QCOM TOOL USER GUIDE

QCOM Tool User Guide

Purpose of the Document

The purpose of this document is to explain the QCOM tool and how to use it with different wireless modules such as BG96, B95, BG77, EG91, EG95, or Raspberry PI HAT.

Document History

Version	Author	Date	Description
A	5G HUB	10.05.2020	Initial Document

Table of Contents

1 Introduction

This document describes how to use “QCOM” tool. The tool can run without installation. And it supports the following OS:

- Window 10/Windows 95/Windows 98/Windows 2000/Windows ME/Windows XP

This document is applicable to all GSM, UMTS LTE, and GNSS modules. Install the following tools from the GitHub repository:

LTE & GNSS driver:
5G-NB-IoT/Driver at master · 5ghub/5G-NB-IoT (github.com)

QCOM Tool:
5G-NB-IoT/Tools at master · 5ghub/5G-NB-IoT (github.com)

2 Install LTE&GNSS Windows Driver

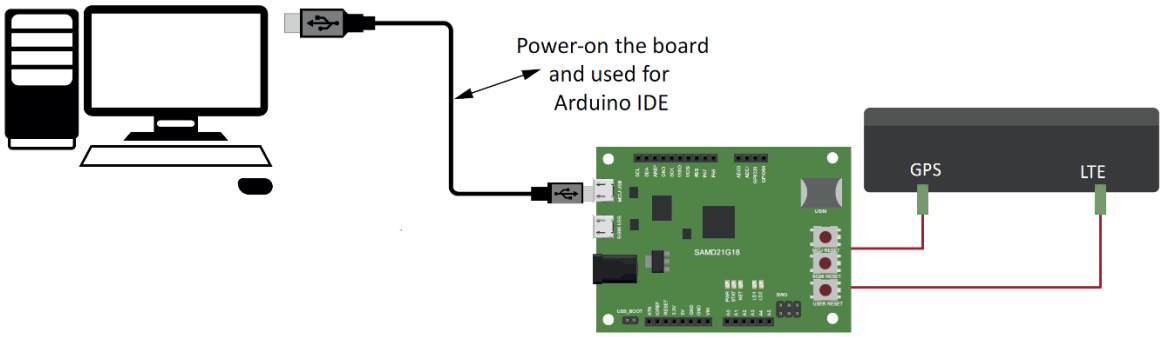
On Windows Operating System (OS), install the following Windows driver for LTE&GNSS modem:
[5G-NB-IoT/Driver at master · 5ghub/5G-NB-IoT (github.com)](https://github.com/5ghub/5G-NB-IoT/tree/master/Driver)

Have the Nano SIM ready:

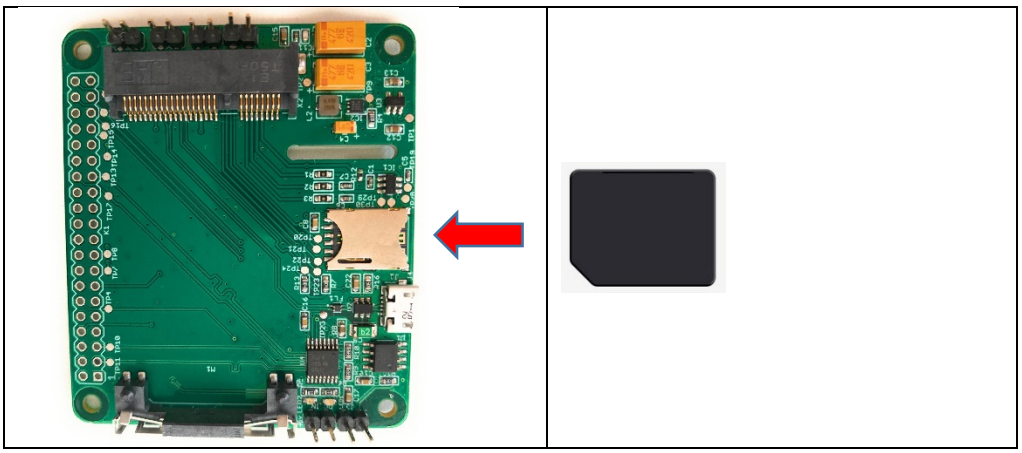
Nano SIM	
	
Top View	Bottom View

Follow the following steps:

