User manual

WISOL LoRa Test v1.00

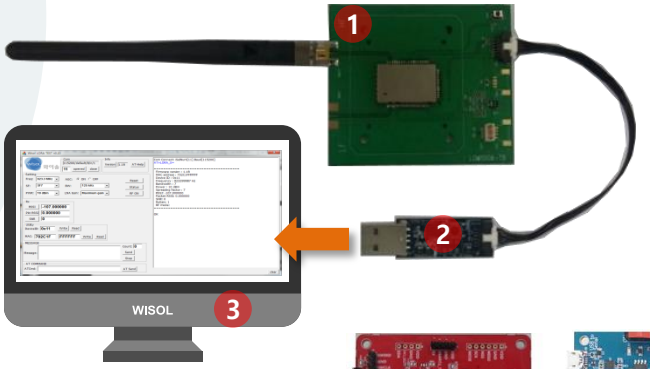
WISOL

Jan 20, 2017

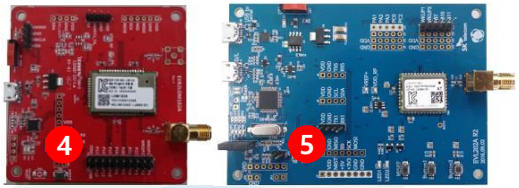
Connect EVB

1. Connect LoRa EVB(1) and SerialUSB bd(2)
2. Connect SerialUSB bd(2) and windows PC(3)

※ For transmission / reception test, connect one LoRa EVB set for each transmission / reception or a separate PC.
※ LoRa EVB(4)/(5) is a model with built-in USB2Serial. EVB2LOM102A/EVB2LOM202A

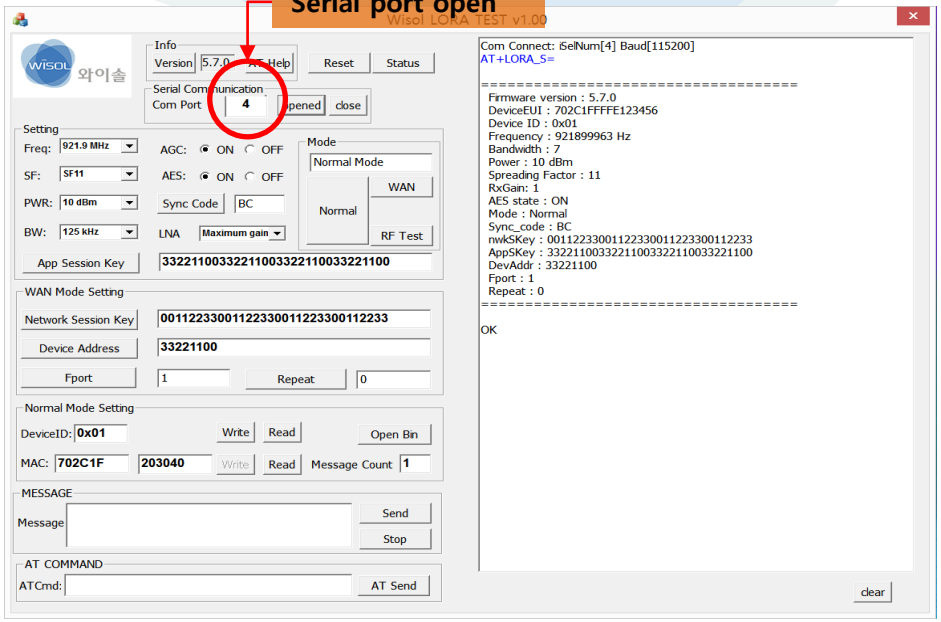


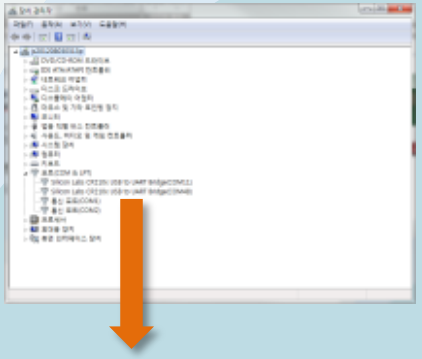
1. LoRa EVB
2. SerialUSB bd
3. Windows PC
4. LoRa EVB
5. LoRa EVB

