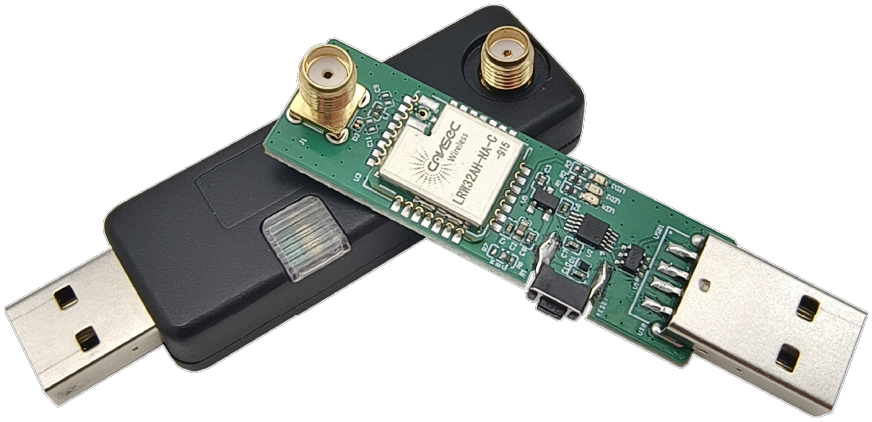
USB Dongle for LoRa
Datasheet –V1.3

LRDG32-915



Beijing Jia An Electronics Technology Co., Ltd

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History

Date	Version	Description	Draft	Approval
2024-2-1	V1.0	Release	ZYX	
2024-02-26	V1.1	Modify some information.	WW	
2024-8-22	V1.2	Update product model	ZYX	
2024-10-10	V1.3	Update format	ZYX	

Description

The LRDG32-915 dongle is a product designed based on the LRW32 series module with UART serial communication function. AT commands that can be used for remote communication with LoRa Modulation.

To verify and test the LoRa Dongle function points, it is necessary to connect the module through a computer serial port for data transmission and reception. Our company provides a set of upper computer programs aimed at enabling users to quickly get started using LoRa Dongle. After LoRa Dongle is connected to the computer, can be used directly: STM32WL_UI.exe, please contact staff if needed.

Features

- Long range wireless applications
- Programmable up to +20 dBm for RF output
- High sensitivity: down to -139dBm.
- Supports AT command configuration
- Excellent blocking immunity
- Compact, easy to use
- Low cost and high performance
- Distance More than 4km
- SMA antenna (provided according to demand)

Applications

- Smart meters
- Wireless security systems
- Home and Building automation
- Automatic Measure Reading
- Low-Power Wireless Systems
- Wireless Sensor Networks
- Remote Control
- Street Lights System
- Parking Sensors
- Environmental Sensors
- Smart Grid and Automatic Meter Reading

