Model: UT-930

(Wireless zigbee transfer RS232/485/422)

Product Operating Instructions

I. Applications

Small data size (within 100 characters) transmission.

Sending and receiving interval is above 100ms.

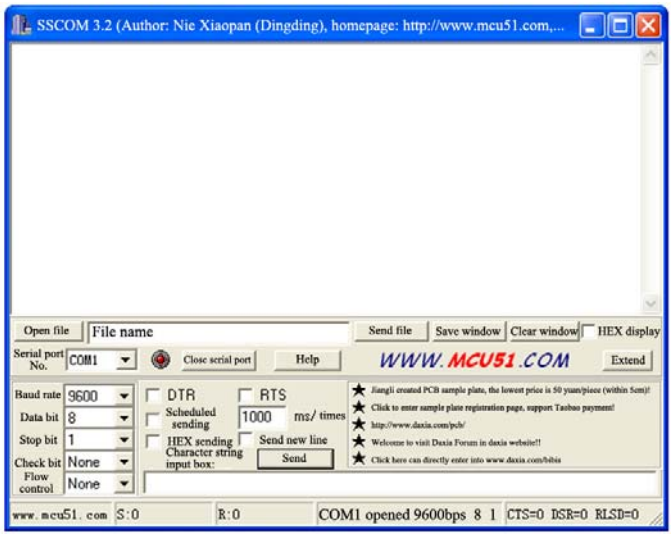
II. Test Steps

Modify the UT-930 parameters with serial port debuger.

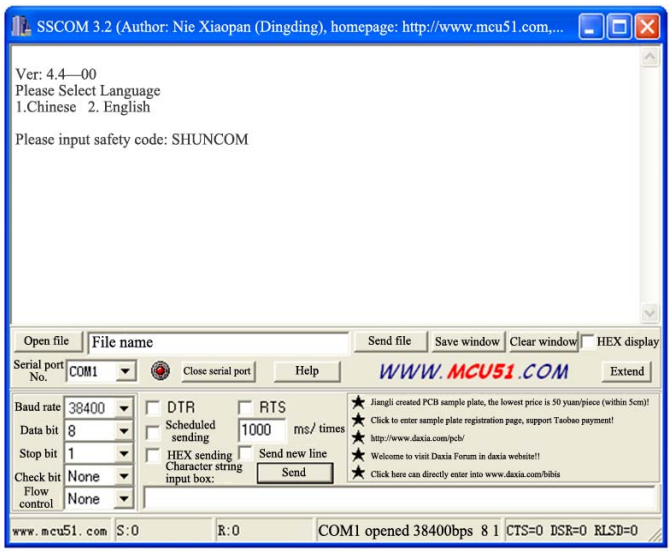
Set the UT-930 equipment connecting with PC as the central node and other equipment as transitroute node. The wireless frequency point and network ID of the central node and transitroute node must be the same. (The configuration method is as indicated below) Connect UT-930 equipment with PC (confirm that the interface is selected correctly).

III. Configuration Method

1. Enter into the light disk and open the serial port debugging software.



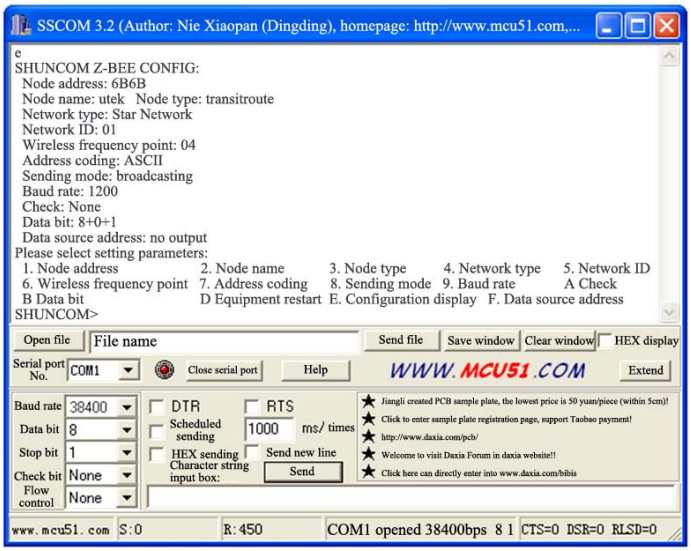
After the settings of serial port debugging software, press CFG button for 3-5 seconds and then the following interface will show (different software version will have different interfaces)



After selecting the language, there will be the prompt as please input safety code and the safety code is SHUNCOM

After the settings, press E to display module properties. If you need to modify parameters, select

corresponding items.