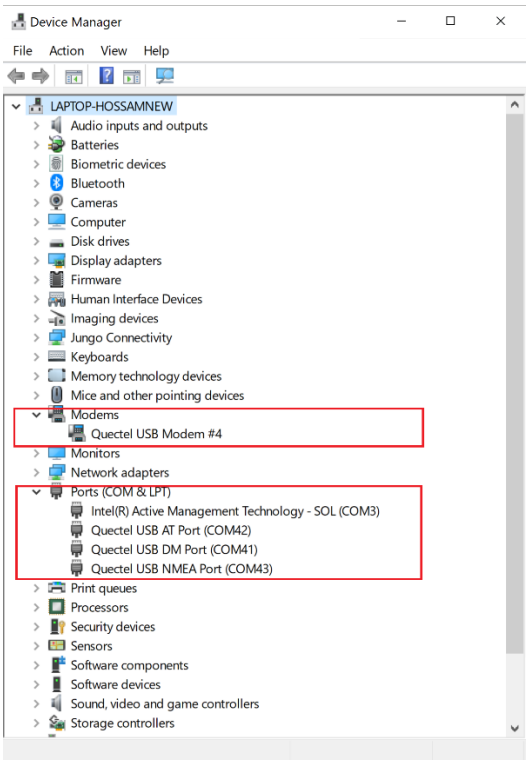
1- Insert a USIM card into the USIM card slot on the hardware board.
2- Connect a USB cable between the hardware board and the computer as in the following diagram (Note: the hardware board is an example and other USB dongle or Raspberry PI HAT can be used. You can also use different antennas if needed)



If you are using the HAT board with any of the BG96/BG95/EG95/EG91 miniPCIe module, make sure to insert the SIM card as shown below:



3- Connect the board to a USB cable to PC, then you shall see the ports and modem in the Windows device manager as in this screenshot:



3 Use QCOM tool with BG96/BG95/EG91/EG95

Install the QCOM tool from this location:

[5G-NB-IoT/Tools at master · 5ghub/5G-NB-IoT (github.com)]

To use the QCOM tool with LTE&GNSS modem, connect the computer USB port to the USB port on the hardware board and make sure all modem serial ports are enumerated in the Windows device manager as in figure below.

The serial ports below can be used for the following purposes:

- **USB Modem**: The USB modem interface is used for AT commands, data transmission, GNSS data and NMEA sentences output.
- **USB AT Port**: It is used for AT commands and data transmission.
- **USB NMEA Port**: It is used for GNSS data and NMEA sentences output.

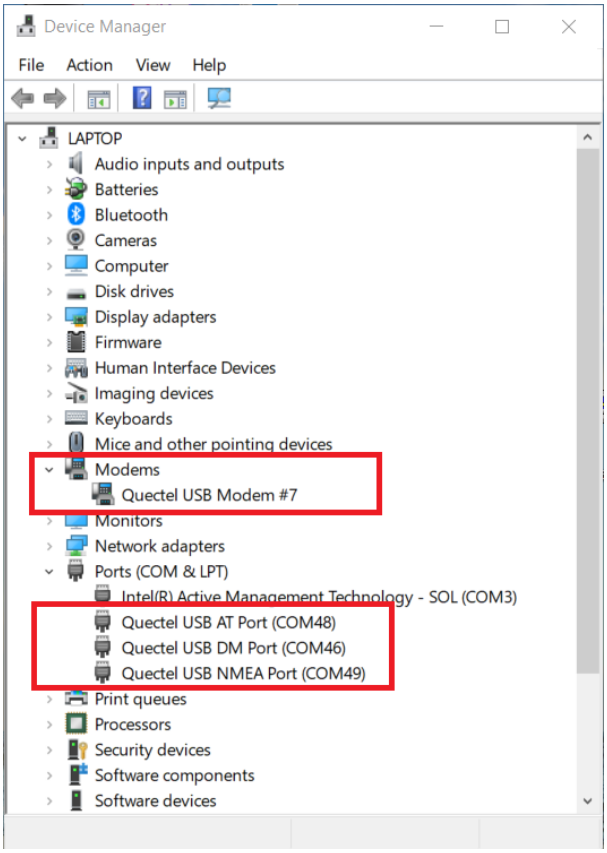


Figure 3: Windows device manager enumerated all serial ports of the modem.