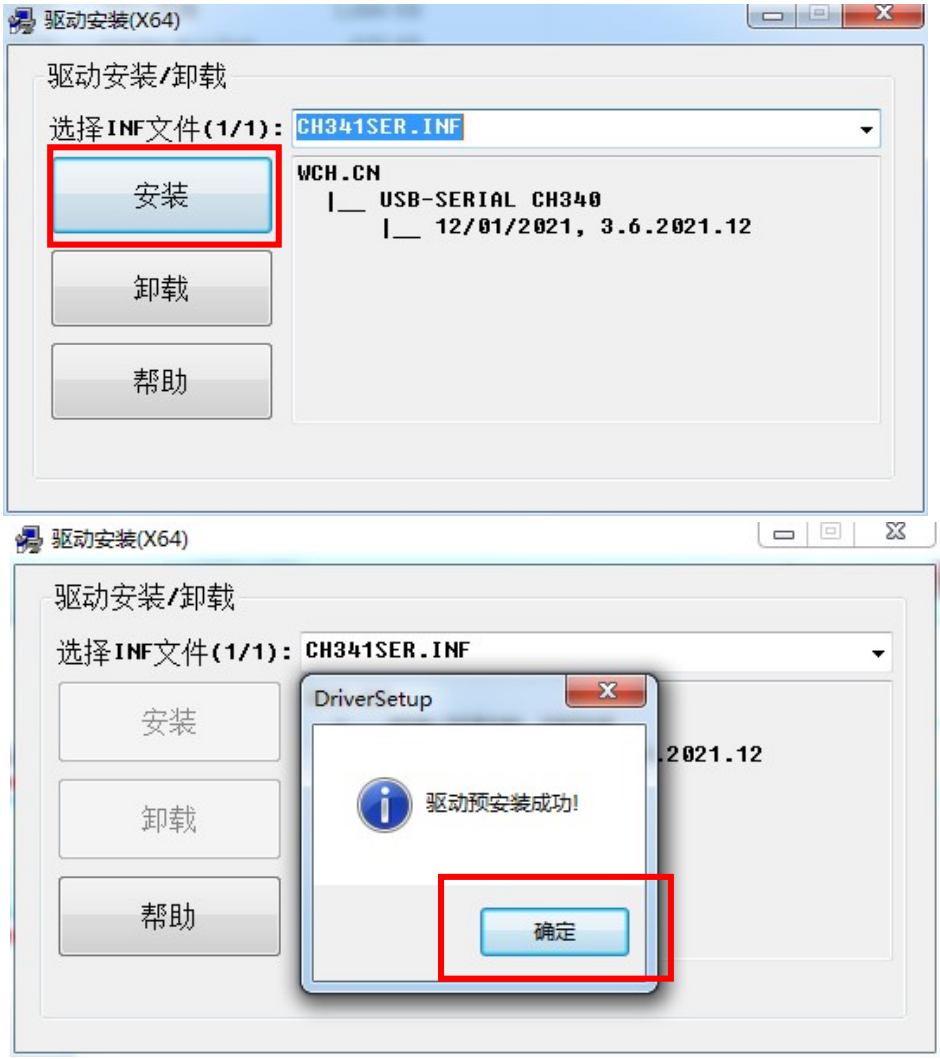
Specifications

Parameter	Min	Typ	Max	Unit
Power supply		**USB**		
Frequency①		**915**		**MHz**
Operating Temperature	**-20**	**-**	**+70**	**℃**
TX Power (For Carrier)	**-**	**18**	**20**	**dBm**
RX Sensitivity (For Lora Modulation)	**-**	**-**	**-139**	**dBm**
Distance		**4**		**Km**

Note: ① If you need other frequency points, please contact the staff.

Serial driver installation

The serial port of LoRa Dongle uses the CH34x chip. Before using the LoRa module, it is necessary to install the corresponding driver on the computer: CH341SER.EXE execute the program to install it. Please download according to actual usage requirements:
https://www.wch-ic.com/downloads/CH341SER_EXE.html
Taking Windows as an example, according to the driver, open the driver software: CH341SER EXE, click Install, after successful installation, click Confirm to proceed



Testing tool software

We have a firmware example, for user to get quick start using Lora model.

