MTP200A Wi-Fi / BT Tester

◆ One-body equipment incorporating both Signal Generator and Signal Analyzer

◆ Wi-Fi waveform generation and analysis

◆ BT_LE waveform generation and analysis

◆ Creation of various Wi-Fi test files using Waveform Creator

◆ CW Mode supported

◆ Measurement result display through Color LCD.

◆ Easy control through frontal keypad without PC

◆ Remote control through USB Port (USB to Serial) and GPIB

◆ Easier firmware upgrade through USB Port (USB to Serial)

◆ Compact, lightweight Half Rack/2U

◆ **Introduction**

Tescom's MTP200A is a non-signaling test-based Wi-Fi or BT LE (Low Energy) tester. As one-body equipment incorporating both Signal Generator and Signal Analyzer, MTP200A is designed to provide effective and stable performance for generating and analyzing Wi-Fi and BT LE waveforms. It can be effectively used in a mass production process for testing the RF performance of products with Wi-Fi and BT LE functions such as smart phones. In addition, the best efficiency can be expected at a lower cost thanks to the simple installation and operation of the product.

◆ **Wi-Fi Test System**

MTP200A's Wi-Fi Test System provides both Analyzer (ANL) mode and Generator (GEN) mode; Wi-Fi 802.11 a/g/n standard is supported.

Wi-Fi Signal Analyzer (ANL)

For signals transmitted by Wi-Fi terminals, measurements of RMS EVM, Power, Frequency Error, and Clock Error can be made through MTP200A's Signal Analyzer; the results of the measurements can be readily checked through LCD with no separate connection to PC.

Wi-Fi Signal Generator (GEN)

MTP200A's Signal Generator can be used to test the reception performance of a terminal by checking whether the Wi-Fi signal transmitted by the measuring equipment is normally received when a user-defined signal is transmitted to the terminal. MTP200A can store up to 40 different user-defined Wi-Fi signals, and the stored information can be readily checked through UI.
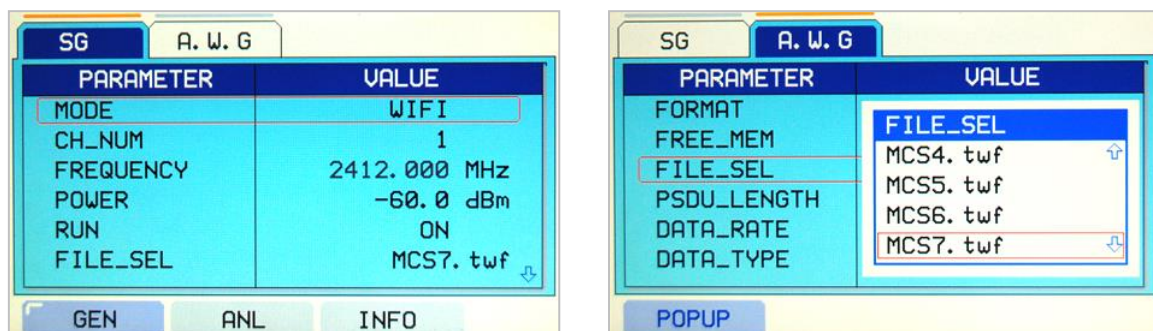
Tescom's Waveform Creator

Using Tescom's Waveform Creator, various Wi-Fi test files defined by user can be created by directly editing the parameters related to Wi-Fi 802.11 a/g/n. In addition, the Wi-Fi test files created can be easily downloaded to equipment.
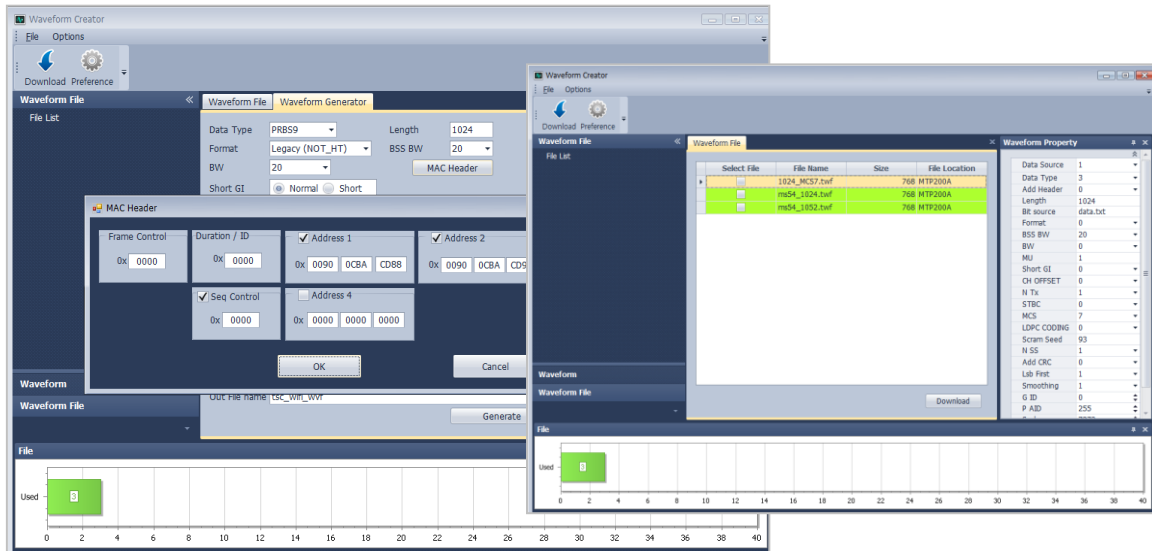
◆ BT_LE Test System

