Wireless Connectivity Test Set
MT8862A
Have you measured me up?

Ideal for RF TRx Tests of WLAN Devices

Supports Latest Standards

Measurement under Realistic Operation Conditions

As well as supporting IEEE802.11a/b/g/n/ac, the MT8862A supports the latest WLAN IEEE802.11ax standard to evaluate a broader range of WLAN-device RF TRx characteristics including Tx power, Rx sensitivity, and more.

The MT8862A uses standard WLAN protocol messaging with a built-in Network Mode to establish a connection with the WLAN device and measure the RF TRx characteristics under realistic operation conditions. Also the MT8862A supports Direct Mode.

Wireless communications over WLAN are increasing rapidly due to the widespread use of mobile terminals, such as smartphones, as well as integration of network-connected TVs, cleaners, automobiles, industrial equipment, sensors, and more, into the Internet of things (IoT).

Makers of these equipment are anticipating more end-user enquiries related to WLAN performance, including network coverage, reception sensitivity, etc.

Anritsu’s Wireless Connectivity Test Set is ideal for measuring the RF TRx characteristics at design and manufacturing inspection of WLAN devices. It has a built-in Network Mode for measuring the performance of the WLAN DUT under realistic operation conditions to play a key role in quality evaluation and improvement.

Smart grid
Wearable device
Gateway
Smart appliances
Automotive
Smartphone
Tablet
11ax
Have you measured me up?

MT8862A

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Wireless Connectivity Test Set MT8862A

**RF TRx Measurements of WLAN Equipment**
The Wireless Connectivity Test Set MT8862A is designed for measuring the RF TRx characteristics of WLAN equipment. It has standard WLAN protocol messaging (WLAN signalling) to connect with the device under test (DUT) for measuring the TRx performance items as Network Mode. It is the biggest feature of MT8862A. MT8862A gives manifold inspections for WLAN equipment because it also supports Direct Mode.

**Supported Communications Standards • Security encryption**
WLAN IEEE802.11a/b/g/n/ac/ax (2.4 GHz and 5 GHz bands) [AP/STA]
WEP, WPA-Personal, and WPA2-Personal

**RF Performance Measurement under Actual Operation Conditions (Network Mode)**
By using the MT8862A Network Mode, RF TRx characteristics, such as Tx power, modulation accuracy (EVM), etc., can be measured with the WLAN device in actual operation conditions. It is not necessary to put the DUT into dedicated test mode and directly control the DUT. The DUT RF performance can be quantified under the firmware conditions at actual shipment.

**Easy Measurement Environment Configuration**
The MT8862A can simulate access points (AP) and station (STA) to establish the DUT network connection using IEEE802.11a/b/g/n/ac/ax WLAN protocol messaging. Each WEP, WPA-Personal and WPA2-Personal secure connection method is supported, and TKIP and AES encryption schemes can be selected by combination with each standard. When the connection is established, RF measurements can be made using general WLAN communications procedures without requiring special tools and control procedures, eliminating the need for configuring a special measurement environment.
WLAN Measurement Software MX886200A Features

ICMP Echo Request for Tx Measurement
With the ICMP echo request, the MT8862A can measure RF Tx characteristics of reply packets from the DUT. The measurement targets are both data frames and ACK frames.

Rx Sensitivity Measurements using ACK Frame Count for Bathtub Curve Generation
The MT8862A supports Rx sensitivity measurements using the ACK frame count; counting the ACK frames sent by the DUT versus the test packets sent from the MT8862A supports calculation of the packet error rate (PER). Packets can be sent while lowering the power level by setting the power level range (0 to –120 dBm) and step size, and the Rx sensitivity Bathtub curve can be generated automatically. Packets including MAC address and payload length can be configured in real-time for measurement at various data rates.

Web Browser GUI Operation Immediately after Connection
Connect the MT8862A to the external PC using an Ethernet cable for instant access from the Web browser to complete setup of the GUI operation environment without requiring test setup operation. The Web-browser based GUI eliminates usage worries about version matching with the main frame firmware. Additionally, the MT8862A remote control port supports the DHCP client function and both host and domain name settings offer easy control simply by connecting the PC controller and MT8862A to the same network.
WLAN Measurement Software MX886200A Features

Function Test

Frame Capture Logging for Troubleshooting Connection Problems
With built-in frame capture logging function, the MT8862A can capture and save frame logs for troubleshooting DUT connection problems. Captured logs are in the *.pcap format for viewing by supported applications, making it easier to analyze DUT connection problems.

IP Data Transfer using Connection Verification Test
The Ethernet port on the back panel of the MT8862A can be used for exchanging IP data with an external server; IP connections between the client PC connected to the DUT and the external server connected to the MT8862A can be checked using the ping function, etc.

* This function does not support MIMO, does not support 802.11ax.