Each serial port, as in Figure 3, shows the serial port number uses as in format **COMXX.** If the **USB Modem** port is used, you can find its COM port number, by **right-click** on it, select **Properties,** then select **Modem**. You will find the port number displayed for this USB modem. It shows up as **COM47** in the figure below. You can use this port number in QCOM tool.

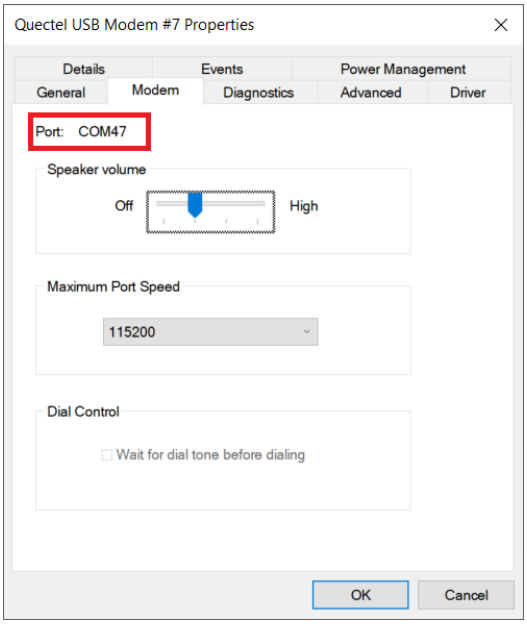


Figure 4: Port number for the USB modem.

4 How to Use the QCOM Tool

The tool is used to send and receive data with serial port. You can use it to send/receive AT commands, data transmission and reception, or GNSS control and NMEA sentences

Figure 5 shows the tool when is launched and different controls in the tool.

