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Universal Wireless Test Set MT8870A/MT8872A

TRX Test Module MU887000A/MU887001A/MU887002A

Contents

- Positioning of MT8870A/MT8872A Test Solution
- Outline of MT8870A/MT8872A and Applications
- Introduction of Various Measurement Methods
- Introduction of Tools for PC

Positioning of MT8870A/MT8872A Test Solution

Solutions from R&D to Mass-Production

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Research | Development | Evaluation | Prototype | Production | Repair

- Smartphone
- Tablet
- Cellular Module

5G NR

LTE/LTE-Advanced
NB-IoT/Cat-M
W-CDMA
GSM
CDMA2000

MS269xA/MS2850A
Signal Analyzer

MT8000A
Radio Communication Test Station

MT8870A
Universal Wireless Test Set

Multiple Wireless Technologies

MS269xA/MS2850A
Signal Analyzer

MD8430A
Signaling Tester

MD8475A/B
Signaling Tester

MG3710E/MG3740A
Vector Signal Generator

MT8821C
Radio Communication Analyzer

MT8820C
Radio Communication Analyzer

- Connectivity Module
- Wearable / IoT devices
- AP / STB

WLAN 802.11
Bluetooth
ZigBee/Z-Wave

MS269xA/MS2850A
Signal Analyzer

MG3710E/MG3740A
Vector Signal Generator

MT8852B
Bluetooth Test Set

MT8862A
Wireless Connectivity Test Set

MT8870A
Universal Wireless Test Set

Multiple Wireless Technologies

MT8852B
Bluetooth Test Set

MT8862A
Wireless Connectivity Test Set

Single Chipset

Outline of MT8870A/MT8872A

Testers for Solving High-Density Production-Line Issues

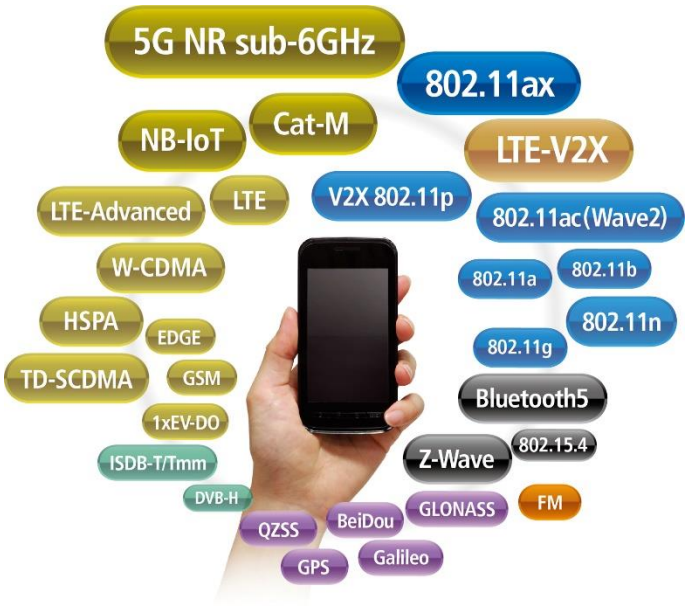
The Universal Wireless Test Set MT8870A/MT8872A supports efficient non-signaling mode measurements on production lines for wireless communications devices.

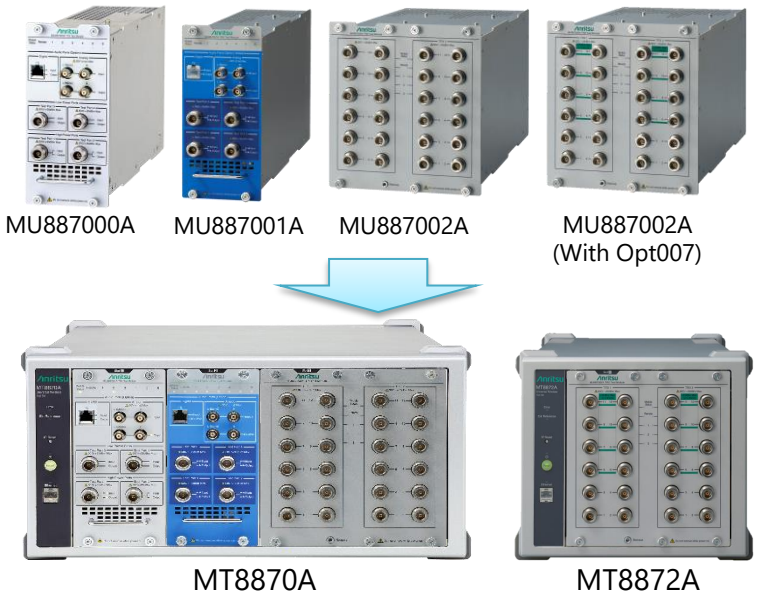
Supports Various Wireless Standards

All-in-one tester supports various wireless standards including 5G NR, IEEE 802.11ax, etc. It also supports Tx tests, such as Tx power measurements and Tx modulation accuracy, and Rx tests, such as Rx sensitivity.

Versatile Modular Design

The versatile design matching customers' production-line density and operation rate by Inserting/removing the number of installed MU887000A/01A/02A test modules and types helps optimize the capital-equipment investment.