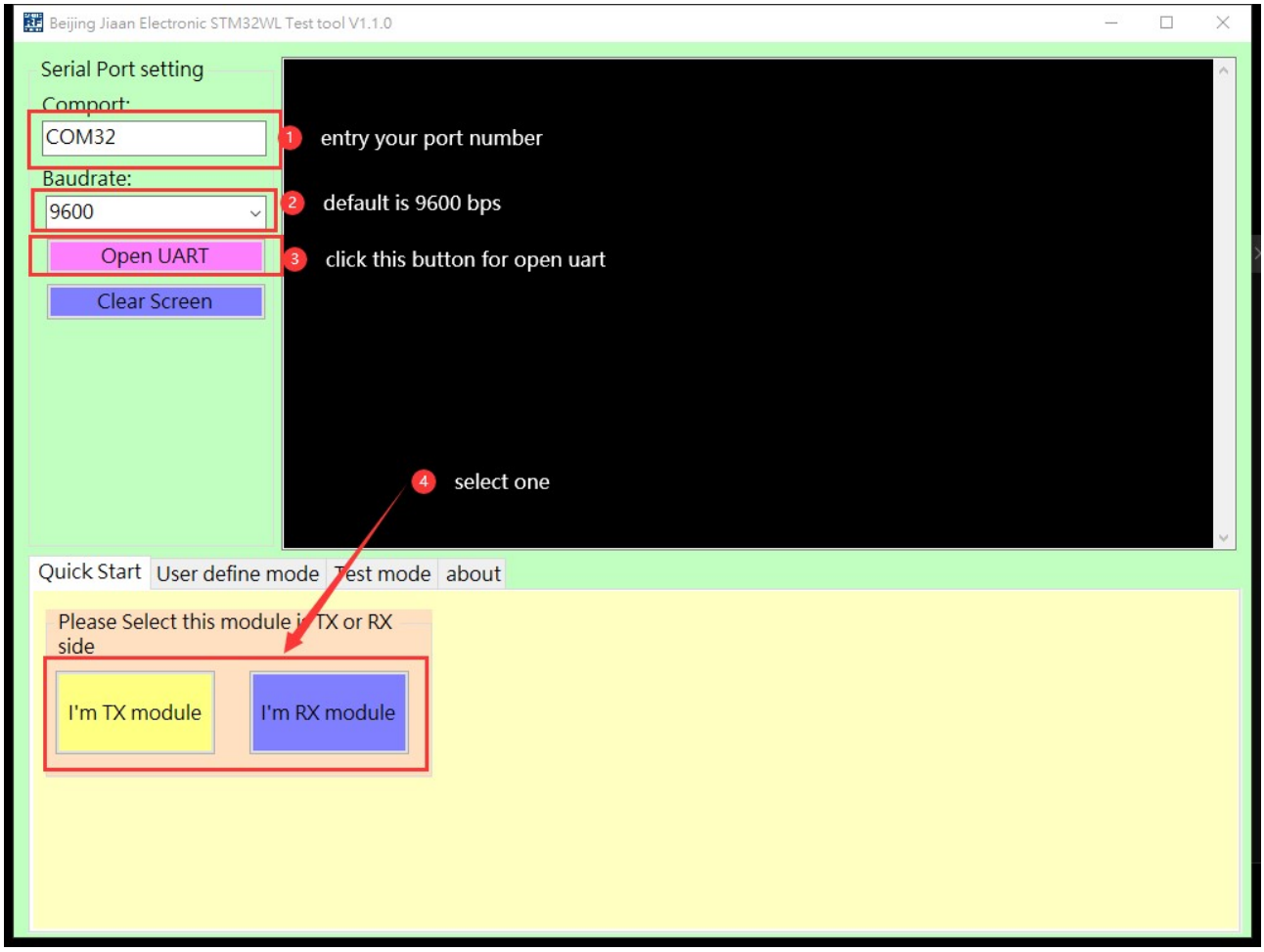
Connect lora module through UART dongle of PC, open STM32WL_UI.exe.

Can using two modules: one as RX, the other as TX. Then execute, set one is TX and the other is RX for data transmission.