With MTP200A, the RF test case defined in the non-signaling-based BT LE test standard is provided. In addition, since advertising test mode is supported, it is possible to check the simple RF characteristics of BT LE terminals in finished product condition with no separate test mode.

BT_ LE Signal Analyzer (ANL)

With MTP200A's BT_LE Signal Analyzer, Output power, Modulation characteristics, Carrier frequency offset, and drift as defined in the BT LE Transmitter Test Case can be measured by analyzing the signals transmitted by a BT_LE terminal. Additionally, a function with which Power, Modulation, and Initial carrier frequency offset can be simultaneously tested is provided in advertising mode, making it possible to determine easily whether or not the RF performance of a terminal can meet the test standard.

⊕ BT LE Transmitter Test (TRM-LE) that can be measured with MTP200A

• Output power (TRM-LE/CA/01/C)
• Modulation characteristics (TRM-LE/CA/05/C)
• Carrier frequency offset and drift (TRM-LE/CA/06/C)
• Output power + Modulation characteristics + Initial carrier frequency tolerance
  (in Advertising test mode)

BT_LE Signal Generator (GEN)

With MTP200A's Signal Generator, BT_LE signals defined in the BT LE test standard are created, and transmission output is adjusted so that a terminal may receive BT_LE signals. The reception sensitivity of the terminal can be measured when the BT_LE signals transmitted by the measuring equipment are received by the terminal.

⊕ BT LE Receiver Tests (RCV-LE) that can be measured with MTP200A

• Receiver sensitivity (RCV-LE/CA/01/C)
• Maximum input signal level (RCV-LE/CA/06/C)

SG	
PARAMETER	VALUE
MODE	BT_LE
CH_NUM	0
FREQUENCY	2402.000 MHz
POWER	-5.0 dBm
RUN	OFF
BIT_PATTERN	PRBS9
GEN	ANL	INFO

◆ Remote Control Interface

With MTP200A's built-in USB to Serial interface, it is possible to control equipment remotely using PC without RS-232C interface both through USB and GPIB. If the commands provided together with the equipment are used, any and all functions of the equipment can be operated, through which an automation program for mass production may also be created.

◆ Firmware Upgrade

For MTP200A, firmware upgrade can be done quickly and easily through PC using a simple upgrade program.

◆ Support for total solution necessary for production lines

Tescom can provide a total solution for production that ranges from the shield box designed for electromagnetic wave shielding, TEM CELL for wireless test, and antenna coupler to measurement software programs for production automation to help solve the difficulties involving measurement systems that are complicated and difficult to operate.

Specification

◆ General Specification

Generator	
Frequency Range	(1) 2400 ~ 2500 MHz (2) 4900 ~ 5350 MHz (3) 5470 ~ 5875 MHz
Frequency Accuracy	±1 ppm
Frequency Resolution	1 kHz
Output Power Range	-5 dBm ~ -70 dBm
Output Power Accuracy	< ±1 dB
Output Power Resolution	0.1 dB
Harmonics	Out-of-band: ≤ -40 dB In-band: ≤ -50 dB (100 kHz resolution BW)
Phase Noise	< 1.0 degrees (2.4 GHz < f < 2.5 GHz) < 1.5 degrees (4.9 GHz < f < 6 GHz)

Analyzer	
Frequency Range	(1) 2400 ~ 2500 MHz (2) 4900 ~ 5350 MHz (3) 5470 ~ 5875 MHz
Frequency Accuracy	±1 ppm
Input Power Range	+20 dBm ~ -50 dBm
Input Power Accuracy	< ±1 dB
Input Power Resolution	0.1 dB

◆ Wi-Fi Specification

Standard	
Generator	IEEE 802.11a, IEEE 802.11g, IEEE 802.11n
Analyzer	IEEE 802.11a, IEEE 802.11g, IEEE 802.11n

Wi-Fi Generator			
Frequency Range	(1) 2400 ~ 2500 MHz (2) 4900 ~ 5350 MHz (3) 5470 ~ 5875 MHz		
Frequency Accuracy	±1 ppm		
Output Power Range	-5 dBm ~ -70 dBm		
Output Power Accuracy	< ±1 dB		
Output Power Resolution	0.1 dB		
EVM	(1) 4 %	(2) 5 %	(3) 5 %

