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Find the *Anritsu MD8480A* at our website: ***Click HERE***

Solution Catalog

Anritsu

GSM/GPRS/EGPRS

Test & Measurement Solutions



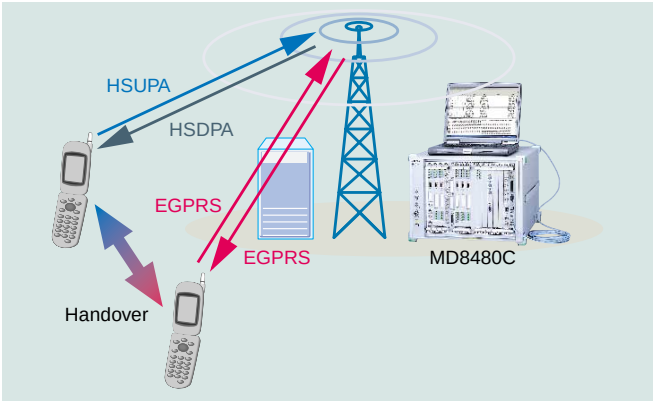
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Anritsu's GSM/GPRS/EGPRS Solutions



MD8480C
W-CDMA Signalling Tester

For Developing GSM/GPRS/EGPRS UE



The MD8480C is a base station simulator with ideal protocol development and test functions for developing 3.5G W-CDMA UE supporting HSPA*1. It has an air interface conforming to 3GPP specifications as standard and supports a full range of applications and protocol tests, coding/decoding processing, protocol sequence testing (registration, origination, termination, handover, etc.), voice and data communications testing (circuit switch, packet switch), and UE end-to-end testing*2 for chipsets and UE.
Moreover, adding options for GSM/GPRS/EGPRS*3 base stations supports Inter-RAT handover tests between W-CDMA/HSPA and GSM/GPRS/EGPRS systems. The MD8480C is the ideal instrument for developing increasingly popular UMTS UE and high-performance chipsets and UE for HSPA/EGPRS*4.

*1: High Speed Packet Access
*2: Requires two MD8480C units
*3: Enhanced GPRS
*4: Handover Testing between W-CDMA/HSPA and GSM/EGPRS at Voice/Data Communications

Features

- **Supports all GSM bands**
- **Supports EGPRS method*1**
- **Supports DTM (Dual Transfer Mode)**

*1: Supports 3GPP Rel. 99 (June 2001)

Main Test Functions

- **EGPRS Packet Data Communications Test**
- **DTM (CS ↔ CS + PS, PS ↔ CS + PS) Test**
- **GSM/W-CDMA Inter-RAT Handover Test**
- **EGPRS/HSPA Inter-RAT Handover Test**
- **GSM DTM ↔ W-CDMA Multi Call Handover Test**

Basic Functions (GSM)

- Protocol Sequence Test (Basic Connection)
- Voice Communications Test (Handset Loopback)
- GPRS/EGPRS Packet Communications Test
- System Handover Test (GERAN ↔ UTRAN)
- Frequency Hopping (Option)
- GSM/GPRS Ciphering (Option)
- DTM (Dual Transfer Mode: Option)
- SMS (Short Message Service)
- SMSCB (SMS Cell Broadcast)

Supported Data

- Enhanced Full-rate Speech (EFS)
- Full-rate Speech (FS, Loopback)
- Half-rate Speech (HS, Loopback)
- Adaptive Multiple Rate Speech (AMR)
- Packet (GPRS/EGPRS: Option)
- GSM CSD (57.6 Kbps max.: Option)

Supports EGPRS

More GSM service regions are using EGPRS services, which is an enhanced version of the GPRS packet method, to offer faster packet data services. The MD8480C supports EGPRS packets by installing the TDMA2 (MU848060C) and EGPRS options (MU848060C-01) to perform data tests up to 200 Kbps.

