Anritsu

ME7873F

W-CDMA TRX/Performance Test System

ME7874F

W-CDMA RRM Test System

ME7873F/ME7874F
W-CDMA TRX/Performance Test System
W-CDMA RRM Test System

- Product Introduction -

October 2015
Anritsu Corporation
Version 14.00

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1. Summary of Conformance Test

What is Conformance Test?

Conformance Test = CT

The CT is defined by 3GPP. It is a general test for 3GPP specifications and a fundamental test for certifying 3GPP compliance.

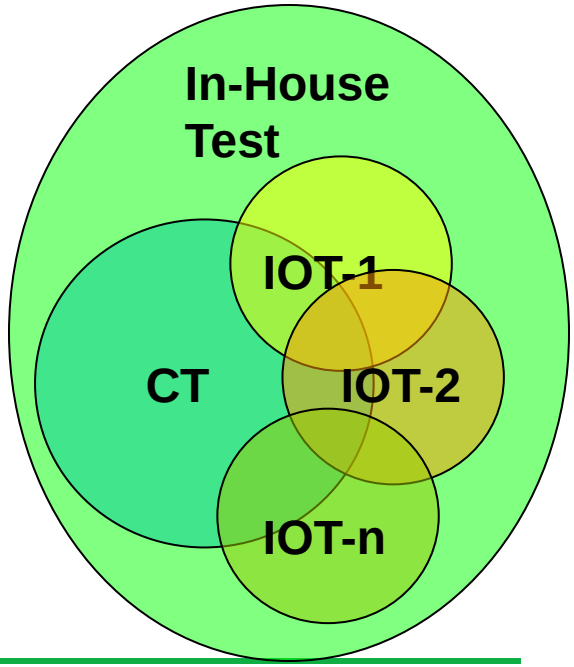
<References>

IOT: Inter Operability Test

The IOT is a CT with actual carriers (base stations).
It is performed because the 3GPP standard has an almost infinite permutation of parameters, so connectivity with actual base stations must be verified. The IOT is formulated for each carrier (base station) based on service details offered by carriers and base station makers.

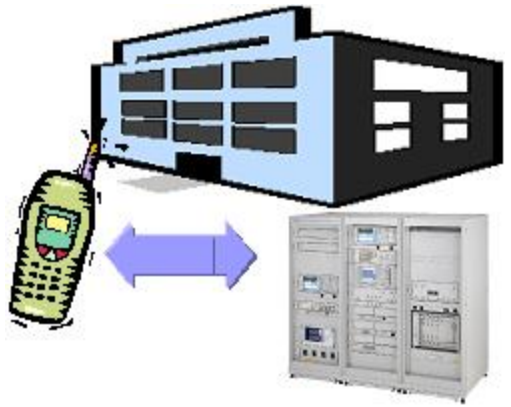
In-House Test:

These tests are conducted in-house by UE makers to assure the quality of their products. UE makers create their own unique tests based on the capability and design data of their in-house products.



How Does CT Fit Overall Product Verification?

- Network problems caused by non-compliant terminals not permitted
- Standard compliance important
- Conformance Test required for design inspection



Testing Real Network

- Proves terminal works with current
  - Network equipment
  - Configurations
  - Services

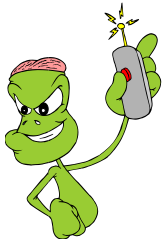
Conformance Testing

- Ensures terminal still works when:
  - Network equipment upgraded
  - New services added
  - Network architecture evolves

Who Should Do Conformance Testing?

- Mobile terminal manufacturers
  - Proving to customers (network operators) that mobile terminals standard compliant

- Chipset and software component manufacturers supplying components or reference designs to mobile phone integrators
  - Proving that chipset designs standard compliant



- Specialist test houses
  - Offering conformance test and validation to manufacturers

- Network operators
  - Performing acceptance testing and QA

3GPP RF and Protocol Conformance Specifications

TS 34.121-1
RF Conformance, FDD

TS 34.122
RF Conformance, TDD

- RF Transmitter
- RF Receiver
- RF Performance
- RRM
- HSDPA Performance
- HSUPA Performance
- MBMS Performance

TS 34.123-1
Protocol Conformance

- Written description of test cases

TS 34.123-2
ICS

- Which test cases apply to which types of terminal

TS 34.123-3
ATS

- Formal description of test cases in TTCN

Race to Introduce 3G Service

3GPP Specifications Still Evolving

How to Test Conformance?

- **Which regulation version should we comply with?**
- **What test range required for "Conformance?"**
- **Who approves?**
- **Where is CT done?**
- **Possible in own facilities?**

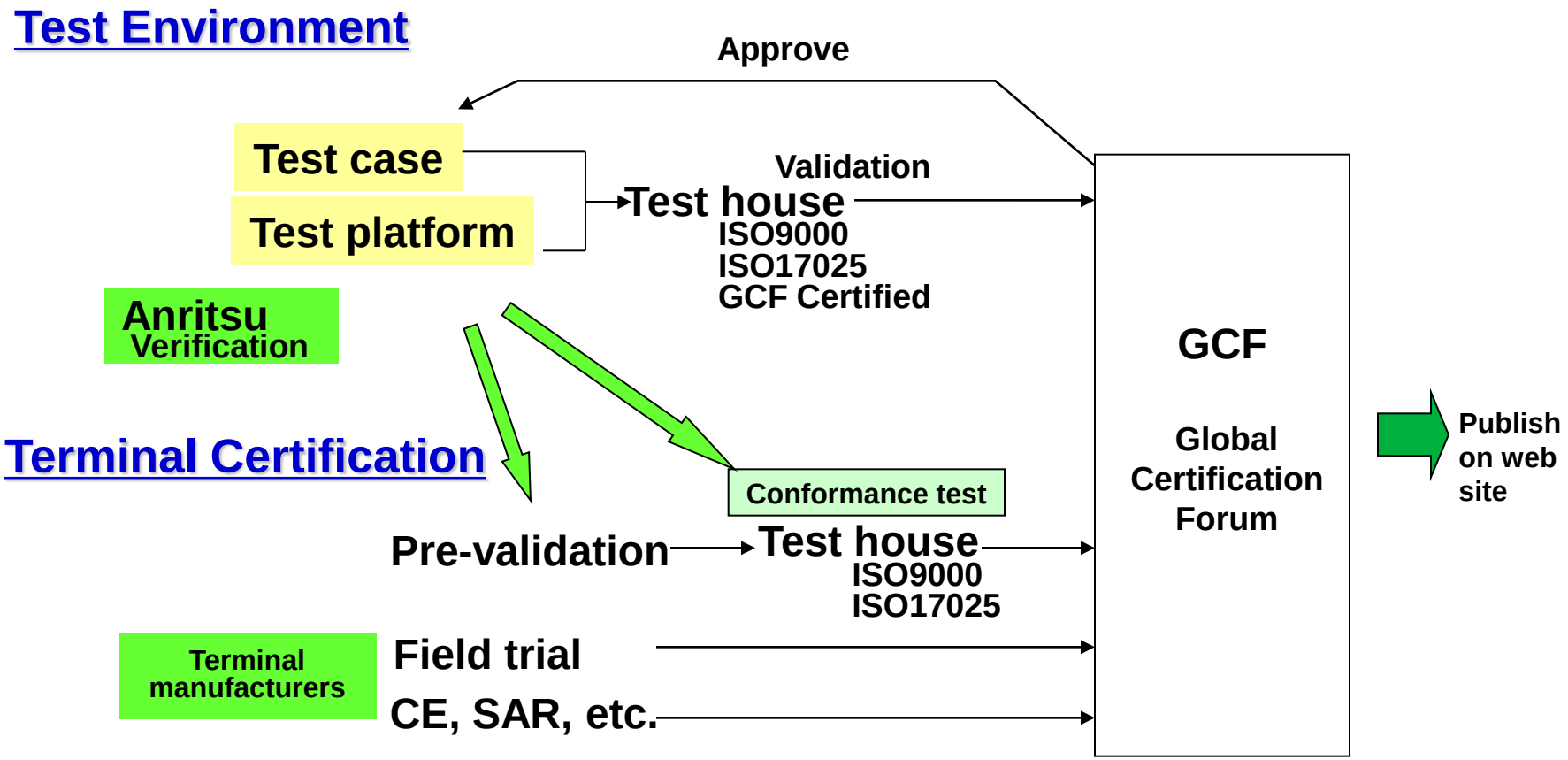
Define International Rule and Procedures!

GCF (Global Certification Forum)

GCF (Global Certification Forum)
PTCRB (PCS Type Certification Review Board)

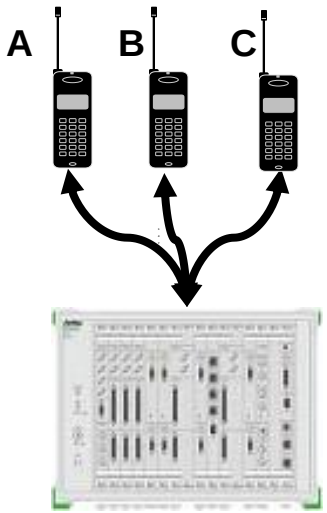
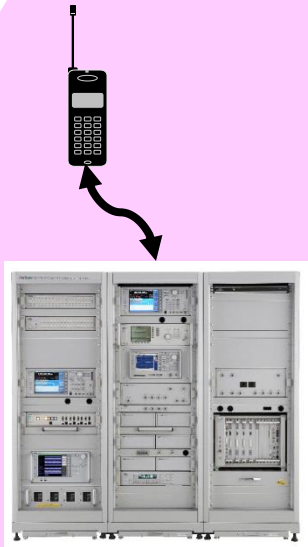
- **The GCF and PTCRB were formed by network operators and UE manufacturers to provide consistent standards for product conformance testing.**
- **It is a forum where various parties, test houses, test equipment companies, operators, and manufacturers can make declarations, present evidence, and receive approval.**
- **The GCF itself does not perform any validation or conformance testing.**
- **For 3G, the GCF also approves test equipment (Conformance Test System) that is 3 GPP compliant.**

TP/TC Approval and Mobile Terminal Certification



2. Anritsu Conformance Test System Proposal

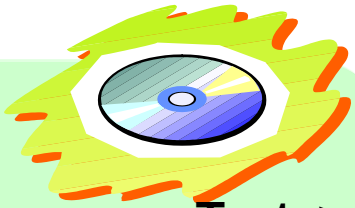
Product Position

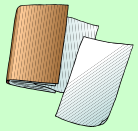
R&D	Verification (Conformance Test)	Manufacture Advanced Service	Maintenance Local Service
			
MD8480C Signalling Tester	**ME7873F/74F** Conformance Test System	**MT8820x/15x** Radio Communication Analyzer	**MT8510B** Service Tester
Verification by scenario	Verification by conformance test cases	Function & RF test (built-in scenario)	Go/No Go (built-in scenario)

Anritsu W-CDMA Conformance Test Products

TS 34.121-1

TS 34.123-3





<RF Conformance Tests>

Chapter 5: Transmitter Characteristics
Chapter 6: Receiver Characteristics
Chapter 7: Performance requirements
Chapter 8: Requirements for support of RRM (Radio Resource Management)
Chapter 9: Performance requirements for HSDPA
Chapter 10: Performance requirement (E-DCH)
Chapter 11: Performance requirement (MBMS)