Support for Various Wireless Communication Terminal Products

Smartphone Tablet

- Cellular– Sub-6G/4G/3G/2G
- Connectivity – WLAN, BT
- GNSS – GPS/Galileo/GLONASS/BeiDou/QZSS

Wi-Fi Router Home gateway

- Cellular– Sub-6G/4G/3G/2G
- Connectivity – 11a/b/g/n/ac/ax

IoT Module

- Cellular– Cat.M/NB-IoT/2G/3G/4G/ Sub-6 GHz
- Connectivity – GPS, Zigbee, Z-Wave

Automotive

- Telematics – Sub-6G/4G/3G/2G
- Infotainment – WLAN, BT
- Navigation – GPS/Galileo/GLONASS/BeiDou/QZSS
- Safety - V2X

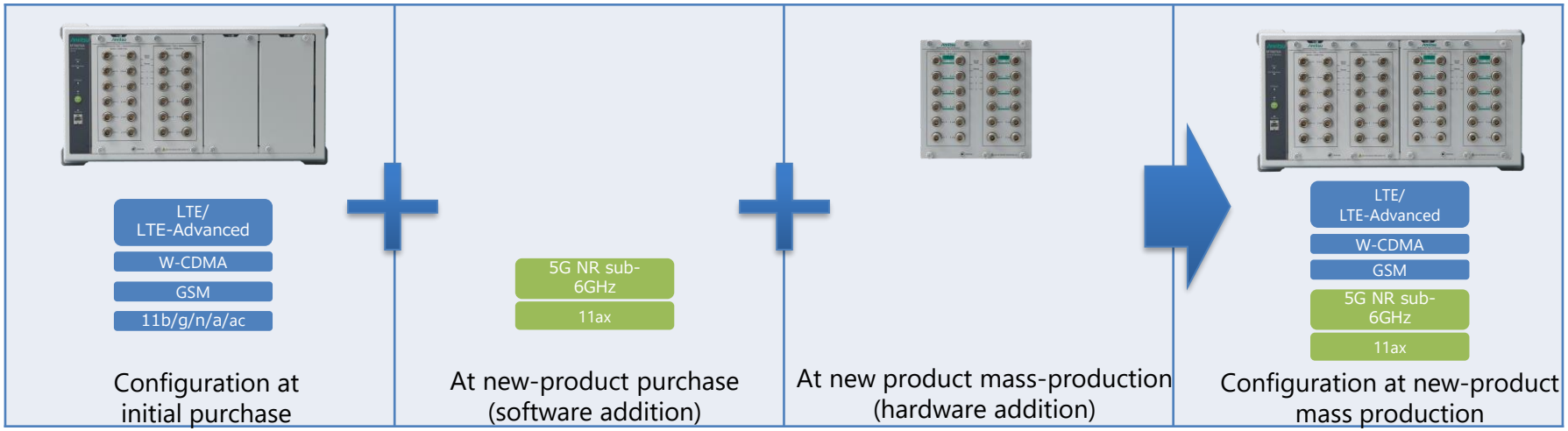
Versatile Platform

Futureproof Hardware

- The hardware has been designed bearing future advances in wireless standards in mind and offers customers a platform for the 5G era.
- The modular design eliminates the need for expensive hardware upgrades and helps cut capital-equipment costs.

Easily Expandible Software

- Advances in wireless standards are supported by adding measurement software with new functions to make best use of previously purchased hardware.
- Since the measurement software license is associated with the MT8870A/MT8872A hardware, multiple TRX test modules can be shared to cut costs.



MT8870A/MT8872A – Choice of Two Solutions –

MT8870A: Standard Chassis Size for Large-Scale Mass-Production Lines

- Slots for Four Modules
  - The MT8870A has slots for four easily installed and removed TRX test modules.
- Maximum of 48 RF Test Ports
  - Installing two MU887002A TRX test modules in the MT8870A provides a total of 48 RF test ports to help reduce test times.

MT8870A
with MU887002A and
MU887002A (With 007)

MT8872A: Compact Chassis with Full MT8870A Compatibility

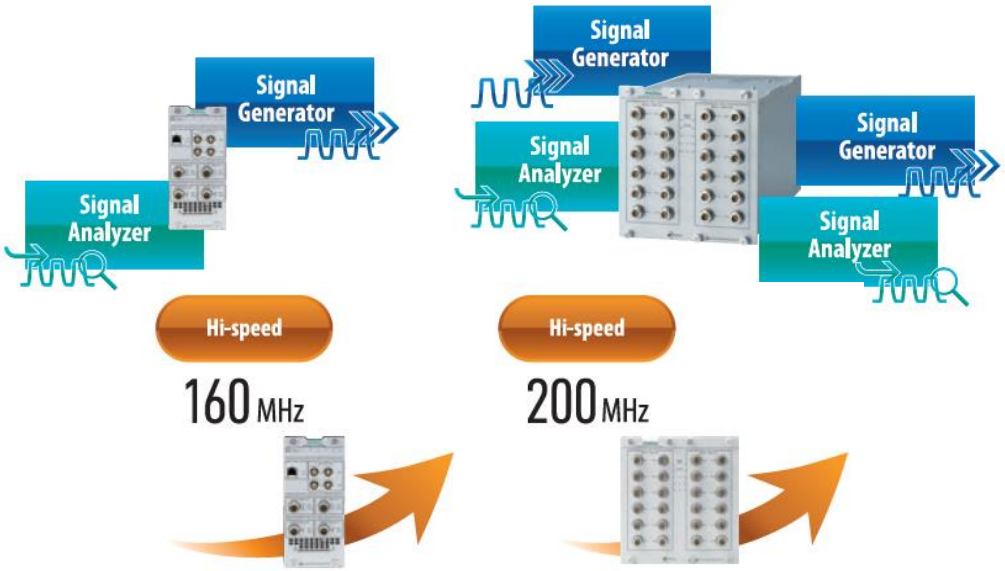
- Smaller Footprint
  - The compact Chassis fits smaller installation spaces than standard 19-inch rackmounts to save line space.
- Full Compatibility with MT8870A
  - Full MT8870A compatibility facilitates laboratory usage for creating production-line software and troubleshooting line issues.