Main Specifications

- Supports 3GPP: Rel. 99 (June 2001)
- Supports MCS (Modulation&Coding Scheme): 1 to 9
- Supports MSC (Multi Slot Class): 1 to 12
- ARQ Types: 1
- Bit rate: 200 Kbps max.

In addition, expanding development of global GSM and 3G services is increasing sales of dual-mode UE supporting HSPA. The future will see increasing demand for handover tests between GERAN and UTRAN networks, but just a single MD8480C unit combining the EGPRS and HSPA functions will support EGPRS-HSPA Inter-RAT handover tests.

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The MD8470A Signalling Tester is an all-in-one base station simulator supporting most 2.5G and 3G GSM/GPRS/EGPRS and W-CDMA communications systems, as well as UE application function tests, such as voice and contents download, voice call, SMS/MMS, etc. Since basic call connections are supported as standard, a simulation environment for application tests is easily configured. In addition, end-to-end UE tests are supported by adding options to one MD8470A.

- All-in-one support for UE application function tests such as voice and voice call, contents download, messaging, etc.
- Simple call connection (W-CDMA:Voice/Video call/Packet/SMS/MMS; GSM/GPRS/EGPRS:Voice/Packet/SMS/MMS)
- Multi-system support (W-CDMA, GSM/GPRS/EGPRS)
- Frequency coverage of 400 to 2700 MHz

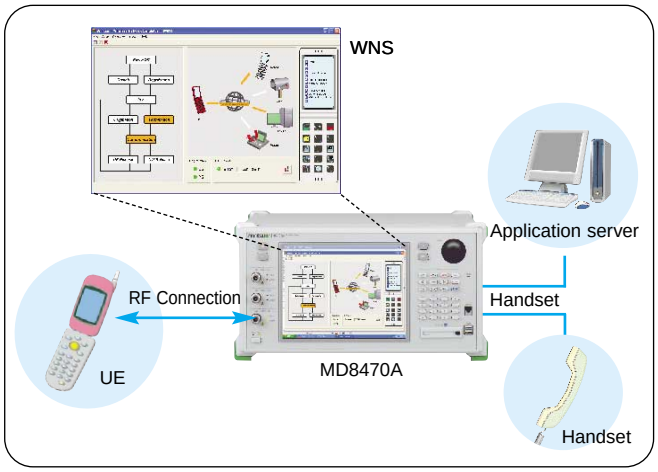
Easy GSM Voice Tests, GPRS/EGPRS Packet Communication Tests, Messaging Tests, Service Interruption Tests (WNS)

- The WNS (Wireless Network Simulator) application software simulates base station operations interactively on the MD8470A Signalling Tester.
- Testing of UE application functions, such as GSM voice call, GPRS packet communication, and SMS/MMS*1 messaging is easy.
- Combining the MX847010A-01 EGPRS Software and MU847020B GSM Signalling Unit provides support for EGPRS and application function tests using EGPRS terminal packet communication.
- Various service interruption tests are supported (see following table).

Service Interruption Test Examples (GSM/GPRS/EGPRS)

Status \ Interruption	Voice Call Interruption	SMS Interruption	MMS Interruption
During Voice Call		√	√
During Packet Communications*2	√*	√*	√*

√ Testable
* Only when packet data not transmitted



Easy GSM Voice End-to-End Tests, Messaging End-to-End Tests and Service Interruption Tests using Two Mobile Terminals (CNS)

- With the required hardware, adding the CNS (Couple-UE Network Simulator) application software supports end-to-end UE testing using only one MD8470A.

