

# one box W-BMS

## Test Equipment

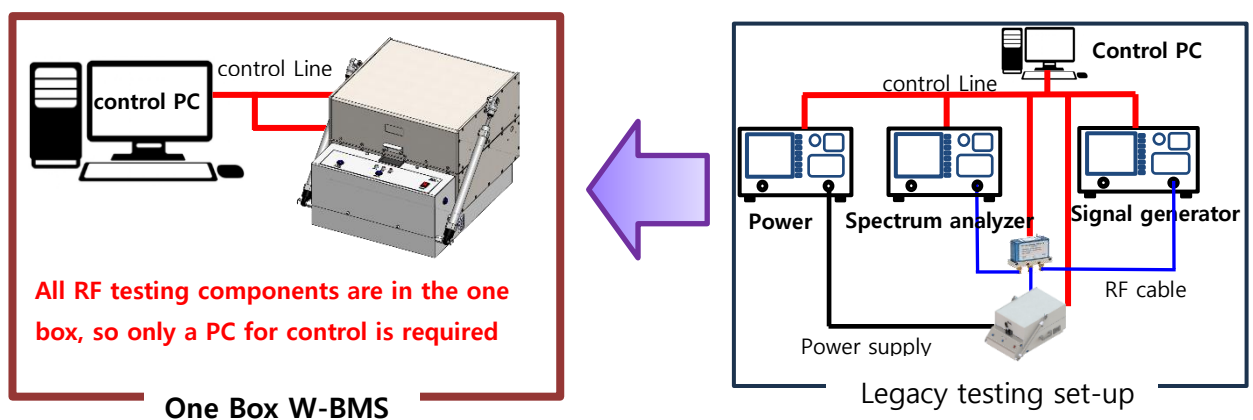
### Data sheet



## 1. Product feature

One Box - W-BMS test equipment from BIP Roottek is a **total solution consists of a single box with all the equipment necessary for W-BMS testing**, and it provides with an auto test program, allowing test without any additional equipment and program. This product not only simplifies the production line and maximizes space efficiency, but is also **highly price competitive**.

- Built-in RF spectrum analyzer and signal generator
  - ⇒ Built-in RF spectrum Analyzer allows DUT Tx measurements without connecting any other equipment.
  - ⇒ By transmitting PER testing Packet from the built-in RF signal generator, DUT RX testing is possible without additional configuration.
- A very compact design and simple HW configuration
- Only power and USB connection is required to test W-BMS.
- Very easy to customize to meets customer's requirements.
- Supports an auto test program
- Supports a customized internal fixture and a measurement antenna
- Additional IO interface panel for various test scenarios
- Excellent test repeatability and RF shielding effectiveness



## 2. Product Key Specification

### a. Standard Product size

- 410x410x320mm
- The size can be modified depending on DUT testing concept

### b. Inside Spectrum analyzer Key Feature

- Wide dynamic range: -115dBm to 0dBm
- Resolution bandwidths of 0.1Hz to 250KHz and 5MHz
- I/Q data up to a 240KHz bandwidth
- Frequency sweeps up to 140MHz up to per second
- Compatible with Windows 7/8/10 32-bit and 64-bit operating system
- (HW option) support Harmonic test

### c. Inside Signal generator key feature

- Support W-BMS packet and modulation
- 40MHz of real time streaming bandwidth
- Frequency Resolution: <1Hz
- Arbitrary I/Q sample rates form 12.5KSPS to 51.2MSPS
- Amplitude range and accuracy: -90 to -30dBm  $\pm 1$ dBm
- Compatible with Windows x64-86 architecture

### d. RF shielding box key feature

- RF shielding effectiveness: >70dB at 0.5 to 3GHz
- Support Auto testing using Pneumatic operation
- Customizable RF shielding box size depending on DUT size
- Customizable type of lid or door operation
- built-in RF and DC connection
- option) Manual or Auto antenna testing fixture

### 3. Auto Testing Program

- a. Very Simple UI and customizable program according to user request.
- b. Support DUT Auto control
- c. Definable test frequency and specification
- d. Supports all W-BMS RF test cases (Except Receiver blocking)
- e. Supports saving testing result in a folder.
- f. Support Mac address Read/write and Auto calibration
- g. Supports RX sensitivity level search function.
- h. Supports current measurement below 5V input

#### - Example of Auto test program UI

The screenshots show the following components of the software interface:

- Top Panel:** Includes 'wBMS TEST PROGRAM Provided by BIP', 'TEST Result File Save Folder', 'MTF Port Setting' (COM12), 'BOX[RS232]' (COM4), and a 'CONNECTION' status indicator showing 'CONNECTED'.
- Configuration Section:**
  - TX Power:** Set to 8 dBm.
  - RX Receive Power:** Set to -80 dBm.
  - TX Frequency Err and Crystal Cal:** Includes a table for calibration data.

