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M20072 Evaluation Kit User Guide

Contents

1. Introduction

The M20072 GNSS Module evaluation kit (EVK) allows the user to test the functionality of the module by using a PC with Antenova's GNSSdemo software or any other NMEA viewing software.

To run the M20072, you will need the following:

*   M20072 EVK
*   PC running Windows 10
*   USB to Micro B USB cable (not supplied)
*   GNSSdemo software

2. Driver setup

USB to UART drivers

The FTDI Chip FT234XD is used for USB to UART interface bridge on the M20072 EVK which requires the latest driver to allow connection to the PC.

Here is the drivers installation steps:

A. In the M20072 GNSSdemo Software and User Guide folder you will find the driver for the EVK. Open the folder 'Driver_FTDI', and click the 'CDM212364_Setup 'app to execute the installation.
B. Follow the setup procedure until completed.
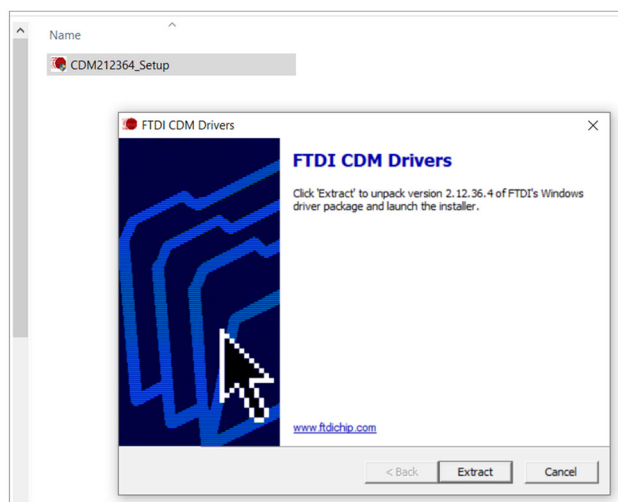
C. After drivers installation is finished, connect the EVK via USB cable, then check the COM port in Device Manager Panel. It will show the COM Port number when the communication is successful.
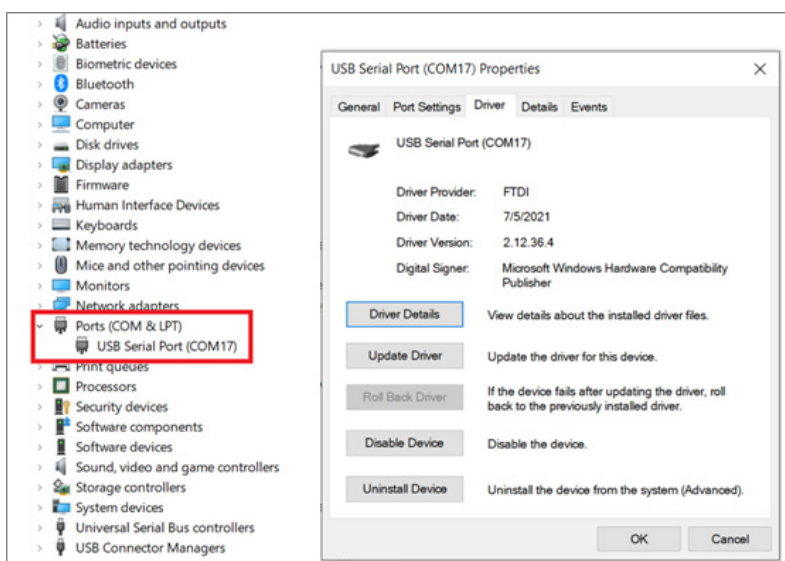
*Note: Do not connect the EVK until the installation is completed.*
For more driver information, please visit : https://ftdichip.com/drivers/vcp-drivers/

