Test Equipment Solutions Datasheet

Test Equipment Solutions Ltd specialise in the second user sale, rental and distribution of quality test & measurement (T&M) equipment. We stock all major equipment types such as spectrum analyzers, signal generators, oscilloscopes, power meters, logic analysers etc from all the major suppliers such as Agilent, Tektronix, Anritsu and Rohde & Schwarz.

We are focused at the professional end of the marketplace, primarily working with customers for whom high performance, quality and service are key, whilst realising the cost savings that second user equipment offers. As such, we fully test & refurbish equipment in our in-house, traceable Lab. Items are supplied with manuals, accessories and typically a full no-quibble 2 year warranty. Our staff have extensive backgrounds in T&M, totalling over 150 years of combined experience, which enables us to deliver industry-leading service and support. We endeavour to be customer focused in every way right down to the detail, such as offering free delivery on sales, covering the cost of warranty returns BOTH ways (plus supplying a loan unit, if available) and supplying a free business tool with every order.

As well as the headline benefit of cost saving, second user offers shorter lead times, higher reliability and multivendor solutions. Rental, of course, is ideal for shorter-term needs and offers fast delivery, flexibility, try-before-you-buy, zero capital expenditure, lower risk and off balance sheet accounting. Both second user and rental improve the key business measure of Return On Capital Employed.

We are based near Heathrow Airport in the UK from where we supply test equipment worldwide. Our facility incorporates Sales, Support, Admin, Logistics and our own in-house Lab.

All products supplied by Test Equipment Solutions include:

- No-quibble parts & labour warranty (we provide transport for UK mainland addresses).
- Free loan equipment during warranty repair, if available.
- Full electrical, mechanical and safety refurbishment in our in-house Lab.
- Certificate of Conformance (calibration available on request).
- Manuals and accessories required for normal operation.
- Free insured delivery to your UK mainland address (sales).
- Support from our team of seasoned Test & Measurement engineers.
- ISO9001 quality assurance.

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MT8820C
Radio Communication Analyzer
30 MHz to 2.7 GHz (3.4 GHz to 3.8 GHz)
Supports Multi-communication Systems

The MT8820C Radio Communication Analyzer platform covers a frequency range of 30 MHz to 2.7 GHz (3.4 GHz to 3.8 GHz: with MT8820C-018). When the dedicated optional measurement software and hardware is installed, the major Tx and Rx characteristics of LTE (FDD/TDD), LTE-Advanced (FDD), W-CDMA/HSPA/HSPA Evolution/DC-HSDPA, GSM/GPRS/EGPRS, CDMA2000 1X, CDMA2000 1xEV-DO Rev. A, PHS/Advanced PHS, and TD-SCDMA/HSPA terminals can be measured using a single MT8820C unit.

Parallelphone Measurement

When the Parallelphone Measurement option is installed in the MT8820C main frame, two different mobile terminals can be connected and tested simultaneously with a single MT8820C using its second RF, AF, GPIB, and Ethernet port. This functionality significantly improves manufacturing efficiency by reducing production costs (return on investment and energy saving) and space.

Advanced Digital Signal Processing and Batch Measurement

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.

CDMA2000® is a registered trademark of the Telecommunications Industry Association (TIA-USA).

Parallelphone™ is a registered trademark of Anritsu Corporation.

MT8820C

Radio Communication Analyzer

30 MHz to 2.7 GHz (3.4 GHz to 3.8 GHz: with MT8820C-018)
## Supports Multi-communication Systems

All-in-one Support for Basic Tx and Rx Measurements of LTE (FDD/TDD), LTE-Advanced (FDD), W-CDMA/HSPA/HSPA Evolution/DC-HSDPA, GSM/GPRS/EGPRS, CDMA2000 1X/1xEV-DO Rev. A, PHS/Advanced PHS, and TD-SCDMA/HSPA Systems

### LTE-Advanced FDD Measurement

**Receiver Measurement**

The LTE throughput can be measured by counting the number of ACK blocks from the LTE-Advanced FDD CA terminal. In addition, statistical analysis can be performed based on CQI values reported by the LTE-Advanced FDD CA terminal.

- **UE Control**
- **Throughput**

### LTE FDD/TDD Measurement

**3GPP-compliant measurements of Tx characteristic of 3.9G LTE FDD/TDD terminals.**

**Transmitter Measurement**

The transmit power, frequency error, occupied bandwidth, spectrum emission mask, adjacent channel leakage power ratio, modulation accuracy, and constellation can be measured. In addition, it supports Modulation Analysis with setting of PUSCH-EVM with exclusion period.

**Receiver Measurement**

The LTE FDD/TDD throughput can be measured by counting the number of ACK blocks from the LTE FDD/TDD terminal. And statistical analysis can be performed on CQI values reported by the LTE FDD/TDD terminal.