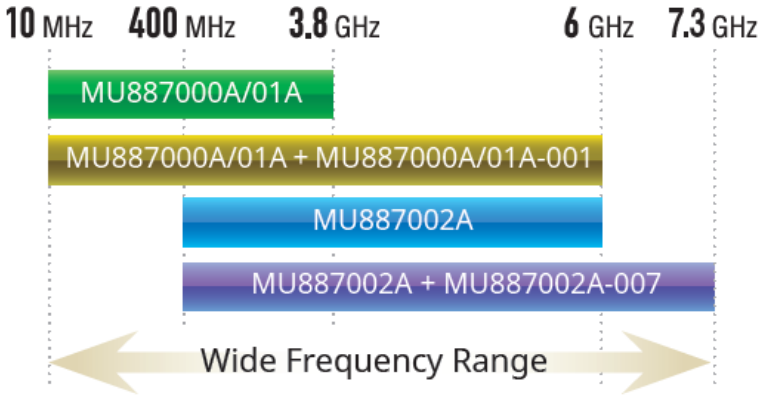
MT8872A
with MU887002A (With Opt007)

MU88700xA – Evolving TRX Test Modules –

Choice of Three TRX Test Modules

- Choice of modules matching measurement requirements for mixed install in same Chassis
- Measurement software license shared by all TRX test modules
- Adjustable number of installed TRX test modules optimizes balance of line productivity, production performance, and production costs



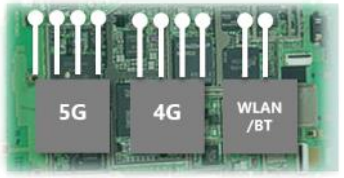


The Examples of differences between MU887000A and MU887001A and MU887002A
(Please refer appendix or catalog for details.)

MU887002A – For Even Better Production-Line Efficiency –

24 RF Test Ports / 2 TRX

- 5G devices, including smartphones have more built-in antennas to implement fast, high-capacity communications. With two TRX functions per one MU887002A and each TRX function having 12 RF test ports, each MU887002A has a total of 24 RF test ports for testing multi-antenna devices without requiring an external switch / divider.



More Antennas
to support 5G

Broadcast Signal Output from up to 12 RF Test Ports

- Since the MU887002A has a built-in divider on the output side, the same signal can be output simultaneously from up to 12 RF test ports, supporting shorter test times through reception of the same signal.

High Output Level Overcoming Measurement System Power Losses

- Because the MU887002A can simultaneously output 0 dBm even modulated signal from all 24 RF test ports, it supports tests such as Max Input Level measurement (Rx test) without requiring an external amplifier (Signal quality depends on the frequency and waveform.).

Support 6 GHz Band

- The RF upper frequency can be extended to 7.3 GHz with installing MU887002A-007 7GHz Extension Function option to support testing 6 GHz Band used by Wi-Fi 6E and NR-U.

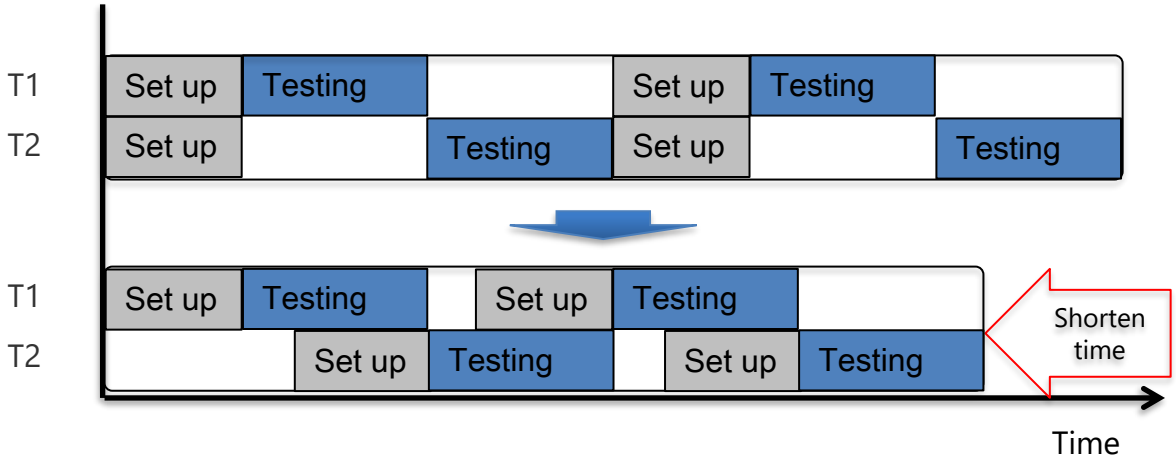
MU887002A (With Opt007)

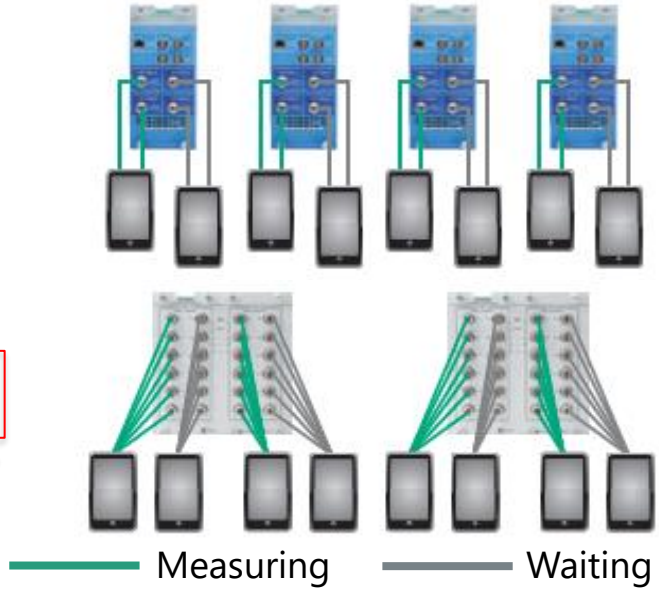
Introduction to Various Measurement Methods

Multi-DUT Measurement – Ping-Pong Method –

Higher Production Efficiency Resulting from Continuous Measurement

- The Ping-Pong measurement method alternately measures two terminals under test connected to the measuring instrument to increase production-line efficiency.
- Since up to four test modules can be installed in the MT8870A, four connected terminals can be tested alternately.
- With four RF test ports, up to eight dual-antenna terminals can be connected to one MU887000A/01A unit. With two TRx test functions in one MU887002A unit supporting 24 RF test ports, up to 8 mobiles each with six antennas can be connected.