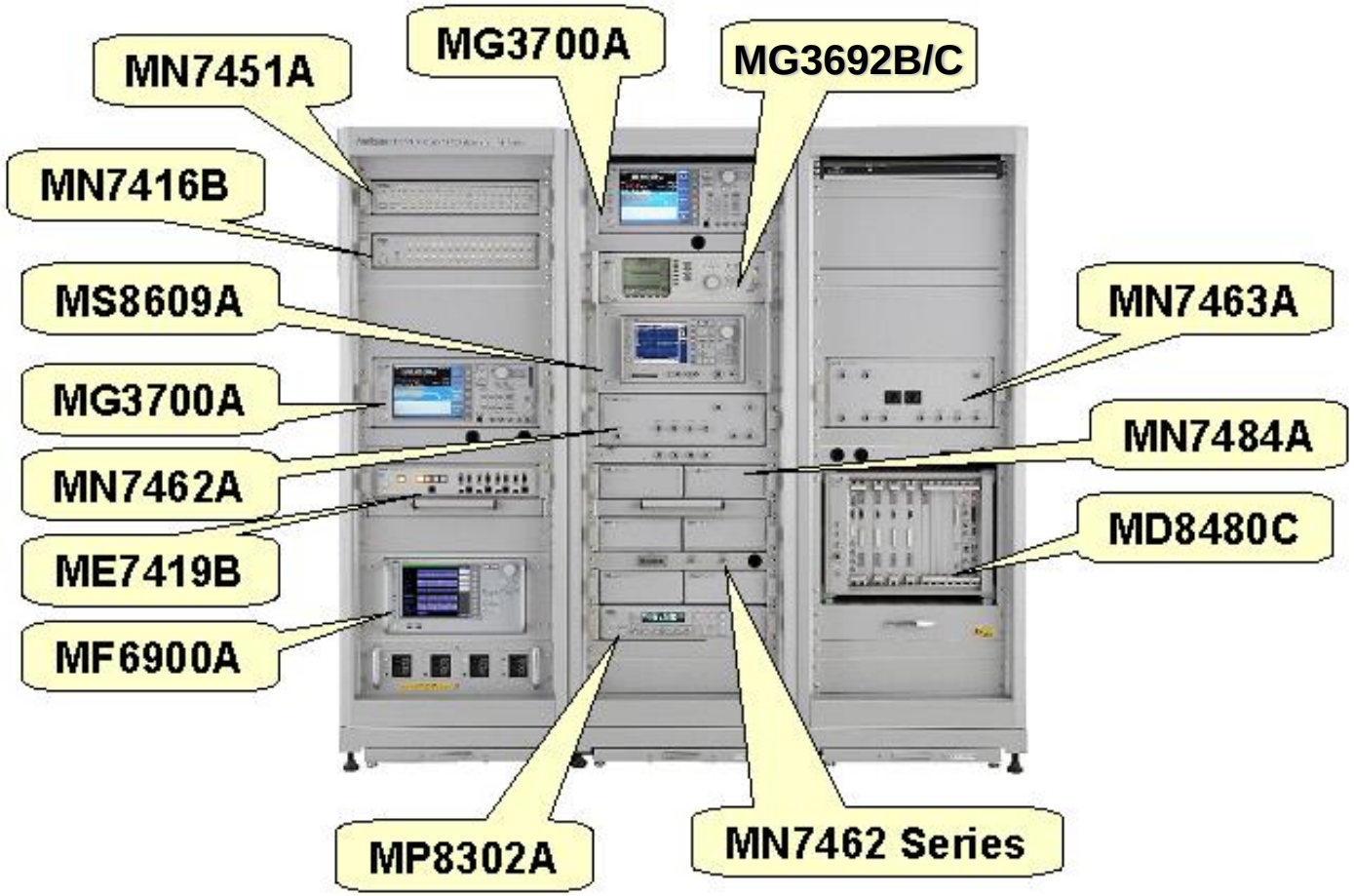
<TTCN Protocol Conformance Tests>

MX785201A
Protocol
Test System

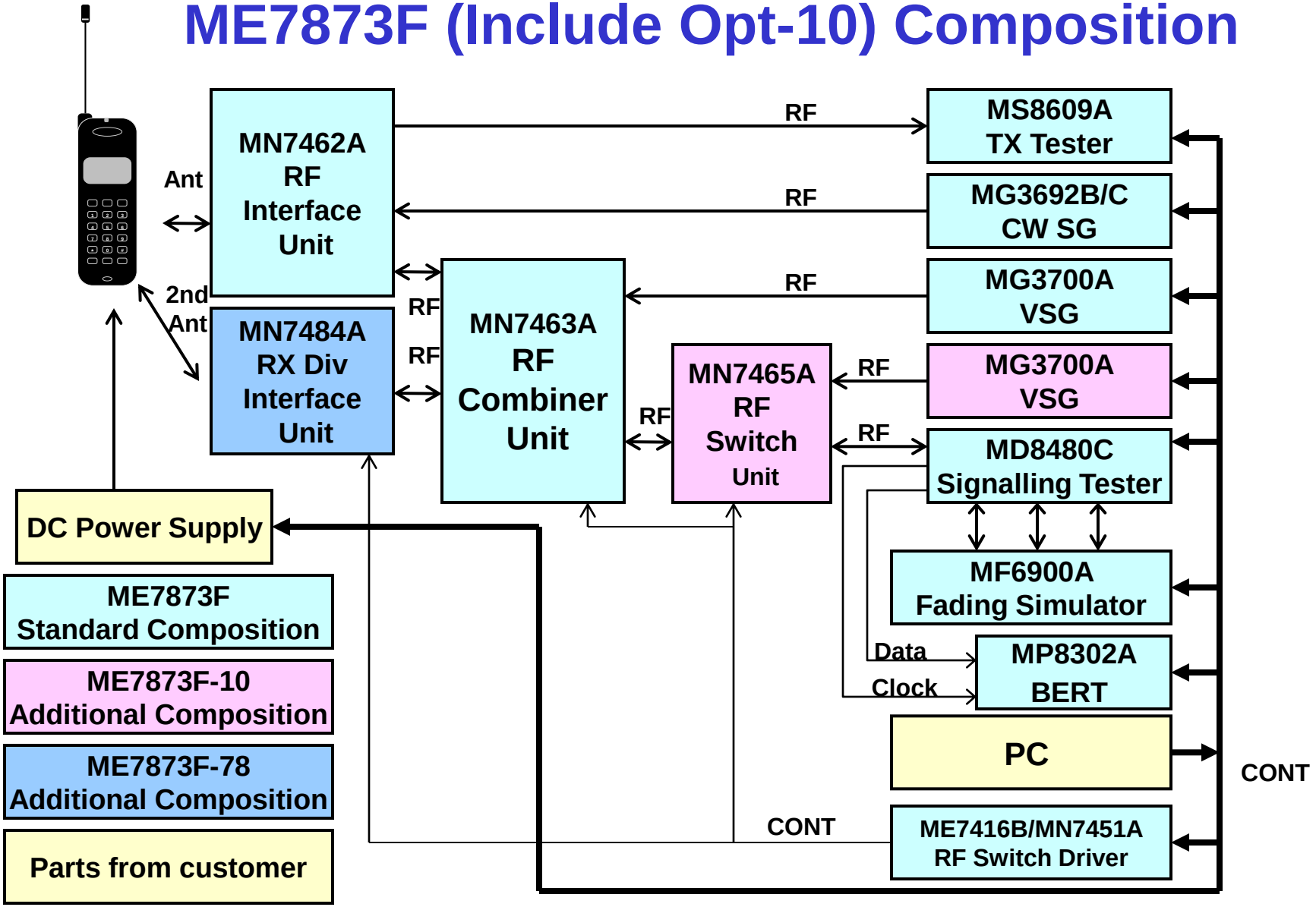
ME7873F
TRX/ Performance
Test System

ME7874F
RRM Test System

RF Conformance Test System (ME7873F with Opt-10)



ME7873F (Include Opt-10) Composition



ME7873F TRX/Performance Test System

- **An automated system for running conformance tests in compliance with the 3GPP TS34.121 standard**
- **Approved by GCF/PTCRB and measures the test items described in Chapter 5, 6, and 7 of the 3GPP TS 34.121 standard**
- **Supports measurements based on Chapter 8, 9, 10, and 11 of 3GPP TS34.121 by adding the options**
- **Supports Band I, II, III, IV, V, VI, VIII, IX, XI, XIX, and Inter-RAT test items specified in 3GPP TS 34.121**

ME7874F RRM Test System

- **An automated system for running conformance tests in compliance with the 3GPP TS34.121 standard**
- **Approved by GCF/PTCRB and measures the test items described in Chapter 8 of the 3GPP TS 34.121 standard**
- **Supports Band I, II, III, IV, V, VI, VIII, IX, XI, XIX, and InterRAT test items specified in 3GPP TS 34.121**

ME7873F/74F Composition (1)

The ME7873F/74F is composed of dedicated components, stand-alone system components and dedicated software.

Model	Name	ME7873F	ME7873F with Opt-10	ME7874F
	< Dedicated Components >			
ME7416B	RF Switch Driver Unit	√	√	√
MN7451A	RF Switch Driver Unit	√	√	√
MN7462A	RF Interface Unit	√	√	√
MN7463A	RF Combiner Unit	√	√	√
MN7464xx	Filter Unit	√	√	
MN7465A	RF Switch Unit		√	√

ME7873F/74F Composition (2)

The ME7873F/74F is composed of dedicated components, stand-alone system components and dedicated software.

Model	Name	ME7873F	ME7873F with Opt-10	ME7874F
	< Software >			
MX787103F	W-CDMA TRX/Performance Test Software	√	√	
MX787104F	W-CDMA RRM Test Software		√	√
MX787135F	Self-Test Software for Conformance Test System	√	√	√
	< Stand-alone System Components >			
MD8480C	W-CDMA Signalling Tester	√	√	√
MS8609A	Digital Mobile Radio Transmitter Tester	√	√	√
MP8302A	Bit Error Rate Tester	√	√	
MG3692B/C	Synthesized Signal Generator	√	√	
MG3700A	Vector Signal Generator (Interference Signal)	√	√	√
MG3700A	Vector Signal Generator (AWGN Signal)		√	√
MF6900A	Fading Simulator	√	√	

Features

- **Full Conformance with 3GPP Standard**
  - 3GPP-compliant measurement procedures and accuracy
  - Validated (GCF-approved) test system
- **Updated 3GPP Standards Required by GCF**
  - Testing based on latest 3GPP version
- **Scalable System Configuration**
  - System configured for customers' own products (system components)
- **Scalable Test System**
  - Scalable to RRM, HSDPA, HSUPA and band addition support
- **Versatile Software Functions**
  - Flexible tests other than 3GPP

Full Conformance with 3GPP Standard

- **Full Conformance with CH 5, 6, and 7 of 3GPP TS34.121**
  - **Measurement procedure in full conformance with 3GPP standard (Loopback mode, BER/BLER, 2CH OCNS, DL TPC Power Control, Feedback Error Ratio)**
- **Measurement Accuracy in Full Conformance with 3GPP**
  - **The ME7873F/74F Test System provides various corrections**
    - **Fundamental Correction (At installation, or annual calibration)**
      Path Loss, ATT Linearity, Propagation Offset, etc.
    - **Runtime Correction (Before each measurement)**
      Absolute Level Error, Temperature Error
  - **The ME7873F/74F Test System has predictive self-test functions for checking system faults before they occur**
    - **Self-Test (At restart and inspection)**
      Path Disconnection, Instrument Failure