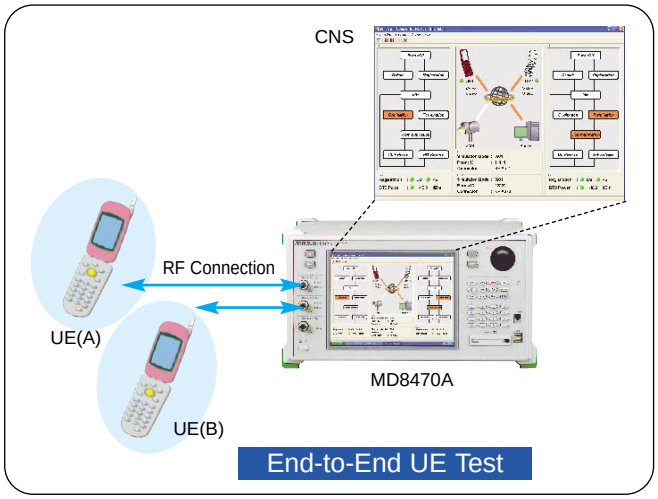
	Required Hardware	Supported End-to-End UE Test
GSM End-to-End UE Test	MD8470A-01 : Second RF Option MU847020B : GSM Signalling Unit x 2	End-to-End voice call Test End-to-End SMS, MMS*1 Test
W-CDMA/GSM End-to-End UE Test	MD8470A-01 : Second RF Option MU847010A : W-CDMA Signalling Unit MU847020B : GSM Signalling Unit	End-to-End SMS, MMS*1 Test

- Various service interruption tests are supported depending on the UE end-to-end test environment (see following table)

Service Interruption Test Examples
(GSM/GPRS/EGPRS UE to GSM/GPRS/EGPRS UE)

Status \ Interruption	Voice Call Interruption	SMS Interruption	MMS Interruption
During Voice Call		√	√
During Packet Communications*2	√*	√*	√*

√ Testable
* Only when packet data not transmitted

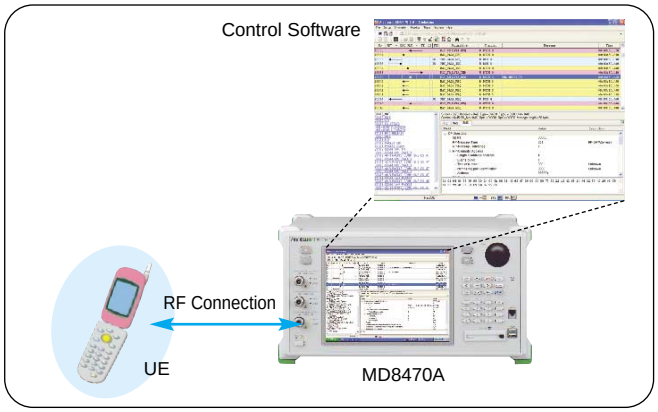


Wide Support for Required Bearers in Scenario-based GSM Application Function Tests

- Installing edited and compiled scenarios into the dedicated control software permits simulation by controlling the MD8470A Signalling Tester.
- The following communications bearers are supported by scenarios, offering wide support for GSM and Dual Mode (W-CDMA/GSM) UE application function tests and general operation tests.

- InterRAT*3 (W-CDMA↔GSM/GPRS/EGPRS*4 Handover)
- DTM (GSM+GPRS/EGPRS*4)
- Multiple PDP Context (GPRS/EGPRS*4)
- GSM CSD
- SMS Cell Broadcast (SMSCB)
- Supplementary Service (Multi Party, Call Waiting, USSD, etc.)

*1: Requires separate MMS application server
*2: Requires MX847010A-01 EGPRS Software Option for ERPRS
*3: Requires MU847010A W-CDMA Signalling Unit, MU847020B GSM Signalling Unit, MD8470A-01 Second RF Option
*4: Requires MX847010A-01 EGPRS Software Option



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ME7873F W-CDMA TRX/Performance Test System
ME7873F W-CDMA RRM Test System

Supports All InterRAT Tests including Handover with GSM



The ME7873F W-CDMA TRX/Performance Test System and ME7874F RRM Test System are the ideal GCF*1/PTCRB*2 test platform supporting all InterRAT test items, including handover with GSM systems.
The ME7873F supports all the test items*3 defined in Chapter 5 (Transmitter Characteristics), Chapter 6 (Receiver Characteristics, Chapter 7 (Performance Requirements) and Chapter 8 Requirements for Support of RRM)*4, including InterRAT tests, such as handover with GSM, defined by 3GPP TS 34.121.
The ME7874F supports Chapter 8 (Requirements for Support of RRM)*4, including InterRAT tests, such as handover with GSM, defined by 3GPP TS 34.121.

