

4. Multicast group Function

Example: Using the CN470 band and RAK3172 LF module

4.1 Set frequency band

AT+BAND=<BANDID>

RAK SERIAL PORT TOOL

端口: COM4 波特率: 9600 关闭

接收窗口 清空接收

```
>>AT+BAND=1
OK
```

发送窗口(默认发送回车)

AT+BAND=1 发送

命令

<input checked="" type="checkbox"/>	01	AT+VER=?	发送
<input checked="" type="checkbox"/>	02	ATZ	发送
<input checked="" type="checkbox"/>	03	AT+JOIN=1:0:10:8	发送
<input checked="" type="checkbox"/>	04	AT+BAND=1	发送
<input checked="" type="checkbox"/>	05	AT+MASK=	发送
<input checked="" type="checkbox"/>	06	AT+DEUI=0102030405061752	发送
<input checked="" type="checkbox"/>	07	AT+APPEUI=0000000000004751	发送
<input checked="" type="checkbox"/>	08	AT+APPKEY=00000000000000000000000009584	发送
<input checked="" type="checkbox"/>	09	AT+DADDR=11111587	发送
<input checked="" type="checkbox"/>	10	AT+NWKEY=00000000000000000000000004712	发送
<input checked="" type="checkbox"/>	11	AT+APPSKEY=00000000000000000000000003254	发送
<input checked="" type="checkbox"/>	12	AT+CFM=1	发送
<input checked="" type="checkbox"/>	13	AT+CFM=0	发送
<input checked="" type="checkbox"/>	14	AT+NJM=0	发送
<input checked="" type="checkbox"/>	15	AT+NJM=1	发送
<input checked="" type="checkbox"/>	16	AT+NWM=1	发送
<input checked="" type="checkbox"/>	17	AT+PGSLOT=3	发送
<input checked="" type="checkbox"/>	18	AT+ADDMULC=B:	发送
<input checked="" type="checkbox"/>	19	AT+CLASS=?	发送
<input checked="" type="checkbox"/>	20	AT+SEND=22:abcd	发送

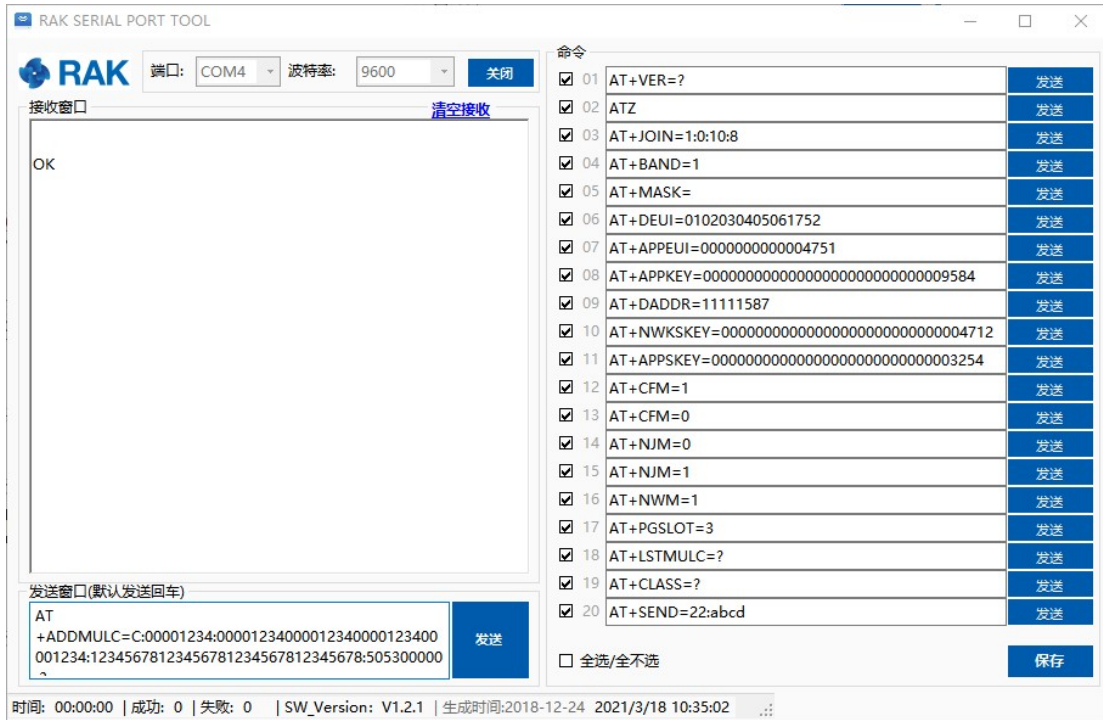
全选/全不选 保存

时间: 00:00:00 | 成功: 0 | 失败: 0 | SW_Version: V1.2.1 | 生成时间: 2018-12-24 2021/3/18 10:28:43