Contribution to GCF

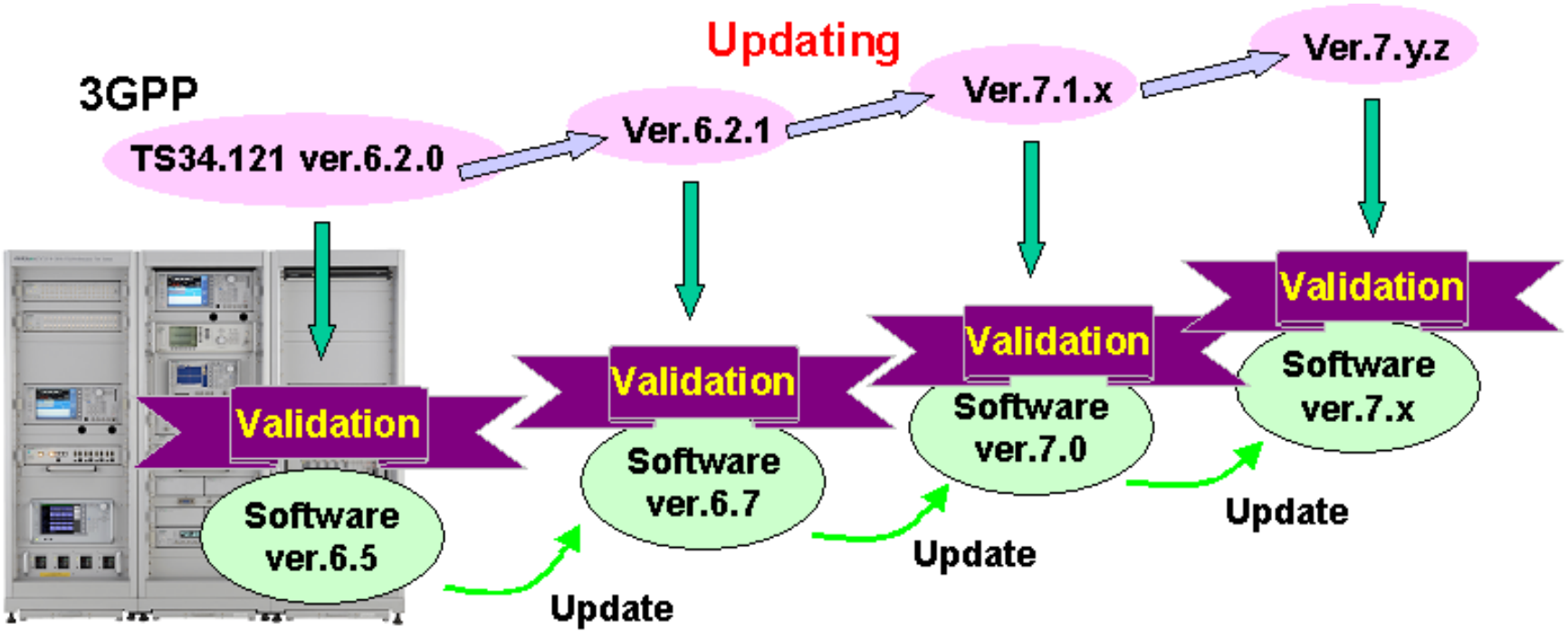
- **GCF holds meetings every 3 months (usually in January, April, July, and October) where members discuss applicable standards for actual service management, their priority, and approval of Conformance Test Systems.**

- **Anritsu is currently working on validation of the ME7873F/74F in collaboration with two test houses every 3 months when GCF meetings are held. After validation, the two test houses apply for GCF approval of validated test cases.**

- **The ME7873F/74F is the leading RF test system, with most GCF/PTCRB Approved Test Cases (July 2013).**
  The future policy is to acquire validation quickly.

Updating 3GPP Compliance

TS34.121 is upgraded every 3 months and the ME7873F/74F Test System supports the upgrade.



Target Work Item of ME7873/74F

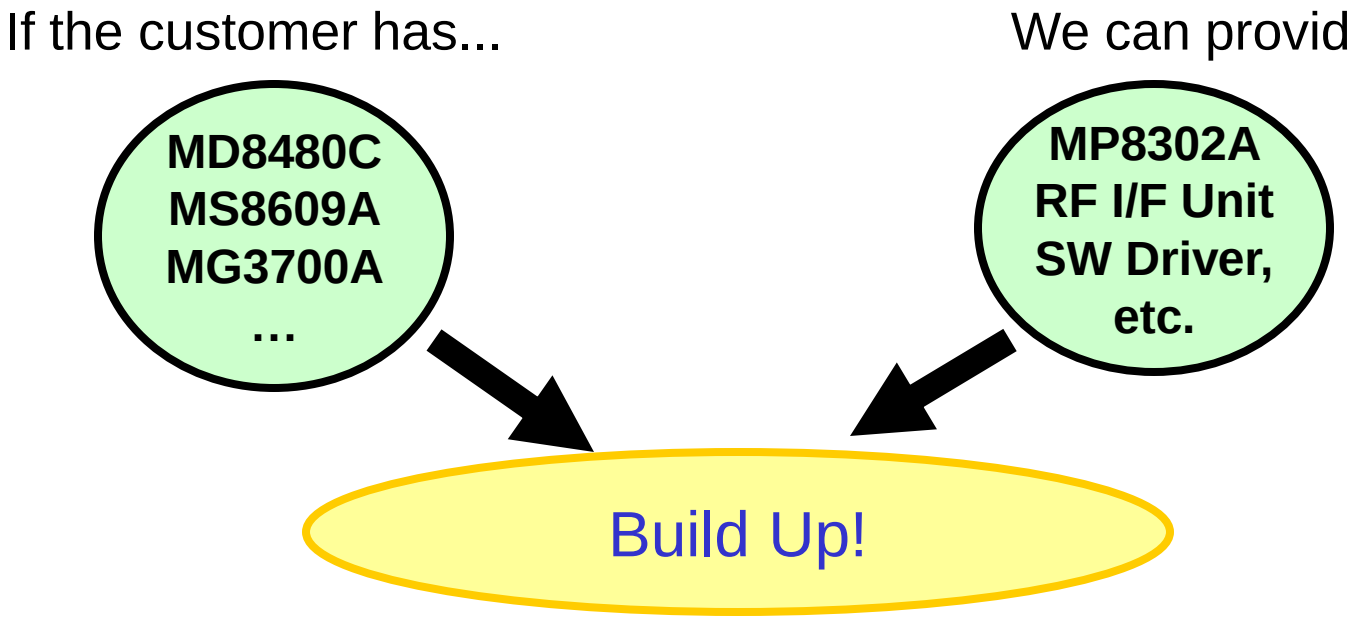
- **Work Item**

  The GCF uses the concept of Work Item(WI) to sort out / distinguish test cases to apply.

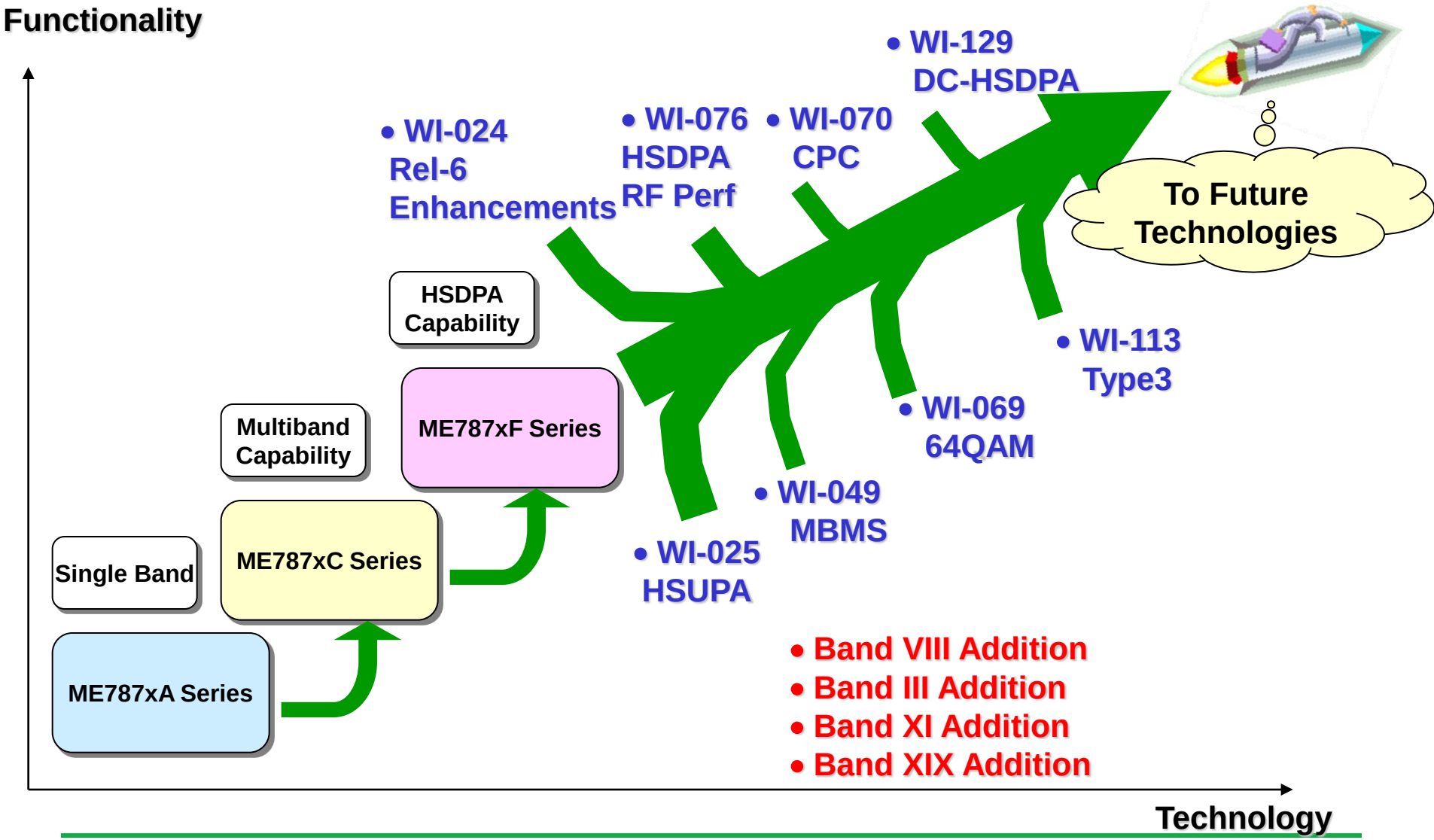
- **Validation Target of ME7873/74F**
  - **WI-010 FDD Release-99**
  - **WI-012 FDD Release-99 Enhancement**
  - **WI-013 FDD Release-4 and Release-5 Enhancements**
  - **WI-014 FDD Release-5 HSDPA**
  - **WI-024 FDD Release-6 Enhancements**
  - **WI-025 FDD Enhanced Uplink Release-6**
  - **WI-038 FDD UMTS 900MHz (Band VIII)**
  - **WI-049 FDD Multimedia Broadcast and Multicast Service**
  - **WI-076 HSDPA RF Performance (FDD Rel-6)**
  - **WI-069 HSPA - 64QAM for HSDPA (FDD Rel-7)**
  - **WI-070 HSPA – Continuous connectivity for packet data users (FDD Rel-7)**
  - **WI-113 HSDPA Performance for Enhanced Receiver Type 3**
  - **WI-148 Enhanced receiver performance of type 1 for DCH**
  - **WI-129 Dual Carrier HSDPA on Adjacent Carriers FDD Rel-8**

Scalable System Configuration

If the customer already has some system parts, we can provide the rest and integrate them.