![MT8820C Connection Example](Image)

**MX882012C-021 LTE-Advanced FDD DL CA Measurement Software**

**MX882012C LTE Measurement Software**

**MX882010C Parallel Phone Software**

**MT8820C-008 LTE Measurement Hardware**

**MT8820C-012 Parallel Phone Measurement Hardware**

**MT8820C Main frame**

**Example of LTE-Advanced FDD DL CA (2CC, SISO) Options Stack (LTE-Advanced FDD)**

- **CA**: Carrier Aggregation
- **CC**: Component Carrier
- **MT8820C-012, MT8820C-008**: 2 sets, MX882012C, and MX882000C-021 required for LTE-Advanced FDD DL CA measurements (MT8820C 1 unit). Refer to the MX882012C/13C/42C/43C catalog for detail.
- **For terminal connectivity, contact your Anritsu sales representative.**

- **Requires MT8820C-008 and MX882012C (MX882013C) for the main Tx and Rx characteristics of LTE FDD/TDD terminal with Call Processing function.**
- **Requires MX882042C (MX882043C) for the main Tx characteristics of LTE FDD/TDD terminal without Call Processing function.**
- **MX882042C (MX882043C) is non-Call Processing product.**
- **Refer to the MX882012C/13C/42C/43C catalog for detail.**
- **For terminal connectivity, contact your Anritsu sales representative.**
W-CDMA Measurement

3GPP-compliant measurements of Tx and Rx characteristics of 3G W-CDMA terminals.

**Transmitter Measurement**
The transmit power, frequency error, occupied bandwidth, spectrum emission mask, adjacent channel leakage power ratio, modulation accuracy, and peak code domain error can be measured.

**Receiver Measurement**
The Bit Error Rate (BER) can be measured using the 3GPP-compliant loopback test mode. In addition, feeding the demodulated data and clock signals from the W-CDMA terminal directly to the MT8820C supports bit error rate measurement. Both PN9 and PN15 can be set as the downlink RF signal data pattern.

HSPA Measurement

3GPP-compliant measurement of Tx and Rx characteristics of 3.5G HSPA (HSDPA/HSUPA) terminals is supported.

**HSDPA Measurement**
HSDPA call-processing functions, including Tx/Rx items, such as transmit power, spectrum emission mask, and adjacent channel leakage power ratio of the HS-DPCCH transmission slot are measured. At measurement in the time domain, the power step at the HS-DPCCH slot boundary, modulation, and code domain power are measured. Moreover, HSDPA throughput with 64QAM can be measured by counting the number of ACK blocks from the terminal.

HSUPA Measurement

HSUPA call-processing functions, including Tx/Rx items, such as transmit power, spectrum emission mask, and adjacent channel leakage power ratio at HS-DPCCH and E-DCH transmission are measured. Moreover, E-DCH throughput is calculated from the E-TFCI notification from the HSUPA terminals. In addition, the E-TFCI statistics (average, median, maximum and minimum) are displayed.

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* Requires MT8820C-001, MX882000C, and MX88205xC

* MT8820C-001, MX882000C, MX882000C-011, and MX882050C required for HSDPA measurements

* MT8820C-001, MX882000C, MX882000C-011, MX882000C-021, and MX882050C required for HSUPA measurements

Refer to the MX882000C catalog for details.
HSPA Evolution Measurement

3GPP-compliant measurements of Tx and Rx characteristics, throughput and CQI of enhanced 3.5G HSPA Evolution terminals. FRC H-Set 8 (64QAM) and HS-DSCH Category 14 (21 Mbps class) test signals can be transmitted for HSPA Evolution throughput measurements.

Transmitter Measurement

At measurement in the time domain, mobile terminal relative code domain power accuracy for HS-DPCCH and E-DCH with 16QAM are measured.

Receiver Measurement

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

DC-HSDPA Measurement

Measurement of key Rx characteristics, throughput and CQI is supported for 3GPP-compliant DC-HSDPA terminals.

Receiver Measurement

DC-HSDPA call processing can be measured using the two RF ports of the MT8820C. Moreover, the number of ACK blocks sent from the mobile terminal can be counted and two-cell throughput can be measured. Measurement of the highest throughput (42 Mbps) in HS-DSCH category 24 is supported.

Requires MT8820C-001, MX882000C, MX882000C-011, MX882000C-021, MX882000C-031, and MX882050C

For terminal connectivity, contact your Anritsu sales representative.

MT8820C Connection Example
**GSM/GPRS Measurement**

Measures Tx and Rx characteristics of GSM/GPRS terminals — world’s most common digital mobile standard.

**Transmitter Measurement**

At GSM/GPRS measurement, the transmit frequency, phase error (RMS and peak), transmit power, power vs. time (template mask), and output RF spectrum can be measured.

**Receiver Measurement**

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. And FAST BER measurement is supported. The block error rate can be measured with the BLER and Test Mode B connection by controlling the GPRS terminal in the loopback condition. The above receiver measurements can be performed in parallel with transmitter measurements.

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**EGPRS Measurement**

Measures Tx and Rx characteristics of enhanced GPRS system (EGPRS) terminals.