3. Evaluation kit description
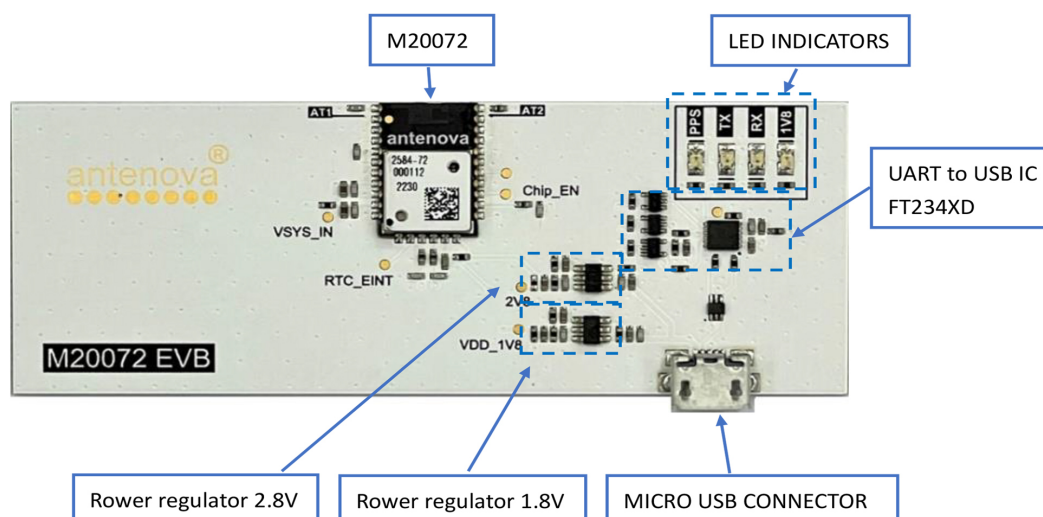
4. Hardware setup

A. Connect the EVK to the PC via the USB cable.

B. The 1V8 and 2V8 LED should now be lit, and the TX LED will begin to flash with module running.

C. Keep the EVK in clear view of the open sky.
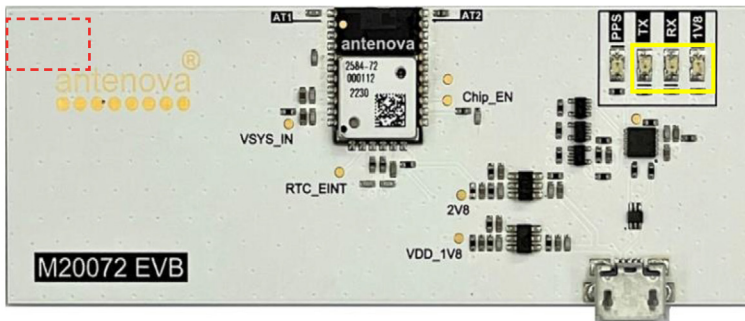
D. When the module has a 3D-fix, the FIX LED will begin to flash.

E. Chip_EN is for HW reset. To initiate a hardware reset, the pin needs to be pulled low for 10ms.

F. When Module is in RTC power saving mode it can be awoken by pulling high the RTC_EINT pin for 1msThe EVK supports external active antenna with 2.8V DC input.

5. ANTENOVA GNSSPC tool

Antenova provides the GNSSdemo software for users to test the functionality of the module.

A. GNSSdemo software tool introduction

- The size of the tool is 33.4MB, and the tool will save the NMEA log automatically for each run. The size of recorded NMEA log is around 600 KB for 10 minutes runtime. Therefore, please make sure that you have enough memory available when installing and running the software tool.
- The NMEA log file is saved in the 'log; folder.

