Product Brochure

Anritsu

ME7873F
W-CDMA TRX/Performance Test System

ME7874F
W-CDMA RRM Test System

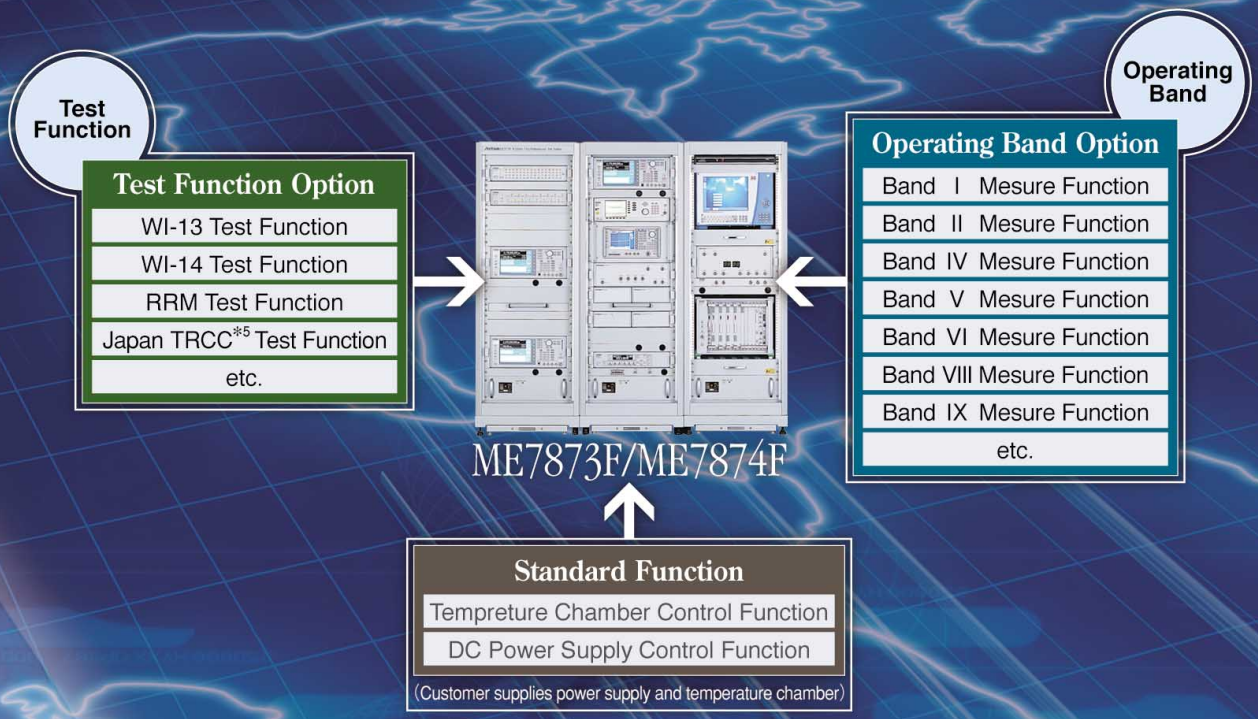
Conformance Tests becoming Increasingly Important

Web Browsing, Videophones, GPS…
On-by-one our dreams are becoming reality as new technologies like W-CDMA become more commonplace, replacing the old networks and bringing exciting new applications to the world.

W-CDMA Communications Networks and Global Mobile Units Spreading Worldwide …
Unlike old communications networks, the explosive growth of W-CDMA networks is driving the astonishing spread of mobile telephones worldwide and W-CDMA is clearly becoming a key technology.

The spread of W-CDMA is also increasing the importance of conformance testing to ensure mobile UE standards compliance.

By combining versatile measuring instruments and software packages into a tailored full-featured test platform, the ME7873F/ME7874F supports the various test functions required for W-CDMA frequency bands in use today, as well as future applications, such as HSDPA, offered by both high-end mobiles and standard units in all countries of the world.



Features

● Supports Tests for Multiband UE.

The ME7873F /74F supports many frequency bands standardized by 3GPP TS34.121 as well as conformance tests for W-CDMA UE in many countries.*1

● Selectable Test Functions

Both RRM and HSDPA measurement functions are supported by selecting options to match the UE functions. This makes it possible to configure a test environment with minimum capital investment.