Multi-DUT Measurement
– Multi-DUT Measurement Scheduler Method –

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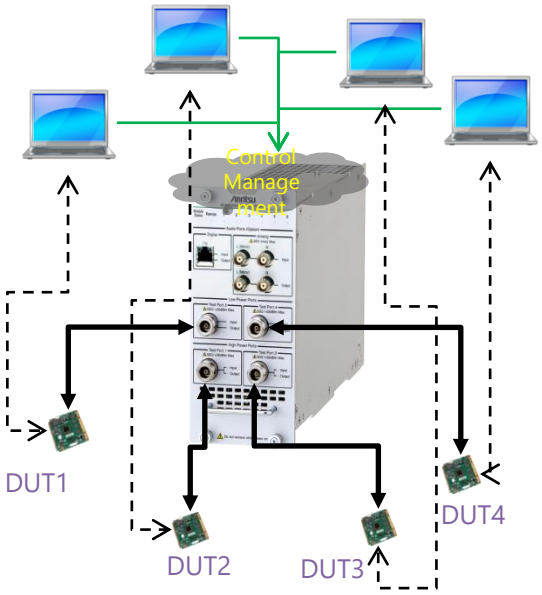
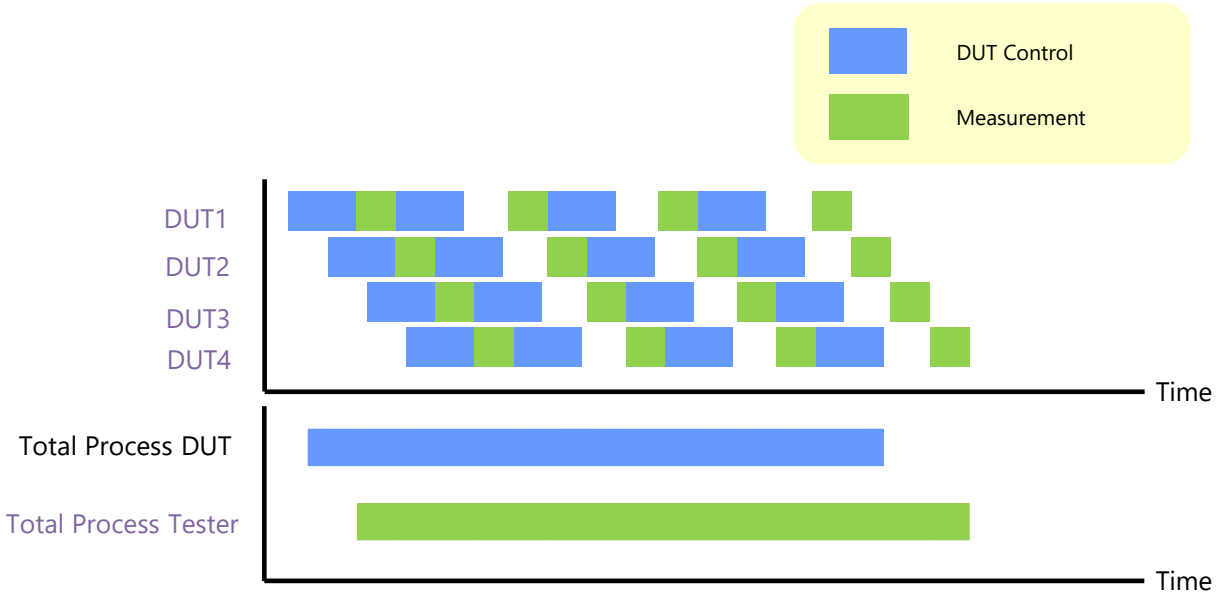
Higher Production Efficiency Resulting from Internal Controller

- The built-in Multi-DUT Measurement Scheduler MX887090A software manages the MU88700xA software and hardware resources using a dedicated internal controller supporting operation of the MU88700xA as multiple virtual instruments to optimize the instrument operation rate and cut test times per terminal under test.