Receiver Sensitivity and Transmit Power Measurement Function for 2×2 MIMO
Receiver sensitivity and transmit power measurement under 2×2 MIMO communication can be tested by using 2 sets of MT8862A. This is suitable for RF performance evaluation for completed products.

* This function supports IEEE802.11n/ac only.
Network Mode for Over The Air (OTA) Test
The TRx performance of wireless terminals is affected by factors such as the terminal form and antenna characteristics. The OTA test measures the general TRx performance of the wireless terminal using actual radio waves. The WLAN OTA test measures RF performance specifications in accordance with the recommendations of CTIA* and the Converged Wireless Group (CWG) of the Wi-Fi Alliance, including Total Radiated Power (TRP), Total Isotropic Sensitivity (TIS). System integrators have test solution using MT8862A.

* Cellular Telecommunications & Internet Association; international non-profit organization composed of wireless-communications-related businesses, manufacturers, service providers, etc.

Auto-ID information display
MT8862A displays header information of packets used for transmit measurement as Auto-ID Information.
WLAN Measurement Software MX886200A Key Functions

RF Tx Test

Tx Power Measurement and Power Profile Display
The MT8862A measures the Tx power and displays the average and peak power. The crest factor indicating the difference between the average power and peak power and the power-on ramp time and power-off ramp time indicating the time of ringing and falling are also displayed. The power profile is displayed as a graph of the power vs time for the signal.

Frequency and Modulation Analysis/IQ Constellation Display/Spectrum Display
The MT8862A performs frequency and modulation analyses to measure the Error Vector Magnitude (EVM), which is a good of overall indicator of transmitter quality. When the numerical EVM is bad, the Packet Error Rate (PER) is usually high at WLAN connection. The RMS EVM and Peak EVM for DSSS- and OFDM-modulated carrier waves are expressed as % and dB values, respectively.
In case of OFDM modulation, in addition to EVM, Center Frequency Leakage, Center Frequency Tolerance, Symbol Clock Frequency Tolerance, IQ Imbalance, and Spectral Flatness are also displayed. In case of DSSS modulation, in addition to EVM, Center Frequency Tolerance, IQ Offset, Phase & Magnitude Error, IQ Imbalance, Chip Clock Frequency Tolerance, and Carrier Suppression from IQ Offset are also displayed. Furthermore, the IQ constellation, spectrum flatness, and spectrum analysis results are displayed as graphs.
RF Rx Test

Packet Error Rate (PER)
The MT8862A Network Mode is a unique function that can use general communication method and instead automatically implements the 802.11a/b/g/n/ac/ax device sensitivity search measurement to output the Bathtub curve. By using this function, the device performance can be analyzed at high speed for each data rate, offering a convenient measurement solution for verifying compliance with the 802.11b minimum receiver sensitivity test specifications. This is a flexible test solution because the number of packets sent at each power level can be specified both as the start and stop search level and as step size.

Frame Rx rate (FRR)
The Frame Rx Rate can be displayed instead of displaying the Packet Rx Error Rate (PER).
## Connectivity

<table>
<thead>
<tr>
<th>802.11a</th>
<th>802.11b</th>
<th>802.11g</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range</strong></td>
<td>5180 MHz to 5825 MHz</td>
<td>2412 MHz to 2484 MHz</td>
</tr>
<tr>
<td><strong>Operation Mode</strong></td>
<td>OFDM (BPSK, QPSK, 16QAM, 64QAM)</td>
<td>ERP-OFDM</td>
</tr>
<tr>
<td><strong>Modulation</strong></td>
<td>OFDM (BPSK, QPSK, 16QAM, 64QAM)</td>
<td>DSSS, CCK</td>
</tr>
<tr>
<td><strong>Data Rate</strong></td>
<td>6, 9, 12, 18, 24, 36, 48, 54 Mbps</td>
<td>1, 2, 5.5, 11 Mbps</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>WEP, WPA-Personal, WPA2-Personal</td>
<td>WEP, WPA-Personal, WPA2-Personal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>802.11n</th>
<th>802.11ac*1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range</strong></td>
<td>2412 MHz to 2484 MHz and 5180 MHz to 5825 MHz</td>
</tr>
<tr>
<td><strong>Bandwidth</strong></td>
<td>20 MHz, 40 MHz</td>
</tr>
<tr>
<td><strong>MCS</strong></td>
<td>MCS0 to MCS7, MCS0 to MCS15*1</td>
</tr>
<tr>
<td><strong>FEC</strong></td>
<td>BCC</td>
</tr>
<tr>
<td><strong>PPDU Format</strong></td>
<td>HT-mixed, HT-greenfield*4</td>
</tr>
<tr>
<td><strong>Guard Interval Type</strong></td>
<td>Long, Short</td>
</tr>
<tr>
<td><strong>RF Chain</strong></td>
<td>Single (SISO), 2×2MIMO*3</td>
</tr>
<tr>
<td><strong>Security</strong></td>
<td>WPA-Personal, WPA2-Personal</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>802.11ax*6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range</strong></td>
</tr>
<tr>
<td><strong>Bandwidth</strong></td>
</tr>
<tr>
<td><strong>MCS</strong></td>
</tr>
<tr>
<td><strong>FEC</strong></td>
</tr>
<tr>
<td><strong>PPDU Format</strong></td>
</tr>
<tr>
<td><strong>Guard Interval Type</strong></td>
</tr>
</tbody>
</table>

