and SIB5bis can be selected</td>
</tr>
</tbody>
</table>
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.

<table>
<thead>
<tr>
<th>Model/Order No.</th>
<th>Main frame</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT8820B</td>
<td>Radio Communication Analyzer</td>
</tr>
</tbody>
</table>

**Standard accessories**

- Power Cord, 2.6 m: 1 pc
- ANR-CFX40T256 (CF card, 256 MB): 1 pc
- PC Card Adapter: 1 pc
- MT8820B/MT8820B Operation Manual (CD-ROM): 1 copy

**Options**

- MT8820B-001: W-CDMA Measurement Hardware
- MT8820B-002: TDMA Measurement Hardware
- MT8820B-003: CDMA2000 Measurement Hardware
- MT8820B-004: 1xEV-DO Measurement Hardware
- MT8820B-005: 1xEV-DO Measurement Hardware
- MT8820B-006: 1xEV-DO Measurement Hardware
- MT8820B-007: TD-SCDMA Measurement Hardware
- MT8820B-011: Audio Board
- MT8820B-012: Audio Board Measurement Hardware
- MT8820B-031: W-CDMA Measurement Hardware Lite
- MT8820B-032: TDMA Measurement Hardware Lite
- MT8820B-043: CDMA2000 Time Offset CAL For GPS SG

**Softwares**

- MX882000C: W-CDMA Measurement Software (requires MT8820B-001 and MX882002C)
- MX882000C-001: W-CDMA Voice Codec (requires MT8820B-001 and MX882002C)
- MX882000C-002: HSDPA Measurement Software (requires MT8820B-001, MX882002C, and MX882000C)
- MX882000C-003: HSDPA High Data Rate (requires MT8820B-001, MX882000C, and MX882000C)
- MX882000C-004: HSUPA High Data Rate (requires MT8820B-001, MX882000C, and MX882000C)
- MX882000C-011: HSUPA Voice Codec (requires MT8820B-001 and MX882000C)
- MX882000C-021: 1xEV-DO Measurement Software (requires MT8820B-001 and MX882000C)
- MX882000C-032: CDMA2000 External Packet Data (requires MT8820B-001 and MX882000C)
- MX882000C-033: HSDPA Measurement Software (requires MT8820B-001 and MX882000C)
- MX882000C-034: W-CDMA Call Processing Software (requires MT8820B-001 and MX882000C)
- MX882000C-035: W-CDMA Ciphering Software (requires MT8820B-001 and MX882000C)

**Warranty**

- MT8820B-ES210: Extended Two Year Warranty Service
- MT8820B-ES310: Extended Three Year Warranty Service
- MT8820B-ES510: Extended Five Year Warranty Service

**Application parts**

- P0019: TEST USIM001
- P0035B: W-CDMA/GSM Test USIM
- A0013: Handset
- J149: CDMA2000 Cable
- J127: CDMA2000 Cable
- J007: GIPI Cable, 1 m
- J008: GIPI Cable, 2 m
- B032: Joint Plate (4 pcs/set)
- B033G: Rack Mount Kit
- B049: Carrying Case (hard type, with protective cover and casters)
- B049B: Carrying Case (hard type, with protective cover, without casters)
- W2776AE: MT8815B/MT8820B Operation Manual (booklet)
- W2765AE: MX882000C Operation Manual (booklet)
- W2771AE: MX882000C Operation Manual (booklet)
- W2790AE: MX882002C Operation Manual Panel Operation (booklet)
- W2791AE: MX882002C Operation Manual Remote Control (booklet)
- W2793AE: MX882003C Operation Manual Panel Operation (booklet)
- W2794AE: MX882003C Operation Manual Remote Control (booklet)
- W2765AE: MX882005C Operation Manual Booklet
- W2930AE: MX882006C Operation Manual Booklet
- W2931AE: MX882006C Operation Manual Booklet
- W2932AE: MX882006C Operation Manual Booklet
- W2933AE: MX882006C Operation Manual Booklet
- W2934AE: MX882006C Operation Manual Booklet
- W2935AE: MX882006C Operation Manual Booklet
- W2936AE: MX882006C Operation Manual Booklet
- W2937AE: MX882006C Operation Manual Booklet
- W2938AE: MX882006C Operation Manual Booklet
- W2939AE: MX882006C Operation Manual Booklet
- W2940AE: MX882007C Operation Manual Booklet
- W2941AE: MX882007C Operation Manual Booklet
- W2942AE: MX882007C Operation Manual Booklet
- W2894AE: MX882007C Operation Manual Booklet
- W2895AE: MX882007C Operation Manual Booklet
- W2896AE: MX882007C Operation Manual Booklet
- W2737AE: MX882007C Operation Manual Booklet

**Carrying Case**

- 1: The MT8820B-004 hardware supports IS-856-0 (1xEV-DO Rev. 0) RF measurements but does not support IS-856-1 (1xEV-DO Rev. A) measurements. The MT8820B-005 hardware supports both IS-856-0 (1xEV-DO Rev. 0) and IS-856-1 (1xEV-DO Rev. A) RF measurements.
- 2: The following measurement hardware supports the Parallelphome measurement option: MT8820B-001, MT8820B-002, MT8820B-003, MT8820B-004, MT8820B-005. All the measurement hardware can be installed simultaneously. However, the MT8820B-004 and MT8820B-005 cannot be installed simultaneously.
- 3: From a terminal connection, you can select the Anritsu sales representative.
- 4: These options preinstall the integrity protection function.
- 5: This Test USIM can be worked on only W-CDMA mode.
- 6: These options preinstall the integrity protection function.