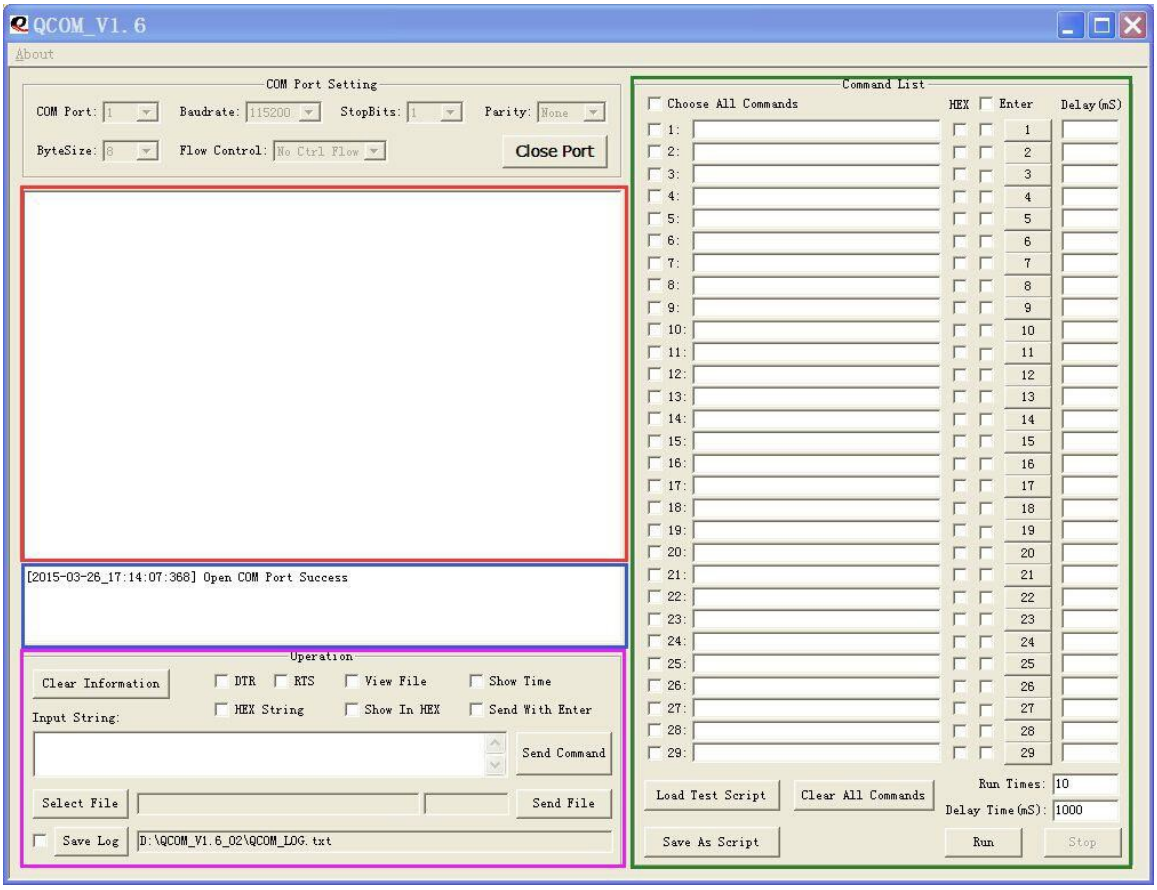


Figure 5: QCOM tool graphical user interface (GUI).

- Red area displays the received data.
- Blue area displays status information.
- Purple area is used to send data or files.
- Green area is used to send data continuously.

4.1 COM Port Configuration

According to the connection between PC and the hardware board, select the right serial port as shown Figure 6. Select the COM port number corresponds to either the **USB AT Port** or **USB Modem** as appears in the Windows device manager and as explained in the previous Sections.

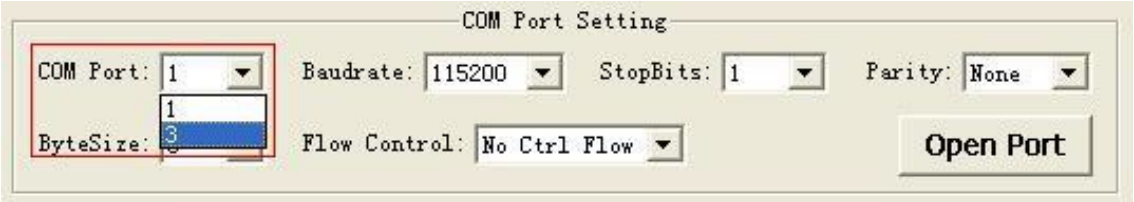


Figure 6: Selecting COM port.

Choose an appropriate baud rate. Please refer to Figure 7.

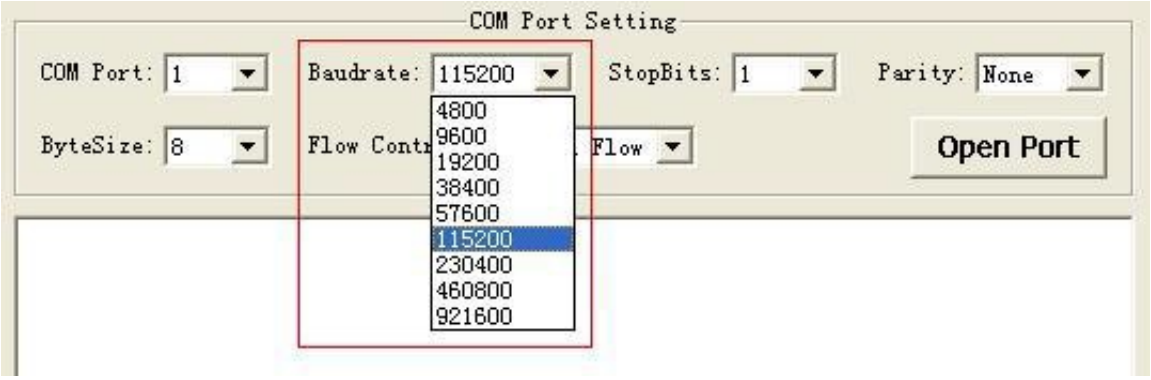


Figure 7: Selecting Baud rate.

Choose appropriate Stop Bits, Parity, Byte Size, and Flow Control, shown as Figure 8.