**Guard interval and HE-LTF type**

- **HE SU**
  - 0.8 µs GI, 1xHE-LTF
  - 0.8 µs GI, 2xHE-LTF
  - 1.6 µs GI, 2xHE-LTF
  - 0.8 µs GI, 4xHE-LTF
  - 3.2 µs GI, 4xHE-LTF
  - HE TB
  - 1.6 µs GI, 2xHE-LTF
  - 3.2 µs GI, 4xHE-LTF

**RF Chain**

- Single (SISO)

**Security**

- WPA-Personal, WPA2 -Personal

*1: 802.11ac connection requires MX886200A-001
*2: Secure connections require the MX886200A-020
*3: Available when measure 2×2MIMO receiver sensitivity using MX886200A-010.
*4: Only receiver sensitivity testing is supported in 2×2MIMO.
*5: MCS9 is only available on 40 MHz or 80 MHz bandwidth.
*6: 802.11ax connection requires MX886200A-002
## WLAN Measurement Software MX886200A Measurement Items

### Measurement Items by Standards

#### IEEE 802.11-2012: 802.11b

<table>
<thead>
<tr>
<th>802.11b</th>
<th>Measurement Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.4.7.2</td>
<td>Transmit power levels</td>
</tr>
<tr>
<td>17.4.7.4</td>
<td>Transmit spectral mask</td>
</tr>
<tr>
<td>17.4.7.5</td>
<td>Transmit center frequency tolerance</td>
</tr>
<tr>
<td>17.4.7.6</td>
<td>Chip clock frequency tolerance</td>
</tr>
<tr>
<td>17.4.7.7</td>
<td>Transmit power-on and power-down ramp</td>
</tr>
<tr>
<td>17.4.7.9</td>
<td>Transmit modulation accuracy</td>
</tr>
</tbody>
</table>

#### IEEE 802.11-2012: 802.11a/g/n Measurements, IEEE802.11ac-2013: 802.11ac Measurements

<table>
<thead>
<tr>
<th>802.11a</th>
<th>802.11g</th>
<th>802.11n</th>
<th>802.11ac</th>
<th>Measurement Items</th>
</tr>
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<tbody>
<tr>
<td>18.3.9.2</td>
<td>19.4.8.2</td>
<td>20.3.20.3</td>
<td>N/A</td>
<td>Transmit power levels</td>
</tr>
<tr>
<td>18.3.9.3</td>
<td>19.5.5</td>
<td>20.3.20.1</td>
<td>22.3.18.1</td>
<td>Transmit spectrum mask</td>
</tr>
<tr>
<td>18.3.9.5</td>
<td>19.4.8.3</td>
<td>20.3.20.4</td>
<td>22.3.18.3</td>
<td>Transmit center frequency tolerance</td>
</tr>
<tr>
<td>18.3.9.6</td>
<td>19.4.8.4</td>
<td>20.3.20.6</td>
<td>22.3.18.2</td>
<td>Symbol clock frequency tolerance</td>
</tr>
<tr>
<td>18.3.9.7.2</td>
<td>18.3.9.7.2</td>
<td>20.3.20.7.2</td>
<td>22.3.18.4.2</td>
<td>Transmitter center frequency leakage</td>
</tr>
<tr>
<td>18.3.9.7.3</td>
<td>18.3.9.7.3</td>
<td>20.3.20.7.3</td>
<td>22.3.18.2</td>
<td>Transmitter spectral flatness</td>
</tr>
<tr>
<td>18.3.9.7.4</td>
<td>18.3.9.7.4</td>
<td>20.3.20.7.4</td>
<td>22.3.18.4.3</td>
<td>Transmitter constellation error</td>
</tr>
<tr>
<td>18.3.9.8</td>
<td>18.3.9.8</td>
<td>20.3.20.7.4</td>
<td>22.3.18.4.4</td>
<td>Transmitter modulation accuracy test</td>
</tr>
</tbody>
</table>