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Waveform Creator	
Arbitrary Waveform Files	IEEE 802.11a/g/n Signal

Wi-Fi Analyzer	
Frequency Range	(1) 2400 ~ 2500 MHz (2) 4900 ~ 5350 MHz (3) 5470 ~ 5875 MHz
Frequency Accuracy	±1 ppm
Input Power Range	+20 dBm ~ -50 dBm
Input Power Accuracy	< ±1 dB
Input Power Resolution	0.1 dB
Residual EVM	(1) 4 % (2) 5 % (3) 5 %

Modulation Analysis	
Bandwidth	20 MHz
Analysis Modes (802.11 a/g)	6M_BPSK_1/2
	9M_BPSK_3/4
	12M_QPSK_1/2
	18M_QPSK_3/4
	24M_16QAM_1/2
	36M_16QAM_3/4
	48M_64QAM_2/3
	54M_64QAM_3/4
Analysis Modes (802.11 n)	MCS0 (6.5M_BPSK_1/2)
	MCS1 (13M_QPSK_1/2)
	MCS2 (19.5M_QPSK_3/4)
	MCS3 (26M_16QAM_1/2)
	MCS4 (39M_16QAM_3/4)
	MCS5 (52M_64QAM_2/3)
	MCS6 (58.5M_64QAM_3/4)
	MCS7 (64M_64QAM_5/6)
Measured Parameters	RMS EVM (%)
	Power (dBm)
	Center frequency error (kHz)
	Symbol clock error (ppm)
	I/Q Constellation

Channel / Frequency	
Channel / Frequency	(1) 1/2412, 2/2417, 3/2422, 4/2427, 5/2432, 62437, 7/2442, 8/2447, 9/2452, 10/2457, 11/2462, 12/2467, 13/2472, 14/2484
	(2) 34/5170, 36/5180, 40/5200, 44/5220, 48/5240, 52/5260, 56/5280, 60/5300, 64/5320
	(3) 100/5500, 104/5520, 108/5540, 112/5560, 116/5580, 120/5600, 124/5620, 128/5640, 132/5660, 136/5680, 140/5700, 149/5745, 153/5765, 157/5785, 161/5805, 165/5825

◆ ## BT LE Specification

Standard	
Standard	Bluetooth Core Specification, Version 4.0 + LE
BT_LE Generator	
Frequency Range	2400 ~ 2500 MHz
Frequency Accuracy	±1 ppm
Output Power Range	-5 dBm ~ -70 dBm
Output Power Accuracy	< ±1 dB
Output Power Resolution	0.1 dB

BT_LE Signal Type	
Signal Type (BT4.0 2MHz, GFSK Modulation)	ALL_ZEROS
	ALL_ONES
	10101010
	11110000
	PRBS9

BT_LE Analyzer	
Frequency Range	2400 ~ 2500 MHz
Frequency Accuracy	±1 ppm
Input Power Range	+20 dBm ~ -50 dBm
Input Power Accuracy	< ±1 dB
Input Power Resolution	0.1 dB

Modulation Analysis	
Analysis Modes	TEST_MODE
	ADVERTISING MODE

Measured Parameters	Power (dBm)
	Frequency deviation df1
	Frequency deviation df2
	Frequency accuracy
	Frequency offset
	Initial frequency drift
	Frequency drift
	Max drift rate
	df2 max rate 99.9 %

Channel / Frequency	
Channel /Frequency	0 / 2402 MHz ~ 39 / 2480 MHz

◆ Remote Control

Port	
USB	USB to Serial (Virtual COM Port)
	USB Driver (Silicon Laboratories CP210x USB to UART Bridge) (http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx
GPIB	

◆ Interface

Front / Rear Panel
< Front >   < Rear >

RF Port	
IN/OUT	N Type , 50 Ohm, DC isolated

Reference Port	
IN	BNC Type, 10 MHz, +10 dBm ~ 0 dBm @ 50 Ohm

◆ **Miscellaneous**

Physical	
Dimension	210(w) x 342(d) x 88(h) mm
Weight	3.8 kg
* Packing Size	350(w) x 460(d) x 170(h) mm
* Packing Weight	Approx. 5 kg
* Packing size and weight may slightly differ depending on the packing method.	
Line Voltage	
Input	100 to 240 VAC, 50/60 Hz
Power	< 45 W
Operation Temperature	
Operation	25 $\pm$ 5 ℃
Storage	-20 ℃ ~ +70 ℃

Ordering Information

Order No.	Division	Description
MTP200A	Basic	Wi-Fi / BT Tester, Basic unit
S200-10	Wi-Fi S/W Option	Wi-Fi Option
S200-20	BT_LE S/W Option	BT_LE Option