Add a multicast group to the Device

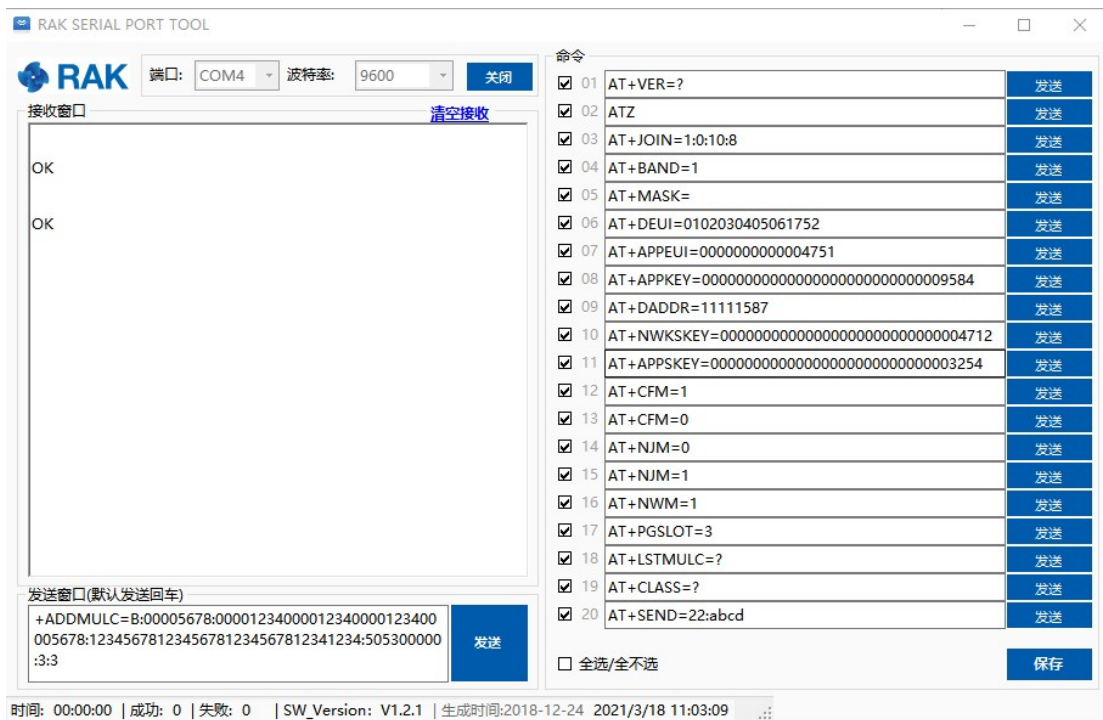
4.1.1 Add classC multicast group

AT+ADDMULC=C:[DevAddr]:[NwkSKey]:[AppSKey]:[Frequency]:[Datarate]