#### IEEE802.11ax/D4.0: 802.11ax Measurements

<table>
<thead>
<tr>
<th>802.11ax</th>
<th>Measurement Items</th>
</tr>
</thead>
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<td>27.3.14.3</td>
<td>Pre-correction accuracy requirements</td>
</tr>
<tr>
<td>27.3.18.1</td>
<td>Transmit spectral mask</td>
</tr>
<tr>
<td>27.3.18.2</td>
<td>Spectral flatness</td>
</tr>
<tr>
<td>27.3.18.3</td>
<td>Transmitter center frequency and symbol clock frequency tolerance</td>
</tr>
<tr>
<td>27.3.18.4.2</td>
<td>Transmitter center frequency leakage</td>
</tr>
<tr>
<td>27.3.18.4.3</td>
<td>Transmitter constellation error</td>
</tr>
<tr>
<td>27.3.18.4.4</td>
<td>Transmitter modulation accuracy (EVM) test</td>
</tr>
</tbody>
</table>

*1: 802.11ac Tx measurement requires MX886200A-001
*2: Frequency SPAN of 802.11ac supports up to ±80 MHz
*3: 802.11ax Tx measurement requires MX886200A-002
*4: Measure the error between DUT transmission power and TargetRSSI.
*5: Frequency SPAN of 802.11ax supports up to ±80 MHz

### Measurement Items

#### MT8862A 11b Measurement Items

- Transmit power
- Crest factor
- Power ramp
- EVM (Transmit modulation accuracy)
- Center frequency tolerance
- IQ offset
- Phase error
- Magnitude error
- Amplitude imbalance
- Phase imbalance
- Chip clock frequency tolerance
- Carrier suppression from IQ offset
- Spectrum mask

#### MT8862A 11a/g/n/ac Measurement Items

- Transmit power
- Crest factor
- Power ramp
- EVM (Transmit modulation accuracy)
- Center frequency leakage
- Center frequency tolerance
- Symbol clock frequency tolerance
- Amplitude imbalance
- Phase imbalance
- Phase error
- Spectrum flatness
- Spectrum mask

#### MT8862A 11ax HE SU (Single User) Measurement Items

- Transmit power
- Crest factor
- Power ramp
- EVM (Transmit modulation accuracy)
- Center frequency leakage
- Center frequency tolerance
- Symbol clock frequency tolerance
- Amplitude imbalance
- Phase imbalance
- Phase error
- Spectrum flatness
- Spectrum mask

#### MT8862A 11ax HE TB (Multi User) Measurement Items

- Transmit power
- Power pre-correction accuracy
- Crest factor
- Power ramp
- EVM (Transmit modulation accuracy)
- Unused tone error
- Center frequency leakage
- Center frequency tolerance
- Center frequency offset
- Amplitude imbalance
- Phase imbalance
- Phase error
- Spectrum flatness
- Spectrum mask
WLAN Measurement Software MX886200A Measurement Items

Tx Measurements

Graph Display Items

<table>
<thead>
<tr>
<th>MT8862A 11b Graph Display Items</th>
<th>MT8862A 11a/g/n/ac Graph Display Items</th>
<th>MT8862A 11ax Graph Display Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>IQ Constellation</td>
<td>IQ Constellation</td>
<td>IQ Constellation</td>
</tr>
<tr>
<td>Power Profile</td>
<td>Power Profile</td>
<td>Power Profile</td>
</tr>
<tr>
<td>Spectrum Mask</td>
<td>Spectrum Mask</td>
<td>Spectrum Mask</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Spectrum Flatness</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carrier Frequency Offset Error (CCDF)*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Unused Tone Error</td>
</tr>
</tbody>
</table>

Rx Measurements

IEEE802.11-2012: 802.11b Rx Measurements

<table>
<thead>
<tr>
<th>802.11b</th>
<th>Measurement Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>17.4.8.2</td>
<td>Receiver minimum input level sensitivity</td>
</tr>
<tr>
<td>17.4.8.3</td>
<td>Receiver maximum input level</td>
</tr>
<tr>
<td>17.4.8.4</td>
<td>Receiver adjacent channel rejection*1</td>
</tr>
</tbody>
</table>

IEEE802.11-2012: 802.11a/g/n Rx Measurements; IEEE802.11ac-2013: 802.11ac Rx Measurements*2

<table>
<thead>
<tr>
<th>802.11a</th>
<th>802.11g</th>
<th>802.11n</th>
<th>802.11ac</th>
<th>Measurement Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>18.3.10.2</td>
<td>19.5.2</td>
<td>20.3.21.1</td>
<td>22.3.19.1</td>
<td>Receiver minimum input level sensitivity</td>
</tr>
<tr>
<td>18.3.10.3</td>
<td>19.5.3</td>
<td>20.3.21.2</td>
<td>22.3.19.2</td>
<td>Receiver adjacent channel rejection*1</td>
</tr>
<tr>
<td>18.3.10.4</td>
<td>18.3.10.4</td>
<td>20.3.21.3</td>
<td>22.3.19.3</td>
<td>Nonadjacent channel rejection*1</td>
</tr>
<tr>
<td>18.3.10.5</td>
<td>19.5.4</td>
<td>20.3.21.4</td>
<td>22.3.19.4</td>
<td>Receiver maximum input level</td>
</tr>
</tbody>
</table>