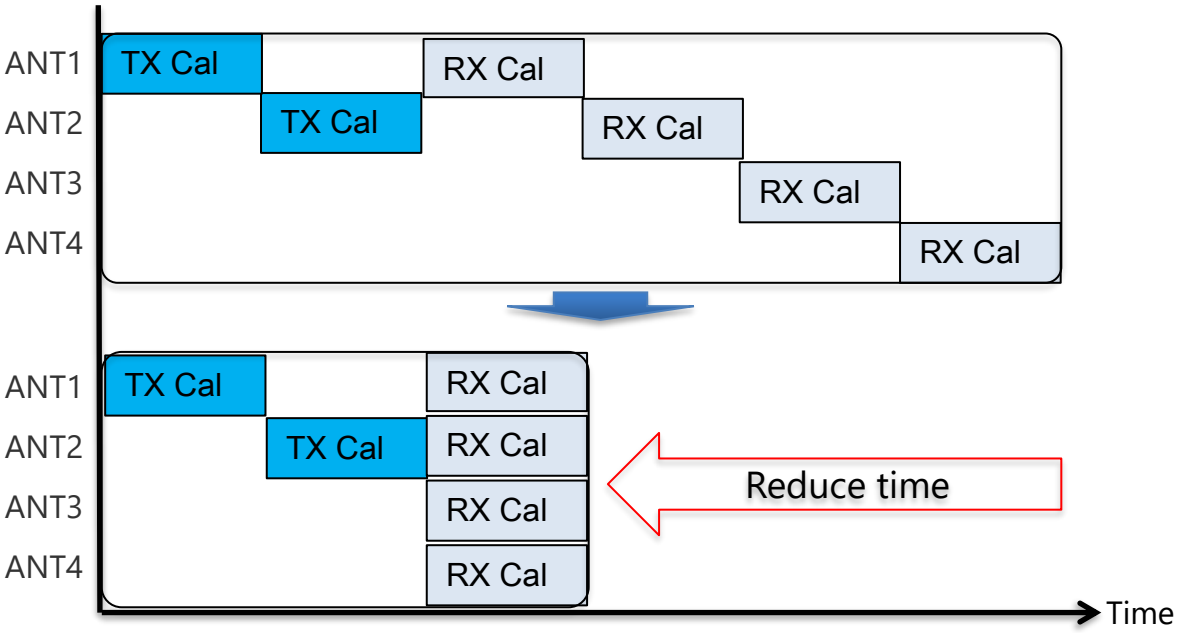


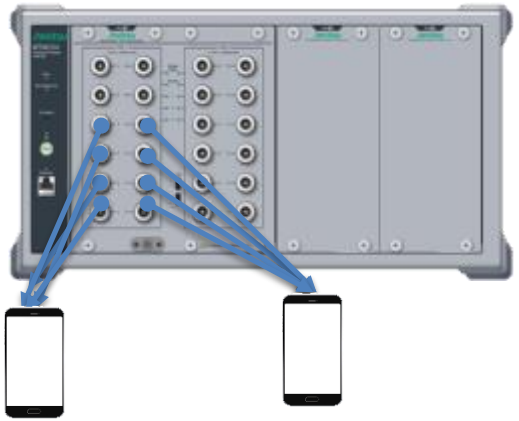


Reduce Measurement Time using MU887002A

Efficient Rx Testing using Combination of Broadcast CAL and Ping-Pong Measurement Methods at Calibration

- The MU887002A can output the same signal simultaneously from up to 12 RF ports of one TRX test module.
- Mass-production efficiency is improved by combination with the Ping-Pong measurement method.





Broadcasting CAL with Ping-Pong

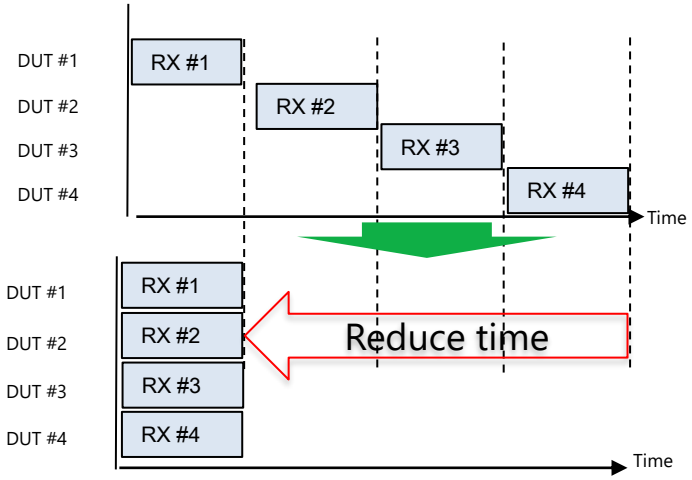
Reduce Measurement Time using MU887002A

Efficient Rx Testing using Broadcast Signal Output at Verification

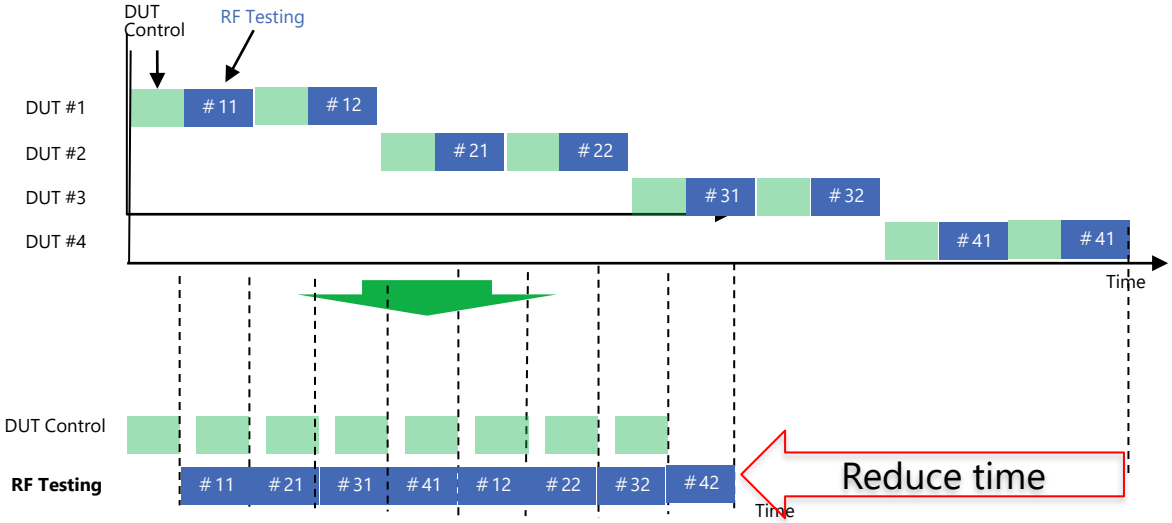
- Since the MU887002A can output the same signal simultaneously from up to 12 ports, Rx tests can be performed simultaneously for multiple terminals to cut Rx test times.