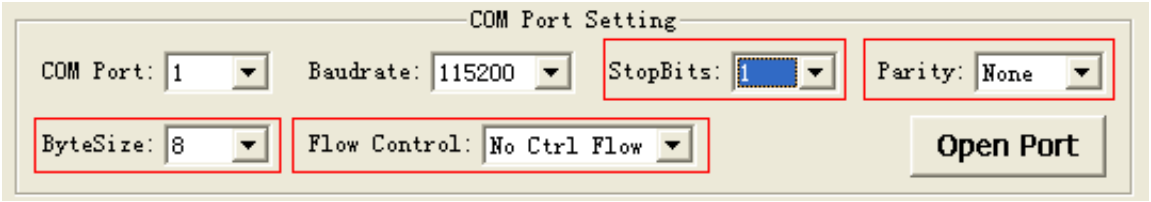


Figure 8: Selecting Other parameters for the COM port.

4.2 Open and Close COM Port

Click **Open Port** to open the selected COM port. Please refer to Figure 9.

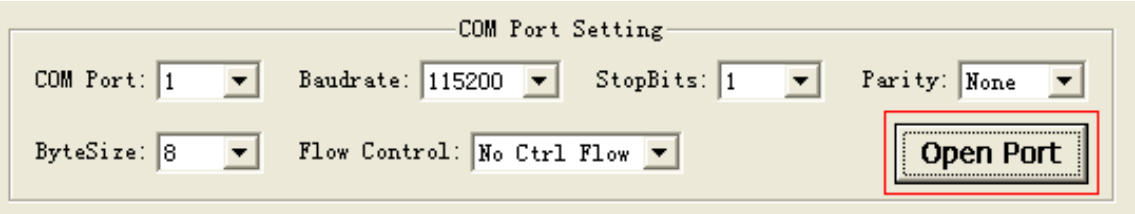


Figure 9: Clicking “Open Port” button.

Click “***Close Port***” to close the selected COM port. Please refer to Figure 10.

Figure 10: Clicking “Close Port” button.

4.3 Send Data

To send data from the QCOM tool, follow the following steps:

1) Red area is used to input data which would be sent.
2) Green area is used to choose file needed and send a whole file.
3) Blue area is used to save received data as a file.
4) DTR: Enable the DTR pin of COM port.
5) RTS: Enable the RTS pin of COM port.
6) View File: Show the data of the file which has been sent.
7) Show Time: Show the time of each received data.
8) HEX String: The input string is HEX string.
9) Show in HEX: The received data is shown in HEX.
10) Send with Enter: Send data with “***Enter***”.
11) Clear Information: Clear all received data and status information.
12) Send Command: Start to send the data which you input.
13) Select File: Select the file which would be sent.
14) Send File: Start to send the file that you have selected.
15) Save Log: Select the file of which the Log data was saved.

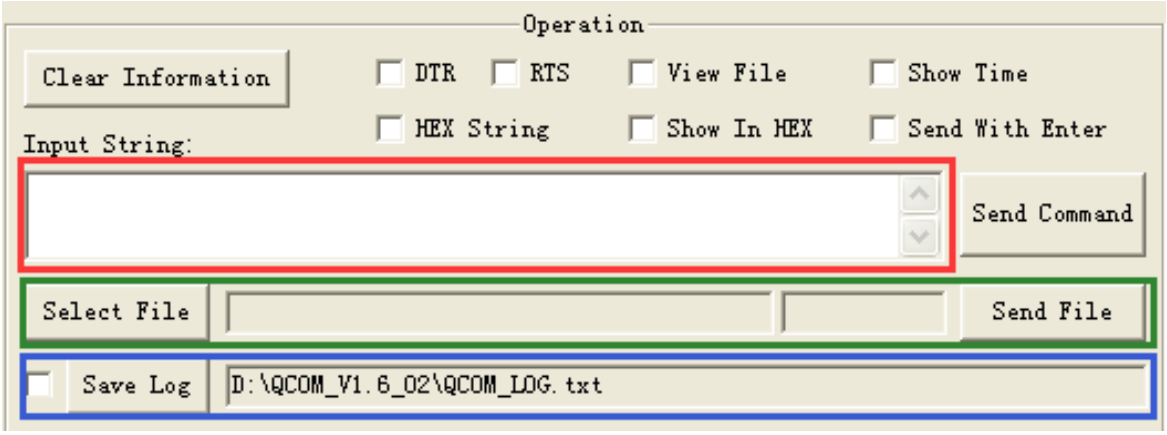


Figure 11: Sending data.