*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: Targets test items defined in WorkItem*5 of GCF
*4: Requires option
*5: Required test items for UE compatibility approval; name of test item group for each function selected by GCF.

[GSM Related Test Items]

3GPP TS34.121

8.2.3	Cell Re-Selection
8.3.4	Inter-System Handover
8.3.5.3	Cell Re-Selection to GSM
8.6.4.1	Correct Reporting of GSM Neighbors in AWGN Propagation Condition
8.7.3A	GSM Carrier RSSI

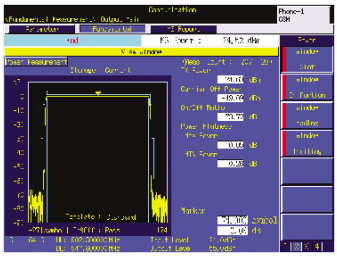
MT8820B/MT8815B
Radio Communication Analyzer

All-in-One Analyzer for RF Tx/Rx Measurements of GSM/GPRS/EGPRS Terminals

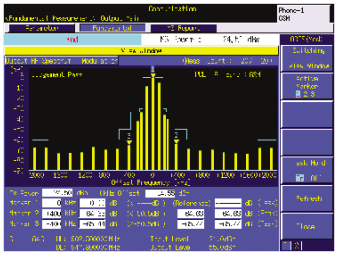


- Cuts mobile terminal manufacturing and inspection times using leading-edge DSP and parallel-processing technologies
- Supports RF Tx/Rx tests in call connection and test modes
- Supports end-to-end communications tests by installing Voice Codec option

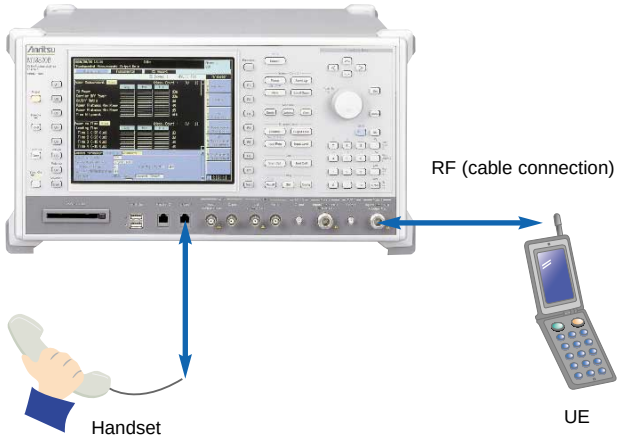
The MX882001C GSM Measurement Software supports Tx/Rx tests of GSM/GPRS/EGPRS-compliant mobile terminals used worldwide. (EGPRS measurement requires the MX882001C-011 option.)
In addition, when the MX882001C and MX882000C W-CDMA Measurement Software are installed in the MT8820B main frame, one unit supports the RF Tx/Rx characteristics tests required on typical worldwide digital mobile terminal production lines.



Burst Waveform



Output Spectrum



End-to-end Communications Testing

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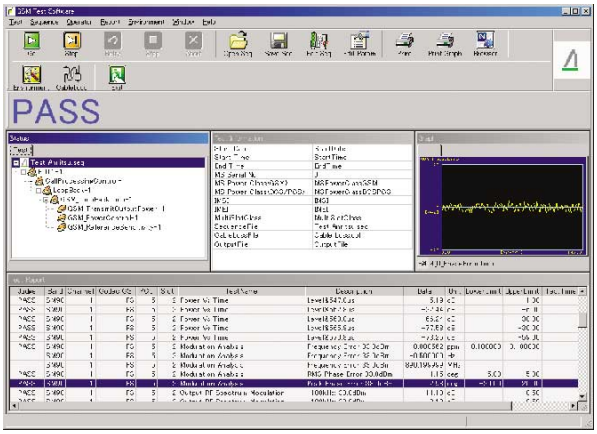
ME7876A
Mobile Communication Test System