Efficient Tx Testing using Multi-DUT Measurement Scheduler Measurement Method at Verification

- The MU887002A can operate as multiple virtual measuring instruments by managing software and hardware with a dedicated internal controller to optimize instrument operation and cut Tx test times per terminal.



Reduce Rx test times by simultaneously receiving output Broadcast signal at multiple terminals under test.



Reduce Tx test times for multiple terminals under test by using Multi-DUT Measurement Scheduler function.

One-stage Solution Improve Production Efficiency

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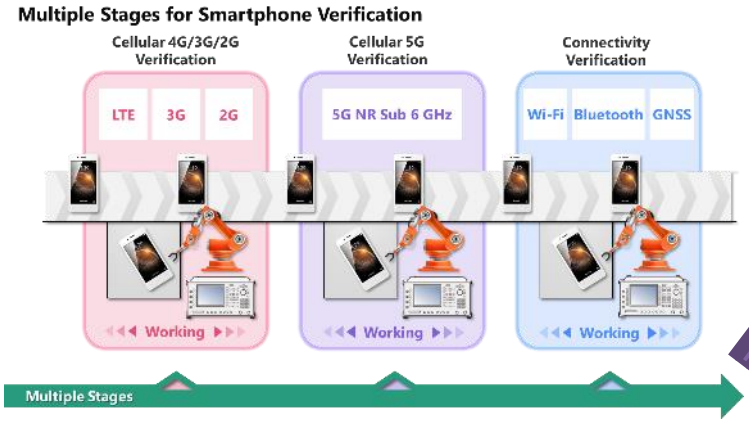
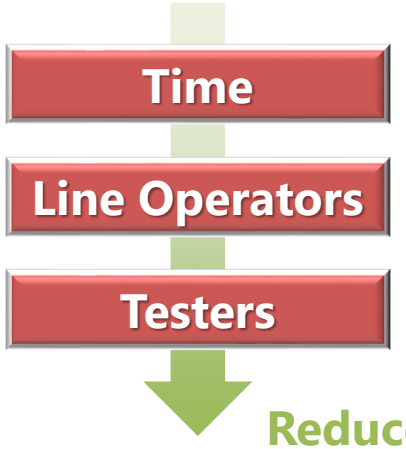
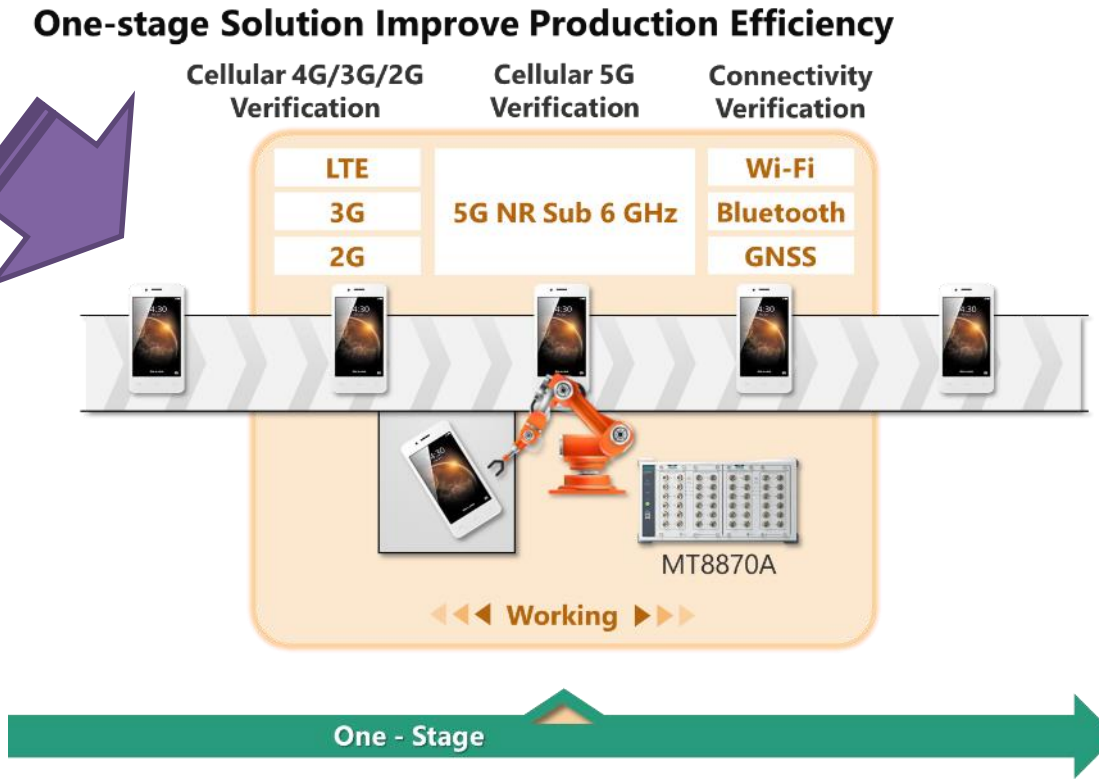
Improved Mass-Production Performance thru One-Stage Optimization

- Verification process is commonly divided into multi-stages due to the insufficient number of RF test ports. This results in longer setup times, more operators and **testers**, causing inevitable cost increases for mass-production. Using the MU887002A to implement one-stage testing improves mass-production line productivity.