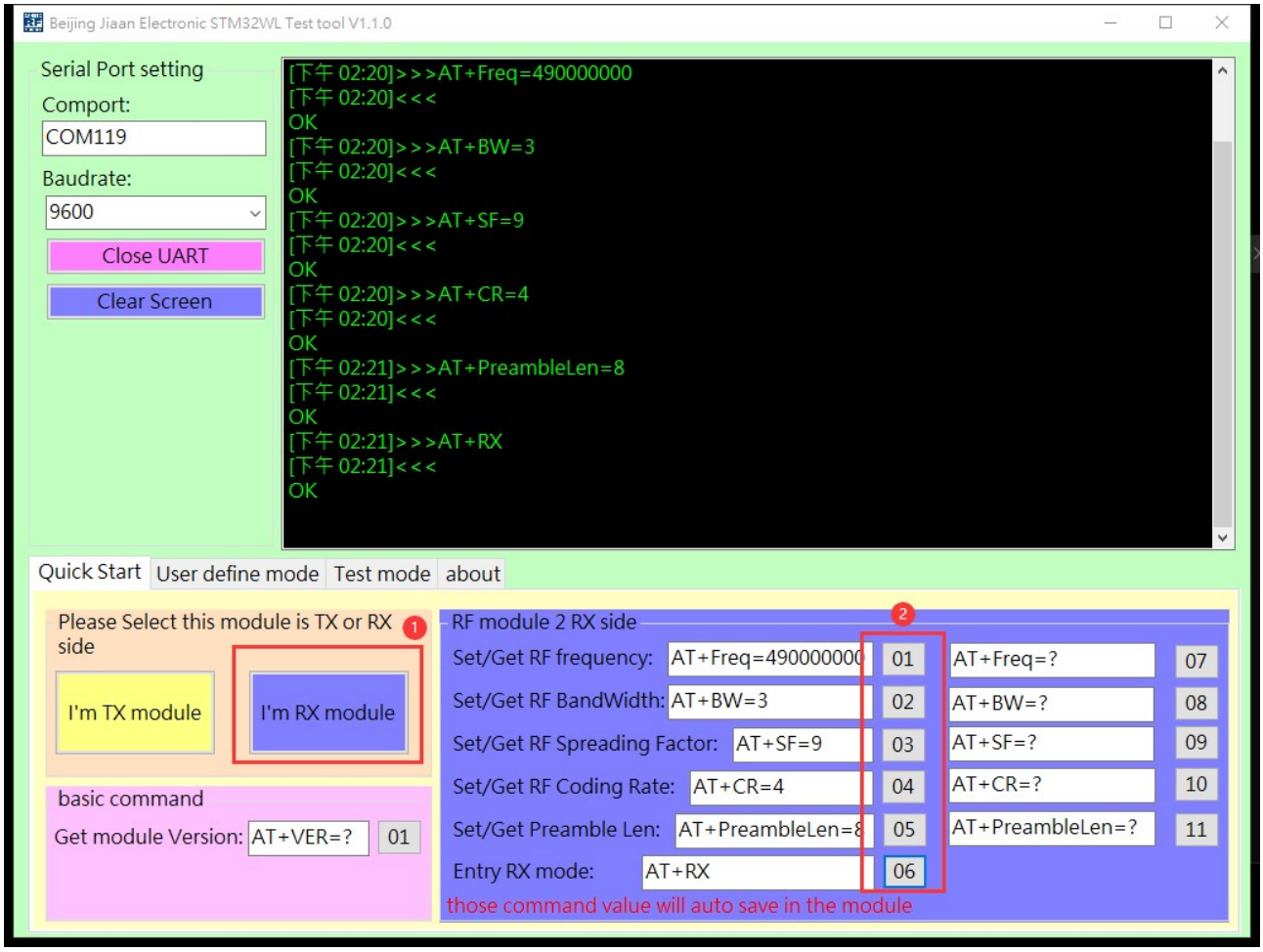
See below figure:

Input the COMport of the serial port and set baud rate to 9600 by default. Then click Open UART, and you can choose from the bottom. At present, whether this module wants to do TX or RX will jump out of the corresponding setting function。