Evolving Test Platform



Scalable Test System

Test Function Option

- WI-013 Test Function
- WI-014 Test Function
- WI-024 Test Function
- WI-025 Test Function
- WI-049 Test Function
- WI-076 Test Function
- WI-069 Test Function
- WI-070 Test Function
- WI-113 Test Function
- WI-148 Test Function
- WI-129 Test Function
- RRM Test Function
- Japan TRCC Test Fucntion

ME7873F / ME7874F

- Temperature Chamber Control Function
- DC Power Supply Control Function

Standard Function

(Customer supplies power supply and temperature chamber)

Operating Band Option

- Band I Measurement Function
- Band II Measurement Function
- Band III Measurement Function
- Band IV Measurement Function
- Band V Measurement Function
- Band VI Measurement Function
- Band VIII Measurement Function
- Band IX Measurement Function
- Band XI Measurement Function
- Band XIX Measurement Function

Additional Measurement Functional Options (1)

ME7873F

- **ME7873F-70 WI-013 ToolKit (TRX/Performance)**
  Measurement of WI-013 Test Cases
  (TS34.121 Part of Chapter 5, 6, and 7)

- **ME7873F-72 WI-013 ToolKit (RRM)**
  Measurement of WI-013 Test Cases
  (TS34.121 Part of Chapter 8)

- **ME7873F-74 WI-014 ToolKit**
  Measurement of HSDPA related WI-014 Test Cases
  (TS34.121 Part of Chapter 5, 6, and 9)

Additional Measurement Functional Options (2)

ME7873F

- **ME7873F-75 WI-024 ToolKit**
  Measurement of Release-6 Enhancement related WI-024 Test Cases (TS34.121 Part of Chapter 5, 7, and 8)

- **ME7873F-76 WI-025 ToolKit**
  Measurement of HSUPA related WI-025 Test Cases (TS34.121 Part of Chapter 5, 8, and 10)

- **ME7873F-77 WI-049 ToolKit**
  Measurement of MBMS related WI-049 Test Cases (TS34.121 Part of Chapter 8, and 11)

- **ME7873F-78 WI-076 ToolKit**
  Measurement of HSDPA RF Performance related WI-076 Test Cases (TS34.121 Part of Chapter 9)

Additional Measurement Functional Options (3)

ME7873F

- **ME7873F-80 WI-069 ToolKit**
  Measurement of Rel-7 (64QAM) related WI-069 Test Cases
  (TS34.121 Part of Chapter 6, and 9)
- **ME7873F-81 WI-070 ToolKit**
  Measurement of Rel-7 (CPC) related WI-070 Test Cases
  (TS34.121 Part of Chapter 9)
- **ME7873F-60 WI-113 ToolKit**
  Measurement of Rel-7 (Type3) related WI-113 Test Cases
  (TS34.121 Part of Chapter 9)
- **ME7873F-62 WI-148 ToolKit**
  Measurement of Rel-7 (Type1) related WI-148 Test Cases
  (TS34.121 Part of Chapter 5)
- **ME7873F-61 WI-129 ToolKit**
  Measurement of Rel-8 (DC-HSDPA) related WI-129 Test Cases
  (TS34.121 Part of Chapter 6, and 9)

Additional Measurement Functional Options (4)

ME7874F

- **ME7874F-72 WI-013 ToolKit**
  Measurement of WI-013 Test Cases (TS34.121 Part of Chapter 8)

- **ME7874F-75 WI-024 ToolKit**
  Measurement of Release-6 Enhancement related WI-024 Test Cases (TS34.121 Part of Chapter 8)

- **ME7874F-76 WI-025 ToolKit**
  Measurement of HSUPA related WI-025 Test Cases (TS34.121 Part of Chapter 8)

- **ME7874F-77 WI-049 ToolKit**
  Measurement of MBMS related WI-049 Test Cases (TS34.121 Part of Chapter 8)

Additional Frequency Band Options

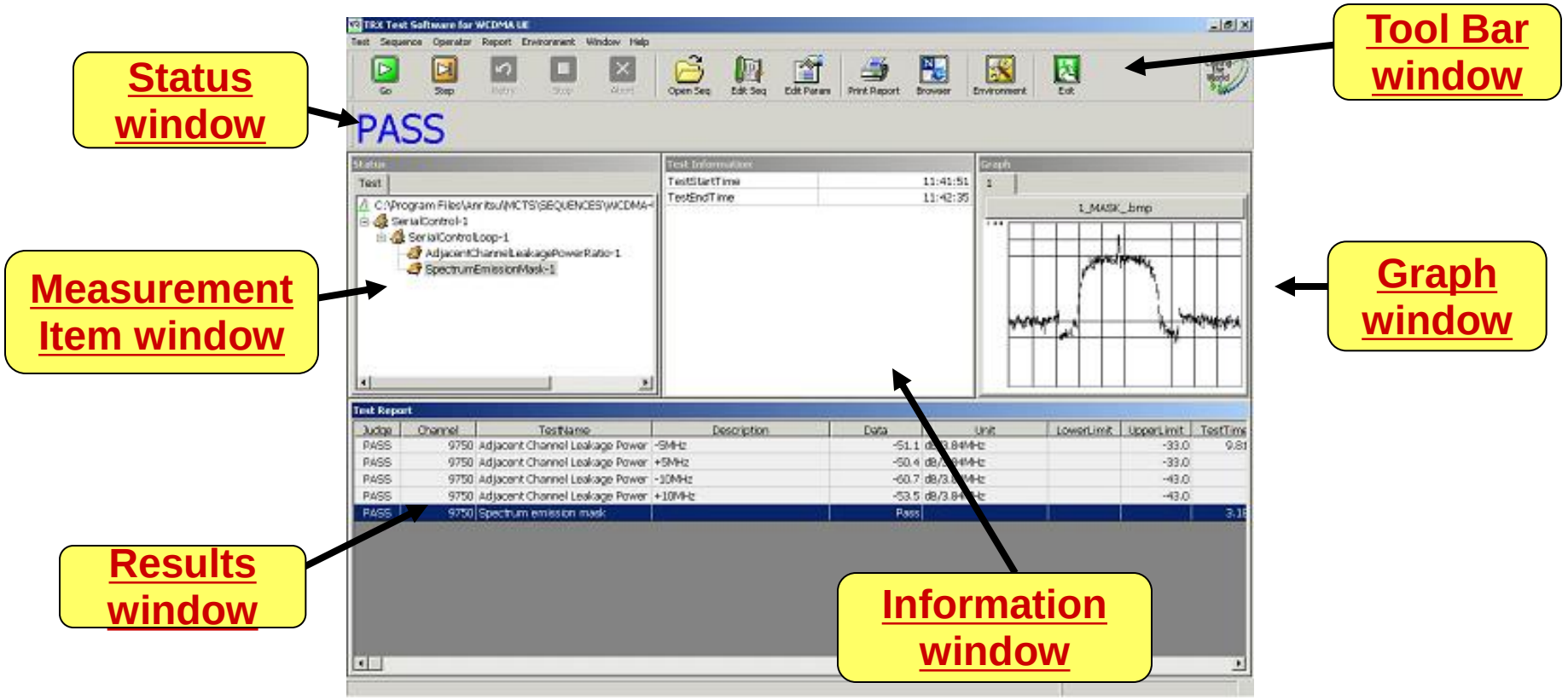
In addition to supporting the 3GPP Band I used as UMTS core band, also supports Band II, IV, V used in N.America, Band III, VIII used in Europe as well as Bands VI, IX, XI, XIX used in Japan. For Band determined by a GCF, we will develop in future.

Operating BAND	UL Frequency [MHz]	DL Frequency [MHz]	Condition	Option Model Name		
				For ME7873F Exclude RRM	For ME7873F Include RRM	For ME7874F
I	1920-1980	2110-2170	Available	ME7873F-11	ME7873F-21	ME7874F-11
II	1850-1910	1930-1990	Available	ME7873F-12	ME7873F-22	ME7874F-12
III	1710-1785	1805-1880	Available	ME7873F-13	ME7873F-23	ME7874F-13
IV	1710-1755	2110-2155	Available	ME7873F-14	ME7873F-24	ME7874F-14
V	824-849	869-894	Available	ME7873F-15	ME7873F-25	ME7874F-15
VI	830-840	875-885	Available	ME7873F-16	ME7873F-26	ME7874F-16
VII	2500-2570	2620-2690	No plan	No plan	No plan	No plan
VIII	880-915	925-960	Available	ME7873F-18	ME7873F-28	ME7874F-18
IX	1749.9-1784.9	1844.9-1879.9	Available	ME7873F-19	ME7873F-29	ME7874F-19
X	1710-1770	2110-2170	No plan	No plan	No plan	No plan
XI	1427.9-1447.9	1475.9-1495.9	Available	ME7873F-31	ME7873F-41	ME7874F-31
XIX	830-845	875-890	Available	ME7873F-32	ME7873F-42	ME7874F-32

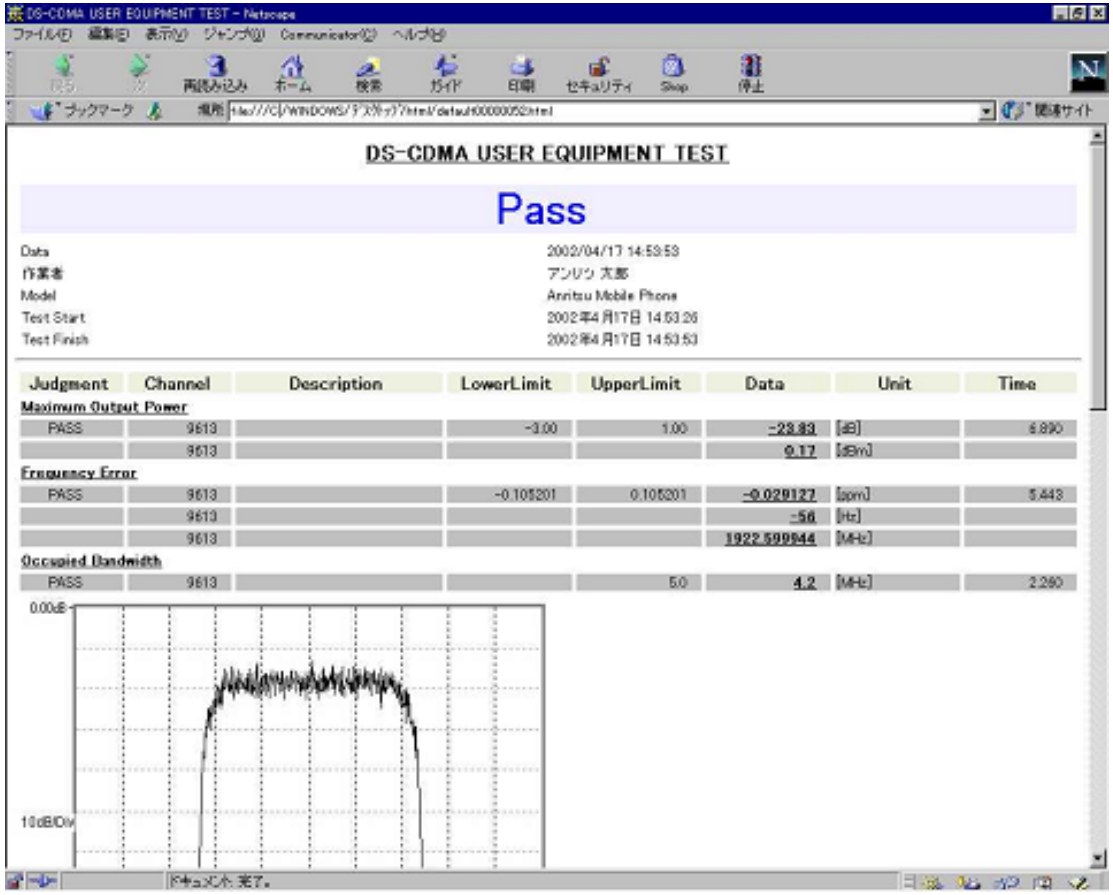
Versatile Software Functions

- **Flexible Test Parameters**
  - Various test procedure can be set, such as sequential, step, and repeat testing.
  - Test items can be selected for any frequency channel. Furthermore, detailed parameters such as spec. and average can be specified per test.
  - Each test parameter change can be saved to a file for recall when needed.
- **At-a-Glance Test Connection Status and Results Distribution**
  - RRM tests display the changes in connection conditions, which is useful for understanding the connection status at any time.
  - Test items and results are displayed as a histogram indicating PASS/FAIL rates for multiple operations, making it easy to identify equipment operation trends.
- **Search Mode**
  - The reception and performance tests have a search mode. Unlike normal measurements, UE performance margin tests can be performed at fixed BER and BLER rates.
- **Measured Data Management Function**
  - Measured data can be saved in both HTML and CSV data format. Evaluation results, parameters, test data and graphs for each test can be saved in HTML data format.