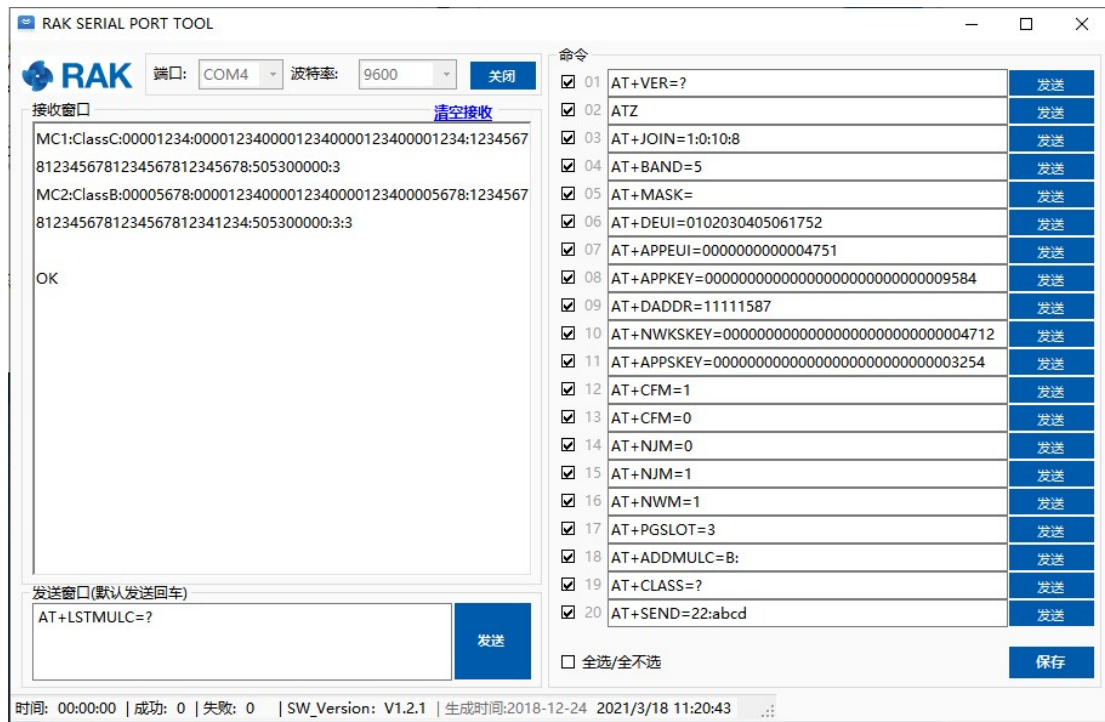
4.1.2 Add classB multicast group

AT+ADDMULC=B:[DevAddr]:[NwkSKey]:[AppSKey]:[Frequency]:[Datarate]:[Periodicity]



4.2 The device can query for added multicast groups

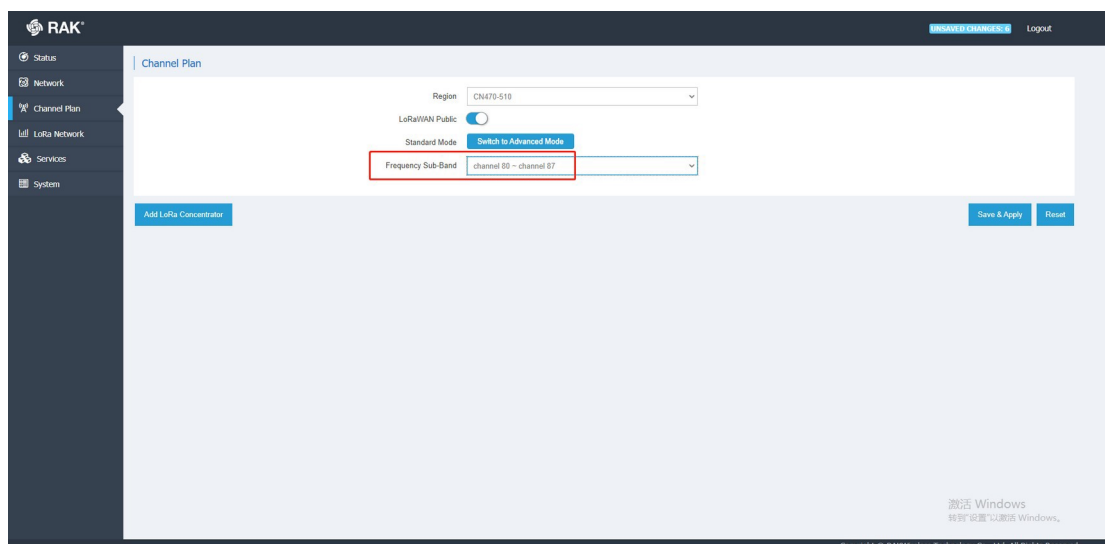
AT+LSTMULC=?