Simpler Measurement System using MU887002A – Connectivity Products –

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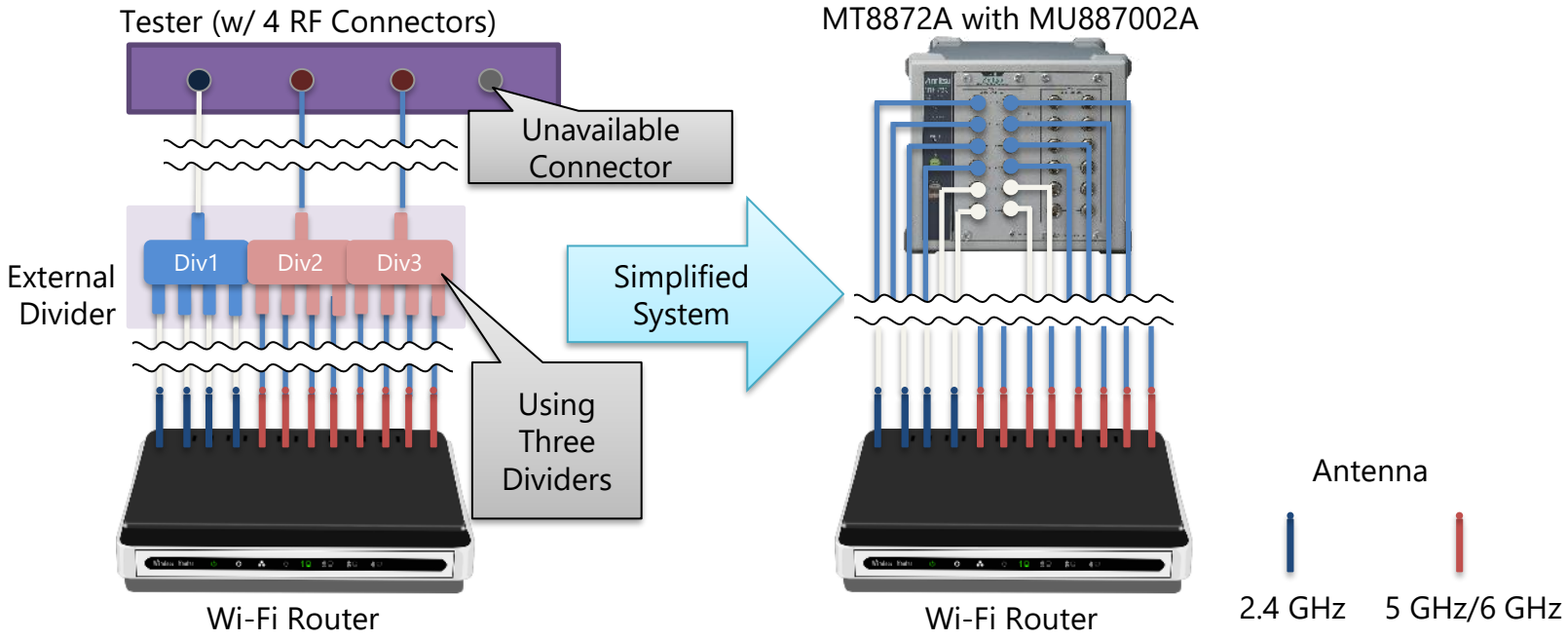
Simplified Measurement System for Connectivity Products' Mass-Production Line

- Multiband Wi-Fi routers may have up o 12 built-in antennas (four for 2.4 GHz band and eight for 5GHz band), so production-line inspections require use of external components, which complicates the measurement system
- These external dividers can be eliminated just by using the MU887002A to simplify the measurement system. In addition, the incidence of measurement errors and power loss caused by external dividers is reduced.



Introduction to Tools for PC

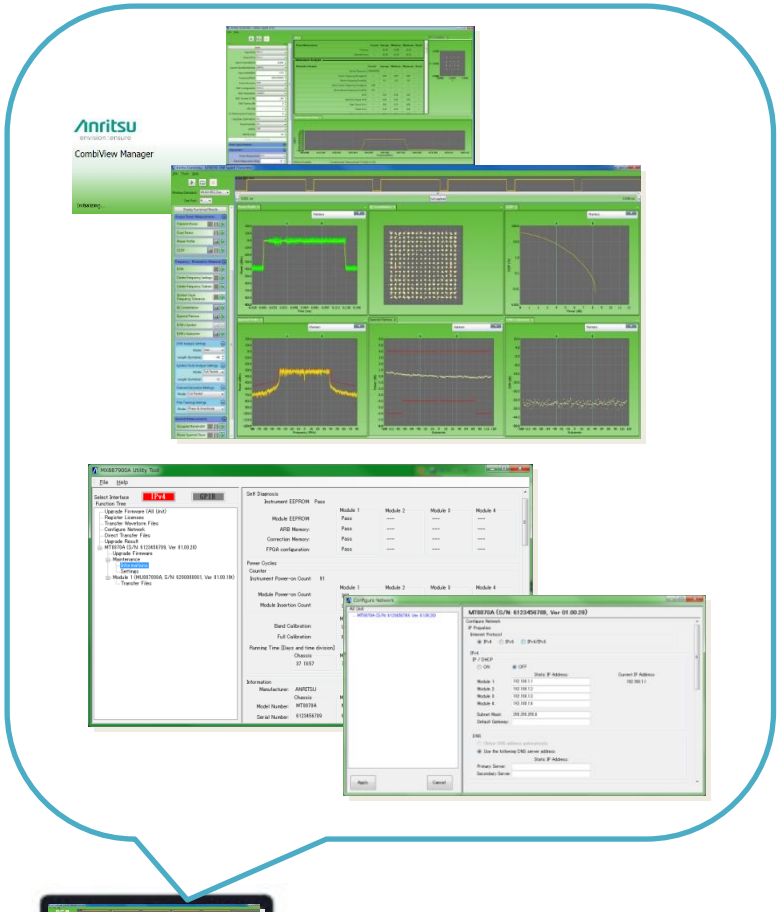
For Troubleshooting and Maintenance

CombiView

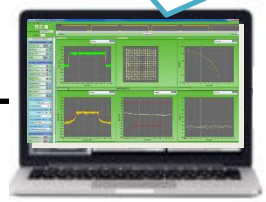
- CombiView is PC application software with a GUI; it displays useful information such as the DUT Tx power status, modulation constellation, etc., for R&D applications, production-line configuration, troubleshooting, etc.
  - Displays Tx measurement results graphically at Windows and controls signal generator for Rx tests
  - Remote-controls MT8870A/MT8872A via GPIB I/F (option) or Ethernet I/F