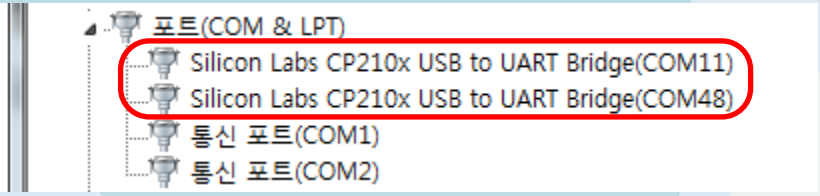


Run the Program

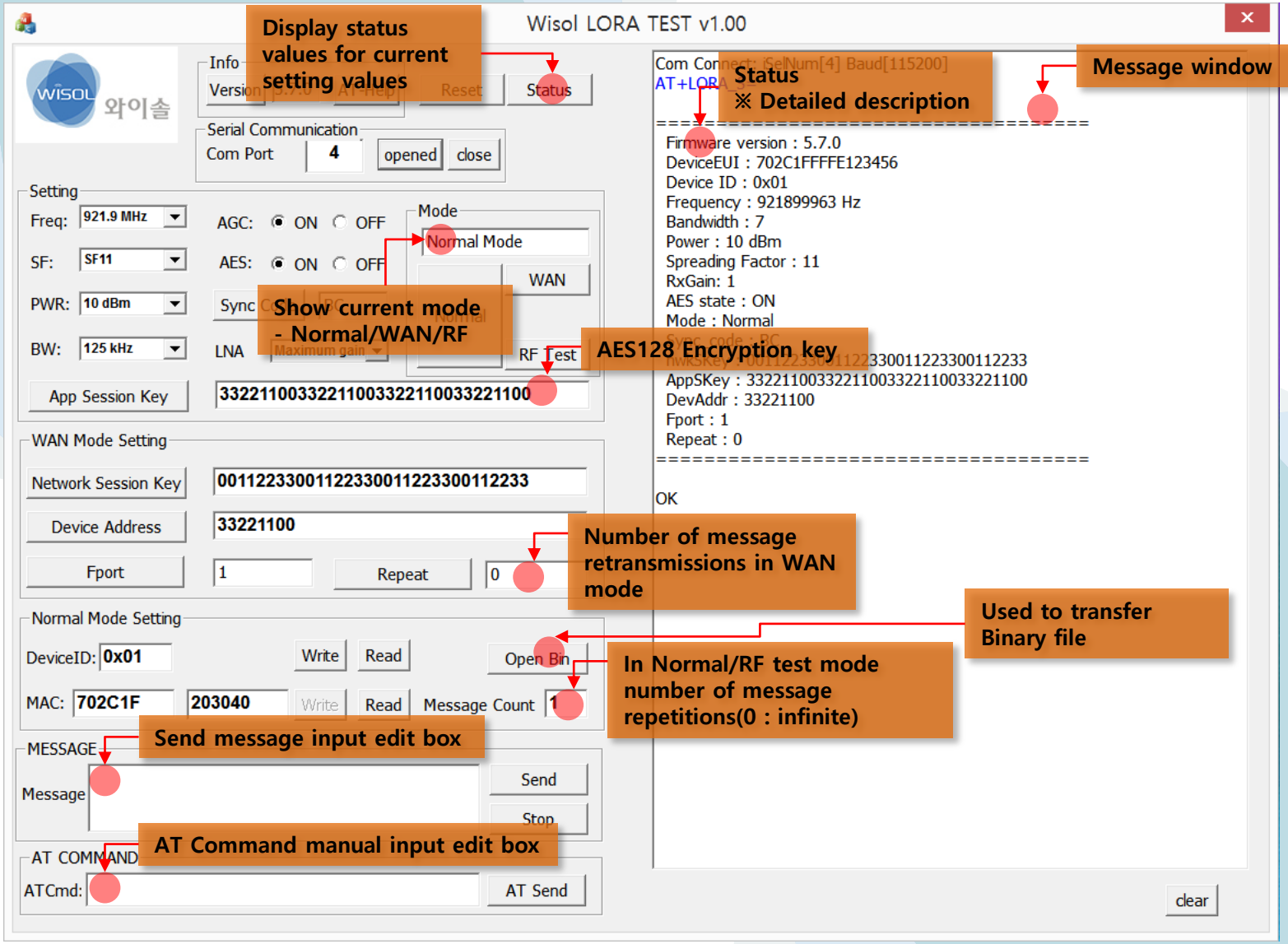
1. Check connected serial port in Device Manager – Silcon Labs CP210X USB to UART Bridge(Comxx)
2. Run LoRa Test program
3. After inputting the serial COM number confirmed by the above device manager, Port open.