4.4 Send Data Continuously

To send data continuously, follow the following steps:

1) Red area is used to enable the data to be sent.
2) Blue area is used to input data which would be sent.
3) Green area is used to start data sending.
4) Choose All Commands: Enable all available commands which would be sent.
5) HEX: The input string is HEX string.
6) Enter: Send data with "***Enter***".
7) Delay: Delay time for each data.
8) Delay Time: Default delay time.
9) Run Times: The times of sending all selected data continuously.
10) Run: Start to send all selected data continuously.
11) Stop: Stop sending all selected data continuously.
12) Save As Script: Save all data and configure as *.ini file.
13) Load Test Script: Load data and configure from an *.ini file.

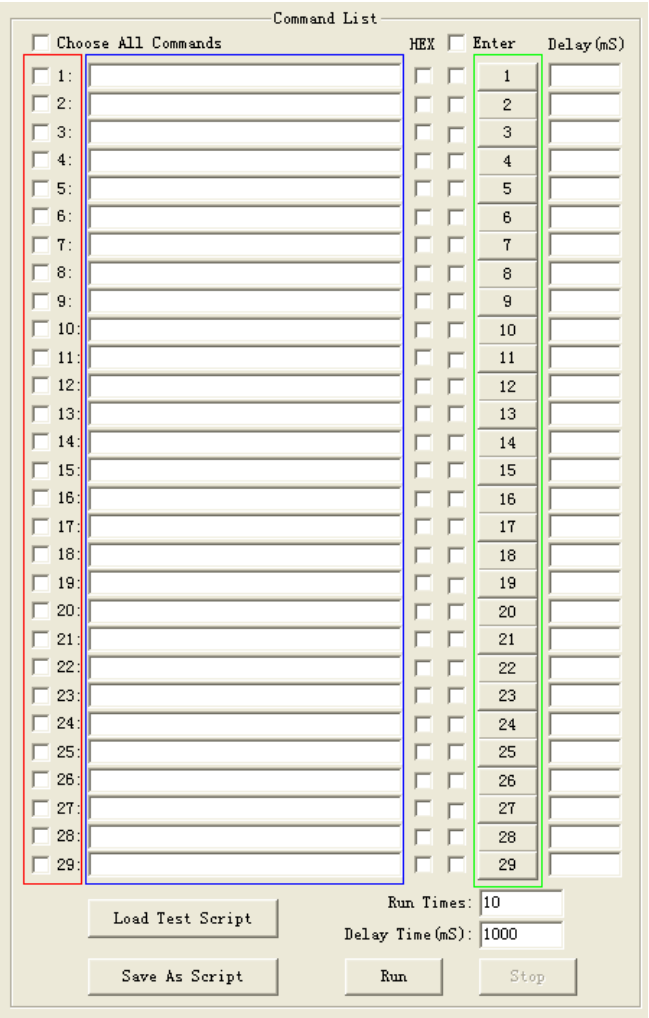


Figure 12: Sending data continuously.

Figure 13 shows how to connect the QCOM tool to USB modem on port COM47. Once you specify the COM port as 47, Baud rate as 115200, click **Open Port**. You can exchange AT commands with the modem including registering on mobile operator network, query the GPS location, signal strength.