IEEE802.11ax/D4.0: 802.11ax Rx Measurements*3

<table>
<thead>
<tr>
<th>802.11ax</th>
<th>Measurement Item</th>
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<tbody>
<tr>
<td>27.3.19.2</td>
<td>Receiver minimum input sensitivity</td>
</tr>
<tr>
<td>27.3.19.3</td>
<td>Adjacent channel rejection*1</td>
</tr>
<tr>
<td>27.3.19.4</td>
<td>Nonadjacent channel rejection*1</td>
</tr>
<tr>
<td>27.3.19.5</td>
<td>Receiver maximum input level</td>
</tr>
</tbody>
</table>

Graph Display

<table>
<thead>
<tr>
<th>Measurement Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packet Error Rate (PER)</td>
</tr>
<tr>
<td>Frame Reception Rate (FRR)</td>
</tr>
</tbody>
</table>

*1: Sold separately; requires signal generator
*2: 802.11ac Rx measurement requires MX886200A-001
*3: 802.11ax Rx measurement requires MX886200A-002
## Wireless Connectivity Test Set MT8862A Configuration

### System Configurations/Options/Software/PC Controller Operation Environment

<table>
<thead>
<tr>
<th>System</th>
<th>Wireless LAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Frame</td>
<td>Wireless Connectivity Test Set MT8862A</td>
</tr>
<tr>
<td>Basic Configuration (Hardware)</td>
<td>RF Frequency 2.4 GHz, 5 GHz MT8862A-001</td>
</tr>
<tr>
<td>Basic Configuration (Software)</td>
<td>WLAN Measurement Software MX886200A</td>
</tr>
<tr>
<td>Options</td>
<td>WLAN 802.11ac Option MX886200A-001</td>
</tr>
<tr>
<td></td>
<td>WLAN 802.11ax Option MX886200A-002</td>
</tr>
<tr>
<td></td>
<td>2×2MIMO Measurement Software MX886200A-010</td>
</tr>
<tr>
<td></td>
<td>WLAN Security Function MX886200A-020</td>
</tr>
</tbody>
</table>

### Verified PC Operation Environment

<table>
<thead>
<tr>
<th>PC</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OS: Windows 10</td>
</tr>
<tr>
<td></td>
<td>Browser: Chrome</td>
</tr>
<tr>
<td></td>
<td>CPU: Intel Core i5 processor</td>
</tr>
<tr>
<td></td>
<td>Clock: 2.5 GHz</td>
</tr>
<tr>
<td></td>
<td>Memory: 1 GB minimum</td>
</tr>
<tr>
<td></td>
<td>Hard Disk: 500 MB minimum free space</td>
</tr>
<tr>
<td></td>
<td>LAN: 100 Base-T LAN (1000-base T preferred)</td>
</tr>
</tbody>
</table>

| Peripherals                     | Display: WXGA 1024 × 768 minimum |
Wireless Connectivity Test Set MT8862A Panel Layout

Front Panel

1. **Power switch**
   Turns the power On or Off.
   Off: Power is Off, Green: Power is On.

2. **Standby lamp**
   The power is supplied to the AC inlet and the power switch can be turned On.

3. **Access lamp**
   Green: Accessing the built-in storage device.

4. **IP Address Reset key**
   Long-pressing this switch resets the network settings such as IP address to defaults.

5. **External Ref. lamp**
   Indicates status of external reference signal.

6. **System Error lamp**
   Indicates errors of the unit.

7. **Local key**
   Reset the remote control state by Ethernet to local and enable panel setting.

8. **Remote lamp**
   Off: Local control.
   Green: Remote control.

9. **Preset key**
   Long-pressing this switch resets the parameter settings to defaults.

10. **Ready lamp/Connect lamp/Measure lamp**
    Ready lamp: Indicates the MT8862A startup state.
    Connect lamp: Indicates the connection state between MT8862A and DUT.
    Measure lamp: Indicates the MT8862A measurement state.

11. **Input Signal Level lamp**
    Indicates the input signal level.

12. **RF Output On/Off lamp**
    Indicates setting state of RF output.

13. **Main In/Out 1, 2 connector/Aux Out connector/Output lamp/Input lamp**
    Main In/Out 1, 2 connector: Inputs or outputs RF signal.
    Aux Out connector: Outputs RF signal.
    Output lamp: Indicates the connector’s setting state.
    Input lamp: Indicates the connector’s setting state.
**Rear Panel**

1. **AC inlet**  
   AC power inlet for the power cable.

2. **Ethernet (Remote) connector**  
   Connect a personal computer (PC) or Ethernet network for remote control.

3. **USB connector (A type)**  
   Connector for feature expansion. Currently not supported.

4. **Expansion I/O connector**  
   Connector for synchronization of MT8862A Master/Slave for MIMO Measurement.