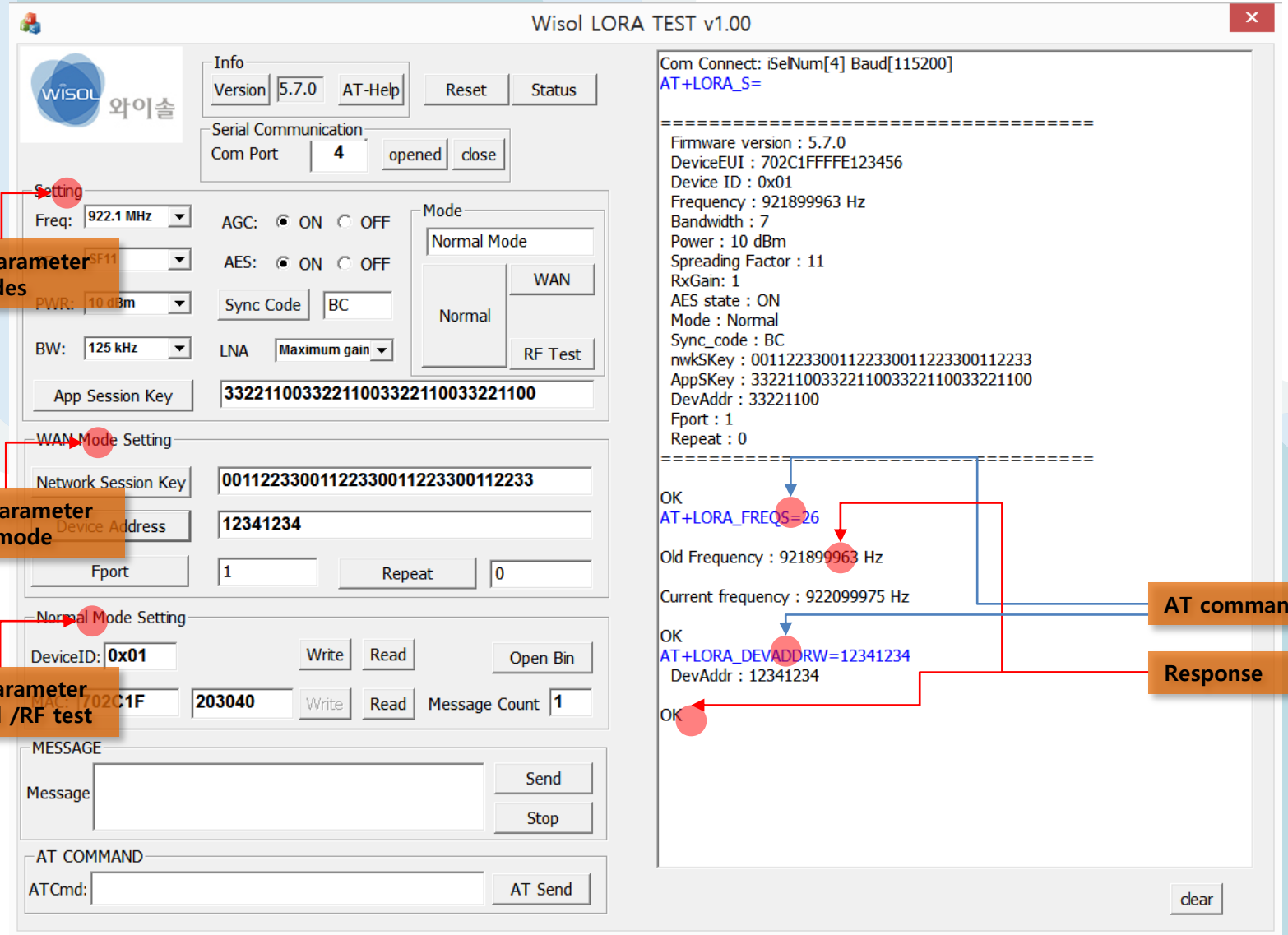




Menu 설명


Wisol LORA TEST v1.00
Display status values for current setting values
Status
※ Detailed description
Message window
Show current mode - Normal/WAN/RF
AES128 Encryption key
Number of message retransmissions in WAN mode
Used to transfer Binary file
In Normal/RF test mode number of message repetitions(0 : infinite)
Send message input edit box
AT Command manual input edit box
Info
Version
Reset
Status
Serial Communication
Com Port
4
opened
close
Setting
Freq:
921.9 MHz
AGC:
ON
OFF
Mode
Normal Mode
SF:
SF11
AES:
WAN
PWR:
10 dBm
Sync
BW:
125 kHz
LNA
Maximum gain
RF Test
App Session Key
33221100332211003322110033221100
WAN Mode Setting
Network Session Key
00112233001122330011223300112233
Device Address
33221100
Fport
1
Repeat
0
Normal Mode Setting
DeviceID:
0x01
Write
Read
Open Bin
MAC:
702C1F
203040
Write
Read
Message Count
1
MESSAGE
Message
Send
Stop
AT COMMAND
ATCmd:
AT Send
Com Connect: iSelNum[4] Baud[115200]
AT+LORA
Firmware version : 5.7.0
DeviceEUI : 702C1FFFFE123456
Device ID : 0x01
Frequency : 921899963 Hz
Bandwidth : 7
Power : 10 dBm
Spreading Factor : 11
RxGain: 1
AES state : ON
Mode : Normal
AppSKey : 33221100332211003322110033221100
DevAddr : 33221100
Fport : 1
Repeat : 0
OK
clear