Main Screen


Status window
Tool Bar window
Measurement Item window
Graph window
Results window
Information window
PASS

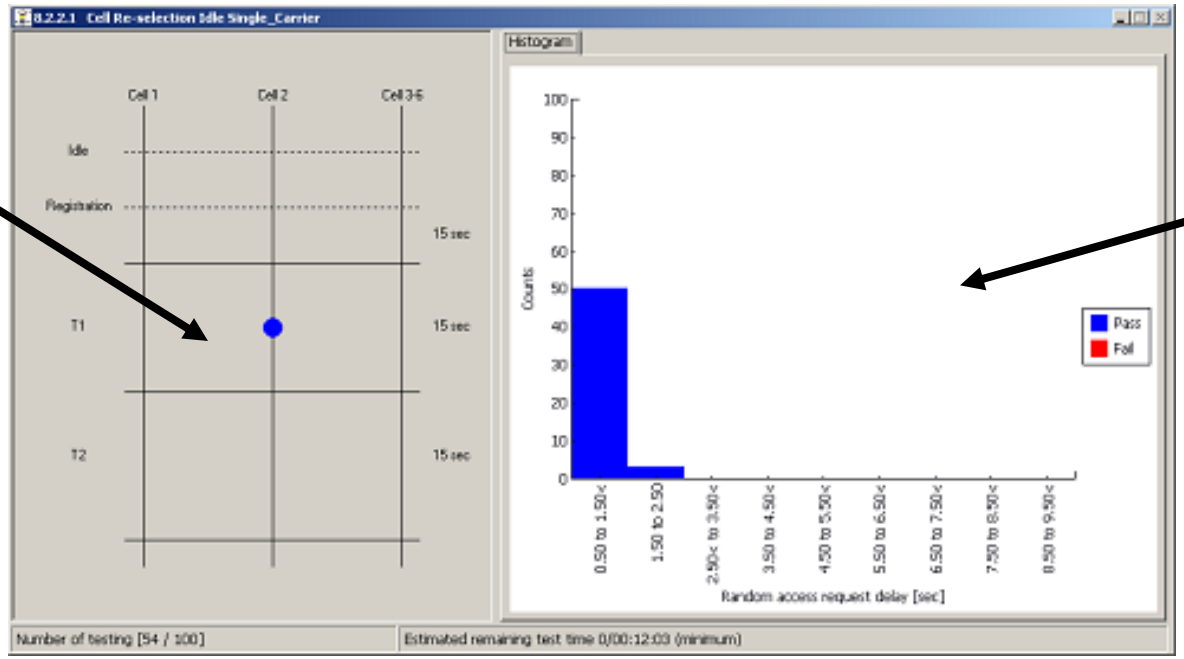
Test Results



Test Results (HTML)

Test Result Condition

Test Conditions



Result Histogram

Test Conditions

Other Functional Options (1)

Japan Technical Regulations Conformity Certification Compliance

Installing this option adds support for Japan TRCC UE compliance tests. When any of Band I (2 GHz), Band VI (800 MHz), Band IX (1.7 GHz) and Band XI (1.5 GHz) is installed, TRCC can be supported by simply installing software. Use it to perform pre-TRCC validation.

Name: MX787103F-09
Japan TRCC Test

Supported Items: See table on right.

Tx Tests	
	Antenna Power
	Frequency Deviation
	Occupied bandwidth
	Adjacent Channel Leakage Power
	Spurious Emisions (1)
	Spurious Emisions (2)
	Spurious Emisions (3)
	Spurious Emisions (4)
	Leakage Power at no-carrier transmission
Rx Tests	
	Limit of secondary radiated emissions

***This option is based on the 3GPP standard, but it is not in full compliance with the TRCC based on the Radio Law, because it does not support Tx speed tests, etc., so it cannot be substituted for TRCC compliance.**

Other Functional Options (2)

MCTS Integration Software

There are many software packages, depending on the ME7873F option composition. However, since multiple software packages cannot run simultaneously, continuous testing of measurement items defined by each software package is not possible.

The MCTS Integration Software performs external control of multiple MCTS sets so measurement items defined by different software can be tested continuously.

Name: MX787190F MCTS Integration Software

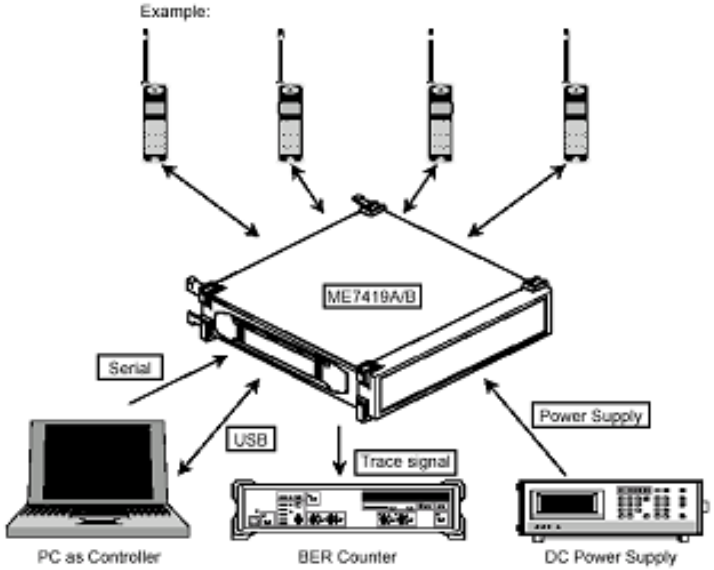
Consecutive Testing of multiple UE

4-Antenna connection capability

Installing the MN7462A-01 (4 Antenna Connection) option supports connection of four mobile antennas that can be switched automatically by the test software.

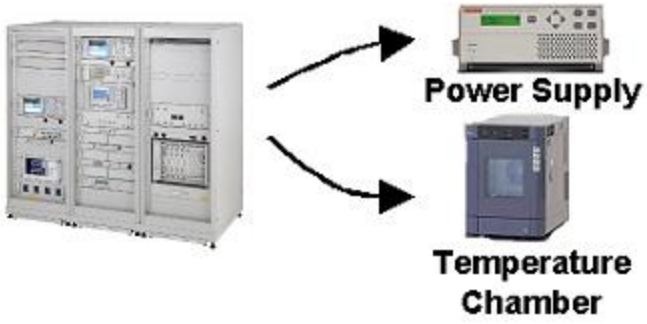
4-UE Switching Capability

Testing multiple mobiles requires switching of power and serial control lines. Installing the ME7419B (Mobile Radio Switching Unit) supports auto-switching of these lines.



Various Control Function for External Equipment

Easy Remote Control of Power Supply and Temperature Chamber

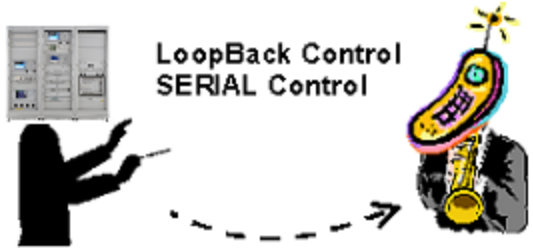


Note:
Power Supply and Temperature chamber must be delivered from customer.

- **DC Power Supply**
  (Recommended)
  2306-PJ: Keithley
  66311B: Agilent

- **Temperature Chamber**
  (Recommended)
  SH-241: ESPEC

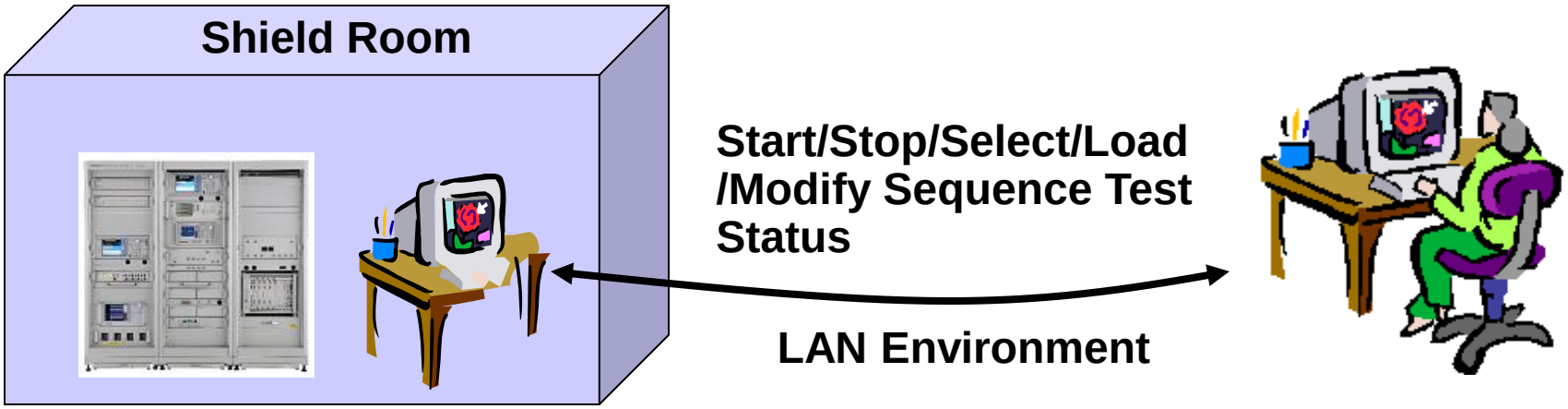
Remote Control capability of UE



In addition to loopback control, serial control is supported.

Remote Control Function

Normally, confirming the successful progress and completion of testing requires either remaining in the test room or returning to it at the end of testing, both of which reduce work efficiency. The remote control function makes it easy to check the test progress and control some test operations from a remote PC over a network.