**Product Brochure**

MX882000C 19
Anritsu Corporation
5-1-1 Ohna, Atsugi-shi, Kanagawa, 243-8555 Japan
Phone: +81-46-223-1111
Fax: +81-46-296-1264

- U.S.A.
  Anritsu Company
  1155 East Collins Blvd., Suite 100, Richardson, TX 75081, U.S.A.
  Toll Free: 1-800-267-4878
  Phone: +1-972-644-1777
  Fax: +1-972-671-1877

- Canada
  Anritsu Electronics Ltd.
  700 Silver Seven Road, Suite 120, Kanata, Ontario K2V 1C3, Canada
  Phone: +1-613-591-2003
  Fax: +1-613-591-1006

- Brazil
  Anritsu Eletrônica Ltda.
  Praca Amadeu Amaral, 27 - 1 Andar
  01327-010-Paraiso-São Paulo-Brazil
  Phone: +55-11-3283-2511
  Fax: +55-11-3288-6940

- Mexico
  Anritsu Company, S.A. de C.V.
  Av. Ejercito Nacional No. 579 Piso 9, Col. Granada
  11520 Mexico, D.F., Mexico
  Phone: +52-55-1101-2370
  Fax: +52-55-5254-3147

- U.K.
  Anritsu EMEA Ltd.
  200 Capability Green, Luton, Bedfordshire, LU1 3LU, U.K.
  Phone: +44-1582-433200
  Fax: +44-1582-731303

- France
  Anritsu S.A.
  1618 avenue du Québec-SILIC 720
  91891 COURTABOEUF CEDEX, France
  Phone: +33-1-60-92-15-50
  Fax: +33-1-64-46-10-65

- Germany
  Anritsu GmbH
  Nemetschek Haus, Konrad-Zuse-Platz 1
  81829 München, Germany
  Phone: +49-89-442308-0
  Fax: +49-89-442308-55

- Italy
  Anritsu S.p.A.
  Via Elio Vittorini 129, 00144 Roma, Italy
  Phone: +39-6-509-9711
  Fax: +39-6-502-2425

- Sweden
  Anritsu AB
  Bor agitationatan 13, 164 40 KISTA, Sweden
  Phone: +46-8-534-707-00
  Fax: +46-8-534-707-30

- Finland
  Anritsu AB
  Teknobulevardi 3-5, FI-01530 VANTAA, Finland
  Phone: +358-20-741-8100
  Fax: +358-20-741-8111

- Denmark
  Anritsu A/S
  Kirkebjerg Allé 90, DK-2605 Brondby, Denmark
  Phone: +45-72112200
  Fax: +45-72112210

- Spain
  Anritsu EMEA Ltd.
  Oficina de Representación en España
  Edificio Vaganova
  Avda de la Vega, n° 1 (edf 8, pl 1, of 8)
  28108 ALCOBENDAS - Madrid, Spain
  Phone: +34-914905761
  Fax: +34-914905762

- Russia
  Anritsu EMEA Ltd.
  Representation Office in Russia
  Tverskaya str. 16/2, blid. 1, 7th floor.
  Russia, 125009, Moscow
  Phone: +7-495-363-1694
  Fax: +7-495-935-8962

- United Arab Emirates
  Anritsu EMEA Ltd.
  Dubai Liaison Office
  P.O. Box 500213 - Dubai Internet City
  Al Thuraya Building, Tower 1, Suite 701, 7th Floor
  Dubai, United Arab Emirates
  Phone: +971-4-3670352
  Fax: +971-4-3688460

- Singapore
  Anritsu Pte. Ltd.
  60 Alexandra Terrace, #02-08, The Comtech (Lobby A)
  Singapore 118502
  Phone: +65-6282-2400
  Fax: +65-6292-2533

- India
  Anritsu Pte. Ltd.
  India Branch Office
  3rd Floor, Shri Lakshminarayan Niwas, #2726, 80 ft Road,
  HAL 3rd Stage, Bangalore - 560 076, India
  Phone: +91-80-4058-1300
  Fax: +91-80-4058-1301

- P.R. China (Hong Kong)
  Anritsu Company Ltd.
  Units 4 & 5, 28th Floor, Greenfield Tower, Concordia Plaza,
  No. 1 Science Museum Road, Tsim Sha Tsui East,
  Kowloon, Hong Kong
  Phone: +852-2301-4980
  Fax: +852-2301-3545

- P.R. China (Beijing)
  Anritsu Company Ltd.
  Beijing Representative Office
  Room 2008, Beijing Fortune Building.
  No. 5, Dong-San-Huan Bei Road,
  Chaoyang District, Beijing 100004, P.R. China
  Phone: +86-10-6590-9230
  Fax: +86-10-6590-9235

- Korea
  Anritsu Corporation, Ltd.
  8F Hyunpok Building, 832-41, Yeoksam Dong,
  Kangnam-ku, Seoul, 135-080, Korea
  Phone: +82-2-553-6603
  Fax: +82-2-553-6604

- Australia
  Anritsu Pty. Ltd.
  Unit 21/270 Ferntree Gully Road, Notting Hill,
  Victoria 3168, Australia
  Phone: +61-3-9558-8177
  Fax: +61-3-9558-8255

- Taiwan
  Anritsu Company Inc.
  7F, No. 316, Sec. 1, Neshu Rd., Taipei 114, Taiwan
  Phone: +886-2-8701-1816
  Fax: +886-2-8751-1817

Specifications are subject to change without notice.

Please Contact:

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