5. **Trigger Input**  
   Inputs external trigger signals (TTL). (BNC connector)

6. **Trigger Output**  
   Outputs trigger signals (TTL). (BNC connector)

7. **Ethernet (IP Data) connector**  
   Connects a PC or Ethernet network for IP Data input/output.

8. **Reference Input connector**  
   Inputs an external reference frequency signal (10 MHz). (BNC connector)

9. **Buffer Output connector**  
   Outputs the reference frequency signal (10 MHz). (BNC connector)
### Receiver

**Frequency**
- Range: 2.4 GHz to 2.5 GHz, 5.0 GHz to 6.0 GHz (with MT8862A-001 installed)
- Setting Resolution: 1 Hz
- Accuracy: Depends on reference oscillator accuracy

**Level**
- Setting Range: –65 to +25 dBm
- Setting Resolution: 0.1 dB
- Accuracy
  - Measurement Conditions: CW, Measurement Bandwidth: 300 kHz, 20°C to 30°C, Input signal lower than setting level and excluded influence of linearity error, after calibration
  - 2.4 GHz ≤ Frequency ≤ 2.5 GHz
    - ±0.7 dB (–30 dBm ≤ Setting Level ≤ +25 dBm)
    - ±0.9 dB (–55 dBm ≤ Setting Level < –30 dBm)
    - ±1.1 dB (–65 dBm ≤ Setting Level < –55 dBm)
  - 5.0 GHz ≤ Frequency ≤ 6.0 GHz
    - ±0.7 dB (–30 dBm ≤ Setting Level ≤ +25 dBm)
    - ±0.9 dB (–55 dBm ≤ Setting Level < –30 dBm)
    - ±1.1 dB (–65 dBm ≤ Setting Level < –55 dBm)

### Transmitter

**Frequency**
- Output Frequency Range: 2.4 GHz to 2.5 GHz, 5.0 GHz to 6.0 GHz (with MT8862A-001 installed)
- Setting Resolution: 1 Hz
- Accuracy: Depends on reference oscillator accuracy

**Level**
- Setting Range: –120 to 0 dBm
- Setting Resolution: 0.1 dB
- Accuracy
  - Output Setting: CW
    - 20°C to 30°C, Output Level: ≥–110 dBm, after Calibration
      - ±1.0 dB, ±0.7 dB (typ.) (2.4 GHz ≤ Frequency ≤ 2.5 GHz)
      - ±1.3 dB, ±1.0 dB (typ.) (5.0 GHz ≤ Frequency ≤ 6.0 GHz)
  - Signal Purity
    - Harmonic: ≤–25 dBc

### Reference Oscillator

**At Start:** ±5 x 10⁻⁷ (2 minutes after power-on, at 25°C referenced to frequency at 24 hour after power-on)
- ±5 x 10⁻⁸ (5 minutes after power-on, at 25°C referenced to frequency at 24 hour after power-on)
**Aging Rate:** ±1 x 10⁻⁷/year
- Temperature Characteristics: ±2 x 10⁻⁸ (5°C to 45°C)
- Shipped Frequency Accuracy: ±2.2 x 10⁻⁸ (1 hour after power-on at 20°C to 30°C)
## Wireless Connectivity Test Set MT8862A Specifications

### Front Panel Connectors

- **RF Input/Output**
  - Main 1, 2
  - Connector: N-J, 50Ω (nominal)
  - VSWR: ≤1.5 (2.4 GHz ≤ Frequency ≤ 2.5 GHz)
  - ≤1.7 (5.0 GHz ≤ Frequency ≤ 6.0 GHz)
- **Aux Out**
  - Connector: N-J, 50Ω (nominal)
  - VSWR: ≤1.5 (2.4 GHz ≤ Frequency ≤ 2.5 GHz)
  - ≤1.6 (5.0 GHz ≤ Frequency ≤ 6.0 GHz)

### Back Panel Connectors

- **Reference Signal**
  - External Reference Input
    - Connector: BNC-J
    - Frequency: 10 MHz, Impedance: 50Ω
    - Operation range: ±1 ppm, Input Level: –15 dBm ≤ Level ≤ +20 dBm, 50Ω (AC coupled)
- **Reference Signal Output**
  - Connector: BNC-J
  - Frequency: 10 MHz, Impedance: 50Ω
  - Output Level: ≥0 dBm (AC coupled)
- **External Trigger**
  - Trigger Input 1/2
    - Connector: BNC 1/2, Input Level: TTL
  - Trigger Output 1/2
    - Connector: BNC 1/2, Output Level: TTL
- **External Interfaces**
  - Ethernet (Remote): Required for remote control from external controller
    - Connector: RJ-45, Speed: 1000BASE-T
  - USB: General Purpose, USB 2.0
    - Connector: USB-A, 2 Ports
  - Expansion I/O: Connector for function expansion
    - Connector: 50 pin (DX10A-50S)
  - Ethernet (IP Data): IP Data Transfer
    - Connector: RJ-45, Speed: 1000BASE-T