Simple and fast automatic testing of GSM/GPRS/EGPRS UE

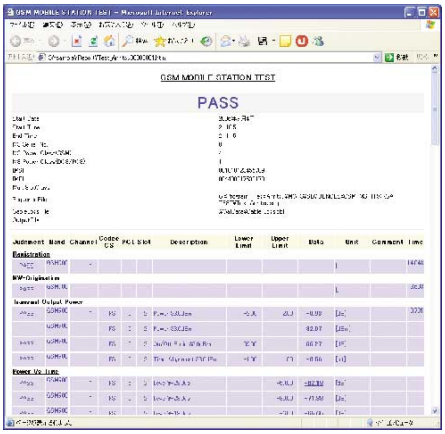


The ME7876A system combines the MT8820x/15x with an external PC. The MT8820x/15x supports unrestricted measurements at high speeds. The MX787601A/MX787620A enables anyone to easily configure an automated test system for GSM mobile terminals and to create measurement result reports. The ME7876A Mobile Communication Test System is the ideal automatic test system for R&D, manufacturing, quality control, and maintenance of mobile terminals.

- **Fast measurement**
- **Simple GSM/GPRS/EGPRS automatic testing (requires separate EGPRS option)**
- **Easy-to-read screen**
- **Easy measured data management**



GSM-Main



GSM_ReportSample

MT8510B
Service Tester

Easy Low-Cost GSM Go/No-Go Testing



Upper: MA8120E Shield Box (separate product)
Lower: MT8510B Service Tester

The MX851001B GSM Measurement Software provides easy and low-cost support for GSM Tx/Rx measurements (GSM900/GSM1800/GSM850/GSM1900). It is ideal for making Go/No-Go test at GSM UE manufacturing, acceptance inspections, and service centers.

- Low cost
- Simple operation
- Supports end-to-end tests (requires separate option)
- Test results output at built-in thermal printer
- Supports W-CDMA/GSM Dual Mode UE (requires separate option)

● GSM Test Capabilities

Transmission measurement	Transmission power
	Power vs time (template mask evaluation)*
	Frequency error
	Phase error (rms and peak)
Reception measurement	FER, BER
Call processing	Location registration, terminal call origination, network call origination, terminal release, network release
	Mobile terminal report monitor (reception level, reception quality)

*: Can be measured only when the up-link slot number is “1”.

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MG3700A
Vector Signal Generator

From GSM Rx Evaluation to Cell Interference Signal Source



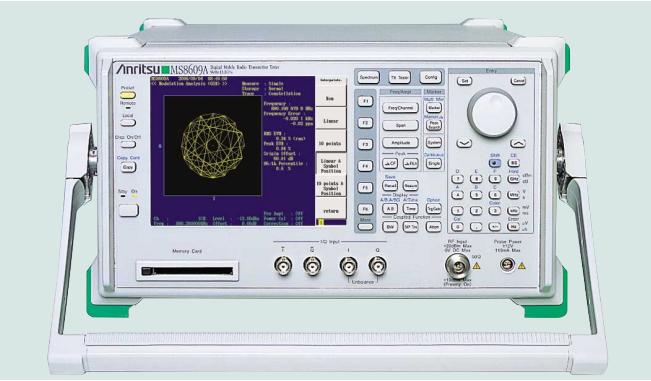
The MG3700A Vector Signal Generator has a wide vector modulation band and large-capacity arbitrary waveform (ARB) memory for supporting digital modulation signals for various communications systems. In addition to targeting main mobile communications systems, such as mobile telephones and wireless LAN, it has the performance for generating wideband signals used by new wireless communications systems now in development.
The MG3700A outputs a modulation signal by selecting a waveform pattern from the arbitrary waveform memory and has a built-in hard disk for storing standard GSM signal patterns. These signals can be used as interference signals for Rx tests and also for W-CDMA systems.