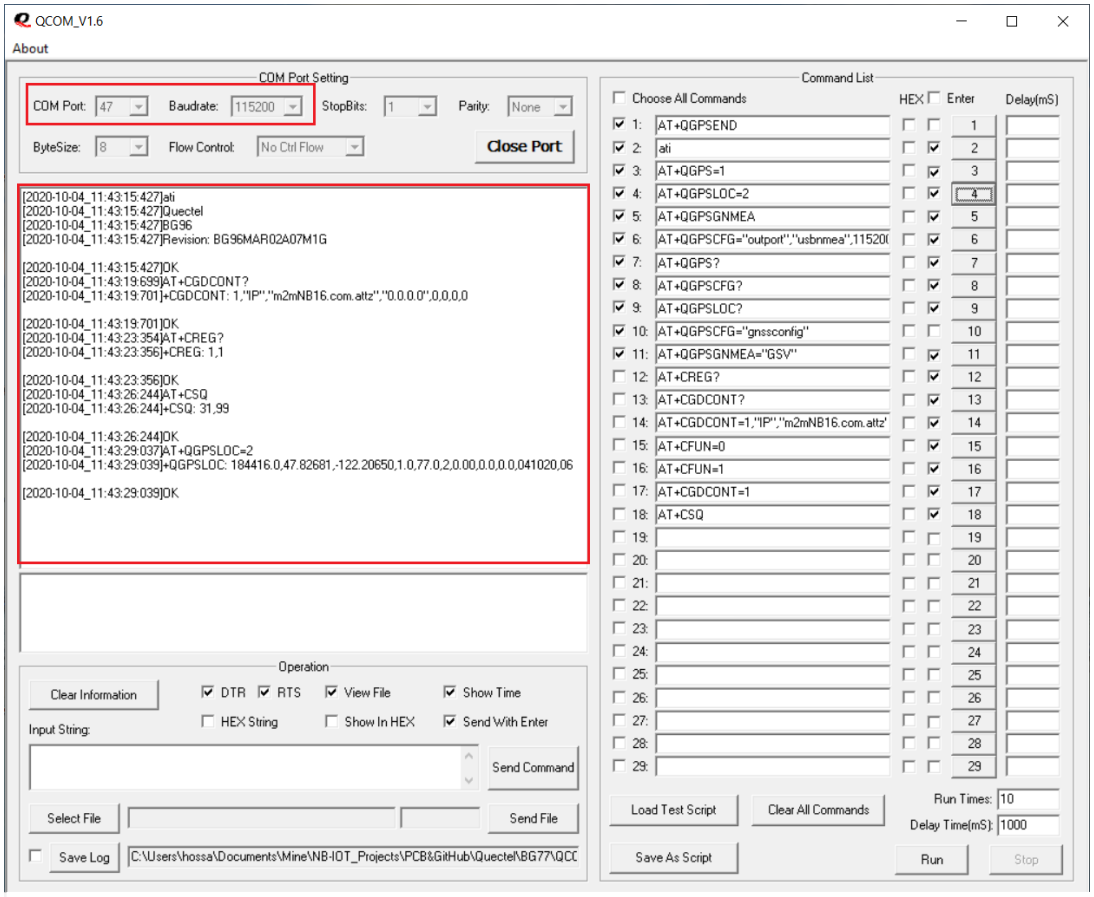


Figure 13: Connecting QCOM tool to USB modem on port COM47.

The following shows more examples of using AT commands.

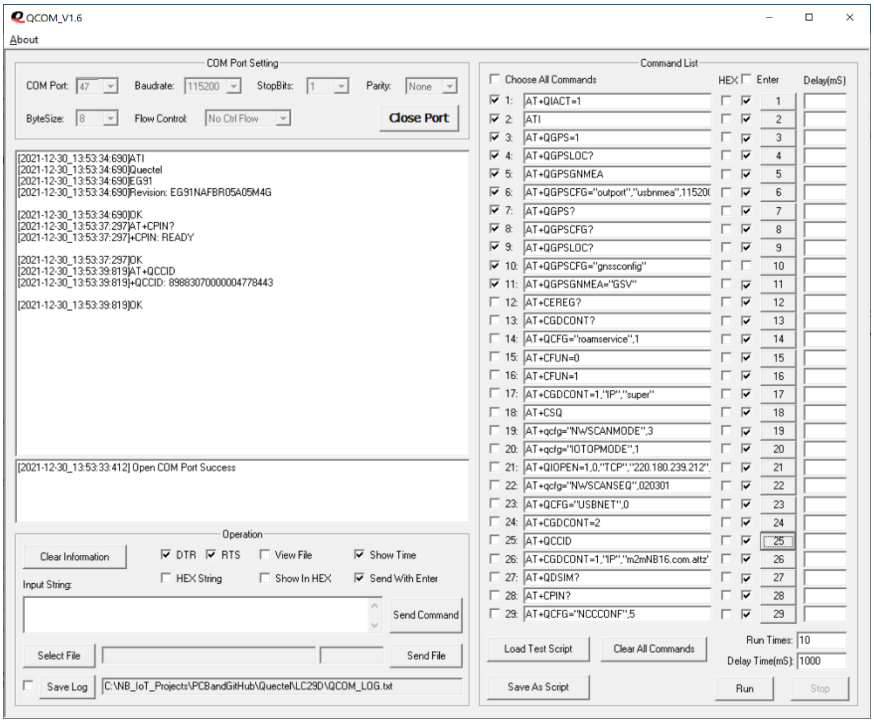


Figure 14: More AT commands examples using QCOM tool.