B. Set up the test

- When doing the test, double click GNSSdemo, which is shown in the following image.
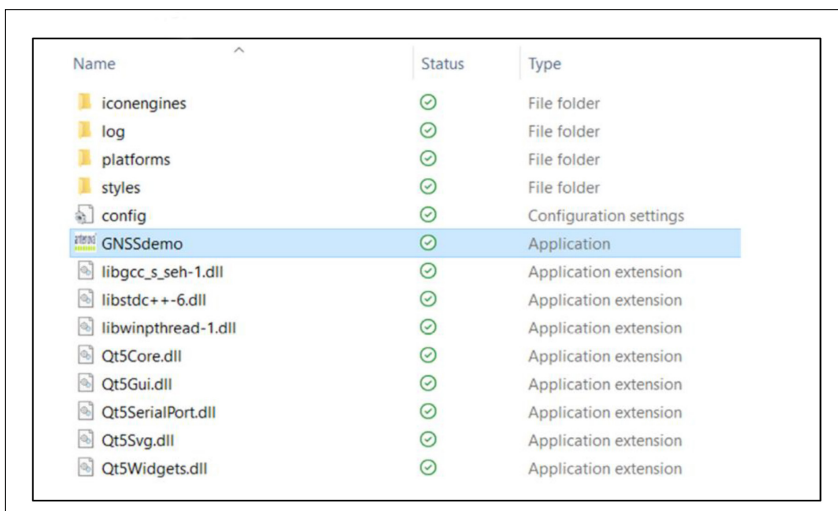
- In the test UI, setup the correct COM Port (the COM port can be checked in Windows Device Manager), Baud Rate is 115200.
- Click Connect button to make the connection between module and PC.
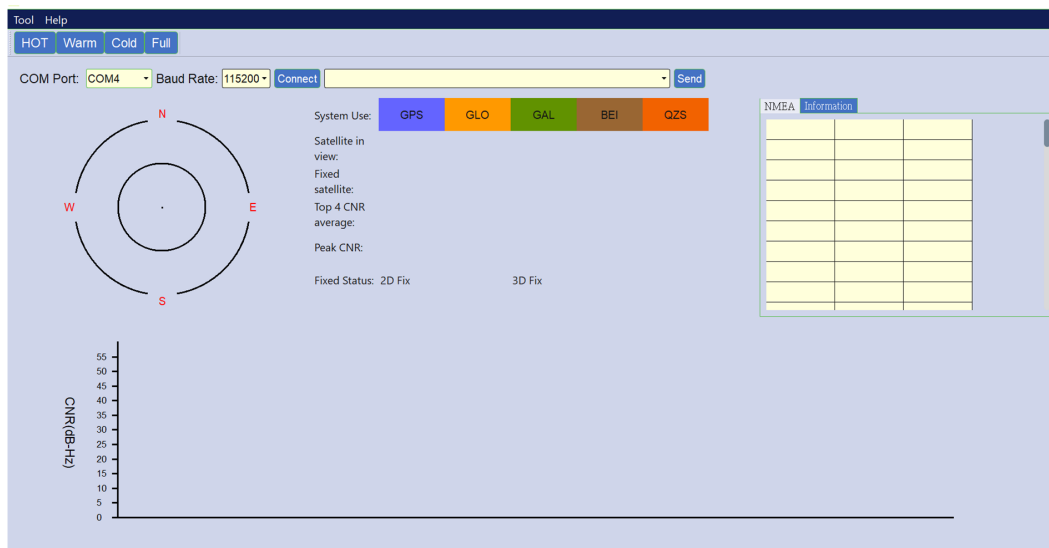
C. Constellation systems and CNR

– There are 5 colors representing the different constellation systems.

BLUE	LIGHT ORANGE	GREEN	BROWN	ORANGE
GPS	GLONASS	Galileo	Beidou	QZSS

– Each received satellite signal is shown with CNR and located in NESW chart.
– The satellite's ID can be shown by clicking the fixed satellite column.

D. NMEA and information window

– The real time NMEA message is shown in NMEA window, and real time positioning data is shown in the information window.

E. TTFF testing

– The user can perform the TTFF by clicking on HOT, Warm, Cold, and Full button, or the user can use TTFF test at Tool Menu to calculate the TTFF time.

F. Sending command

- The module can be controlled by sending the PAIR command. This GNSSdemo software tool simplifies the command sending mechanism, so that the preamble ($) and checksum don't need to be entered.
- Here is an example for sending command for Periodic Mode setting. When command sent successfully, there will be a PAIR response shown in NMEA window.
- For more PAIR command information, please refer to "M20072 MTK NMEA Packet Commands rev1.0".

G. Clear data

- In the Tool Menu, Clear Data function is only to clear all the messages shown in NMEA window. It will not clear all the messages saved in log file.

6. Appendix 1 component placement

Here are some functions with schematic illustrated in below for reference.
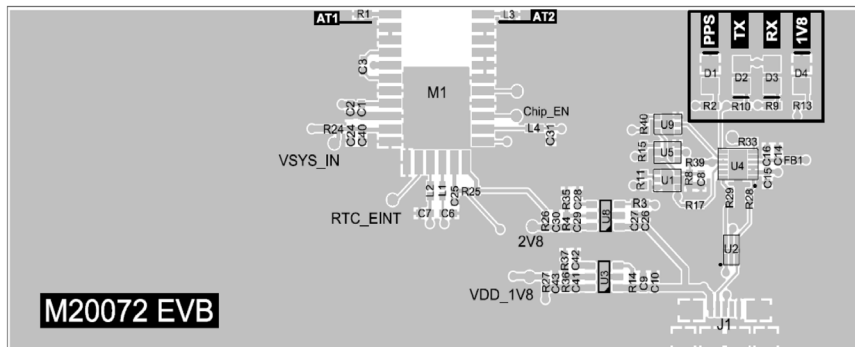
A. UART to USB section