Menu 설명



Setting parameter in all medes

Setting parameter in WAN mode

Setting parameter in Normal /RF test

AT command

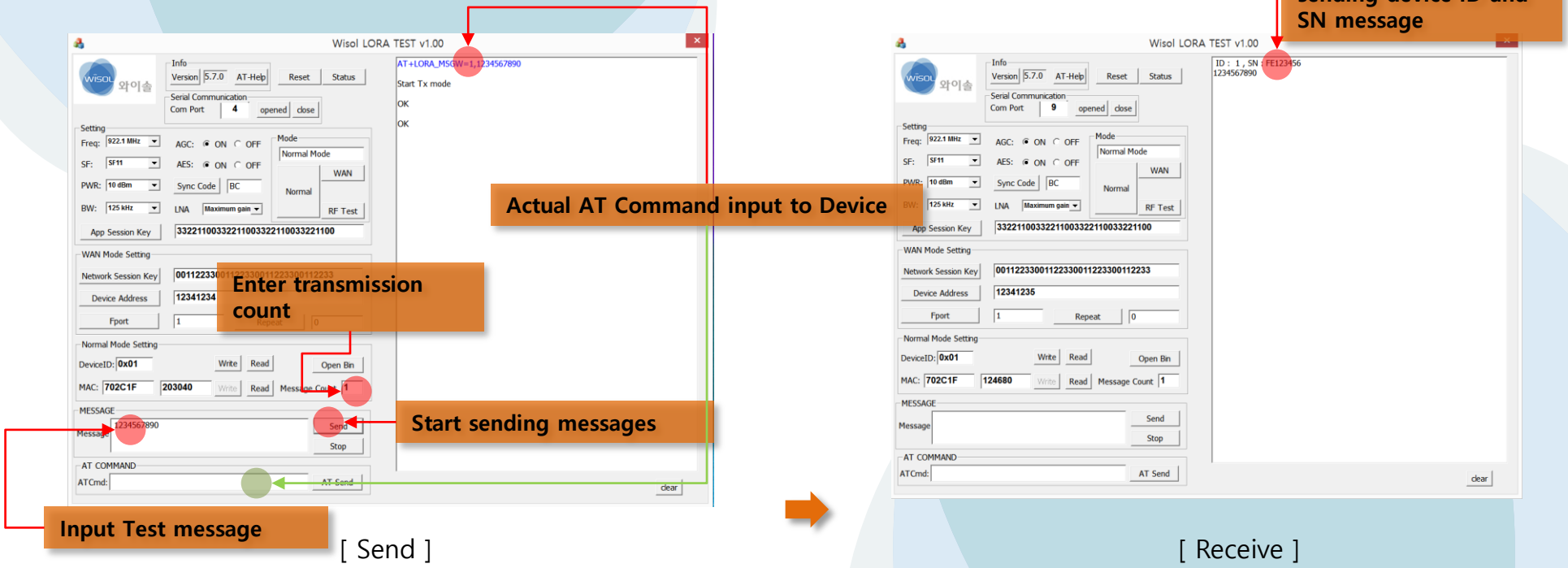
Response

AT command list Details AT Command manual Separate reference

AT+LORA_S= : Display the LoRa status
AT+LORA_REV= : Display the firmware version
AT+LORA_RESET= : Reboot the LoRa
AT+LORA_MSGW=<massege> : Massege Tx mode
AT+LORA_MSGS= : Massege Tx or Rx mode stop
AT+LORA_FREQS=<frequency> : Sets the frequeny
AT+LORA_SFS=<SpreadingFactor> : Sets the SpreadingFactor
AT+LORA_PWRS=<power> : Sets the power
AT+LORA_MACR= : Read the MAC address
AT+LORA_DEVIDW=<device ID> : Write the device ID
AT+LORA_DEVIDR= : Read the device ID
AT+LORA_RSSI= : Read the RSSI
AT+LORA_PRSSI= : Read the PRSSI
AT+LORA_SNR= : Read the SNR
AT+LORA_LNA=<gain> : sets the gain
AT+LORA_BW=<bandwidth> : sets the bandwidth