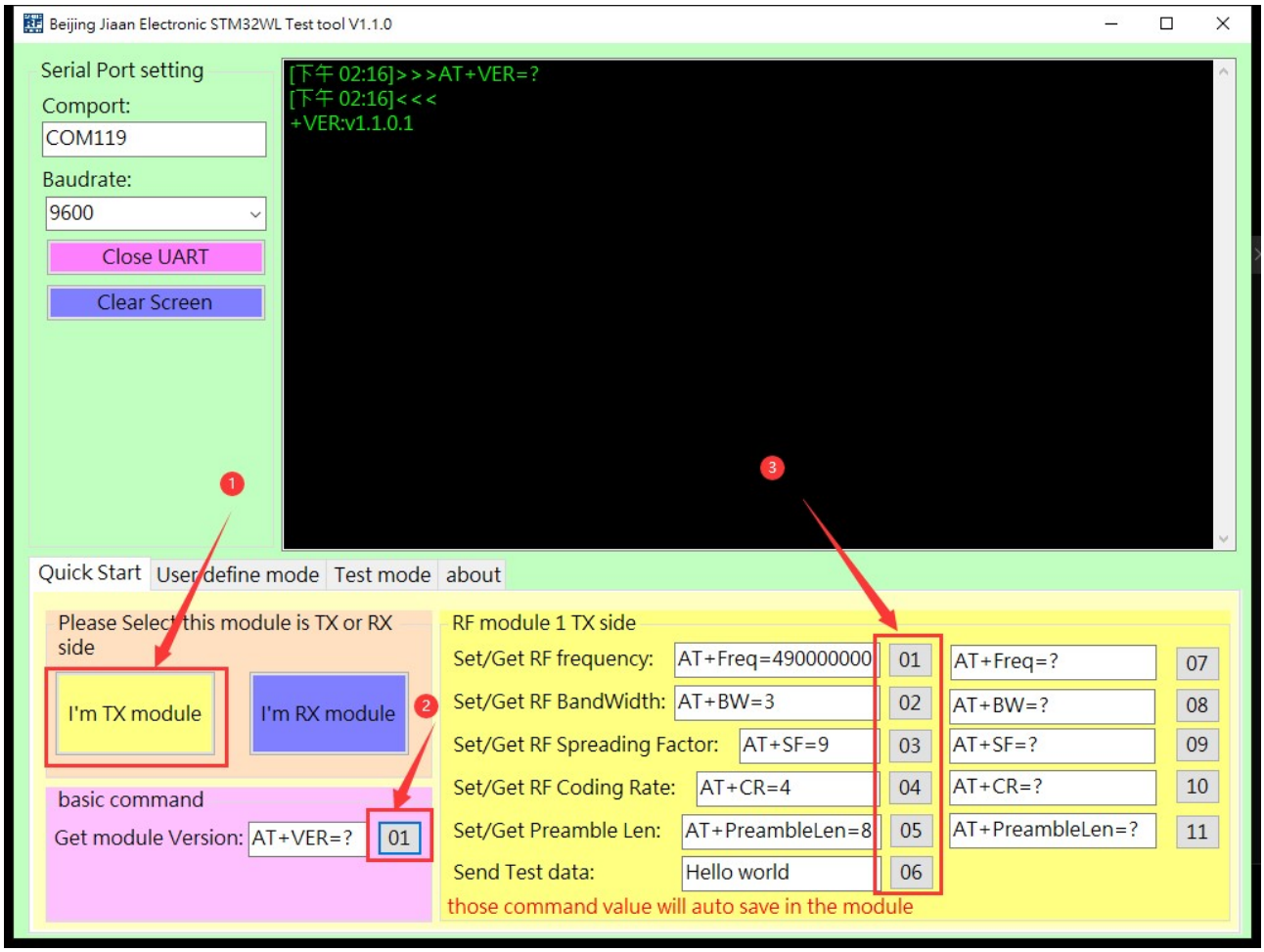
Please contact our staff to request STM32WL Lora Transparent Transmission Protocol