MT8870A Utility Tool (MX887900A)

- The MX887900A is a MT8870A/MT8872A software utility tool that can be installed on a PC. It can be used to detect MT8870A/MT8872A connected to a network via either Ethernet or GPIB option to batch-update internal firmware, etc.



Ethernet



DUT

MT8870A with MU887002A

Control PC

Appendix

MU88700xA TRX Test Module Specification

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MU887000A　MU887001A　MU887002A　MU887002A (w/ opt007)

*Over ranging :
Can output more than below specification, but signal quality like EVM becomes worsen.

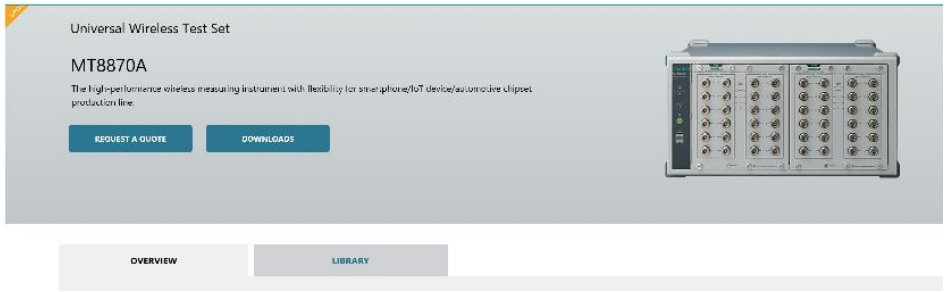
	MU887000A/MU887001A	MU887002A (w/o opt007)	MU887002A (w/ opt007)
VSA/VSG pair	1	2	2
RF connector	4	24 (12/1TRx)	24 (12/1TRx)
Connector Types	Test port 1 and 2 (00A) : Full-duplex Test port 3 and 4 (00A) : Half-duplex Test port 1 to 4 (01A) : Full-duplex	Test port 1 to 12: Full-duplex	Test port 1 to 4 : Full-duplex Test port 5 to 12: Full-duplex (≤ 5.9 GHz) Half-duplex (> 5.9 GHz)
Frequency	10 MHz to 6 GHz	400 MHz to 6 GHz	400 MHz to 6 GHz (Test port 1 to 4) 400 MHz to 7.3 GHz (Test port 5 to 12)
Output Level Setting Range	Test port 1 and 2 (00A), Test port 1 to 4 (01A) -130 to -10 dBm (≤3.8 GHz) -130 to -18 dBm (>3.8 GHz) Test port 3 and 4 (00A) -120 to 0 dBm (≤3.8 GHz) -120 to -8 dBm (>3.8 GHz)	Test port 1 to 12 -130 to -5 dBm (≤3.8 GHz) -130 to -8 dBm (>3.8 GHz) *Over ranging: up to 0 dBm	Test port 1 to 4 -130 to -5 dBm (≤ 3.8 GHz) -130 to -8 dBm (≤ 6 GHz) Test port 5 to 12 -130 to -5 dBm (≤ 3.8 GHz) -130 to -8 dBm (≤ 5.9 GHz) -130 to -10 dBm (≤7.3 GHz) *Over ranging : up to 0 dBm
Input Level Setting Range	Test port 1 and 2 (00A), Test port 1 to 4 (01A) -65 to +35 dBm (CW, 350 MHz ≤ f ≤ 6 GHz) Test port 3 and 4 (00A) -65 to +25 dBm (CW, 350 MHz ≤ f ≤ 6 GHz)	Test port 1 to 12 -65 to +35 dBm (CW, 400MHz ≤ f ≤ 6 GHz)	Test port 1 to 4 -65 to +35 dBm (CW, ≤ 6 GHz) Test port 5 to 12 -65 to +35 dBm (CW, ≤ 5.9 GHz) -65 to +30 dBm (CW, ≤ 7.3 GHz)
Remote Control Interface	Ethernet, GPIB (Option)	Ethernet	Ethernet
Broadcast	Not support	Support	Support
FM/Audio	Support	Not support	Not support

Web Downloads of Documents and Firmware

Anritsu Web Site

- For downloading catalogs, product introductions, etc.
- Accessible by everyone

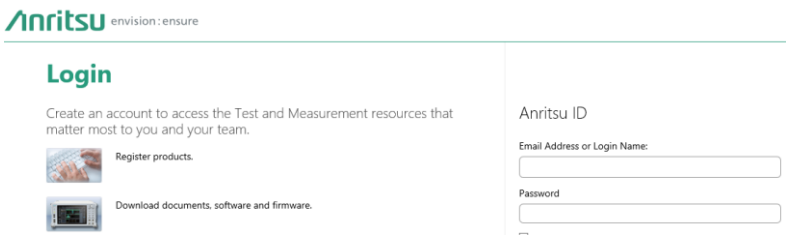
https://www.anritsu.com/en-au/test-measurement/products/mt8870a



My Anritsu

- For downloading instruction manuals, firmware, software tools, etc.
- Requires creation of My Anritsu account and registration

https://login.anritsu.com/signin?



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