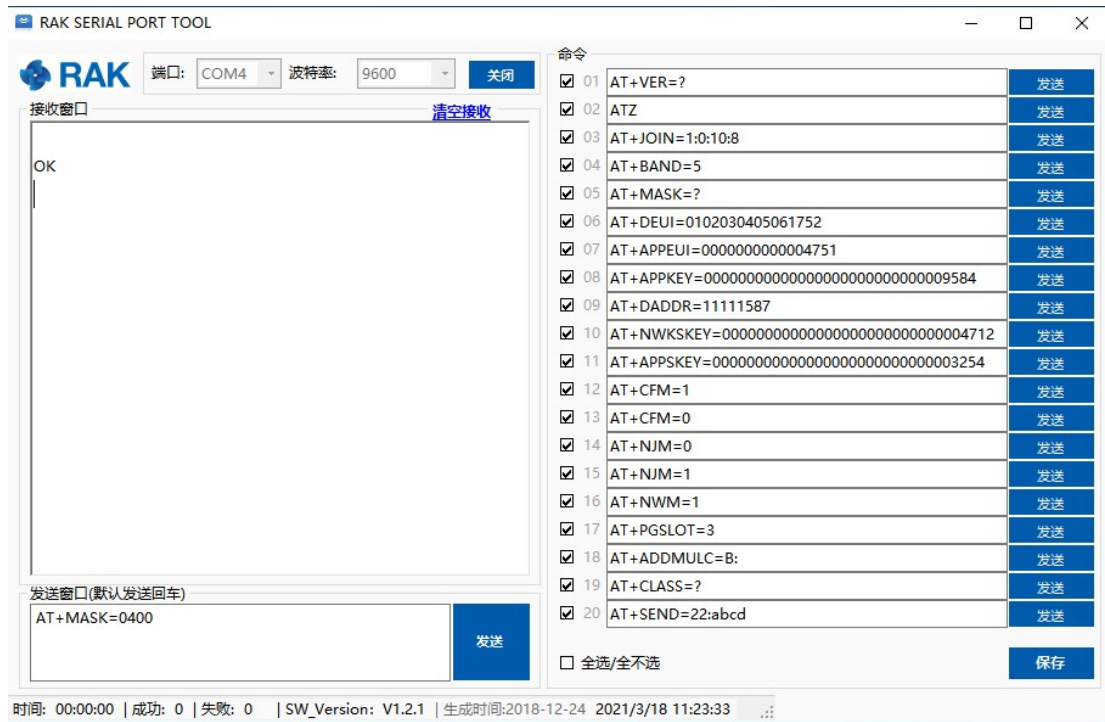


Note: The device can add up to four multicast groups

Device access Settings

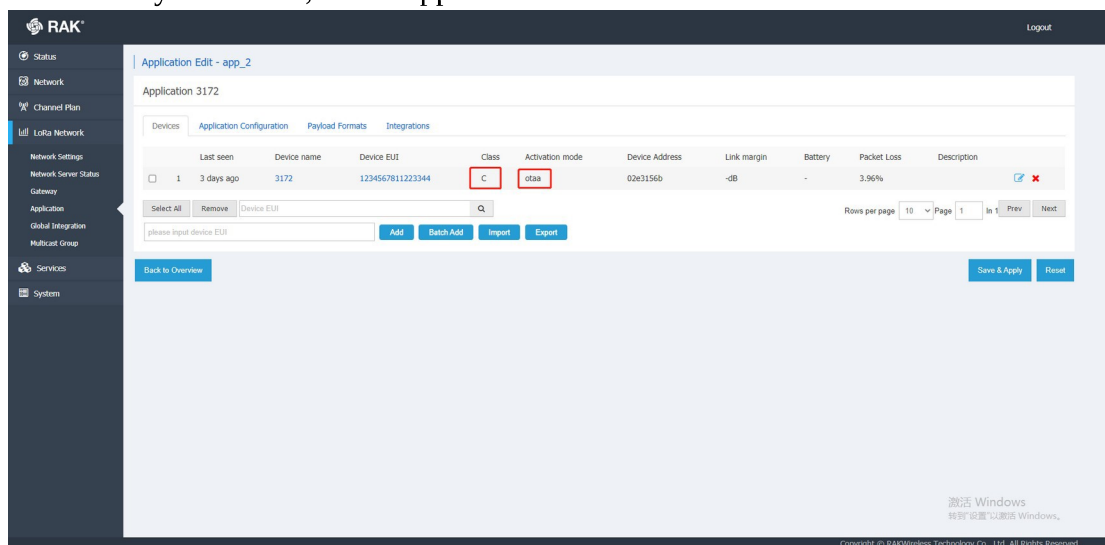
4.3 Configure gateways to correspond to device channel mask