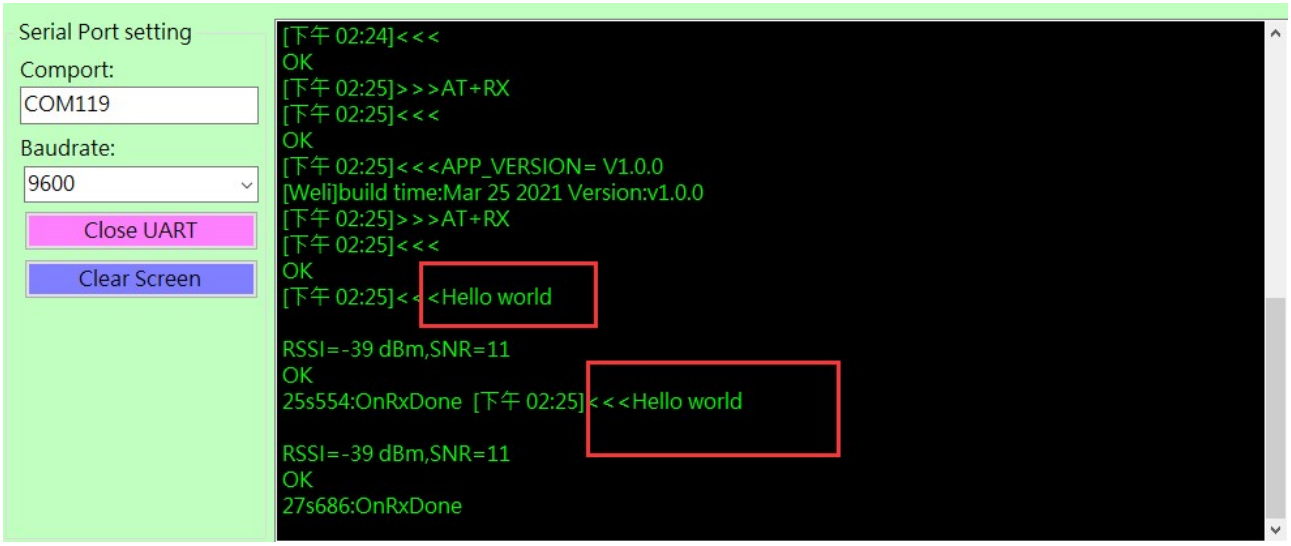
The following figure shows the setting page of Rx mode, and send all the 01-06 instructions in sequence once, that is to complete the module setting of Rx end. When the last instruction AT + Rx is executed, the mode will always be in the receiving mode.



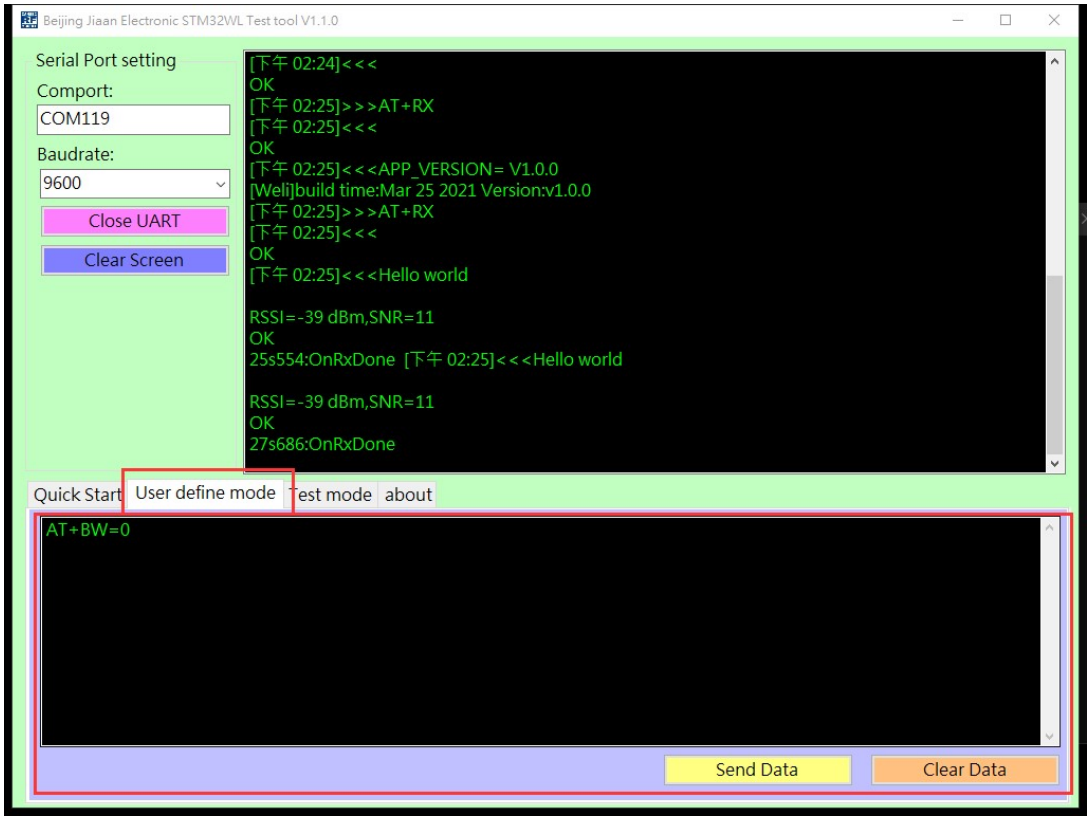
Then we prepare another module to be the transmitter and execute the following instructions in sequence. Finally, 06 will send out a string of Hello world. When sending out, if a module is in the receiving mode, it will receive data.