Cautions

If you press CFG for 3-5 seconds, the PWR light will be normally on. The NET light and ALM light will be flashed at the same time which indicates that it has already entered into configuration status. If the above interface doesn't show in the serial port debugging software, then:

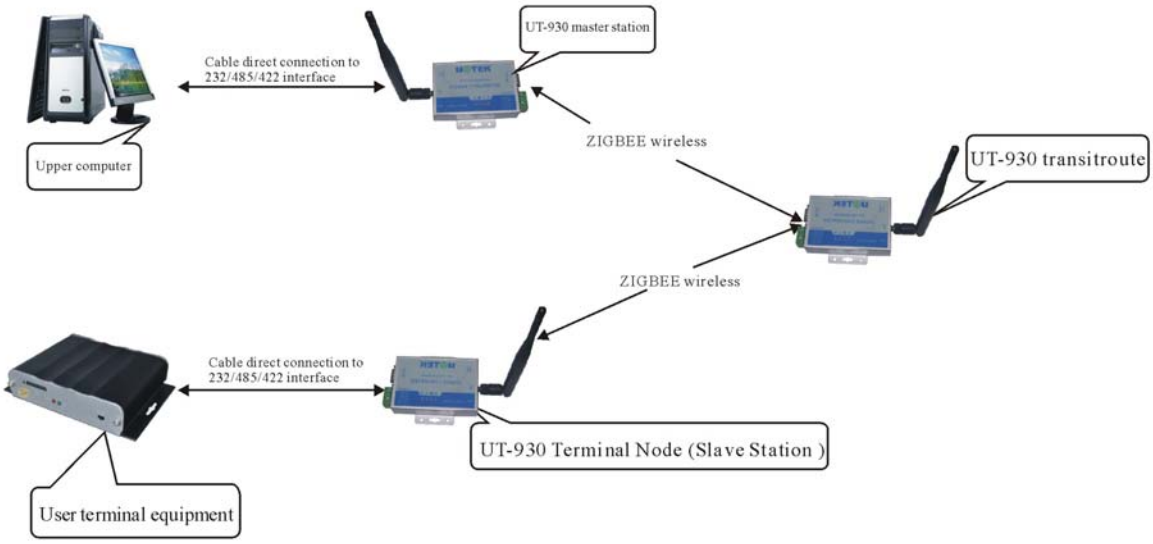
(i) Confirm the equipment port is selected correctly.

(ii) Confirm the serial port is selected correctly.

(iii) Confirm the 232, 485 and 422 wiring is wired correctly. 485 and 422 wire shall not be connected reversely.

(iv) Corresponding serial port should be selected for serial port debugging software.

IV. How to Connect



Equipment Connection Diagram

V. Configuration Scheme

Note: communication among modules. The network ID and wireless frequency point must be the same. The address coding, baud rate, check bit and data bit must be the same with those in the user terminal equipment.

Node address: the address of central master station is fixed to be 0000 and the address of transitroute and terminal node can be randomly set between 0001 to FFFF.

1. Transparent transmission

The sending mode of central master station is broadcasting and that of slave station is master and slave which can increase data sending efficiency.

No output of data source address.

Master station:

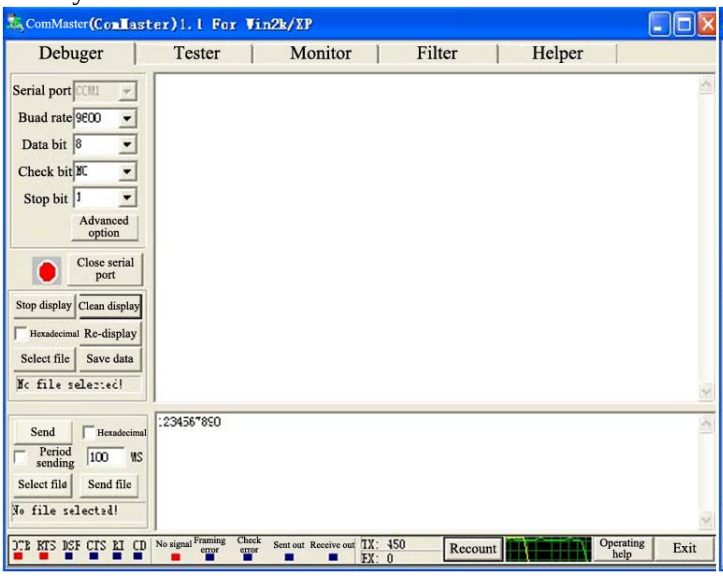
SHUNCOM Z-BEE CONFIG:
Node address: 0000
Node name: utek Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: broadcasting
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Slave station:

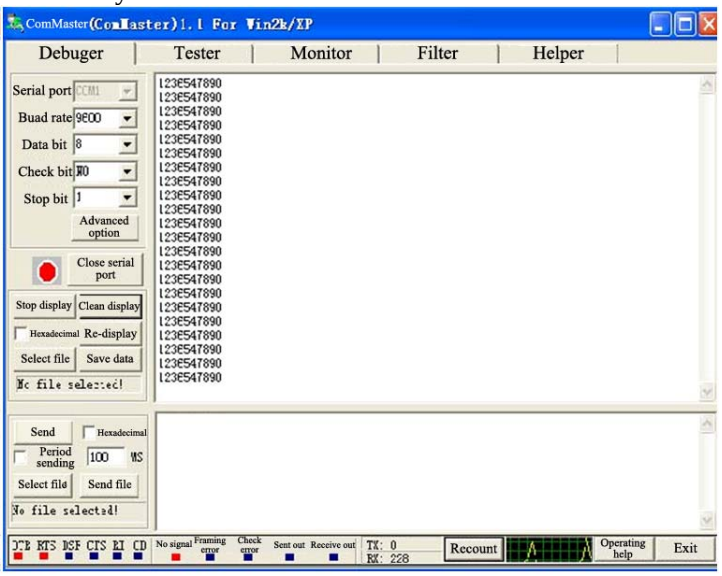
SHUNCOM Z-BEE CONFIG:
Node address: CA92
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: broadcasting
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Examples:

Sent by master station:



Received by slave station:



2. Sent according to target address

The sending mode of both master station and slave station is master-slave. The slave address must be added in front of the data sent by the master station while the address is not required for the data sent by the slave station. No output of data source address.

Master station:

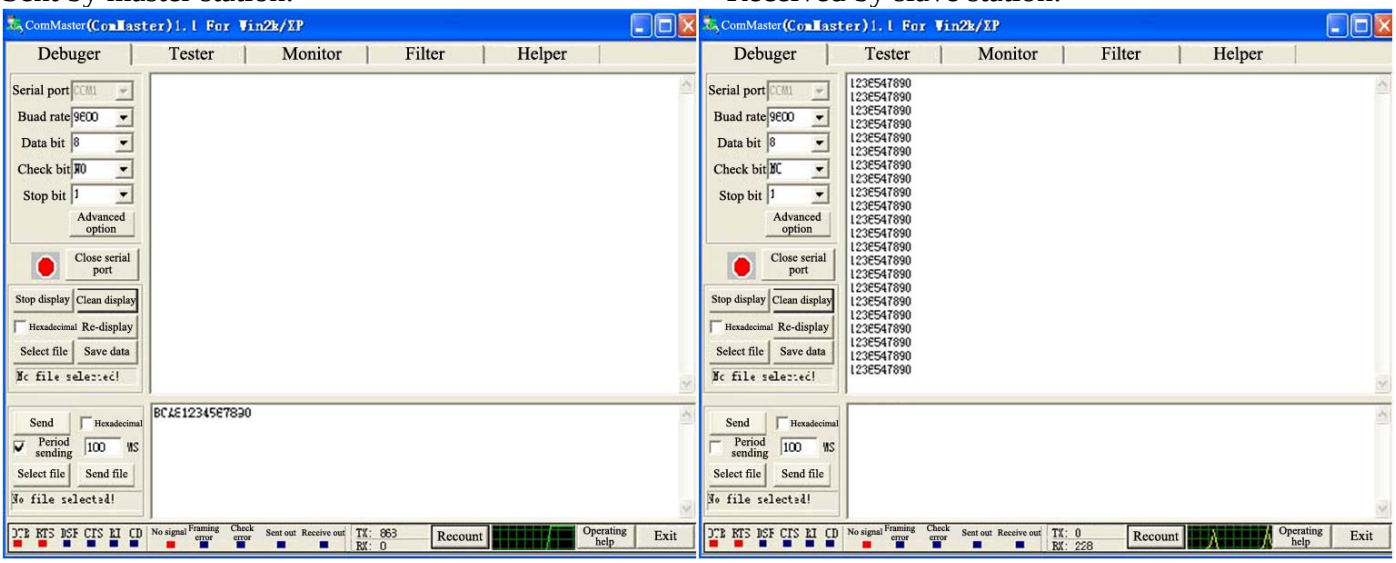
SHUNCOM Z-BEE CONFIG:
Node address: 0000
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: master-slave
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Slave station:

SHUNCOM Z-BEE CONFIG:
Node address: BCA8
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: master-slave
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Examples:

Sent by master station: Received by slave station:



In this mode, only the slave station can receive data. As a result, when the user terminal equipment can't distinguish which equipment the data will be sent to, this mode may be adopted. The UT-930 terminal node is used to distinguish data receiver.

3. Point to point transmission

The sending mode of both master and slave modes is point to point. The target address must be added in the front of all sent data.

No output of data source address.

Master station:

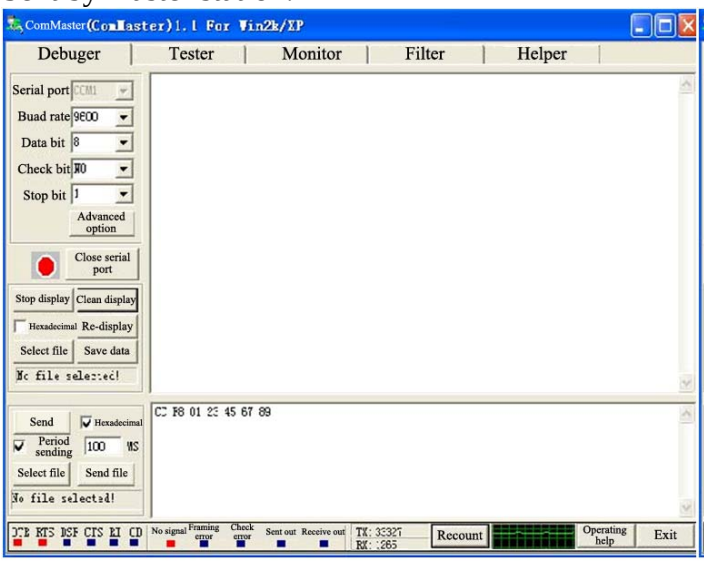
SHUNCOM Z-BEE CONFIG:
Node address: 0000
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: point to point
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Slave station:

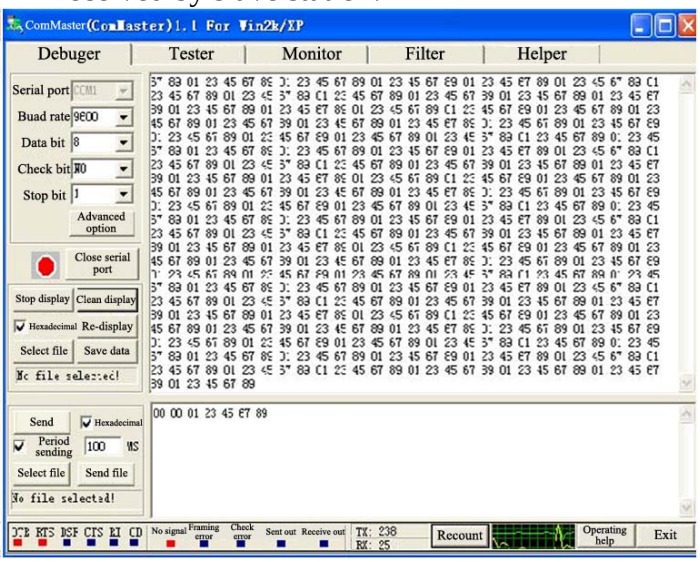
SHUNCOM Z-BEE CONFIG:
Node address: BCA8
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: point to point
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Example:

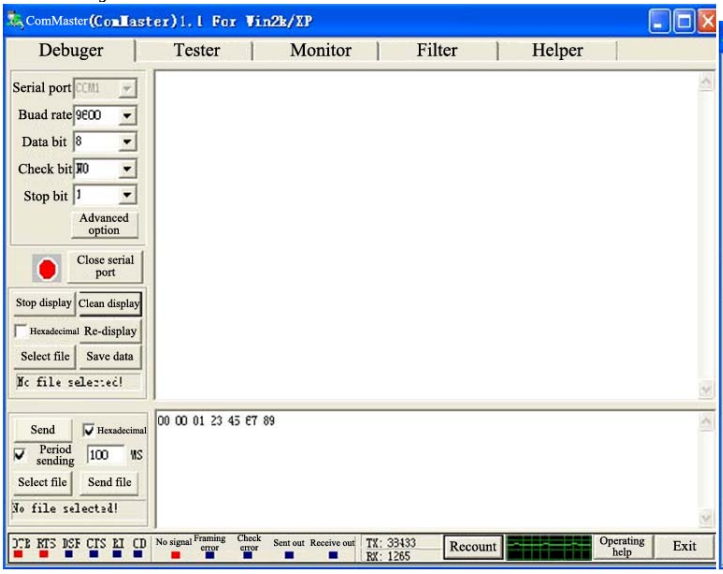
Sent by master station:



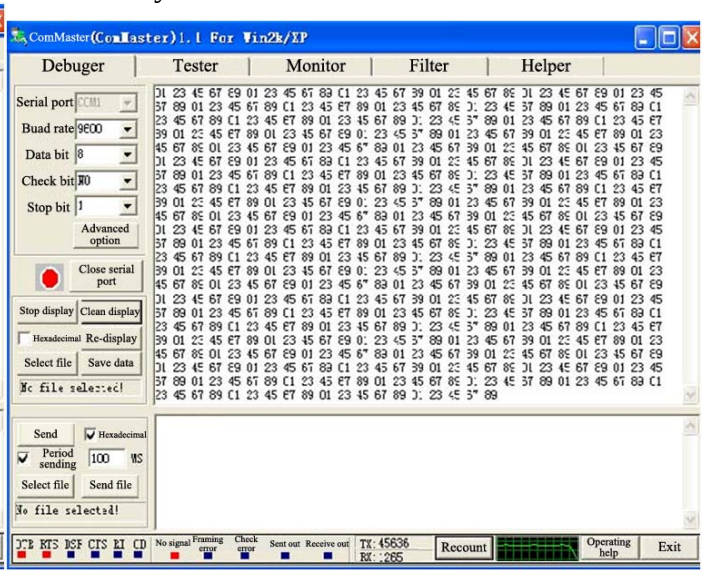
Received by slave station:



Sent by slave station:



Received by master station:



4. Output of data source address

Allowable in the sending modes of broadcasting, master-slave and point to point.

Output of master station data source address (select ASCII or HEX as per actual situations), no output in slave station.

Master station:

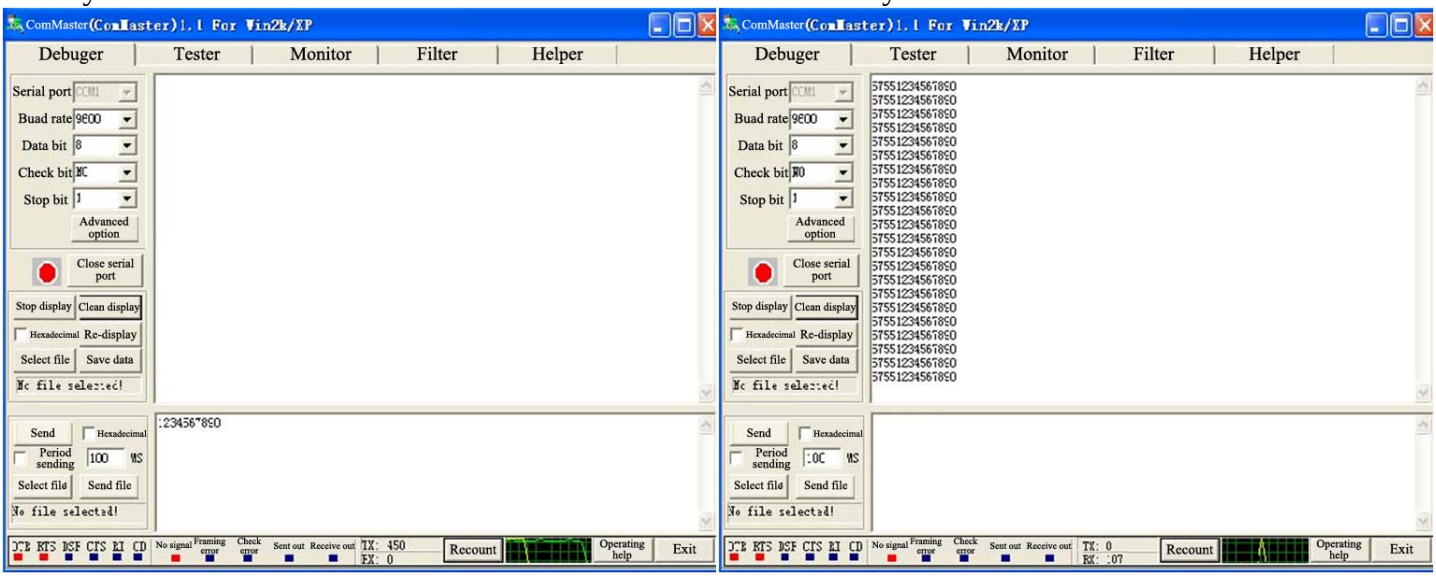
SHUNCOM Z-BEE CONFIG:
Node address: 0000
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: broadcasting
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Slave station:

SHUNCOM Z-BEE CONFIG:
Node address: BCA8
Node name: utek Node type: transitroute
Network type: Star Network
Network ID: 01
Wireless frequency point: 04
Address coding: HEX
Sending mode: broadcasting
Baud rate: 9600
Check: None
Data bit: 8+0+1
Data source address: no output
Please select setting parameters:
1. Node address 2. Node name 3. Node type
4. Network type 5. Network ID
6. Wireless frequency point 7. Address coding 8. Sending mode
9. Baud rate A Check
B Data bit D Equipment restart E. Configuration display F. Data source address
SHUNCOM>

Example: ASCII output

Sent by slave station: Received by master station



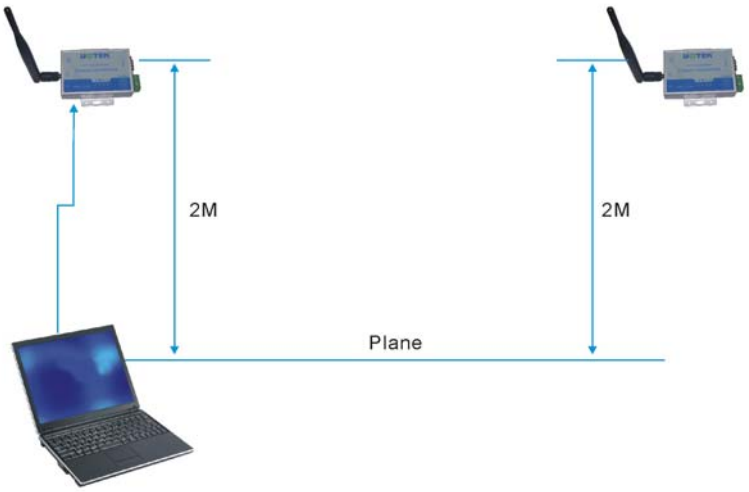
The terminal node and user terminal equipment is in one-one correspondence. If the data output by user terminal equipment includes equipment address (i.e. the data can be distinguished from which terminal equipment), the UT-930 master station can be set as no output of data source address, thus forming transparent transmission. On contrary, the UT-930 master station can be set as output of data source address. At this time, the module address will be added in front of the data by receiving terminal to distinguish data source.

V. Distance test instructions

1. Spacious range of visibility;
2. Sunny weather;
3. Sufficient power source (DC-12V, above 500mA of supply current)

4. Terrain clearance 2M;
5. Test antenna DT2400-21CM, gain 5DBI;
6. Horizontal and vertical positioning of antenna.

Test Diagram



1. Cases influencing transmission distance

1. Unstable power source, insufficient supply voltage or insufficient output current

The supply voltage of UT-930 is required to be 9V or above and the output current is above 300mA;

2. Barrier in the middle, non-line of sight

Since the wavelength is short in 2.4G frequency band, basically it's transmitted in straight line with poor penetrability, so the pavement gradient and barrier in the middle will exert great influence on transmission distance (people and trees also may keep out);

3. Not satisfied module positioning

(i) Normally, if the ground clearance is less than 50Cm, the microwave is easy to be absorbed by the ground, so the ground clearance is very important. Our test is made at the height of a normal people.

(ii) The two modules must be at the same horizontal plane and the height fall will influence test distance.

4. Other factors

(i) Weather, normally sunny day is better than rainy days;

(ii) Antenna, horizontally vertical (the antenna is vertical polarization), placed horizontally or slantly will have influence. Different antenna gain leads to different distances. Theoretically, the more the antenna gain, the further the transmission distance;

(iii) The tester body shield signal sending and receiving;

(vi) Same frequency interference;

(v) High-tension cable, mobile base station;

(vi) Other uncertainties.