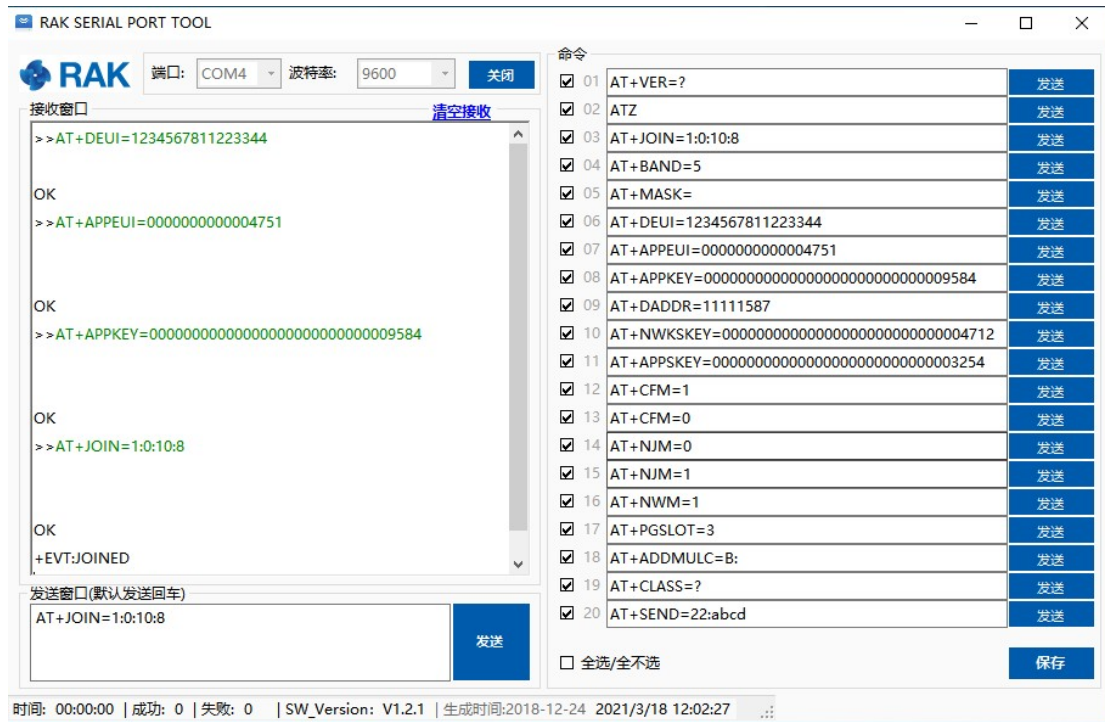


ClassC Multicast group communication

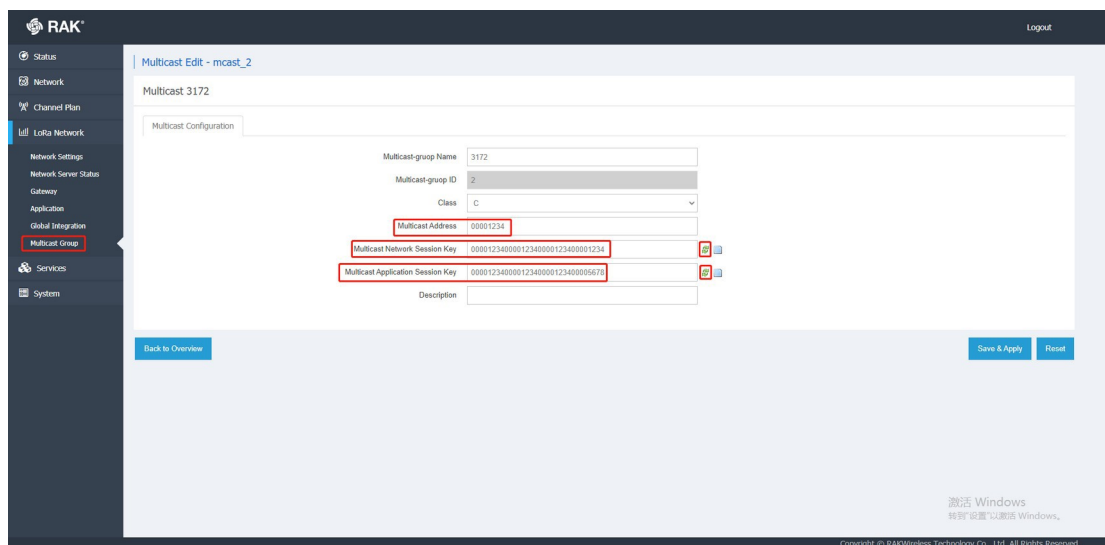
4.4 Gateway set classC,OTAA application



4.5 The device configuration and gateway corresponding to three parameters, join the network, send data



4.6 In the Gateway 'Multicast Group' interface, configure the same Multicast triple as the device



4.7 Use the Xshell tool to enter the gateway background and send commands:
 mosquitto_pub -t 'mcast_group/2/tx' -m
 '{"multicastGroupID":2 ,"fPort":10,"data":"1234567890"}' -h 127.0.0.1 -p 1883


```

1 -p 1883
root@RAK7249:~# mosquitto_pub -t 'mcast_group/8/tx' -m '{"multicastGroupID":8,"fPort":10,"data":"1234567890"}' -h 127.0.0.1 -p 1883
1 -p 1883
root@RAK7249:~#
root@RAK7249:~#