**Transmitter Measurement**

At EGPRS measurement, the transmit frequency, EVM (RMS and peak), origin offset, transmit power, power vs. time (template mask), and output RF spectrum can be measured.

**Receiver Measurement**

The uplink RF signal, which is looped back from EGPRS terminal, is demodulated by controlling the EGPRS terminal in the loopback condition to measure the block error or bit error. The above receiver measurements can be performed in parallel with transmitter measurements.

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*Requires MT8820C-002 and MX882001C

*Requires MT8820C-002, MX882001C, and MX882000C-011

Refer to the MX882001C catalog for details.
CDMA2000 1X Measurement

3GPP2-compliant measurements of Tx and Rx characteristics of 3G CDMA2000 1X terminals.

Transmitter Measurement

The transmit power, modulation analysis, occupied bandwidth, code domain power, spurious emission, and access probe power can be measured.

Receiver Measurement

The Frame Error Rate (FER) and Pass/Fail evaluation can be performed in SO2, SO9, SO55 and SO32 (TDSO) to display the FER, error frame count, Tx frame count, confidence level, and Pass/Fail results.

CDMA2000 1xEV-DO Rev. 0/Rev. A Measurement

3GPP2-compliant measurements of Tx and Rx characteristics of 3.5G 1xEV-DO Rev. 0/Rev. A terminals.

Measurement Software and Protocol Revision

<table>
<thead>
<tr>
<th>Model</th>
<th>Protocol Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX882006C</td>
<td>IS-856-0 (1xEV-DO Rev. 0)</td>
</tr>
<tr>
<td>MX882006C-002</td>
<td>IS-856-0 (1xEV-DO Rev. 0)</td>
</tr>
<tr>
<td>MX882006C-011</td>
<td>IS-856-A (1xEV-DO Rev. A)</td>
</tr>
</tbody>
</table>

Transmitter Measurement

The transmit power, modulation analysis, occupied bandwidth, code domain power, spurious emission, and access probe power can be measured.

Receiver Measurement

Packet Error Rate (PER) measurement and Pass/Fail evaluation can be performed in FTAP to display the PER, error packet count, transmission packet count, confidence level, and Pass/Fail results.

$\text{FER}$ Requires MT8820C-003 and MX882002C
$\text{PER}$ Requires MT8820C-003, MT8820C-005, MX882002C, and MX882006C
Installing the MT8820C-003, MT8820C-005, MX882002C, MX882006C, and MX882006C-011 can measure of Tx and Rx characteristics of 1xEV-DO Rev. A terminal.

Refer to the MX882002C/MX882006C catalog for details.
TD-SCDMA Measurement

3GPP-compliant measurements of the main Tx and Rx characteristics of 3G TD-SCDMA (1.28 Mbps TDD) and 3.5G HSDPA/HSUPA mobile terminals is supported.

Transmitter and Receiver Measurement

3GPP-compliant measurement of TD-SCDMA with call-processing functions, including Tx/Rx items such as transmit power, power template, frequency error, occupied bandwidth, spectrum emission mask, adjacent channel leakage power ratio, modulation accuracy, peak code domain error, open loop power control, closed loop power control, out-of-sync handling, BER, and BLER, is supported. In addition, one-touch setting of main Tx/Rx test items and closed loop power control offer easy configuration of automated 3GPP-compliant test systems.

PHS/Advanced PHS Measurement

Measures Tx and Rx characteristics of PHS terminals/Advanced PHS terminals and base stations in compliance with ARIB RCR-STD-28 edition 5.0 supporting 4/4DQPSK, 8PSK, and 16QAM modulation methods.

Transmitter Measurement

The transmit frequency, modulation accuracy, transmit power, transmission rate, occupied bandwidth, adjacent channel leakage power of PHS terminals/Advanced PHS terminals and base stations are measured simultaneously.

Transmitter and Receiver Measurement

3GPP-compliant measurement of TD-SCDMA with call-processing functions, including Tx/Rx items such as transmit power, power template, frequency error, occupied bandwidth, spectrum emission mask, adjacent channel leakage power ratio, modulation accuracy, peak code domain error, open loop power control, closed loop power control, out-of-sync handling, BER, and BLER, is supported. In addition, one-touch setting of main Tx/Rx test items and closed loop power control offer easy configuration of automated 3GPP-compliant test systems.

Power Template

Adjacent Channel Power

BER (8PSK)

TD-SCDMA HSDPA Measurement

3GPP-compliant Throughput, and CQI measurements of TD-SCDMA HSDPA terminals are supported. The signals for Throughput measurement include RMC signals for all TD-SCDMA HS-DSCCH categories as well as maximum category-15 data rates (2.8 Mbps).

Receiver Measurement

The bit error rate can be measured on receipt of demodulation data and clocks output from a terminal/base station by controlling the terminal/base station with an external PC. This measurement can be performed in parallel with transmitter measurements.