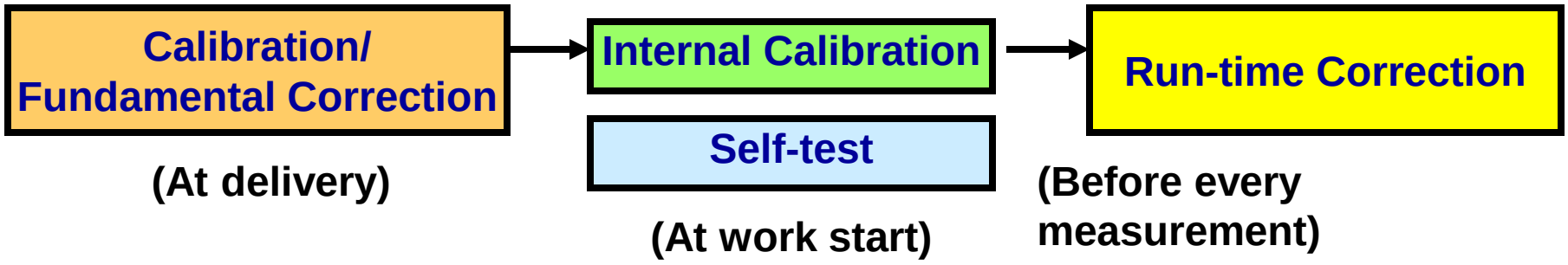


Calibration and Correction

The measurement system uncertainty at each test procedure must comply with the 3GPP standards. The ME7873F/74F has the following three calibration and correction functions to assure compliance.

- **Fundamental correction at delivery**
- **Internal calibration at work start**
- **Run-time correction before each measurement**

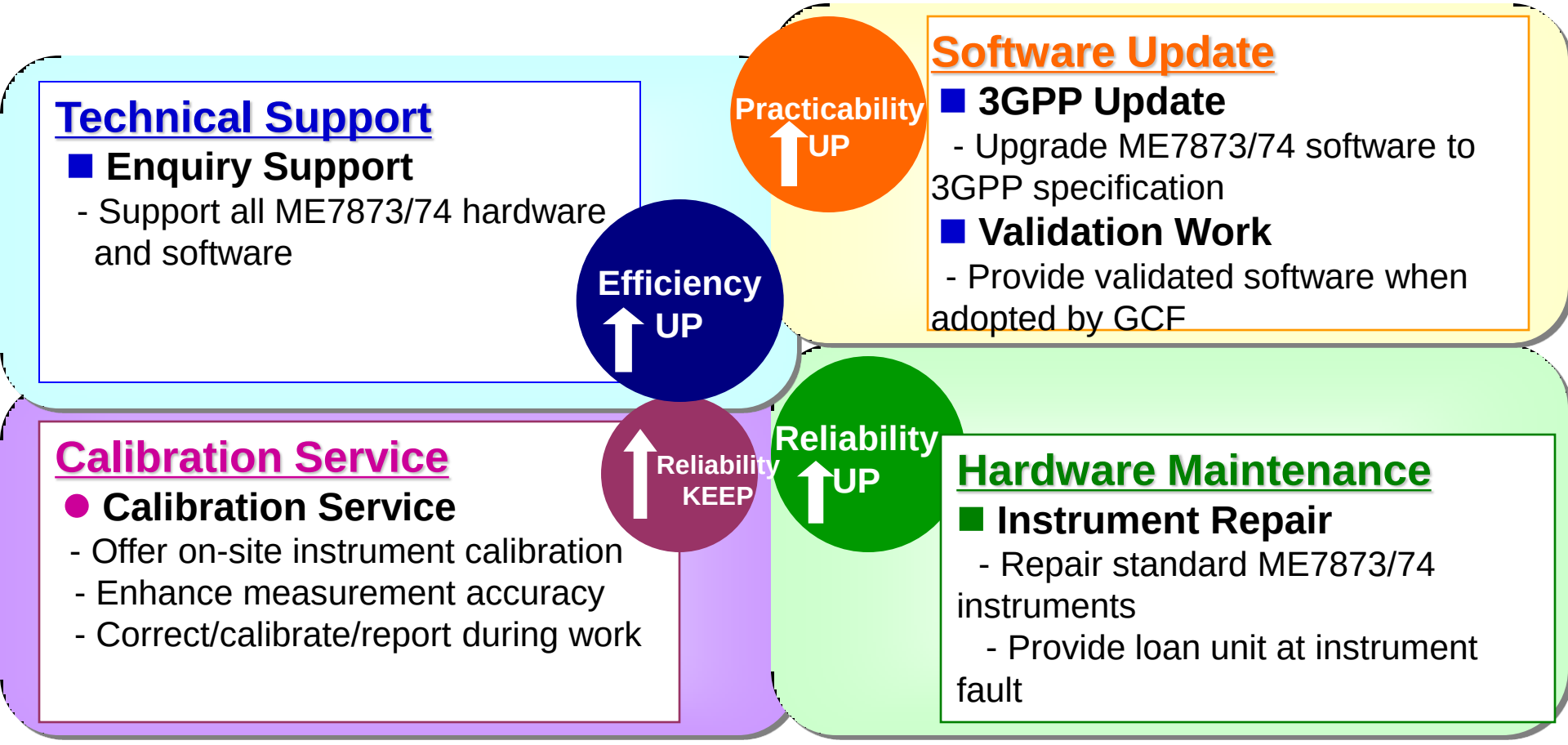
Additionally, the self-test function immediately finds any occasional fault.



3. Support Service Proposal

What is Support Service?

It is a total service supporting the entire ME7873F/74F system including hardware and software from use to maintenance.



4. Summary

Anritsu offers a future-proof conformance test system with wide scalability and high reliability

Scalability

- Measurement functions implemented selectively
- Operating bands implemented selectively
- Future-proof upgrades based on existing platform

Evolving

- Fast and flexible response to new technology
- Updates to evolving 3GPP standard

Reliability

- Full 3GPP compliance (GCF Approved Test System)
- Various correction/calibration functions to improve measurement reliability

Appendix1

System Installation

Customer Supplied Parts (1)

● DC Power Supply

One of the following models is required when controlling the power supply using the ME7873/74F. In addition, rack mounting requires a rack-mount kit from the manufacturer.

Model	Name	Manufacturer
2303	High Speed Precision Readback Power Supply	Keithley Instruments
2306-PJ	Dual-Channel Battery/Charger Simulator	
66311	Mobile Communication DC Source	Agilent Technologies, Inc.

Model	Name	pcs	Manufacturer
N6700B	Mainframe	1	Agilent Technologies, Inc.
N6732B*1	8 V, 6.25 A, 50 W DC Power Module	4 *2	
N6709A	Low-Profile MPS Mainframe Rack Mount Kit	1	

***1: At rack mounting, the maximum current is 2 A. To draw more than 2 A of current, use a separate cable to supply DC to the terminal. However, since this will prevent rack mounting, decide on the installation location for the DC power supply in advance. When using a power supply other than the N6732B, ask the power supply manufacture for details.**

***2: Four modules are required when testing up to four mobiles continuously.**

Customer Supplied Parts (2)

● Temperature Chamber

One of the following models is required when controlling the temperature chamber using the ME7873/74F. Additionally, GPIB Cable (Double-Shield, 2m) is required to control this chamber automatically.

Model	Name	Manufacturer
SH-241	Temperature & Humidity Chamber	Espec Corp.
SH-242	Temperature & Humidity Chamber	

Delivery (1)

Delivery Time

3 months (changes with stock situation)

Onsite Installation

Anritsu engineer visits delivery site to perform system setup calibration. Required time varies with system composition

- **System Setup (assembly, wiring, software installation)**
- **System Correction**
- **UE Functional Tests**
- **System Performance Tests**
- **Explanation at Delivery Acceptance**

Delivery (2)

Support After Delivery

The following warranty and support are offered for free of charge after product delivery.

Duration

- **Newly Purchased: 1 year (from next month after installation)**
- **Upgrade: 3 month (from next month after installation)**

Support Contents

- **Hardware guarantee: Repair faultsfor all products in the system and re-calibration if needed**
- **Software Support: 3GPP update**
- **Technical Support**

Support service applies to new hardware and software. Guarantee for customer-provided parts follows the upgrade guarantee on condition of calibrating each instrument.

Hardware guarantee in upgrading is applied only when a hardware is added or modified.

PROPSim C2 not supported by Anritsu. Elektrobit guarantee covers PROPSim C2.

Free-of-charge guarantee period extendable by charged service contract

System Installation Environment (1)

The system installation environment must meet the following specifications.

Items	Condition	Remarks
Size	**1710(W) x 1597(H) x 797(D) mm**	**3 ream rack except prong**
Weight	**600 kg or less (Total weight)**	**Use other equipments*1 for operation at delivery and calibration.**
Power Supply	**100 to 120, or 200 to 240 Vac**	
Wattage	**3300 VA or less (Total value of the maximum electricity of equipment)** **2200 VA (Total reference value of 3 rack during test)** **500 to 600 VA (Reference value of 1 rack during test)**	**Use other equipments*1 for operation at delivery and calibration.**
Temperature Range	**+15 to +35 (operating), 0 to +50 (storage)*2**	

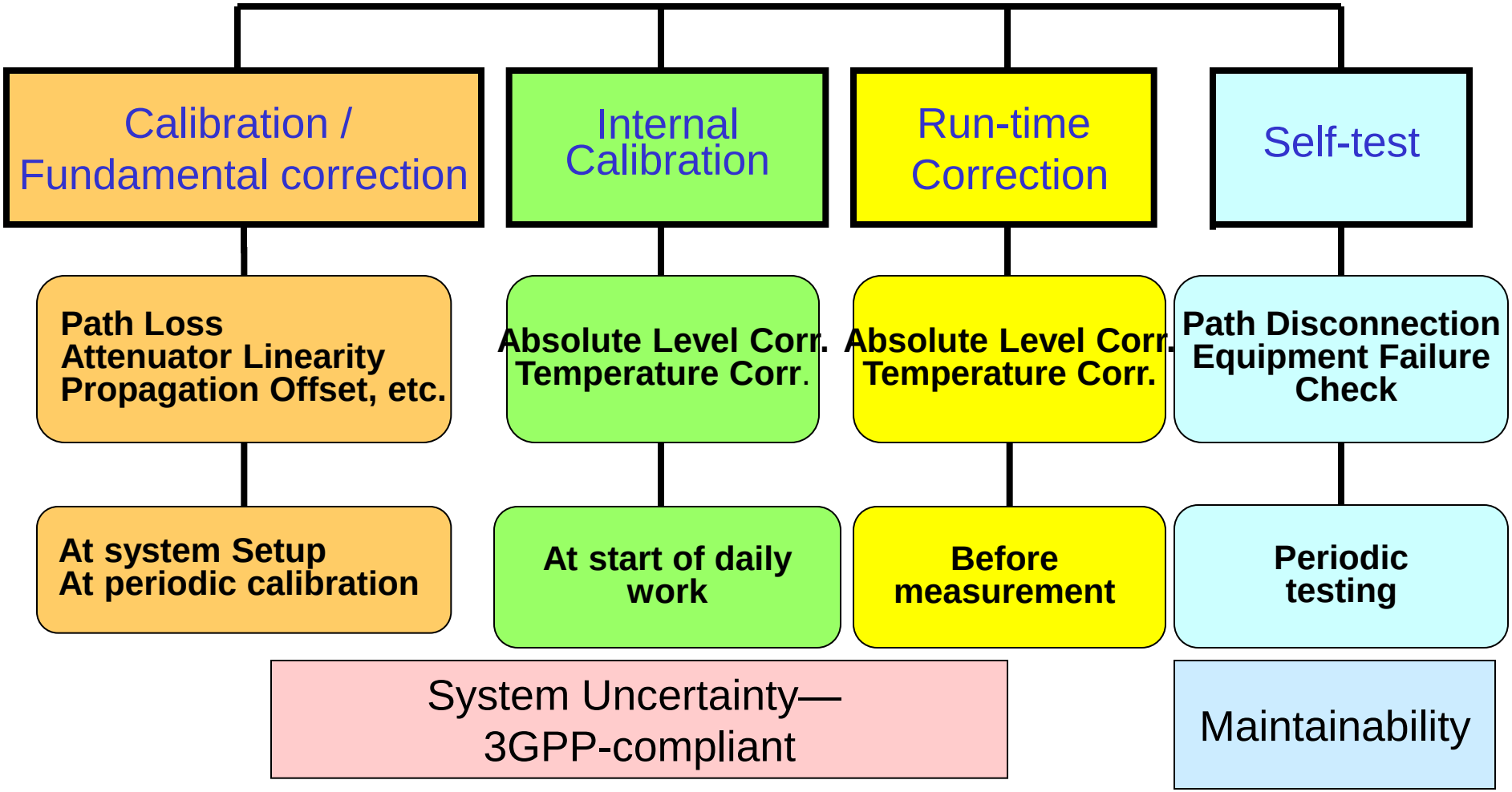
*1: Anritsu provides equipments to run the fundamental calibration and performance confirmation at the delivery inspection. The typical total power consumption of this setup equipment is 600 VA; the total weight is 100 kg max. Prepare an on-site power supply for running both this system and the above equipment simultaneously.