Socket error Event: 32 Error: 10053.
Connection closing...Socket close.

Connection closed by foreign host.

Disconnected from remote host(172.31.204.225:22) at 16:43:45.

Type 'help' to learn how to use Xshell prompt.
[C:\~]$ ssh 172.31.204.198

Connecting to 172.31.204.198:22...
Connection established.
To escape to local shell, press 'Ctrl+Alt+J'.

sh: /usr/bin/xauth: not found

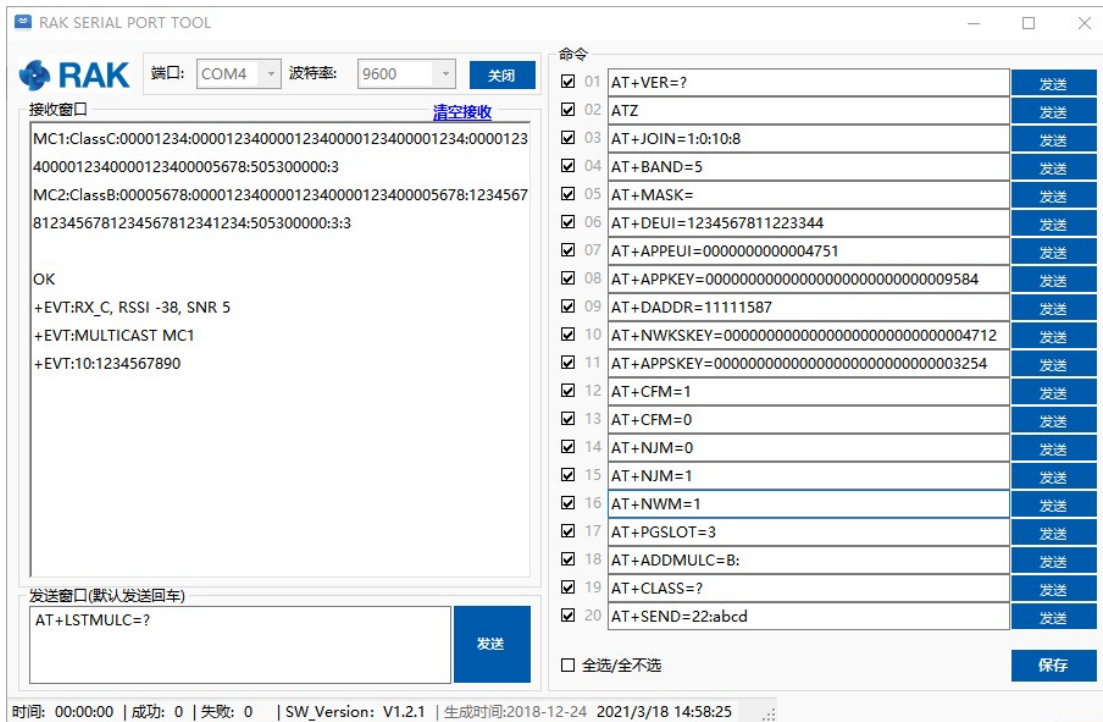
BusyBox v1.23.2 (2021-02-23 07:43:32 UTC) built-in shell (ash)

-----
RAK WisGate Edge series RAK7249 (WisGateOS 1.0.1_RAK 20210223)
-----
root@RAK7249:~#
root@RAK7249:~#
root@RAK7249:~#
root@RAK7249:~# mosquitto_pub -t 'mcast_group/2/tx' -m '{"multicastGroupID":2,"fPort":10,"data":"1234567890"}' -h 127.0.0.1 -p 1883