TD-SCDMA HSUPA Measurement

3GPP-compliant Tx measurement and Performance test of TD-SCDMA HSUPA with call-processing are measured. The signals for Tx measurement include HSUPA RMC category 1 to 6 (2.23 Mbps UE class) terminals can be transmitted. And, HSUPA performance measurement is calculated the information about bit rate by detecting E-DCH TB (Transport Block size). Index include E-UCCH sent from the mobile terminal to MT8820C.

• Requires MT8820C-001, MT8820C-007, and MX882007C for TD-SCDMA measurements.
• Requires MT8820C-001, MT8820C-007, MX882007C, and MX882007C-011 for TD-SCDMA HSDPA measurements.
• Requires MT8820C-001, MT8820C-007, MX882007C, MX882007C-011, and MX882007C-021 for TD-SCDMA HSUPA measurements.

• For terminal connectivity, contact your Anritsu sales representative.

• Requires MT8820C-002 and MX882005C for PHS measurements.
• Requires MT8820C-002, MX882005C, and MX882005C-011 for Advanced PHS measurements.
Supports All Function Tests

Real-time Voice Encoding and Decoding

Voice tests with a handset are supported by the real-time voice encoding and decoding function of the W-CDMA (GSM, CDMA2000 1X, TD-SCDMA) Measurement Software. In addition, the call Tx and Rx audio can be measured using the audio measurement function.

End-to-End Communications Test

This supports the end-to-end communications test between an Anritsu handset (A0058A/A0013) connected to the RJ11 connector on the MT8820C and a mobile terminal.

Audio Transmitter and Receiver Measurement

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

Packet Communication Data Transfer Test

End-to-End Data Transfer Test

Using the External Packet Data Software option supports end-to-end data transfer between a mobile terminal (W-CDMA, HSDPA, GPRS, CDMA2000 1X, CDMA2000 1xEV-DO Rev. 0) and an application server connected to the MT8820C, or a PC client connected to the terminal, and various application tests. The IP data transfer software option supports end-to-end data transfer with an LTE FDD/TDD terminal.

Audio Transmitter and Receiver Measurement

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

LTE-Advanced FDD DL CA plus MIMO Receiver Measurement

With two MT8820Cs, capable of maximum throughput testing of DL CA 2x2 MIMO PHY layer (Max. throughput = 300 Mbps for UE category 6, 20 MHz bandwidth and 2CCs).

Sample MT8820C connection

- Requires MT8820C-011, MX882000C-001, MX882001C-001, MX882002C-001 or MX882007C-001
- Audio Transmitter and Receiver Measurement supports W-CDMA, GSM, TD-SCDMA

Audio Transmitter and Receiver Measurement does not support CDMA2000 1X

Refer to the MX882000C, MX882001C, MX882002C and MX882007C catalog for details.

Sample MT8820C connection

- Packet Communication Data Transfer Test requires either MX882012C-006 (MX882013C-006), MX882050C-002, MX882050-011, MX882050C-002, MX882001C-002, MX882002C-002 or MX882006C-002
- MIMO Test requires MT8820C 2 set.
- MT8820C #1 requires MT8820C-008, MT8820C-012, and MX828012C-011.
- MT8820C #2 requires MT8820C-008, MT8820C-012, and MX882012C-011.

Refer to the MX882012C/13C/42C/43C, MX882000C, MX882001C or MX882002C/MX882006C catalog for details.
Video Phone Test

End-to-End Video Phone Test

The MT8820C supports two-ways tests between W-CDMA (TD-SCDMA) terminals with video functions via the MT8820C Ethernet port. Two-way video phone tests require either two MT8820C units or one unit with the Parallelphone option.

CDMA2000 1X/1xEV-DO (Rev. 0)

Synchronous Function

CDMA2000 1X/1xEV-DO (Rev. 0) Hybrid Terminal Function Test

By using the MX882002C and MX882006C with two MT8820C units or one MT8820C unit with the Parallelphone measurement option, the CDMA2000 1X and 1xEV-DO (Rev. 0) forward link signals can be output with synchronized system times, supporting function tests of terminals for both CDMA2000 1X and 1xEV-DO (Rev. 0) systems:

- This function cannot be used when MX882000C W-CDMA Measurement Software or MX882007C TD-SCDMA Measurement Software is loaded. Please perform unload, when MX882000C or MX882007C is loaded.
- Installing the MX882006C-011 option supports the mobile terminal connection test with ETAP only.

Requires MX88205xC-003 or MX882007C-003

Refer to the MX882000C and MX882007C catalog for details.
Higher Productivity

High Production Efficiency and Smaller Equipment Footprint using Parallelphone Measurement

Simultaneous Measurement of Two Mobile Terminals

Installing the Parallelphone Measurement option supports simultaneous measurement of two terminals using the second RF, AF, GPIB, or Ethernet port of a single MT8820C unit.

Call Processing Test

Connection Test

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 mobile terminal can be echoed back while calling to test simple voice communications.