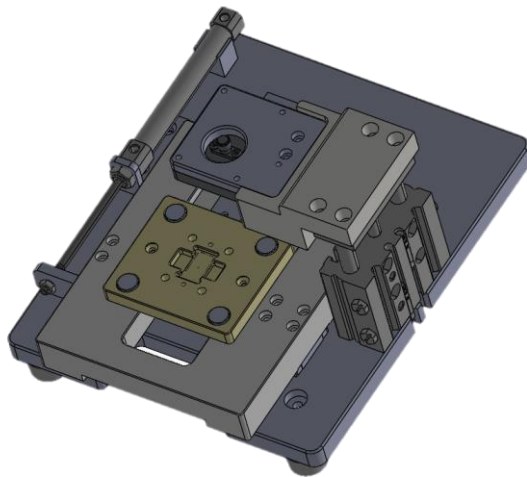
Ref. Frequency	Meas. Frequency	ERR PPM	PASS/FAIL
2440000000	2439996354	-1.49	CAL#0
2440000000	2439998846	-0.47	CAL#1
  - TX Frequency:** Table with columns for Ref. Frequency, Meas. Frequency, ERR PPM, and PASS/FAIL. Example: 2405000000, 2404999913, -0.04, PASS.
  - TX Peak Power:** Table with columns for Frequency (MHz), Power (dBm), and PASS/FAIL. Example: 2405, 7.40, PASS.
  - TX Occupied Bandwidth:** Table with columns for Frequency (MHz), OBW (kHz), and PASS/FAIL. Example: 2405, 2253.85, PASS.
  - TX Harmonics (H/W Optional):** Control for harmonic testing.
  - TX Current:** Control for current measurement.
- RX Sensitivity Section:**
  - PER RESULT Table:**

Frequency (MHz)	Power (dBm)	Rx/Tx Packets	PER (%)	PASS / FAIL
2405	-80	1173/1174	0.09	PASS
2440	-80	1171/1172	0.09	PASS
2480	-80	1175/1175	0.00	PASS
  - RX Current:** Control for RX current measurement.
  - Doze Current:** Control for doze current measurement.
  - TX Power Set:** Control for TX power setting.
  - F/W[OP] Down Load:** Control for frequency/writing down load.
  - Barcode Print (Optional):** Control for barcode printing.
- Bottom Left Screenshot:** Shows detailed configuration for 'TX Frequency Err and Crystal Cal' with 'Offset Limit' and 'Channel Path Loss' settings.
- Bottom Right Screenshot:** Shows a 'Spectrum View' with a graph of power vs. frequency, a 'STOP' button, and 'Peak Frequency (MHz)' and 'Peak Amplitude (dBm)' readouts.

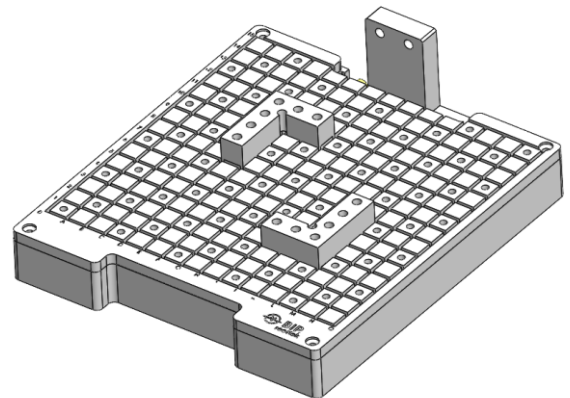
#### 4. Optional RF test fixture

1. Provide various types of RF test fixture depending on test configuration.
2. Supports Auto fixture
  - Sliding In/Out, Up/Down movement
  - Auto pogo pin connection
3. Supports radiation testing fixtures suitable for testing purpose using various antenna options
4. Supports universal type of fixture

- example of RF test fixture



< Auto test fixture example >



< manual test fixture example >

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\*\* Specification of chamber can be updated without prior notice \*\*