```

Note: The mark in the figure is 'Multicast-group ID'

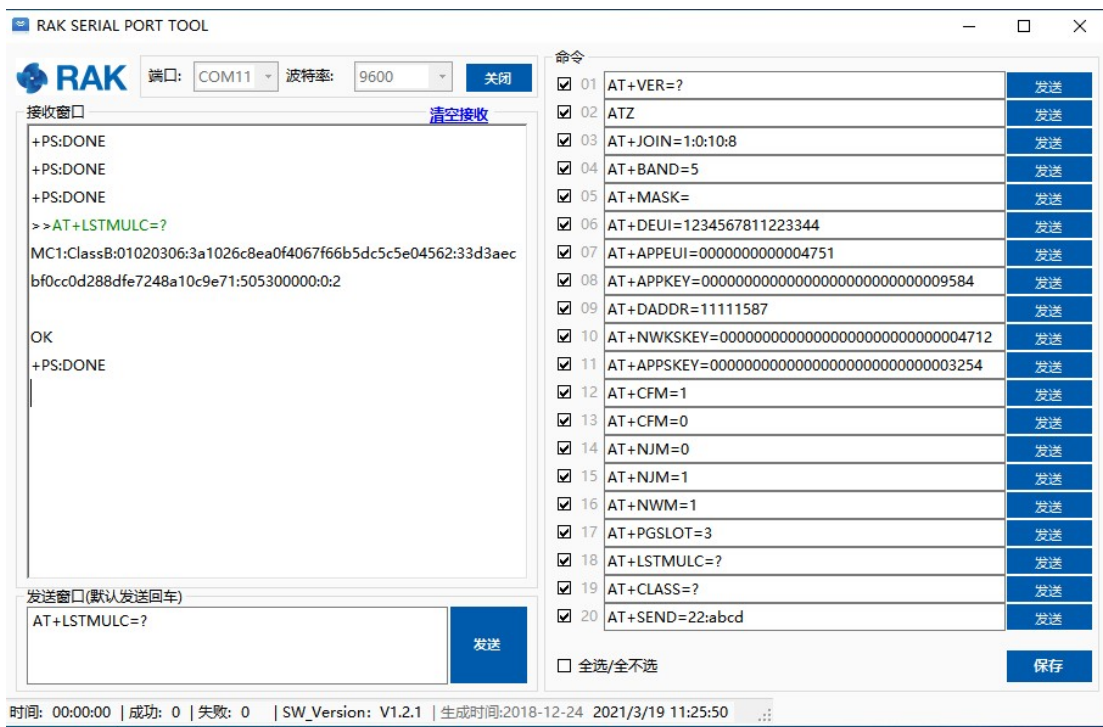
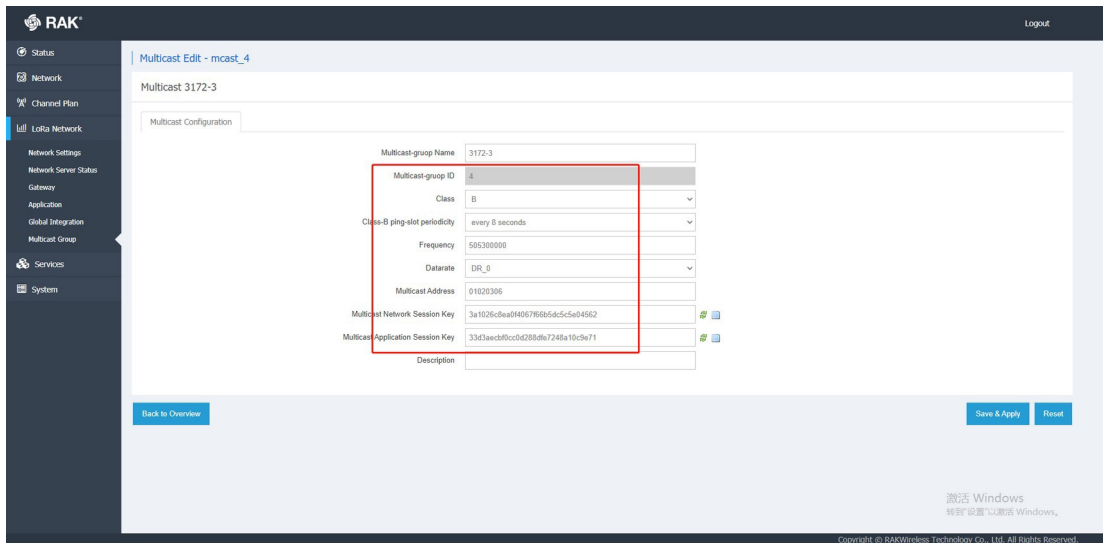
4.8 The device receives the group seeded downlink data