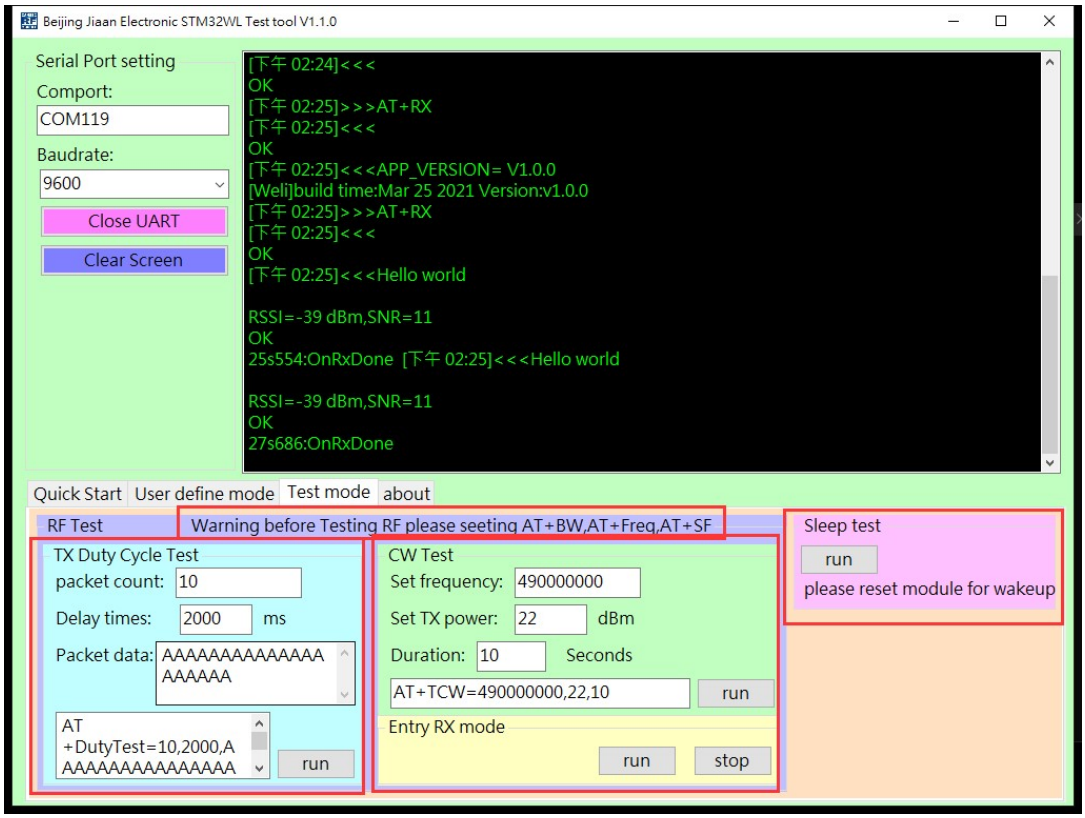
The figure below shows that at the receiving end, it will receive the string sent by the transmitting end.