● Supports Most Approved Test Cases*2

The ME7873F/ME7874F platform boasts the largest number of GCF*3/PTCRB*4 approved test cases of any platform.

● High-Stability Measurement

Exceptional measurement stability is achieved by pre-measurement calibration backed-up by comprehensive self-test functions for trouble-free peace of mind.

● Easy-to-Operate Tests

The W-CDMA tests standardized by 3GPP TS34.121 are classified into conformance tests, Tx/Rx tests, function tests in a fading environment, Radio Resource Management (RRM) tests, and HSDPA tests.
The ME7873F/74F supports all these tests with a single customized platform, eliminating the need to switch the connection setup in mid-test.

*1 Option
*2 This is based on GCF and PTCRB test case approvals following the GCF and PTCRB meeting in January 2007
*3 GCF (Global Certification Forum)
The GCF is an organization composed of mainly of European carriers and vendors that verifies UE standard compliance for frequency bands in Europe.
*4 PTCRB (PCS Type Certification Review Board)
The PTRCB is the N. American equivalent of the GCF, verifying standards compliance for frequency bands in N. America.
*5 TRCC (Technical Regulations Conformity Certification)

RF Conformance Test System Supporting Most Approved Test Cases

● Test System Supporting Most GCF*1/PTCRB*2 Approved Test Cases*3

The ME7873F W-CDMA TRX/Performance Test System is for testing the Tx and Rx characteristics of W-CDMA User Equipment (UE) in accordance with measurement items*4 in Chapter 5 (Transmitter Characteristics), Chapter 6 (Receiver Characteristics), and Chapter 7 (Performance Requirements) of the 3GPP TS 34.121 standards. Measurement items defined by Chapter 8 (Requirements for Support of RRM*5) can also be measured by installing the ME7873F-10 RRM Test Addition option.
In addition, all Inter-RAT tests, including handover tests, can be performed.
The ME7874F W-CDMA RRM Test System is for the specific testing of the Radio Resource Management functions (RRM) defined in 3GPP TS 34.121. It supports the measurement items defined by Chapter 8 (Requirements for Support of RRM) of the 3GPP TS 34.121 standard.
Both of these test platforms support the GCF/PTCRB requirements for TS34.121 Conformance Testing and offer the industry leading GCF/PTCRB approved test cases*3. By configuring a test system from various instruments and dedicated software centered around the MD8480C W-CDMA Signalling Tester, these Test Platforms support the testing of W-CDMA UE with non-call-processing conditions as well as loopback conditions*6.

*1 GCF (Global Certification Forum)
Abbreviation for Global Certification Forum responsible for certifying conformance to standards for UE and test systems
Composed mainly of European carriers and UE vendors and performs certification for frequency bands used in Europe
*2 PTCRB (PCS Type Certification Review Board)
A similar test system certification organization to GCF composed mainly of N. American carriers and UE vendors and performing conformance certification for frequency bands used in N. America
*3 This is based on GCF and PTCRB test case approvals following the GCF and PTCRB meeting in January 2007
*4 In principle, defined by GCF Work Item*7 and targeting measurement items certified by GCF/PTRCB
*5 RRM: Abbreviation for Radio Resource Management
*6 Not supported by RRM tests
*7 Work Item: Name for test item group for each function chosen by GCF for test items for certifying UE conformance

Test Platform for Global Mobile Communications Networks

● Support for National Frequency Bands

In addition to supporting the 3GPP Band I (2 GHz) frequency used first in Japan and many countries of Europe, this system also supports bands II (1.9 GHz), IV (1.7/2 GHz) and V (850 MHz) used in N. America, as well as bands VI (800 MHz) and IX (1.7 GHz) used in Japan. Furthermore, it also supports Band VIII (900 MHz) defined in the GCF July 2006 Work Item. Since the versatile and comprehensive range of options can be tailored precisely to each frequency band, this test platform maximizes investment efficiency in creating the perfect test environment.