### Dimensions and Mass
- 426 (W) × 177 (H) × 390 (D) mm (excluding projections), ≤14 kg

### Power Supply
- Rated voltage: 100 V(ac) to 120 V(ac) or 200 V(ac) to 240 V(ac)
- Rated frequency: 50 Hz/60 Hz
- Power consumption: ≤350 VA

### Operating Conditions
- Temperature
  - Operating: +5°C to +45°C, Storage: –20°C to +60°C

### CE
- EMC: EN61326-1, EN61000-3-2
- LVD: EN61010-1
- RoHS: EN50581
## WLAN Measurement Software MX886200A Specifications

| Frequency Range | 2.4 GHz Band: 2412 MHz to 2484 MHz  
|                 | 5 GHz Band: 5180 MHz to 5825 MHz |
| Amplitude Measurement | Input Level Range: –50 to +25 dBm  
|                       | Input Level Accuracy: After calibration at 20°C to 30°C  
|                       | ±0.7 dB (–30 dBm ≤ Input Level ≤ +25 dBm)  
|                       | ±1.0 dB (–50 dBm ≤ Input Level ≤ –30 dBm)  
|                       | Linearity: ±0.4 dB (–40 dBm ≤ Input Level ≤ 0 to –30 dB range compared to setting level)  
|                       | Bandwidth: 40 MHz/20 MHz (802.11n), 20 MHz (802.11a/b/g), 80/40/20 MHz (802.11ac, with MX886200A-001 installed) |
| Spectrum Measurement | Input Level Range: –10 to +25 dBm |
| EVM (Modulation Accuracy) | EVM Measurement Range: –20 to +25 dBm  
|                         | Residual EVM  
|                         | EVM Measurement: –28 dB (–20 dBm ≤ Input Level, Average of 20 Packets)  
|                         | OFDM (802.11a/g): –40 dB (–20 dBm ≤ Input Level, Average of 20 Packets, Channel Estimate: Full Packets)  
|                         | OFDM (802.11ac, with MX886200A-001 installed): –38 dB (–10 dBm ≤ Input Level, Average of 20 Packets, Channel Estimate: Full Packets)  
|                         | OFDM (802.11ax, MX886200A-002 installed): –42 dB (nom.) (–10 dBm ≤ Input Level, Average of 20 Packets, Channel Estimate: Full packet)  
|                         | EVM Data Format: % or dB  
|                         | Measurement Resolution: 0.01% or 0.01 dB  
| Carrier Frequency Measurement | Measurement Level Range: –20 to +25 dBm  
|                         | Carrier Frequency Accuracy  
|                         | 802.11b: ± (Setting Frequency × Reference Oscillator Accuracy + 1 kHz) (Average of 20 Packets)  
|                         | 802.11a/g/n/ac: ± (Setting Frequency × Reference Oscillator Accuracy + 1 kHz) (Average of 20 Packets, Channel Estimate: Full Packets)  
|                         | 802.11ax: ± (Setting Frequency × Reference Oscillator Accuracy + 5 Hz) (nom.) (more than 100 symbol and 242 tones, and Channel Estimate: Full Packets, Frequency error range: Full packet)  
| RF Signal Generator | EVM: Packet Length 1472 byte  
|                         | 802.11b: –38 dB rms (2412 MHz to 2484 MHz, Long Preamble, Gaussian Filter BT0.5, 5°C to 45°C)  
|                         | 802.11g (OFDM): –40 dB rms(2412 MHz to 2484 MHz, 20°C to 30°C)  
|                         | 802.11n: s–38 dB rms (5180 MHz to 5825 MHz, 20°C to 30°C)  
|                         | 802.11ac (with MX886200A-001 installed): s–37 dB rms (5180 MHz to 5825 MHz, 20°C to 30°C)  
|                         | 802.11ax (MX886200A-002 installed): –40 dB rms (nom.) (5210 MHz, 0.8 µs GI, Channel Bandwidth 80 MHz, 20°C to 30°C)  
| Functions | Network Functions  
|                         | Connection: Network Connection using Messages defined by IEEE802.11  
|                         | Role: Access Point (AP/STA)  
|                         | Frame Capture: 1, 2, 4, 8, 16, 32, 64, 128, 256 MB  
|                         | Measurement Type: Data, ACK  
|                         | Measurement Type: Packet Error Rate (PER), Frame Reception Rate (FRR)  
|                         | Payload Type: All 0's, 0101, 1010, PN7, PN9, Random, Counting  
|                         | MIMO signal transmission (with MX886200A-010) – MIMO signals available for receiver testing.  
|                         | Spatial stream Nss: 1 to 2  
|                         | Space-time-stream Nstt: 1 to 2  
|                         | RF chain Ntx: 2  
|                         | STBC: Supported only with Nstt=1 and Nss=2  
|                         | Spatial mapping: Direct mapping  
|                         | Beamforming: Not supported  
|                         | Security encryption (with MX886200A-020 installed)  
|                         | WEP, WPA-Personal, WPA2-Personal  

Typical (typ.): Performance not warranted. Most products meet typical performance.  
Nominal (nom.): Values not warranted. Included to facilitate application of product.
Wireless Connectivity Test Set MT8862A Ordering Information

Please specify the model/order number, name and quantity when ordering. The names listed in the chart below are Order Names. The actual name of the item may differ from the Order Name.