Case of GSM Parallel Phone Measurements

<table>
<thead>
<tr>
<th>Model</th>
<th>Name</th>
<th>Required number</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT8820C</td>
<td>Radio Communication Analyzer</td>
<td>1</td>
</tr>
<tr>
<td>MT8820C-002</td>
<td>TDMA Measurement Hardware</td>
<td>2</td>
</tr>
<tr>
<td>MT8820C-012</td>
<td>Parallel Phone Measurement Hardware</td>
<td>1</td>
</tr>
<tr>
<td>MX882001C</td>
<td>GSM Measurement Software</td>
<td>1</td>
</tr>
<tr>
<td>MX882010C</td>
<td>Parallel Phone Measurement Software</td>
<td>1</td>
</tr>
</tbody>
</table>

Specifications

MX882010C Parallel Phone Measurement Software

<table>
<thead>
<tr>
<th>Main2 Input/Output</th>
<th>Aux1 Output specified by the MT8820C and the measurement software installed in the MT8820C.</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF2 Input/Output</td>
<td>Identical to AF1 Input and Output specified by the measurement software. These are enabled only when the MT8820C-011 Audio Board is installed.</td>
</tr>
</tbody>
</table>

+ The MT8820C-012 Parallel Phone Measurement Hardware requires the MX882010C Parallel Phone Measurement Software as well as installation of the required measurement software and two measurement hardware units.

Mobile Terminal Report Monitor

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

Mobile Terminal Report Monitor (GSM)
Panel Layout

1. **Power Switch**
   Switches mode between power-on and standby

2. **Copy Key**
   Copies screen

3. **Local Key**
   Switches remote control to manual control

4. **Remote Lamp**
   Lit while in remote control mode

5. **Preset Key**
   Starts initializing

6. **User function keys**
   Execute user menu contents displayed in the leftmost area of the screen, when the common window is enabled

7. **Function Key**
   Executes function menu displayed on right of screen

8. **Functions**
   Displays function menu on screen

9. **Screen Switch Key**
   Switches screen

10. **Screen Control**
    Switches display window for manual operation

11. **Measure**
    Starts and stops measurement

12. **Channel/Level**
    Sets channel, frequency, and level

13. **Call**
    Connects and disconnects call

14. **Utility**
    Saves and recalls parameters, and displays configuration

15. **Cursor/Data Entry**
    Moves cursor and sets parameters

16. **Page Switch Key**
    Switches function menu displayed on right of screen

17. **Main Input/Output Connector**
    Outputs RF signal for RF testing mobile terminal (N-type connector)

18. **AUX Output Connector**
    Outputs RF signal for RF testing mobile terminal (SMA connector)

19. **AF Input/Output Connector**
    For audio measurement

20. **Handset Connector**
    For testing end-to-end voice communication between MT8820C and mobile terminal using an Anritsu handset (A0058A/A0013)

21. **Memory Card Slot**
    For saving/recalling measurement parameters and update software to/from PCMCIA-compliant PC-card-type memory card (Type II)
2. **GPIB Connector**  
For remote control of MT8820C

3. **1000Base-T/100Base-TX/10Base-T port**  
Interface for packet and LTE communication tests (for LTE) (enabled when LTE measurement hardware installed in MT8820C)

4. **Trigger Output Connector**  
Outputs event-timing signal to external equipment (BNC connector)

5. **Trigger Input Connector**  
Inputs trigger signal from external equipment to measure uplink signal from mobile equipment by synchronizing (BNC connector)

6. **100Base-TX/10Base-T Port**  
RJ-45 connector for the remote control via Ethernet (100Base-TX/10Base-T)

7. **10Base-T Port**  
Interface for packet and W-CDMA video communication test

8. **RS-232C Port**  
Interface for packet communication test

9. **Frequency Adjust**  
Adjusts frequency of internal reference oscillator

10. **Call Processing Input/Output Port**  
Interface for BER measurement and synchronization

11. **Reference Signal Output Connector**  
Outputs 10-MHz reference signal of MT8820C (BNC connector)

12. **Reference Signal Input Connector**  
Inputs 10/13-MHz reference signal (BNC connector)
### General

**Frequency range:** 30 MHz to 2.7 GHz (setting range: 400 kHz to 2.7 GHz)  
3.4 GHz to 3.8 GHz (with MT8820C-018)  
**Max. input level:** +35 dBm (Main)  
**Impedance:** 50 Ω  
**VSWR:** ≤1.2 (<1.9 GHz), ≤1.25 (1.8 GHz to 2.2 GHz), ≤1.3 (>2.2 GHz)  
**Connector:** N type  
**Aux output**  
**Impedance:** 50 Ω  
**VSWR:** ≤1.3 (2G Output level: ≤10 dBm)  
**Connector:** SMA type  
**Reference oscillator**  
**Frequency:** 10 MHz  
**Level:** TTL  
**Startup characteristics:** ≤5 × 10⁻⁸ (10 min after startup referenced to frequency 24 h after startup)  
**Aging rate:** ≤2 × 10⁻⁹/day, ≤1 × 10⁻⁷/year (referenced to frequency 24 h after startup)  
**Temperature characteristics:** ≤5 × 10⁻⁸  
**Connector:** BNC type  
**External reference input**  
**Frequency:** 10 MHz or 13 MHz (±1 ppm)  
**Level:** ≥0 dBm  
**Impedance:** 50 Ω  
**Connector:** BNC type