AT+LORA_AGCON=<auto> : sets the gain auto mode
AT+LORA_RFTEST=<opt> : sets the RF test mode
AT+BINW=<size><data><checksum> : Send binary data
AT+LORA_SCODEW=<data> : Set Sync Code
AT+LORA_SCODER= : Read Sync Code
AT+LORA_AESW=<opt> : Set AES128
AT+LORA_AESR= : Read AES128
AT+LORA_WAN=<opt> : Set WAN mode (ON)
+++ : Change WAN mode to Normal mode
AT+LORA_NWKSKEYW=<data> : Set Network Session Key (16 bytes)
AT+LORA_NWKSKEYR= : Read Network Session Key
AT+LORA_APPSKEYW=<data> : Set Application Session Key (16 bytes)
AT+LORA_APPSKEYR= : Read Application Session Key
AT+LORA_DEVADDRW=<data> : Set Device address(4 bytes)
AT+LORA_DEVADDRR= : Read Device address
AT+LORA_FPORTW=<data> : Set Fport
AT+LORA_FPORT= : Read Fport
AT+LORA_REPEATW=<data> : Set Repeat
AT+LORA_REPEATR= : Read Repeat

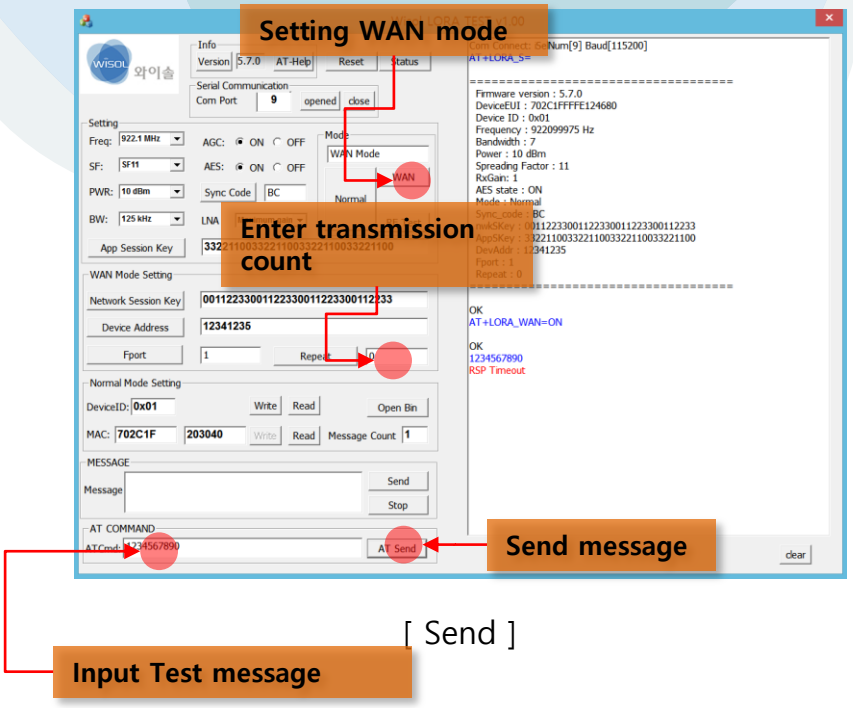
Message Send/Receive Test(Normal mode)