<table>
<thead>
<tr>
<th>Model/Order No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT8862A</td>
<td>Main Frame Wireless Connectivity Test Set</td>
</tr>
<tr>
<td>J0017F</td>
<td>Standard Accessories</td>
</tr>
<tr>
<td></td>
<td>Power Code: 1</td>
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<tr>
<td></td>
<td>DVD (Operation Manual): 1</td>
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<tr>
<td>W3901AE</td>
<td>MT8862A Operation Manual (Operation) [DVD]</td>
</tr>
<tr>
<td>W3902AE</td>
<td>MT8862A Operation Manual (Remote Control) [DVD]</td>
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<tr>
<td>W3903AE</td>
<td>MX886200A WLAN Measurement Software Manual (Operation) [DVD]</td>
</tr>
<tr>
<td>W3904AE</td>
<td>MX886200A WLAN Measurement Software Manual (Remote Control) [DVD]</td>
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<tr>
<td>MT8862A-001</td>
<td>RF Options</td>
</tr>
<tr>
<td></td>
<td>RF Frequency 2.4 GHz, 5 GHz</td>
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<tr>
<td>MX886200A</td>
<td>Software Options</td>
</tr>
<tr>
<td>MX886200A-001</td>
<td>WLAN Measurement Software (Requires MT8862A-001)</td>
</tr>
<tr>
<td>MX886200A-002</td>
<td>WLAN 802.11ac Option</td>
</tr>
<tr>
<td>MX886200A-010</td>
<td>2x2MIMO Measurement Software</td>
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<tr>
<td>MX886200A-020</td>
<td>WLAN Security Function</td>
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<tr>
<td>MT8862A-ES210</td>
<td>Options</td>
</tr>
<tr>
<td>MT8862A-ES310</td>
<td>2 Years Extended Warranty Service</td>
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<tr>
<td>MT8862A-ES510</td>
<td>3 Years Extended Warranty Service</td>
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<td></td>
<td>Application Parts</td>
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<td>Coaxial Cord, 1 m (BNC-P, RG-58A/U, BNC-P)</td>
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<tr>
<td>J0127A</td>
<td>Coaxial Cord, 2 m (BNC-P, RG-58A/U, BNC-P)</td>
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<tr>
<td>J0127B</td>
<td>Coaxial Cord, 0.5 m (BNC-P, RG-58A/U, BNC-P)</td>
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<tr>
<td>J0127C</td>
<td>Coaxial Cord, 1 m (N-P, 5D-2W, N-P)</td>
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<tr>
<td>J0576B</td>
<td>Coaxial Cord, 2 m (N-P, 5D-2W, N-P)</td>
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<tr>
<td>J0576D</td>
<td>Coaxial Cord, 0.5 m (SMA-P, SMA-P)</td>
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<tr>
<td>J0322A</td>
<td>Coaxial Cord, 1.0 m (SMA-P, SMA-P)</td>
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<tr>
<td>J0322B</td>
<td>Coaxial Cord, 1.5 m (SMA-P, SMA-P)</td>
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<tr>
<td>J0322C</td>
<td>Coaxial Cord, 2.0 m (SMA-P, SMA-P)</td>
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<tr>
<td>J0322D</td>
<td>Coaxial Adapter (N-P, SMA-J)</td>
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<tr>
<td>J1261A</td>
<td>Ethernet Cable (Straight, 1 m)</td>
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<tr>
<td>J1261B</td>
<td>Ethernet Cable (Straight, 3 m)</td>
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<tr>
<td>J1261C</td>
<td>Ethernet Cable (Cross, 1 m)</td>
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<tr>
<td>J1261D</td>
<td>Ethernet Cable (Cross, 3 m)</td>
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<tr>
<td>J1777A</td>
<td>Expansion IO Cable</td>
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<tr>
<td>B0635A</td>
<td>Rack Mount Kit (EIA)</td>
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<tr>
<td>B0657A</td>
<td>Rack Mount Kit (JIS)</td>
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<tr>
<td>B0636C*</td>
<td>Carrying Case (Hard type, with a front cover and casters)</td>
</tr>
<tr>
<td>B0671A</td>
<td>Front Cover (1MW4U)</td>
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</table>

*: The Carrying Case B0636C includes a Front Panel Protective Cover (B0671A).