

How to analysis the data sending from RAK5205

The data port:

- 1) GPS

Port: APP_PORT_GPS(2)

- 2) Battery Voltage

Port: APP_PORT_TEMP(3)

- 3) LIS3DH sensor

Port: APP_PORT_ACC(4)

- 4) BME680 sensor

Port: APP_PORT_GAS(5)

For example(shown on TTN):

The screenshot shows the 'APPLICATION DATA' section of the TTN interface, titled 'TTN received data'. It features a table with columns for 'time', 'counter', and 'port'. The data rows are as follows:

time	counter	port	payload	Label
14:24:03	3	5	02 67 01 30 05 68 21 06 73 25 B4	BME680 data
14:23:59	2	4	03 71 FF 00 FF F0 00 50	LIS3DH data
14:23:55	1	3	07 02 01 9F	Battery voltage data
14:23:51	0	2	01 88 05 37 A9 10 9D 5B 00 C0 F8 00 16	GPS data
14:23:45			dev addr: 26 01 20 C6 app eui: 70 B3 D5 7E D0 01 4C EE dev eui: D8 96 E0 FF FF 01 00 ED	

Note: all data are in HEX format

Now, let's analysis the above data which are shown on TTN. The first two bytes of data are data flag, and other bytes are sensor data.

1. Analysis GPS data

As shown in the above picture, port 2 is GPS data: 01 88 05 37 A9 10

9D 5B 00 C0 F8 00 16

“01 88” is data flag.

“05 37 A9” is latitude, and the value of latitude is 34.1929

“10 9D 5B” is longitude, and the value of longitude is 108.8859

“00 C0 F8” is altitude, and the value of altitude is 494m

“00 16” is NmeaSpeed, and the value of NmeaSpeed is 0.22km/h

2. Analysis battery voltage

As shown in the above picture, port 3 is battery voltage data: 07 02 01

9F

“07 02” is data flag.

“01 9F” is battery voltage, and the value of battery voltage is 4.15V

3. Analysis LIS3DH sensor data

As shown in the above picture, port 4 is LIS3DH sensor data: 03 71 FF

00 FF F0 00 50

“03 71” is data flag.

“FF 00” is Acceleration X, and the value is -256mg

“FF F0” is Acceleration Y, and the value is -16mg

“00 50” is Acceleration Z, and the value is 80mg

4. Analysis BME680 sensor data

As shown in the above picture, port 5 is BME680 sensor data: 02 67 01

30 05 68 21 06 73 25 B4

“02 67” is data flag.

“01 30” is Temperature, and the value is 30.4°C

“05 68” is Humidity flag

“21” is Humidity, and the value is 16.5%RH= $33 \times 500 / 1000.0$, 0x21=33

“06 73” is Pressure flag

“25 B4” is Pressure, and the value is 965.2hPa

If you want to know more details, please check the source code of RAK5205 on Github: <https://github.com/RAKWireless/RAK5205-WisTrio-LoRa>

Revision History

Revision	Description	Date
1.0	Initial version	2019-02-26

Document Summary

Document Name: How to analysis the data sending from RAK5205

Product Name: RAK5205

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About RAKwireless:

RAKwireless is the pioneer in providing innovative and diverse cellular and LoRa connectivity solutions for IoT edge devices. It's easy and modular design can be used in different IoT applications and accelerate time-to-market.

For more information, please visit RAKwireless website at www.rakwireless.com.