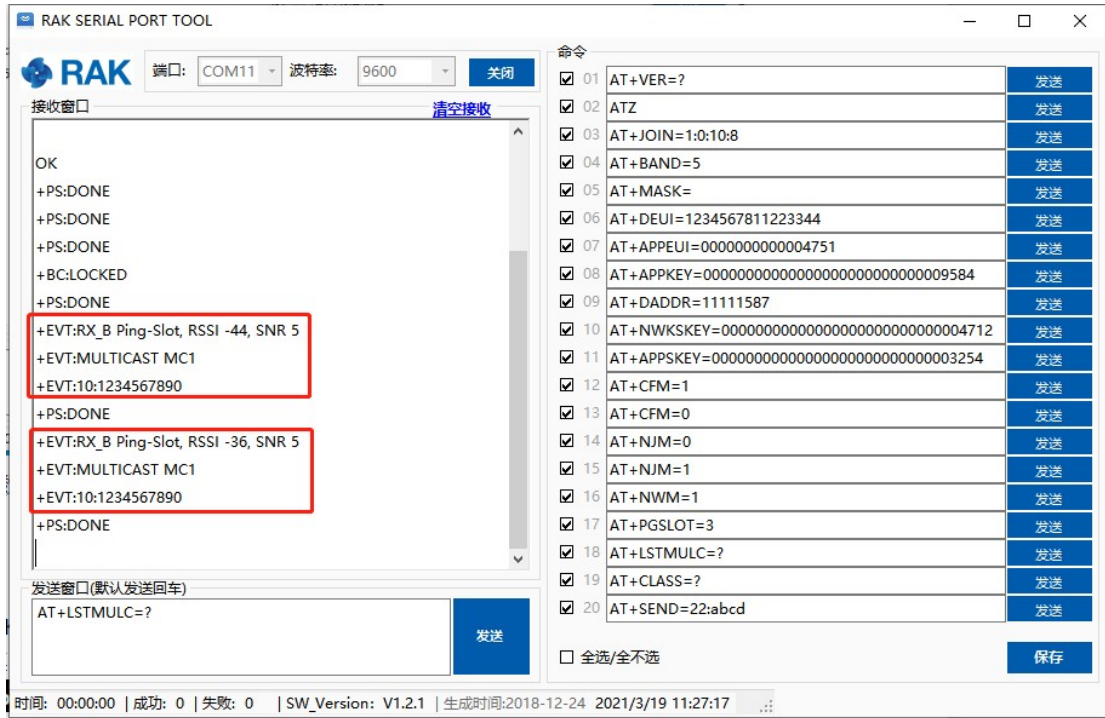
ClassB Multicast group communication

4.9 The device join network using classB OTAA, Refer to Chapter 2 classB Fuction

4.10 The gateway 'Multicast Group' interface is configured with the same ClassB Multicast group as the device



4.11 The gateway sends data behind the scenes(Refer to the steps 4.7), Devices receive data when pingslot is open the windows.



Note: The device window opening time is determined by the [Periodicity] in the multicast group parameter (time is $2^{\text{Periodicity}}$ s)