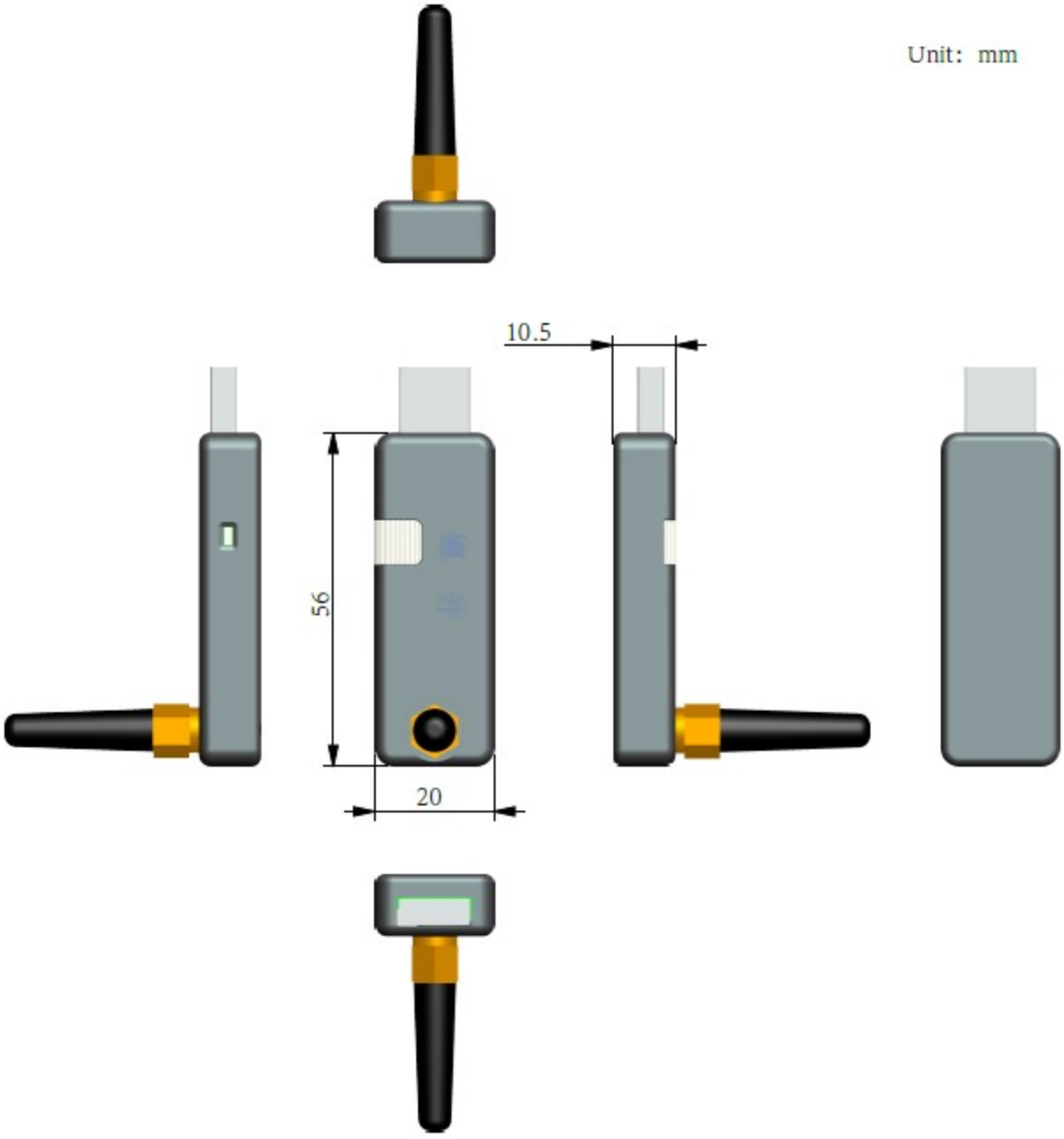
In user define mode, the user can input AT command to do the debugging



The figure below shows the test module, which can do carrier test, duty cycle test, etc.



Mechanical Drawing



Overview

Our newly developed USB dongle can support LoRa DTU-based firmware or LoRa private protocol firmware. Please inform us which firmware you need to use before leaving the factory.

If you are using the LoRa DTU instruction set, please refer to:DTU_LR_A_EN_WW_modify.pdf

If you are using the LoRa private protocol instruction set, please refer to: STM32WL AT-Command -EN.pdf

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