Anritsu Advancing beyond

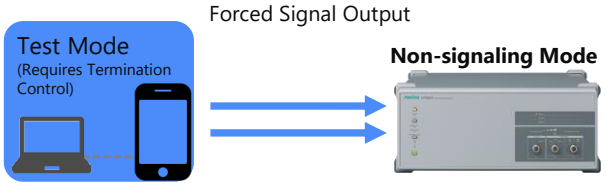
Wireless LAN Signal Quality Test

All-in-One Intelligent Signaling and Non-signaling Evaluations

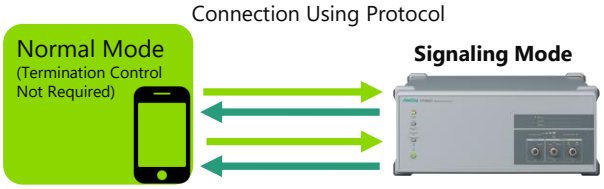
Wireless Connectivity Test Set MT8862A

Versatile Wireless LAN Signal Quality Evaluation Methods

Evaluation of the RF characteristics of wireless LAN (WLAN) devices generally uses the **non-signaling test mode where the device under test (DUT) operates in a test mode.** This mode has the merit of not requiring high-level protocol functions to communicate with the other device when evaluating RF characteristics from the early device development stage. Additionally, it also supports fast device evaluation on production lines because measurements are run only on minimum required connection and test items. However, WLAN devices without test mode support have been developed and there are also reports of communication issues causing degraded signal quality that cannot be discovered using this non-signaling method. Consequently, in addition to test-mode evaluations, more tests are being run in the **signaling mode to evaluate the RF characteristics at communications with the other device** and improve communications quality.



Initial Development Stage Evaluation/Fast Measurement



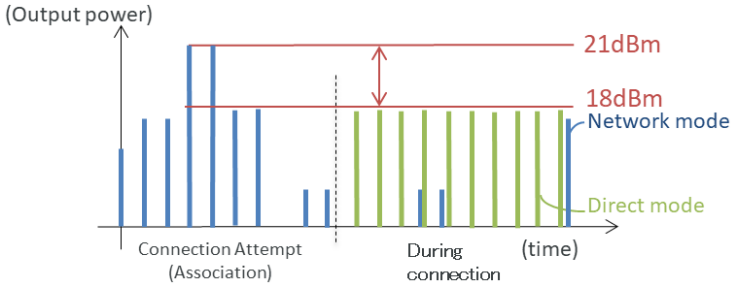
Near to Actual Operating Environment

One Example of Wireless LAN Communication Issues

As an example of issues not discovered by non-signaling mode tests, the maximum output power (green lines in following figure) is constant when measuring the DUT in the test mode. However, at actual communications with the other device, the figure clearly shows a higher maximum output power at the connection attempt (blue lines in following figure), which overloads the device on board and causes post-shipment problems. These issues can be solved by performing wireless tests under actual wireless LAN communication conditions, so we recommend evaluations using the signaling test method.

Example of Issues

	During Connection Test	At Test End
11b	21 dBm	18 dBm
11a	19.9 dBm	17 dBm



Advantages of Evaluation under Actual Operation Conditions (Signaling Mode)

The signaling mode has the following typical advantages.

✓ Improves quality by discovering issues before field deployment

Since signal quality is evaluated in the actual WLAN communications condition, issues that are not detected by the test mode can be discovered and solved before product release.

✓ Simple test environment cuts evaluation times

As well as cutting operator training time, test times and costs are cut by eliminating the need for different chip-control software with different functions and operations depending on the DUT maker and model. No additional time is required to build the evaluation environment even if a different chip is used for a design change or new model.

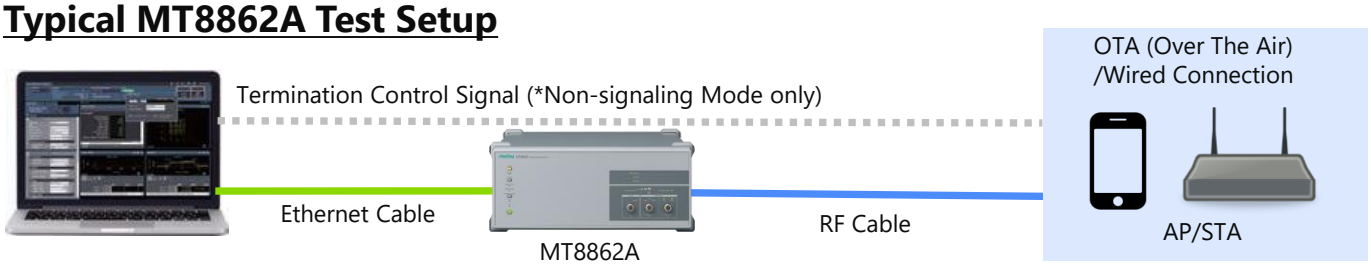
✓ Easy completed product tests & firmware upgrade re-evaluation

Hardware modification for running chip-control leader lines is no longer necessary and finished products, including competing models can be evaluated because test firmware is unnecessary. As a result, it is easy to re-evaluate the product at final product evaluation, firmware update for wireless LAN products, or when there are design changes, such as module placement positions or antenna orientation.

Efficient and Effective Evaluation

Since both signaling and non-signaling mode test environments are supported, the best test method matching the development status and test conditions can be selected for effective and efficient evaluation. With support for both signaling and non-signaling test modes, Anritsu's Wireless Connectivity Test Set MT8862A can perform evaluations in each mode in the **same test environment to easily cancel any effects of different test environments.** In the same environment, it is possible to evaluate tests under various conditions, such as checking the performance of competing products, selecting modules, connecting boards, antennas and modules, and after installing the enclosure, all of which are necessary in the development process.

Typical MT8862A Test Setup



With its easy-to-understand GUI, the MT8862A supports intuitive remote control. The small-footprint test setup is configured easily by connecting any PC without installing software. Moreover, the **MT8862A supports evaluation tools provided by chipset vendors for switching easily from a non-signaling tester to the MT8862A.**

Main MT8862A Specifications

Connections

- **Signaling/Non-signaling Modes**
- AP/STA Modes
- Standards
  - ✓ IEEE 802.11a/b/g/n/ac (20/40/80/**160 MHz BW**)
  - ✓ IEEE 802.11ax (20/40/80/**160 MHz BW**)
  - ✓ IEEE 802.11n/ac 2x2 MIMO
- WEP, WPA/WPA2-Personal/**WPA3-Personal**
- **Qualcomm Development Acceleration Resource Toolkit (QDART) Support**

RF

- Frequency: 2.4/5/**6 GHz Band**
- Max. Width: 20/40/80 MHz**/160 MHz**
- Output Level:
  - Aux Port: **–120 to 0 dBm**
  - Main Ports 1, 2
    –120 to 0 dBm for 2.4/5-GHz bands
    –120 to –5 dBm for 6-GHz band
- Input Level: **–65 to +25 dBm**

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