*2: The ambient temperature must meet the conditions when delivery calibration was performed. To assume stable measurement, we recommend installation in an air-conditioned environment.

Appendix2

Improves Measurement Stability and Reliability

Calibration Concept



Calibration / Fundamental Correction

The ME7873F/74F Test System provides various correction, calibration, and self-test functions for supporting Uncertainty required by the 3GPP standard.

- **Calibration**

  System performance (system specification) is calibrated at system shipment. Fundamental correction items* are measured simultaneously and then saved as fundamental correction values for system shipment. In addition, these correction values are updated on demand at periodic calibration.

- **Fundamental correction**

  Fundamental correction values are used for actual measurement.

***: Signal Level, Path Loss (Frequency Characteristics), ATT Linearity, Propagation Offset Value of Fading Simulator**

Run-time Correction

The ME7873F/74F Test System executes runtime correction on demand. Consequently, the difference (from fundamental calibration value) caused by temperature variation, etc., while executing each test procedure is corrected.

- **Pre-measurement for runtime correction**

  Measure Runtime correction items* using internal path

- **Runtime correction**

  The difference (compared to the value at fundamental calibration) measured at pre-measurement is used as the runtime correction value in actual measurement.

***: Signal output level (wanted signal/interference signal)**

Self-test Software

The ME7873F/74F Test System self-test function assures daily operation and enhances system reliability.

- **Simple check of measuring path**

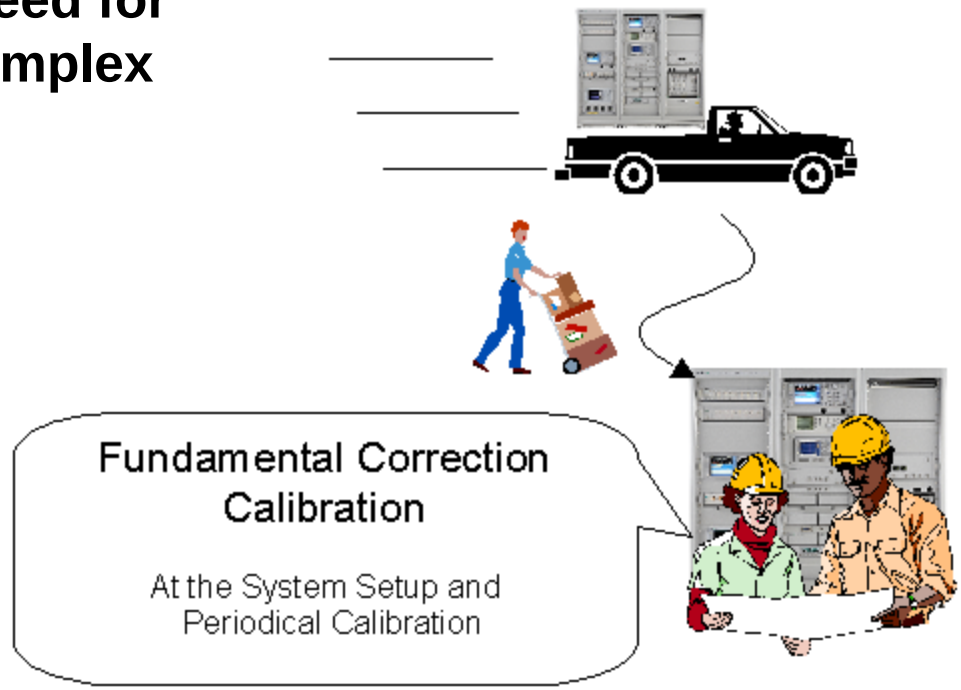
  Measuring path loss detects path disconnection and instrument failure at an early stage. It is intended as a restart check and for short-term periodic inspection.

- **Full check of configured instruments**

  Checking the functions of each instrument in the system detects failures at an early stage. It is intended for detecting abnormalities at the simple path check and periodic inspection between calibrations.

Fundamental Correction at Delivery

Fundamental calibration such as pass loss and attenuator linearity is performed at delivery by Anritsu engineers, eliminating the need for operators to perform this complex calibration work.



Internal Calibration at Work Start

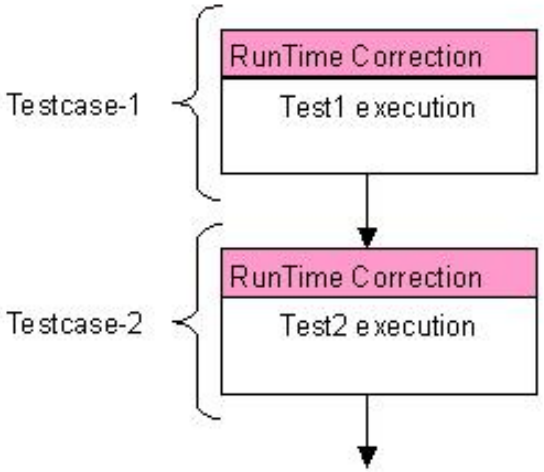
The spectrum analyzer and power meter are the main level measuring instruments in the ME7873F/74F and they are calibrated automatically and regularly by setting the calibration time.

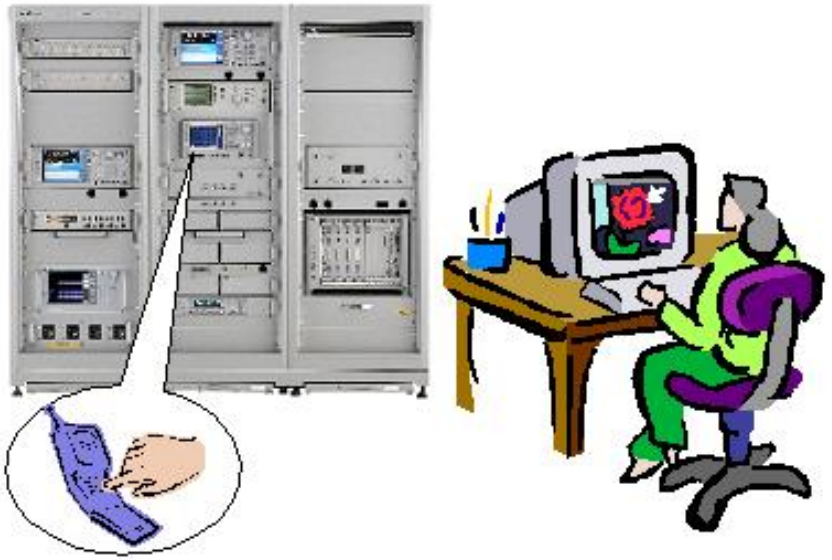
When you set 8:00 am, the spectrum analyzer and power meter are calibrated automatically at that time.

Run-time Correction before every Measurement (1)

Run-time Correction measures the output level of the signal source and performs output level correction.

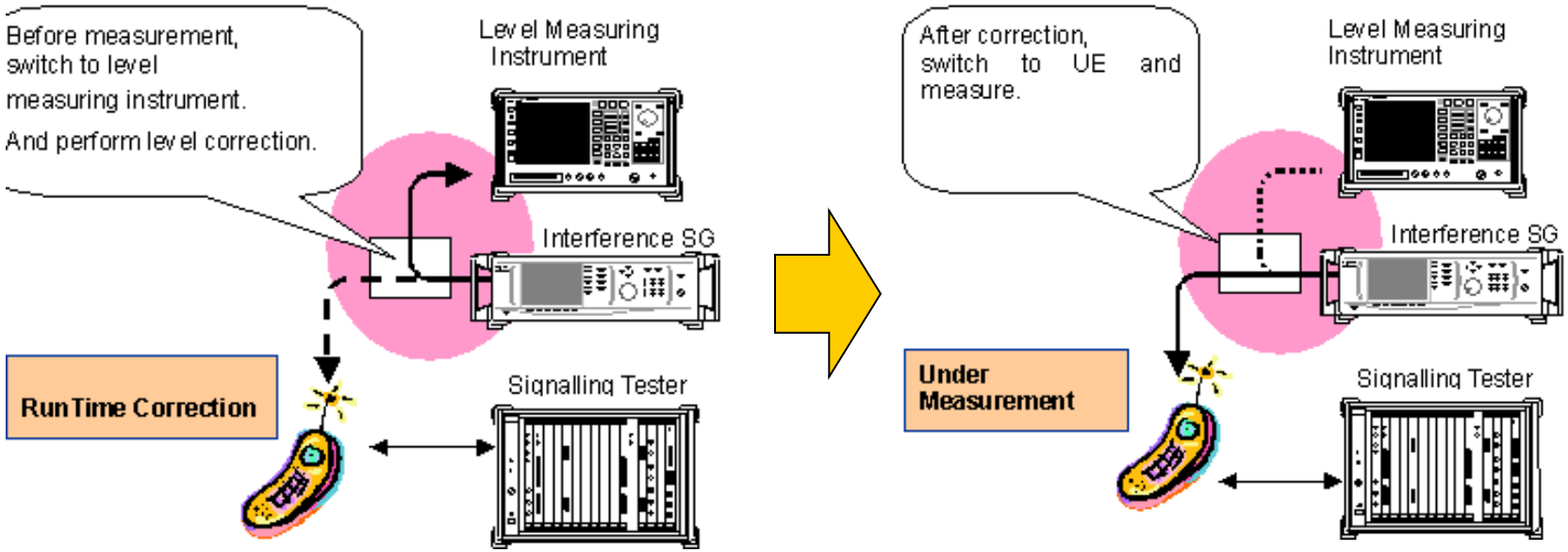
Since correction is applied immediately before measurement, temperature-related changes are eliminated to greatly improve reliability.