### RF Signal Generator

**Frequency**  
**Frequency range:** 30 MHz to 2.7 GHz (setting range: 400 kHz to 2.7 GHz)  
3.4 GHz to 3.8 GHz (with MT8820C-018)  
**Setting resolution:** 1 Hz  
**Accuracy:** Due to reference oscillator accuracy  
**Output level**  
**Level range:** –140 to –10 dBm (Main), –130 to 9 dBm (Aux)  
**Resolution:** 0.1 dB  
**Accuracy:** Main: ≤1.0 dB, ±0.7 dB typ, (Output frequency: 250 MHz), ≤1.5 dB (Output frequency: ≤50 MHz)  
Aux: ≤1.0 dB, ±0.7 dB typ, (Output frequency: 250 MHz), ≤1.5 dB (Output frequency: ≤50 MHz)  
≤110 to 0 dBm, after calibration, 10°C to 40°C  
**Signal purity**  
Non-harmonic spurious: ≤40 dBc (offset frequency: ±100 kHz)  
Harmonics: ≤–25 dBc  
**Uninterrupted level variation**  
**Variable range:** –30 to 0 dB  
**Setting resolution:** 1 dB

### Others

**Display**  
Color 8.4-inch TFT LCD, 640 × 480 dots  
**External control**  
GPIB: Control from external host with main unit as device (excluding some functions such as power-on), No external device control  
Interface functions: SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT1, C0, E2  
Ethernet (100Base-TX/10Base-T): Controlled by an external controller, assuming the MT8820C as a device (except some functions such as power switch etc.), No controller function

### Power Supply

100 V(ac) to 120 V(ac)/200 V(ac) to 240 V(ac) (250 V max.), 50 Hz/60 Hz, ≤2750 VA (with all Options)

### Dimensions and Mass

426 (W) × 221.5 (H) × 498 (D) mm (excluding projections), ≤30 kg (with all Options)

### Environmental Conditions

Operating temperature and humidity: 0°C to +50°C, ≤85% (no condensation)  
Storage temperature and humidity: –20°C to +80°C, ≤95% (no condensation)  
EMC  
EN61326-1, EN61000-3-2  
LVD  
EN61010-1