Waveform pattern	Uplink / Downlink	Data	Output slot	Communications
GMSK_PN9	Uplink / Downlink	PN9 *1	–	–
8PSK_PN9	Uplink / Downlink		–	–
GMSK_TN0	Uplink / Downlink	PN9 *2	TN0	–
8PSK_TN0	Uplink / Downlink		TN0	–
NB_GMSK	Uplink / Downlink	PN9 *3	TN0	GSM
NB_ALL_GMSK	Uplink / Downlink		All slots	
NB_8PSK	Uplink / Downlink		TN0	
NB_ALL_8PSK	Uplink / Downlink		All slots	
TCH_FS	Uplink / Downlink	PN9 *4	TN0	
CS-1_1SLOT	Uplink / Downlink		TN0	
CS-4_1SLOT	Uplink / Downlink		TN0	
DL_MCS-1_1SLOT	Downlink		TN0	GPRS
UL_MCS-1_1SLOT	Uplink		TN0	
DL_MCS-5_1SLOT	Downlink		TN0	EDGE
UL_MCS-5_1SLOT	Uplink		TN0	
DL_MCS-9_1SLOT	Downlink		TN0	
UL_MCS-9_1SLOT	Uplink		TN0	
DL_MCS-9_4SLOT	Downlink		TN0, 1, 2, 3	
UL_MCS-9_4SLOT	Uplink		TN0, 1, 2, 3	

*1: PN9 data is inserted into the entire area that does not have the slot format.
*2: PN9 data is inserted into the entire area of the slots, except the guard.
*3: PN9 is inserted into the normal burst encrypted bit area.
*4: The bit string channel-coded for PN9 data is inserted into the normal burst encrypted bit area.

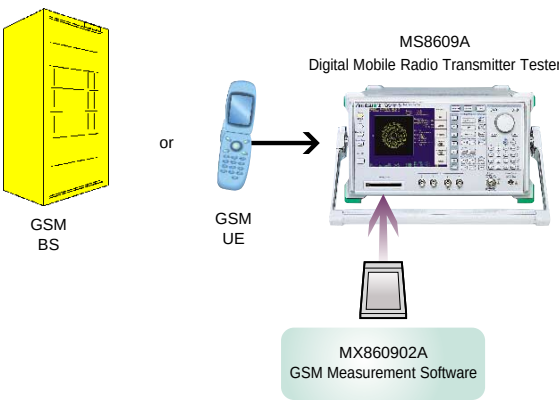
MS8609A
Digital Mobile Radio Transmitter Tester

From UE Development to BS Installation & Maintenance

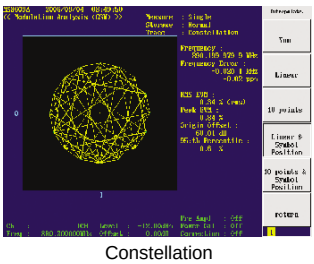


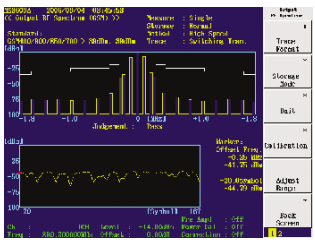
The MS8609A combines high-performance DSP with a built-in power meter to provide fast and high-accuracy modulation analysis plus superior power measurement (±0.4 dB).
Installing the MX860902A GSM Measurement Software supports easy measurement of GSM UE and BS transmission characteristics.