1. Enter message in message edit window of transmission EVB program
2. Enter the number of repetitions of message transmission to Count(input 0 for infinite continuous)
3. Confirm the received message in the message confirmation window of the receiving EVB program.
4. In order to stop the transmission at infinite continuous, enter the Stop input.
5. You can also type AT Command directly into the ATCmd window.
6. Message transmission (press the button after the result value of "OK" or "Error" is displayed before start button or AT Cmd button input)
7. The transmitted message and the transmitted ID / SN value are output to the receiving device.

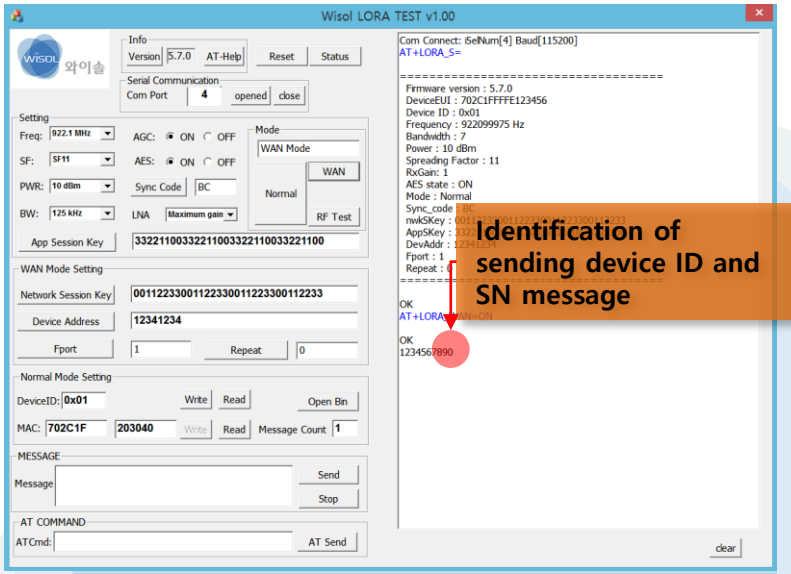


Message Send/Receive Test(WAN mode) : This is different from LoRaWAN.

1. Enter message in ATCmd window of sending EVB
2. Enter the number of repetitions (number of retransmissions)
3. WAN mode setting (same for both sending and receiving modules)
4. Enter Message in ATCmd window
5. Send message with AT send button
6. Confirm the received message in the message confirmation window of the receiving EVB program
7. Enter "+++" to stop WAN mode
8. In WAN mode, all the data you input (including hexa) is transmitted.
9. In WAN mode, only the transmitted message content is output from the receiving device.



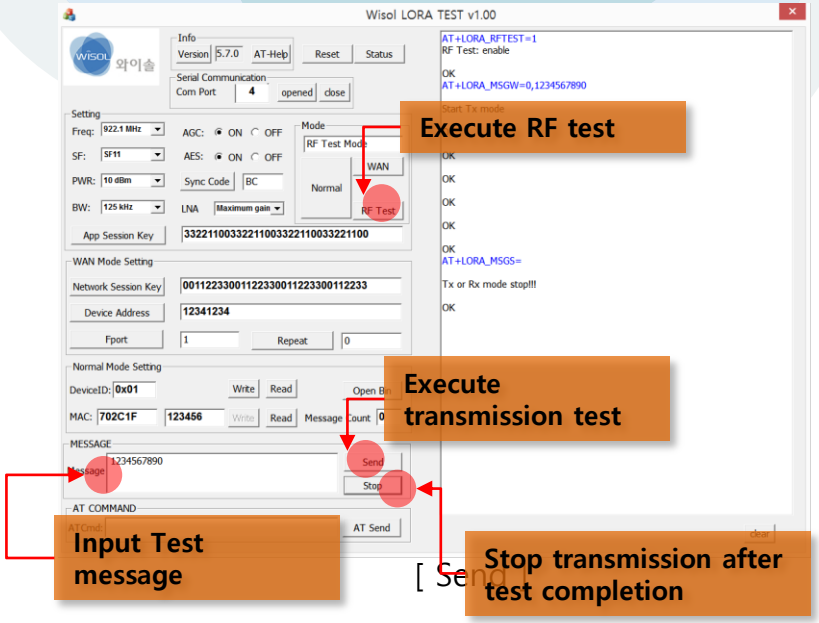
[Send]