*Typical values are only for reference and are not guaranteed specifications.*
### 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>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT8820C</td>
<td>Main frame: Radio Communication Analyzer</td>
</tr>
<tr>
<td>MT8820C-001</td>
<td>W-CDMA Measurement Hardware</td>
</tr>
<tr>
<td>MT8820C-002</td>
<td>TDMA Measurement Hardware</td>
</tr>
<tr>
<td>MT8820C-003</td>
<td>CDMA2000 Measurement Hardware Retrofitted</td>
</tr>
<tr>
<td>MT8820C-005</td>
<td>1xEV-DO Measurement Hardware2</td>
</tr>
<tr>
<td>MT8820C-007</td>
<td>TD-SCDMA Measurement Hardware</td>
</tr>
<tr>
<td>MT8820C-008</td>
<td>LTE Measurement Hardware</td>
</tr>
<tr>
<td>MT8820C-011</td>
<td>Audio Board</td>
</tr>
<tr>
<td>MT8820C-012</td>
<td>Parallel Phone Measurement Hardware Retrofitted</td>
</tr>
<tr>
<td>MT8820C-018</td>
<td>Extended RF 3.4 GHz to 3.8 GHz (requires MT8820C-017, MT8820C-119, or MT8820C-120)</td>
</tr>
<tr>
<td>MT8820C-043</td>
<td>CDMA2000 Time Offset CAL for GPS SG Retrofitted (requires MT8820C-003 and MX882020C2)</td>
</tr>
<tr>
<td>MT8820C-101</td>
<td>W-CDMA Measurement Hardware Retrofit</td>
</tr>
<tr>
<td>MT8820C-102</td>
<td>TDMA Measurement Hardware Retrofit</td>
</tr>
<tr>
<td>MT8820C-103</td>
<td>CDMA2000 Measurement Hardware Retrofit</td>
</tr>
<tr>
<td>MT8820C-105</td>
<td>1xEV-DO Measurement Hardware Retrofit2</td>
</tr>
<tr>
<td>MT8820C-107</td>
<td>TD-SCDMA Measurement Hardware Retrofit</td>
</tr>
<tr>
<td>MT8820C-108</td>
<td>LTE Measurement Hardware Retrofit</td>
</tr>
<tr>
<td>MT8820C-111</td>
<td>Audio Board Retrofit</td>
</tr>
<tr>
<td>MT8820C-112</td>
<td>Parallel Phone Measurement Hardware Retrofit</td>
</tr>
<tr>
<td>MT8820C-119</td>
<td>Extended RF for PSM Retrofit</td>
</tr>
<tr>
<td>MT8820C-120</td>
<td>Extended RF for PPM Retrofit</td>
</tr>
<tr>
<td>MT8820C-143</td>
<td>CDMA2000 Time Offset CAL for GPS SG Retrofitted (requires MT8820C-003 and MX882020C2)</td>
</tr>
<tr>
<td>MT8820C-177</td>
<td>TD-SCDMA Measurement Retrofit (requires MT8820C-001)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model/Order No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MX882000C</td>
<td>Software options</td>
</tr>
<tr>
<td>MX882000C-001</td>
<td>W-CDMA Measurement Software (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882000C-011</td>
<td>HSDPA Measurement Software (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882000C-013</td>
<td>HSDPA High Data Rate Software (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882000C-021</td>
<td>HSUPA Measurement Software (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882000C-031</td>
<td>HSUPA Evolution Measurement Software (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882000C-032</td>
<td>DC-HSDPA Measurement Software (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882001C</td>
<td>GSM Measurement Software (requires MT8820C-002)</td>
</tr>
<tr>
<td>MX882001C-001C</td>
<td>GSM Voice Code (requires MT8820C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882001C-002C</td>
<td>GSM External Packet Data (requires MX882010C1)</td>
</tr>
<tr>
<td>MX882001C-011C</td>
<td>EGPRS Measurement Software (requires MX882001C)</td>
</tr>
<tr>
<td>MX882001C-041C</td>
<td>GSM High-speed Adjustment (requires MX882010C1)</td>
</tr>
<tr>
<td>MX882002C</td>
<td>CDMA2000 Measurement Software (requires MT8820C-003)</td>
</tr>
<tr>
<td>MX882002C-001C</td>
<td>CDMA2000 Voice Codec (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882002C-002C</td>
<td>CDMA2000 External Packet Data (requires MX8820020C2)</td>
</tr>
<tr>
<td>MX882005C</td>
<td>PHS Measurement Software (requires MT8820C-002)</td>
</tr>
<tr>
<td>MX882005C-011C</td>
<td>1xEV-DO Measurement Software (requires MT8820C-003, MT8820C-005, and MX882020C2)</td>
</tr>
<tr>
<td>MX882006C-002C</td>
<td>1xEV-DO External Packet Data (requires MX882006C2)</td>
</tr>
<tr>
<td>MX882006C-011C</td>
<td>1xEV-DO Rev. A Measurement Software (requires MX882006C2)</td>
</tr>
<tr>
<td>MX882007C</td>
<td>TD-SCDMA Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882007C-001</td>
<td>TD-SCDMA Voice Codec (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882007C-003</td>
<td>TD-SCDMA Video Test (requires MX882007C)</td>
</tr>
<tr>
<td>MX882007C-011</td>
<td>TD-SCDMA HSDPA Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882007C-021</td>
<td>TD-SCDMA HSUPA Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882010C</td>
<td>Parallel Phone Measurement Software (requires MT8820C-001, the two same measurement hardware (2 board/sets) and one measurement software)</td>
</tr>
<tr>
<td>MX882012C</td>
<td>LTE FDD Measurement Software (requires MX8820C-008)</td>
</tr>
<tr>
<td>MX882012C-006</td>
<td>LTE FDD IP Data Transfer (requires MX882012C)</td>
</tr>
<tr>
<td>MX882012C-011</td>
<td>LTE TD-SCDMA Measurement Software (requires MT8820C-001 and MX882012C)</td>
</tr>
<tr>
<td>MX882012C-016</td>
<td>LTE TD-SCDMA Measurement Software (requires MT8820C-001 and MX882012C)</td>
</tr>
<tr>
<td>MX882012C-018</td>
<td>LTE TD-SCDMA Measurement Software (requires MT8820C-001 and MX882012C)</td>
</tr>
<tr>
<td>MX882013C</td>
<td>LTE FDD CS fallback to WCDMA (requires MX882012C)</td>
</tr>
<tr>
<td>MX882013C-006</td>
<td>W-CDMA Measurement Software (requires MX882000C-002 and MX882020C2)</td>
</tr>
<tr>
<td>MX882013C-011C</td>
<td>GSM Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882013C-021</td>
<td>CDMA2000 Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
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<td>MX882014C</td>
<td>LTE Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882015C</td>
<td>TD-SCDMA Measurement Software (requires MT8820C-001 and MX882020C2)</td>
</tr>
<tr>
<td>MX882015C-007</td>
<td>W-CDMA Call Processing Software (requires MX882000C-002)</td>
</tr>
<tr>
<td>MX882015C-008</td>
<td>W-CDMA External Packet Data (requires MX882000C-002)</td>
</tr>
<tr>
<td>MX882015C-011</td>
<td>W-CDMA Video Test (requires MX882000C-002)</td>
</tr>
<tr>
<td>MX882015C-012</td>
<td>W-CDMA Ciphering Software (requires MX882005C)</td>
</tr>
<tr>
<td>MX882015C-013</td>
<td>W-CDMA Ciphering Software (requires MX882005C)</td>
</tr>
<tr>
<td>MX882016C</td>
<td>Warranty (2 years Extended Warranty Service)</td>
</tr>
<tr>
<td>MX882017C</td>
<td>Warranty (3 years Extended Warranty Service)</td>
</tr>
<tr>
<td>MX882018C</td>
<td>Warranty (5 years Extended Warranty Service)</td>
</tr>
<tr>
<td>P0019</td>
<td>MT8820C Test USIM 011-2</td>
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<tr>
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<tr>
<td>P0035B</td>
<td>MT8820C-W-CDMA/GSM Test USIM 17</td>
</tr>
<tr>
<td>P0035B7</td>
<td>MT8820C-W-CDMA/GSM Test USIM 17</td>
</tr>
<tr>
<td>A0058A</td>
<td>Handset</td>
</tr>
<tr>
<td>J1249</td>
<td>PPS Output Cable</td>
</tr>
<tr>
<td>J1267</td>
<td>CDMA2000 1xEV-DO</td>
</tr>
<tr>
<td>J0007</td>
<td>DG1024 (0.625 kg)</td>
</tr>
<tr>
<td>J0008</td>
<td>DG1024 (0.625 kg)</td>
</tr>
<tr>
<td>MN810B</td>
<td>Q0 adapter (for processing IO)</td>
</tr>
<tr>
<td>B0032</td>
<td>Joint Plate (4 pcs.)</td>
</tr>
<tr>
<td>B043A</td>
<td>Rack Mount Kit (MT8820C)</td>
</tr>
<tr>
<td>B0499</td>
<td>Carrying Case (Hard type) (with protective cover and casters)</td>
</tr>
<tr>
<td>B0498B</td>
<td>Carrying Case (Hard type) (with protective cover, without casters)</td>
</tr>
</tbody>
</table>