At the same time, you can launch another instance of QCOM tool and connect to the **USB NMEA Port (COM49).** Once you open the port to COM49, you can see all GNSS NMEA sentences output as in the following figure.

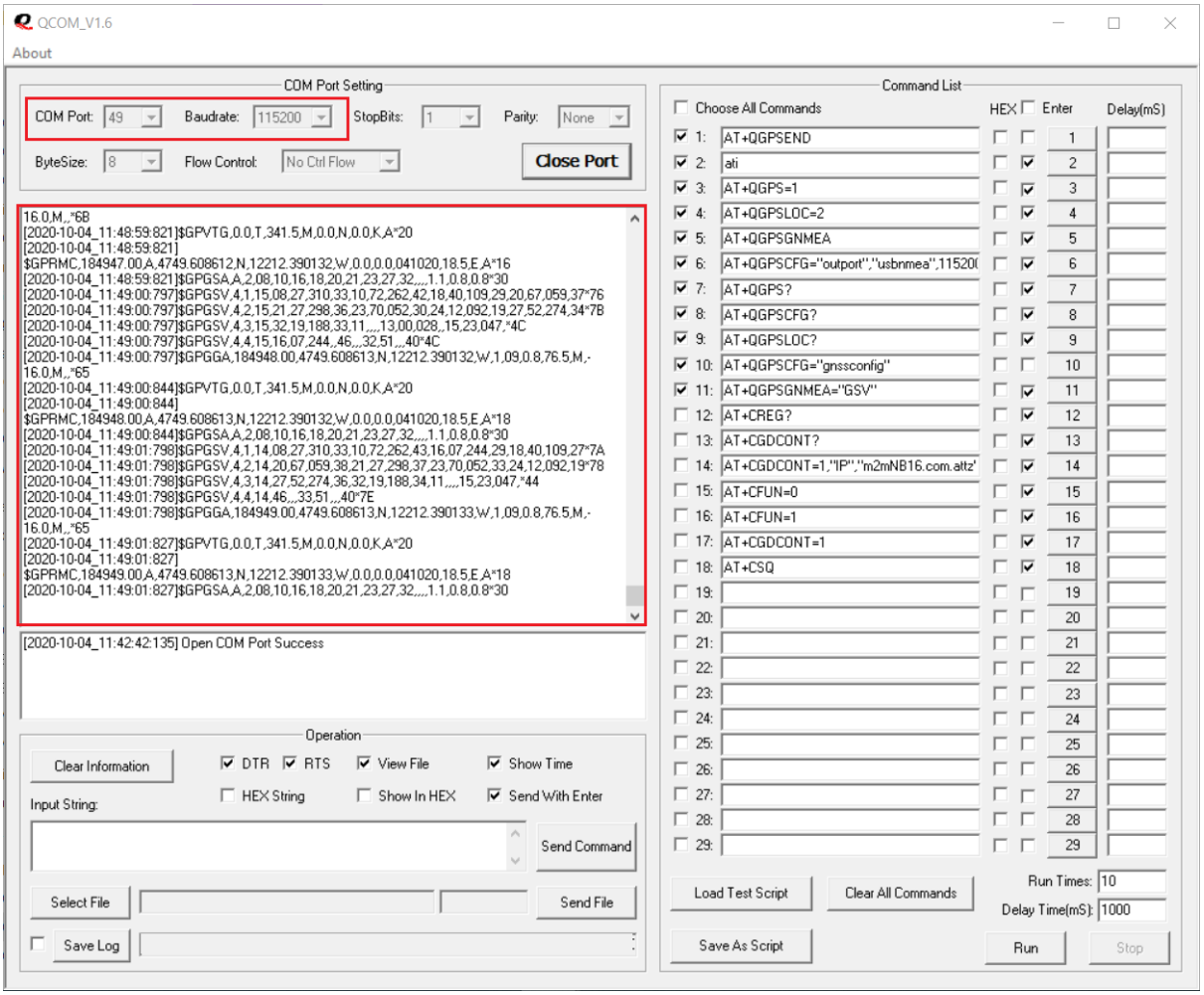


Figure 15: Connecting QCOM tool to USB NMEA port on COM49.