3GPP Frequency Band	UL Frequencies	DL frequencies
I	1920 _ 1980 MHz	2110 _ 2170 MHz
II	1850 _ 1910 MHz	1930 _ 1990 MHz
III	1710 _ 1785 MHz	1805 _1880 MHz
IV	1710 _ 1755 MHz	2110 _ 2155 MHz
V	824 _ 849 MHz	869 _ 894 MHz
VI	830 _ 840 MHz	875 _885 MHz
VIII	880 _ 915 MHz	925 _ 960 MHz
IX	1749.9 _1784.9 MHz	1844.9 _ 1879.9 MHz

New Technology Test Bench

● Supports New Technologies, Including HSDPA

A full range of upgrade options supports new future technologies, such as WI*8-013 (Release4/Release5)/WI-014 (HSDPA), for customizing tests exactly to the measurement objective.

*8 WI: Work Item

Stable and Reliable Measurement

• Calibration Functions Supporting Increased Measurement Reliability

To improve measurement stability and reliability, the system has the following three calibration and correction methods:

(1) Basic calibration at acceptance inspection
(2) Auto-calibration at work start
(3) Individual measurement correction*9

Since measurement correction applies a correction immediately before measurement, temperature-related changes in the measurement system are eliminated to greatly improve the reliability of the measured value.
In addition, Anritsu engineers perform calibration when installing the system at acceptance inspection, eliminating the need for operators to perform this complex calibration and correction work.

*9: Patent applied for

• Support Service

Anritsu offers a support service contract to update the system software to the latest version, maximizing return on investment, and keeping work targets on schedule. This charged service contract provides users with the most recent software version updates matching the latest changes to the 3GPP standards as well as information about 3GPP trends and consultation and technical support for troubleshooting test problems.
In addition, the service allows users to maintain their system with the latest version of the GCF and PTCRB approved test cases.

Easy Operation and Wide Applicability

• Easy Remote Control of External Equipment

The system software has built-in functions for controlling a DC power supply and temperature chamber.*10
A DC power supply and temperature chamber can be controlled easily in the same way as selecting test items.
Using these standard functions makes W-CDMA current consumption measurement and temperatures tests easy.

*10: Current consumption measurements and temperature tests requires a separate DC power supply and temperature chamber. Refer to the ordering information for more details.

• Convenient Results Monitoring and Data Management Functions

Measurement results can be saved in HTML or CSV format for easy monitoring and data analysis.

• Test Items based on Technical Regulations Conformity Certification

W-CDMA UE used in Japan must be in compliance with the Technical Regulations Conformity Certification (TRCC).*11

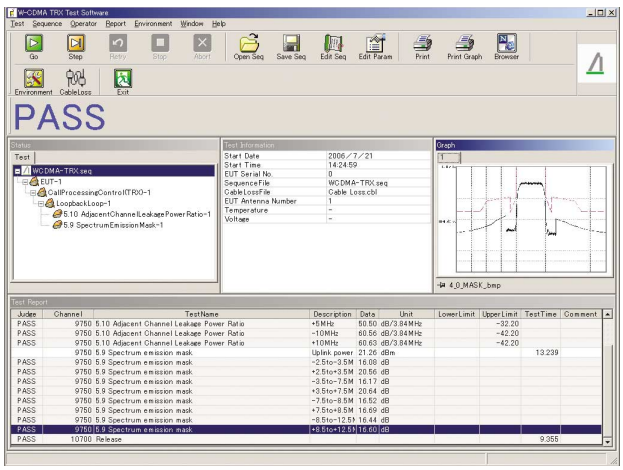
This option adds test items based on the TRCC test items, so the operator can perform tests easily based on the TRCC items.

*11: This function offers tests based on the TRCC tests, which the operator can use to perform 3GPP-compliant measurements. However, since the transmission speed test items are not supported, note that this function is exactly equivalent to the TRCC test.