Run-time Correction before every Measurement (2)

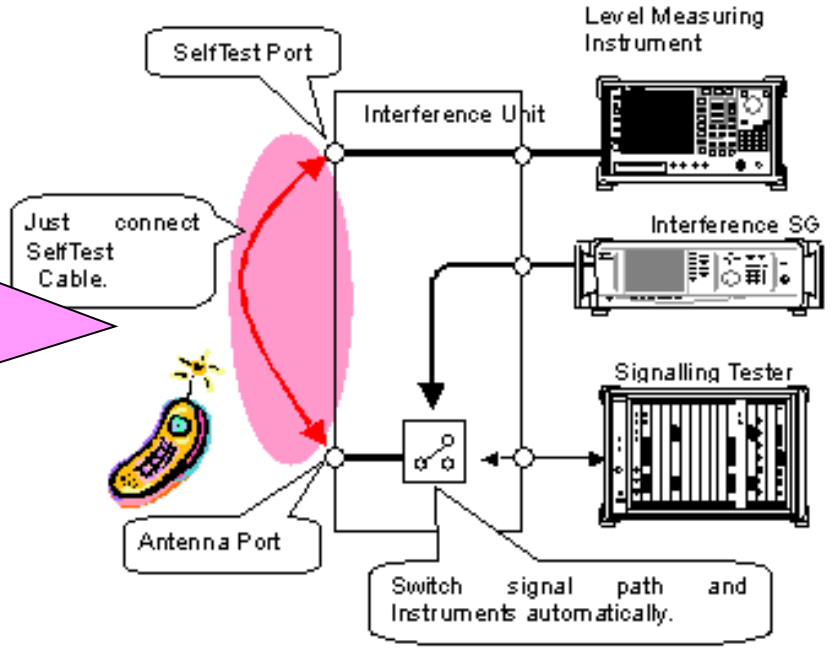
1. **Change signal path to level measuring instrument before measurements.**
2. **Measure output level of signal source and obtain correction value caused by temperature variation and long-term drift.**
3. **Return to signal path and measure.**
4. **Use correction value to improve measurement reliability.**

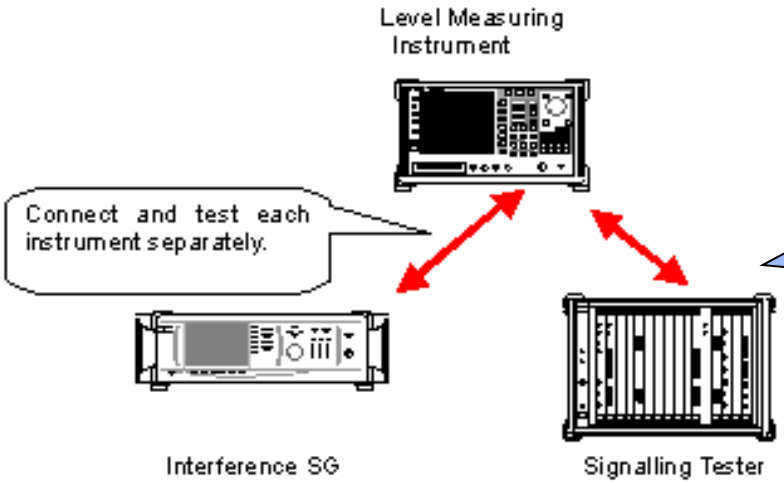


Self-test Software

The self-test software has two parts—Simple Test and Detail Test

- Simple Test
  - Detects problems and disconnection early by measuring path loss
  - Performed simply connecting Self Test Port and Antenna Port by RF cable
  - Useful for periodic fault troubleshooting





- Detail Test
  - Checks each instrument for problems
  - Gets more details than Simple Test

Appendix3

Continuous Measurement

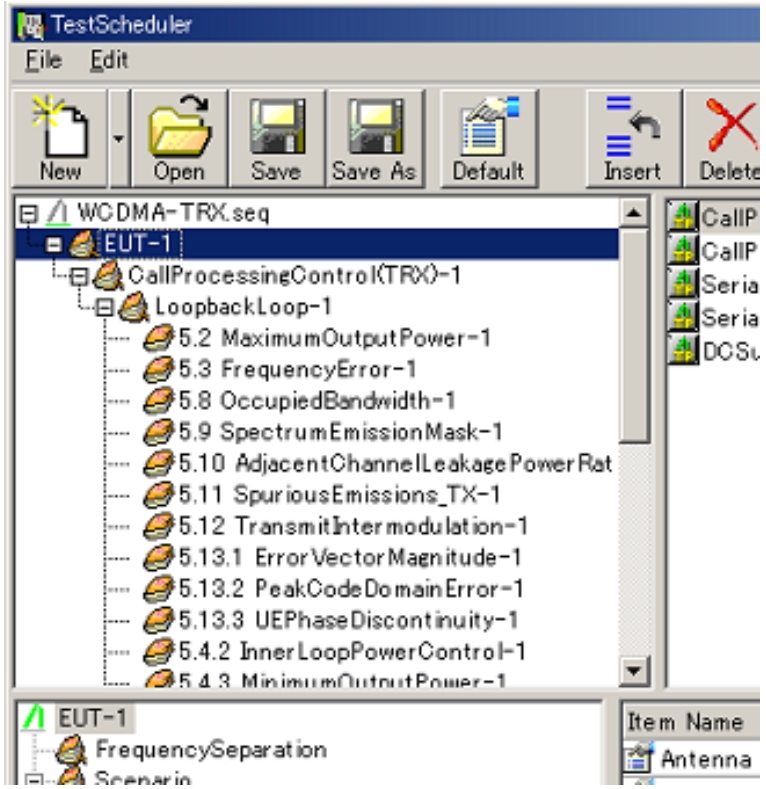
Continuous Testing

- **No Manual Operation until Measurement Completed**

The ME7873F measures according to the predetermined measurement sequence. No special operations are required when using the Power Supply or Serial Control functions.

Test Scheduler Items

The Test Scheduler function handles the required test items in turn or repeatedly, freeing the user of work until the test sequence ends.

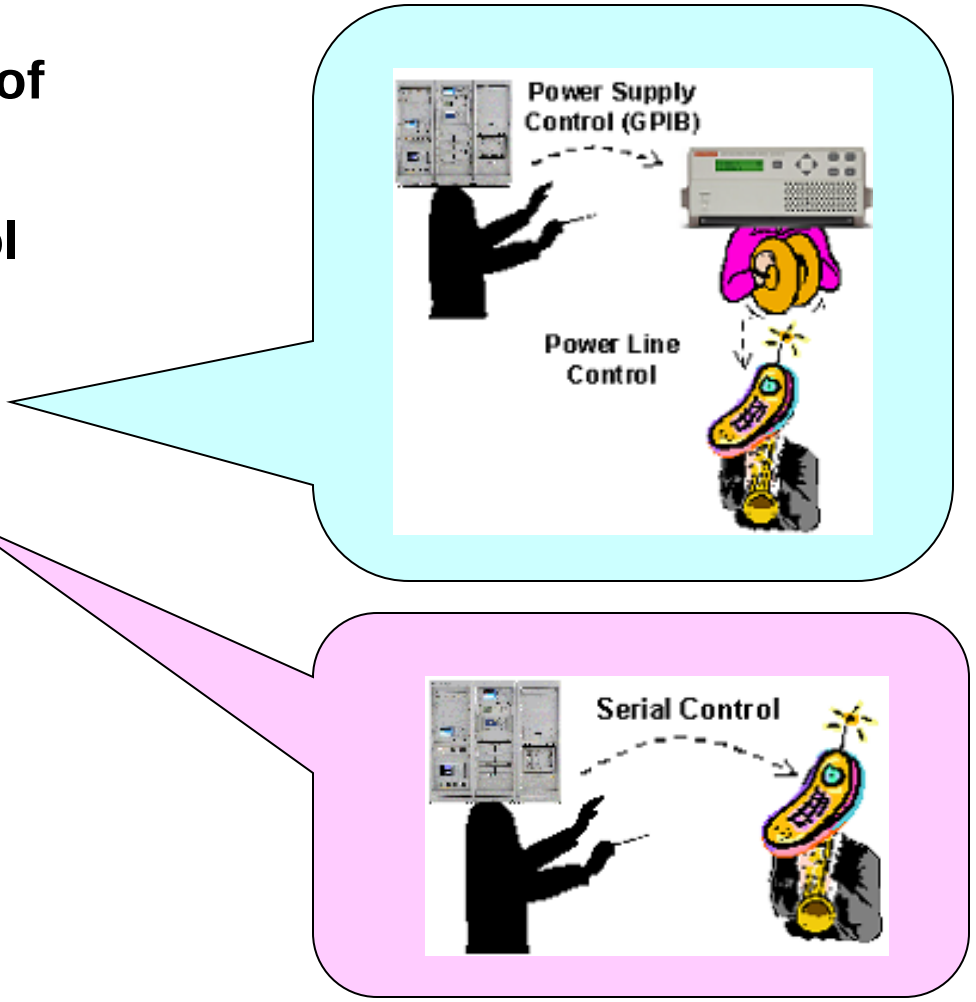


Various Controls for Mobile Terminals

Some test items require control of the mobile terminals.

The ME787xF has two UE control functions:

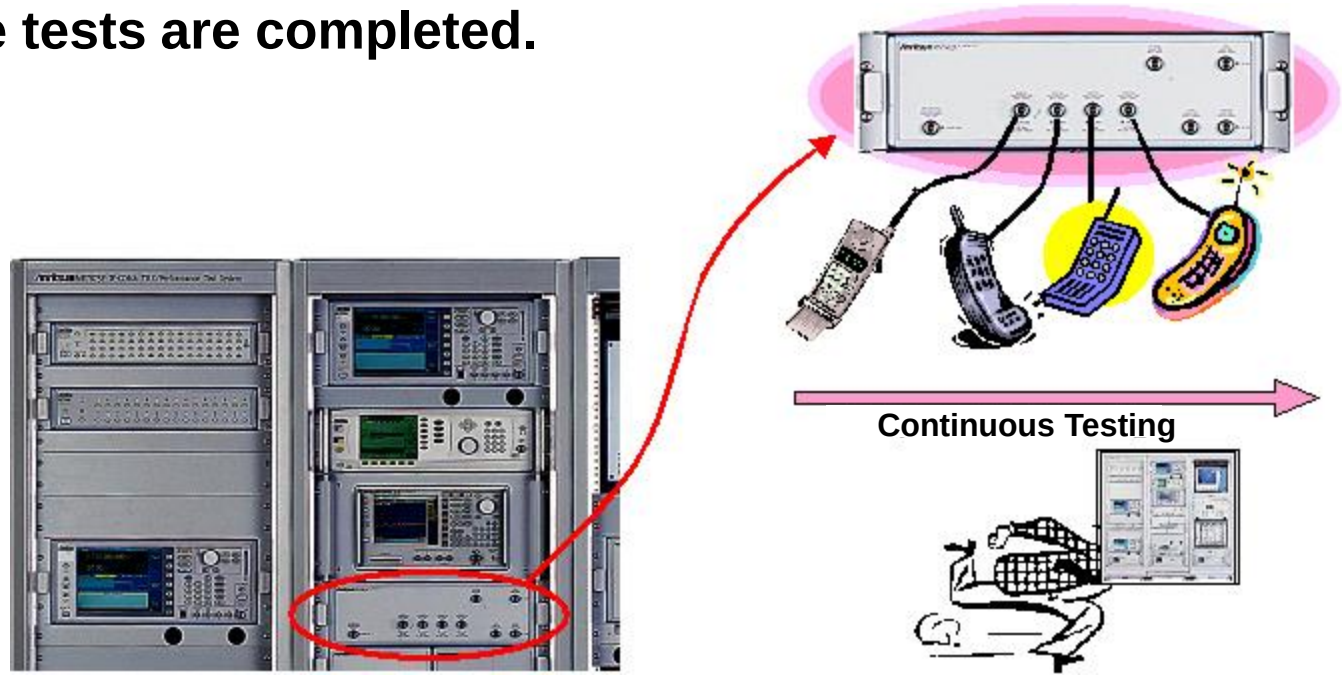
1. **Power Supply (GPIB)**
2. **Serial Control**



Continuous Testing of Four Mobile Terminals

The ME7873F/74F can test up to four mobile terminals in sequence (with option).

It can control the power supply to each mobile terminals freeing the user do other work until the tests are completed.



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