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. The MT8820C-005 hardware supports both IS-856-0 (1xEV-DO Rev. 0) and IS-856-A (1xEV-DO Rev. A) RF measurements. |
3. For terminal connectivity, contact your Anritsu sales representative. |
4. MX882000C-032 is required a Parallelphone measurement configuration of CDMA/HSPA Evolution. For use MT8820C 2units, contact your Anritsu sales representative. |
5. The following measurement hardware supports the Parallelphone measurement option: MT8820C-001, MT8820C-002, MT8820C-003, MT8820C-005, 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-021 is required a Parallelphone measurement configuration of LTE FDD. For use MT8820C 2units, contact your Anritsu sales representative. |
9. The MX882012C-016 (017) LTE TDD CS Fallback to W-CDMA/GSM (TD-SCDMA/GSM) requires a separate MT8820C with the W-CDMA/GSM (TD-SCDMA/GSM) configuration. Contact your Anritsu sales representative for the CS Fallback function test configuration. |
10. These options preinstall the integrity protection function. |
11. MX88202050C-007 supports W-CDMA Band 12, 13, 14, 19, 20, 21. |
12. This Test USIM can be worked on only W-CDMA mode. When the connection of GSM or TD-SCDMA is necessary, P0035B can be applied. |
13. The P0035B MicroSIM is a cut-down P0035B W-CDMA/GSM Test USIM. The P0035B 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 P0035B. If used, it may jam and break in the terminal. |
14. The Parallelphone™ is a registered trademark of Anritsu Corporation. |
15. The P0035B MicroSIM is a cut-down P0035B W-CDMA/GSM Test USIM. The P0035B 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 P0035B. If used, it may jam and break in the terminal. |
16. Anritsu solutions are available in many countries for a number of delivery methods. |
17. These options preinstall the integrity protection function. |
18. MX882000C-032 is required a Parallelphone measurement configuration of W-CDMA/LTE. For use MT8820C 2units, contact your Anritsu sales representative. |
19. MX882012C-021 is required a Parallelphone measurement configuration of LTE FDD. For use MT8820C 2units, contact your Anritsu sales representative. |
20. 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. |
21. These options preinstall the integrity protection function. |
22. MX88202050C-007 supports W-CDMA Band 12, 13, 14, 19, 20, 21. |
23. This Test USIM can be worked on only W-CDMA mode. When the connection of GSM or TD-SCDMA is necessary, P0035B can be applied. |
24. The P0035B MicroSIM is a cut-down P0035B W-CDMA/GSM Test USIM. The P0035B 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 P0035B. If used, it may jam and break in the terminal. |
25. The Parallelphone™ is a registered trademark of Anritsu Corporation. |
26. The P0035B MicroSIM is a cut-down P0035B W-CDMA/GSM Test USIM. The P0035B 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 P0035B. If used, it may jam and break in the terminal. |