Convenient Functions for Wide Applicability from W-CDMA Development to Final Inspection

● Clear and Easy to Use Main Screen

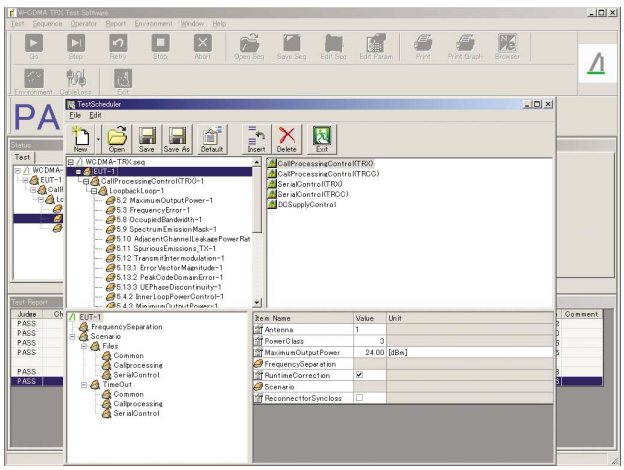
The Main screen is operated using a top toolbar displaying icons indicating the main operations. Test sequence items are indicated at the center left while details are displayed at the screen center and right side. Test results are displayed in real time at the screen bottom. This GUI design gathers all the important information to the main screen at the same time.



Main Screen

● Flexible Parameter Setting

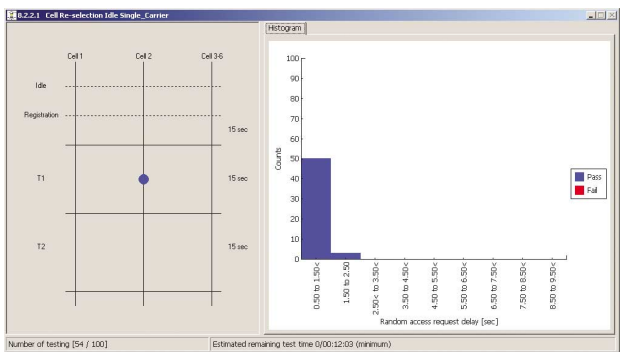
In addition to selecting any frequency channel for each test item, detailed parameters such as evaluation values and averagings can be set too. This permits testing under ideal conditions matching the test objective. Furthermore, changed test conditions can be saved to a file for easy recall when required.



Test Scheduler Screen

● Test Condition and Results Distribution at-a-Glance

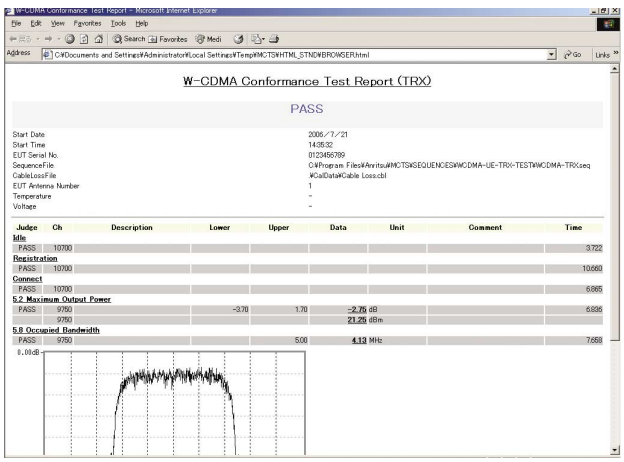
RRM tests display the transitions in connection conditions, which is useful for understanding the connection status at any time. Additionally, test items and results are displayed as a histogram indicating the PASS/FAIL rates for multiple operations and making it easy to identify equipment operation trends.



Test Conditions Screen

● Measurement Data Management Functions

Measurement results from the system can be displayed as a measurement report using a browser as well as printed in the same format. The header for measurement reports can display various information, such as test start time. Moreover, these results can be saved either as an HTML file, or in numeric format as a CSV file for later data processing.



Measurement Results Output

● Useful Measurement Functions (Search Method) for Optimum Measurement

Measurements can be searched repeatedly while changing measurement parameters such as interference signal level. Using this function supports both PASS/FAIL evaluation at 3GPP-defined conditions as well as efficient measurement of UE equipment in the development stage.

● Equipment Expandability

Using the optional MN7462A-01 4 Antenna Connection supports continuous measurement of up to four UE units*2.

*2: The standard configuration supports one UE unit.

Supported Test Items and Options

For detailed test cases, contact our sales representative.