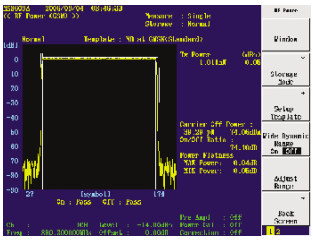
- All-in-one unit for Tx tests of GSM BS and UE
- Fast and high-accuracy modulation analysis
- High-accuracy power measurement (±0.4 dB)

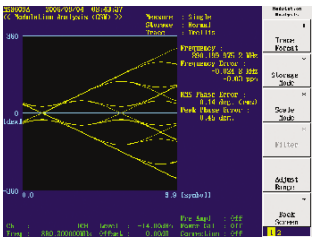


Digital Mobile Radio Transmitter Tester


Constellation


Output RF Spectrum


RF Power Measurement


Trellis Display

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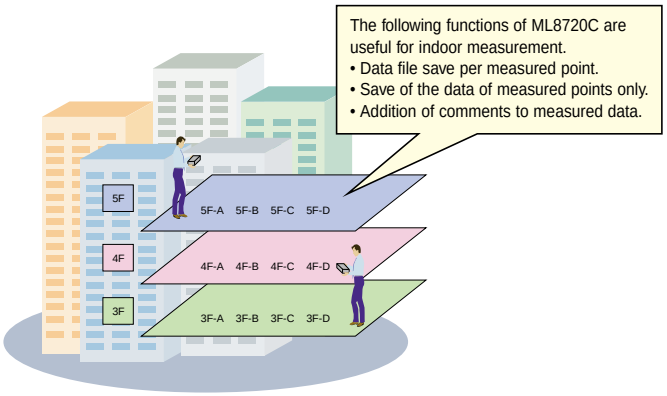

ML8720C

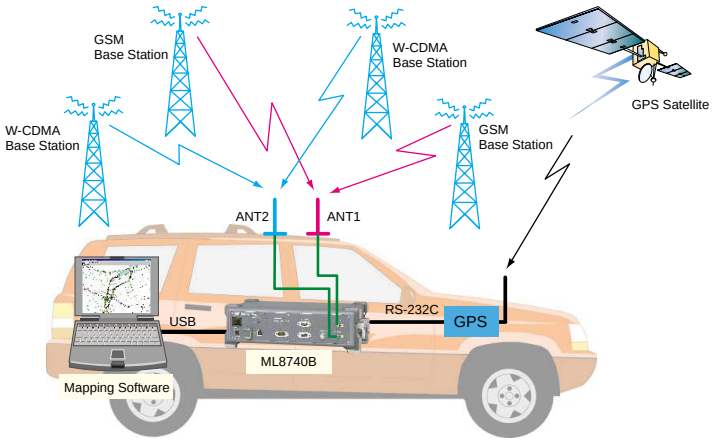

ML8740B

The excellent basic performance of the ML8720C Area Tester and ML8740B Area Scanner make them ideal for accurate acquisition of radio carrier-wave characteristics with high confidence even in noisy radio environments. The ML8720C is designed for stand-alone use while the ML8740B is for drive-through testing.

- **Simultaneous measurement with W-CDMA and GSM**
- **Long-term battery operation (5 hours approx.)**
- **Excellent interference resistance**

In-office Measurement (ML8720C)





HSDPA Product Lineup

	R&D	Manufacturing	Maintenance & Service
Handset Testing	**ME7873F** TRX/Performance Test System		
	MD8480C W-CDMA Signalling Tester		
	MD8470A Signalling Tester		
	MT8820B / MT8815A Radio Communication Analyzer		
	ME7876A Mobile Communication Test System		
	MG3700A Vector Signal Generator		
	MS8608A / MS8609A Digital Mobile Radio Transmitter Tester		
		MT8510B Service Tester	
Base Station Testing	**MG3700A** Vector Signal Generator		
	MS8608A/MS8609A Digital Mobile Radio Transmitter Tester		
			ML8720C Area Tester
			ML8740B Area Scanner

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Anritsu

Specifications are subject to change without notice.

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