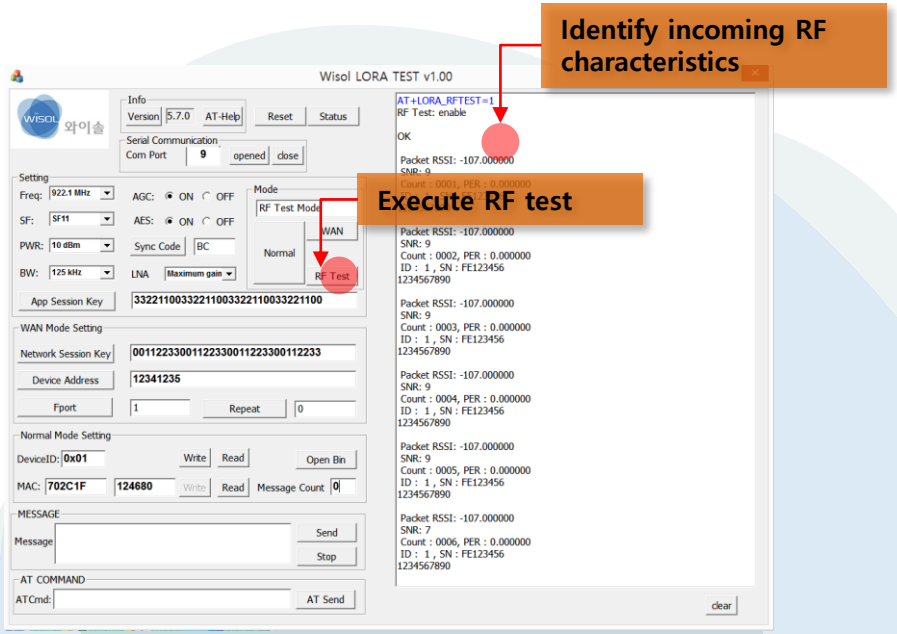
[Receive]

RF Test

1. RF ON: Set both transmit and receive EVB
2. EVB progrma for sending
    1. Enter a test character in the Message window
    2. Execute send
3. EVB program for receiving.
    1. Check the contents of message window (Packet RSSI, SNR, Count sent from sending device, PER, ID, SN)
4. Be sure to stop the transmission program after completing the RF test.
5. To initialize or restart the RF test, execute both RF OFF-> RF ON for both the transmit and receive EVB programs.
6. RF off of transmit / receive EVB program for normal mode test.



[Send]



[Receive]

Start sample

1. Two EVBs preparation for transmission and reception.
2. Connect to PC (USB port) with conneter marked USB to Serial of EVB.
3. Run Wisol LoRa Test PC program.
4. Com Port input and press the open button
5. Set the Frequency ex) 902300000Hz, 125Khz
    1. Input "AT+LORA_FREQS=100" in the AT COMMAND window
    2. Press the AT Send button
6. Set SF, PWR BW. (SF: 12, Power: 14dBm, BW:125Khz)
    1. These values must be the same for the transmit and receive EVBs.
    2. Ex) AT+LORA_SFS=12 in the AT COMMAND window
    3. AT+LORA_PWRS=14 in the AT COMMAND window
    4. AT+LORA_BW=7 in the AT COMMAND window
7. Set Syn Code :
    1. LoRa WAN uses "34". It is recommended to use a different value.
    2. Ex) Input "AB" in Sync Code input box or
    3. AT+LORA_SCODEW=34 in the AT COMMAND window
8. Input message in the MESSAGE window.
    1. Ex) Input "1234567890"
    2. Press the Send button

THANK YOU