Work Item*1	3GPP 34.121 Chapter	ME7873F TRX/Performance Test System	ME7874F RRM Test System
WI-010	5	√	
	6	√	
	7	√	
	8	√ (Option)	√
WI-012	7	√	
WI-013	5	√ (Option)	
	7	√ (Option)	
	8	√ (Option)	√ (Option)
WI-014	5	√ (Option)	
	6	√ (Option)	
	9	√ (Option)	

*1: Work Item is the name for test groups chosen by GCF indicating test items required for UE conformance certification.

Supported Test Specifications

The design of the ME7873 test platform is based on the following standards.

3GPP TS 34.121 Terminal Conformance Specification
3GPP TS 34.108 Common Test Environment for UE
3GPP TS 34.109 Terminal logical test interface

And the Release99, Release 4, and Release 5 parts of these specifications are supported.
Contact your Anritsu sales representative for details of the supported versions.

Specifications

I/O Connector	N-type, 50 Ω
Max. Input Level	+33 dBm (2 W) +37 dBm (5 W, no path switching)
Reference Oscillator	Uses MS8609A (MS8609A-01 High-Stability Reference Oscillator) as reference Supports input of external reference signal Frequency: 10/13 MHz (selectable), BNC connector
Frequency Range	As defined by 3GPP Operating Band I, II, IV, V, VI, IX
Temperature Range	+15° to +35°C (operating), 0° to +50°C (storage)
Power	100 to 120 or 200 to 240 Vac ME7873F : 50/60 Hz, ≤3100 VA ME7873F (with Option 10, 11, 12, 14, 15, 16, 19) : 50/60 Hz, ≤3300 VA ME7874F : 50/60 Hz, ≤3000 VA
Dimensions	1710 (W) x 1597 (H) x 797 (D) mm
Mass	ME7873F : ≤600 kg ME7873F (with Option 10, 11, 12, 14, 15, 16, 19) : ≤660 kg ME7874F : ≤600 kg
EMC	EN61326: 1997/A2: 2001 (Class A) EN61326: 1997/A2: Conforms to 2001 (Appendix A) EN61000-3-2: Conforms to 2000 (Class A)
LVD	EN61010-1: Conforms to 2001 (Installation location Ⅱ, Pollution Level 2)

∗1: Ambient Temperature
The ambient temperature must meet the conditions when delivery calibration was performed. To assure stable measurement, we recommend installation in an air-conditioned environment.

∗2: Power Consumption
In addition to the typical power consumption of the ME7873F/74F, it is necessary to provide sufficient power (600 VA) for the instruments used at delivery calibration.
<Reference Value>
ME7873F/74F Max. Power Consumption: 50/60 Hz, ≤3500 VA

∗3: To prevent the risk of the rack toppling over, we recommend securing the top of the rack to the wall, etc.

Operating Environment

• Controller (PC)

CPU	Pentium® 4 (2.4 GHz min., Hyper-Threading not required) or Pentium M (1.6 GHz min.)
OS	Microsoft® Windows® 2000 Professional SP4 (Japanese or English version)
Main Memory (RAM)	512 MB (at least 256 MB)
HDD	10 GB of free space
Drives	CD-ROM Drive (for installing software and version upgrades)
Display	1024 x 768 Resolution min.
Ethernet I/F	100BASE-TX
GPIB I/F	One of following National Instruments products PCMCIA-GPIB (PCMCIA-Bus) PCI-GPIB (PCI-Bus)
Sentinel Connector I/F	USB
Browser Software	Internet Explorer® 5.5 or Netscape® Communicator 4.73 or later (Japanese or English versions)

Ordering Information

Consult our sales representative when ordering.
The following table lists the required configuration items, options, software, and application parts.

Model/Order No.	Name
	Main frame
ME7873F	W-CDMA TRX/Performance Test System
	Configuration items
MD8480C	W-CDMA Signalling Tester
MS8609A	Digital Mobile Radio Transmitter Tester
MP8302A	Bit Error Rate Tester
MG3692B	Synthesized Signal Generator
MG3700A	Vector Signal Generator*1
ME7416B	RF Switch Driver Unit
MN7451A	RF Switch Driver Unit
MN7462A	RF Interface Unit
MN7463A	RF Combiner Unit
MX787103F	W-CDMA TRX/Performance Test Software
MX787135F	Selftest Software for Conformance Test System
	Standard accessory
	ME7873F Operation Manual (CD-ROM): 1 set
	Options
ME7873F-10	RRM Test Addition
ME7873F-70	WI-013 Toolkit (TRx/Performance)*2
ME7873F-72	WI-013 Toolkit (RRM)*2
ME7873F-74	WI-014 Toolkit*2
MX787103F-09	JAPAN TRCC TEST*3
MN7462A-01	4 Antenna Connections*5
ME7419B	Mobile Radio Switching Unit
Z0788	Additional Accessory Kit for Power Supply
	Frequency band options*4
	(without RRM Test Function)
ME7873F-11	3GPP Band I Addition
ME7873F-12	3GPP Band Ⅱ Addition
ME7873F-14	3GPP Band IV Addition
ME7873F-15	3GPP Band V Addition
ME7873F-16	3GPP Band VI Addition
ME7873F-18	3GPP Band VIII Addition
ME7873F-19	3GPP Band IX Addition
	(with RRM Test Function)
ME7873F-21	3GPP Band I Addition (Including RRM)
ME7873F-22	3GPP Band Ⅱ Addition (Including RRM)
ME7873F-24	3GPP Band IV Addition (Including RRM)
ME7873F-25	3GPP Band V Addition (Including RRM)
ME7873F-26	3GPP Band VI Addition (Including RRM)
ME7873F-28	3GPP Band VIII Addition (Including RRM)
ME7873F-29	3GPP Band IX Addition (Including RRM)

Model/Order No.	Name
	Main frame
ME7874F	W-CDMA RRM Test System
	Configuration items
MD8480C	W-CDMA Signalling Tester
MS8609A	Digital Mobile Radio Transmitter Tester
MG3700A	Vector Signal Generator*1
ME7416B	RF Switch Driver Unit
MN7451A	RF Switch Driver Unit
MN7462A	RF Interface Unit
MN7463A	RF Combiner Unit
MN7465A	RF Switch Unit
MX787104F	W-CDMA RRM Test Software
MX787135F	Selftest Software for Conformance Test System
	Standard accessory
	ME7874F Operation Manual (CD-ROM): 1 set
	Options
ME7874F-72	WI-013 Toolkit (RRM)*2
MN7462A-01	4 Antenna Connections
ME7419B	Mobile Radio Switching Unit
Z0788	Additional Accessory Kit for Power Supply
	Frequency band options*4
ME7874F-11	3GPP Band I Addition
ME7874F-12	3GPP Band Ⅱ Addition
ME7874F-14	3GPP Band IV Addition
ME7874F-15	3GPP Band V Addition
ME7874F-16	3GPP Band VI Addition
ME7874F-18	3GPP Band VIII Addition
ME7874F-19	3GPP Band IX Addition

∗1: Requires two MG3700A units
∗2: Remember to order additional equipment such as signal generators. Consult your Anritsu sales representative when matching the ME7873 test platform with previously purchased equipment.
∗3: Requires MX787103F and frequency band options
∗4: When configuring system, requires at least one frequency band option
∗5: Please order with the order for MN7462A. Addition after the system delivery is not possible

In addition to the above, use of the ME7873F requires the following customer-supplied parts.

1. Fading Simulator

A fading simulator is required for the performance tests.

Elektrobit	Wideband Radio Channel Simulator	PROPSim C2

2. PC and Peripheral Parts

The PC and other peripherals are used to install test software for controlling the ME7873F.
Refer to the previous page for the operating environment.

3. Peripheral Parts

GPIB Card
Recommended Part:

National Instruments	778034-0212	PCMCIA-GPIB (Windows 2000)

4. DC Power Supply

One of the following models is required when using the ME7873F or ME7874F to control a power supply.
In addition, rack-mounting requires a rack-mount kit from the maker.

Keithley	2303 or 2306-PJ	plus rack-mount kit
Agilent	66311	plus rack-mount kit

Consult the power supply maker for details of the supported power supply accessory kit.

5. Temperature Chamber

One of the following models is required when using the ME7873F or ME7874F to control the temperature chamber.
Temperature Chamber:

VOTSCH	VT4002
THERMOTRON	TH4800
ESPEC	SH241

Contact your Anritsu sales representative for details.

Anritsu

Specifications are subject to change without notice.

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