2. Power section

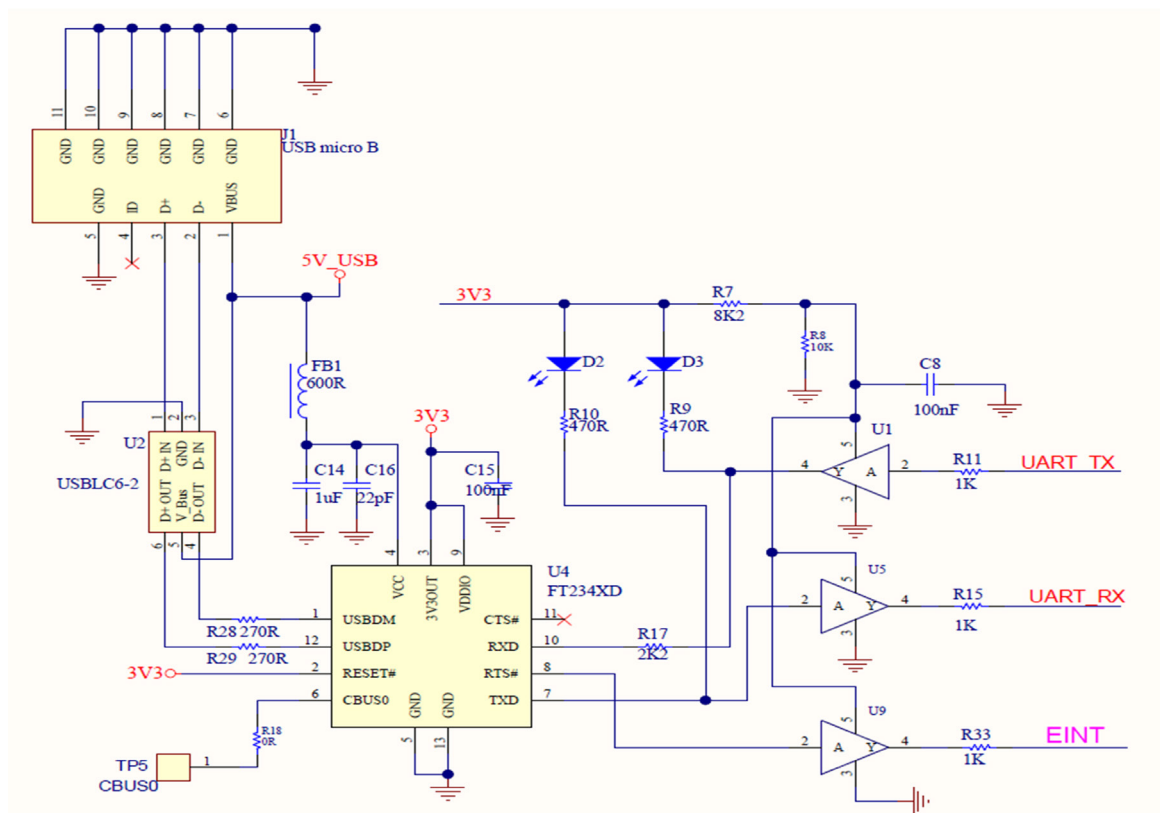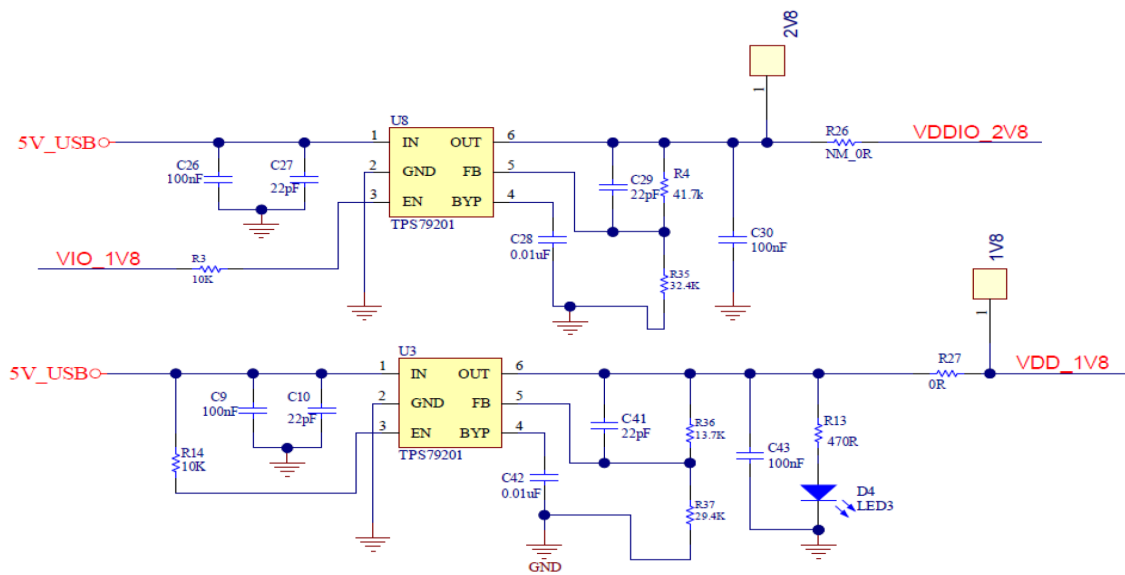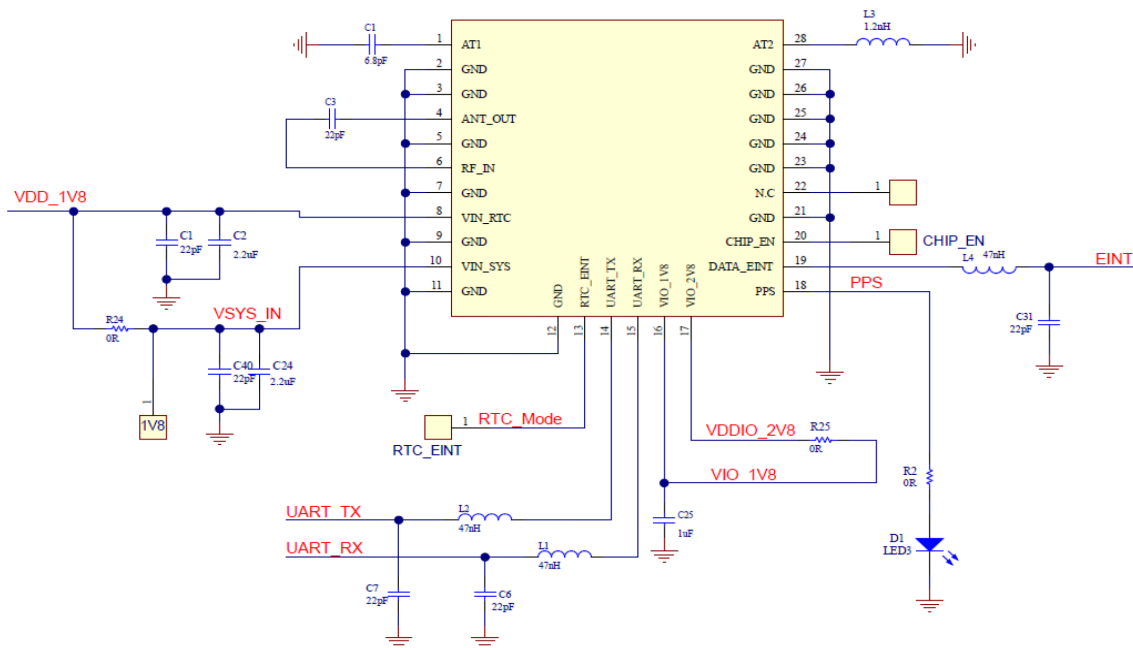

C. Module section

7. Appendix 2 Open Sky TTFF

The M20072 antenna requires the ground plane of the host PCB in order to radiate effectively. Here is the open sky active test for reference.

EVB 80 x 30 mm	TTFF (s)	AVE 4 CN	Peak CN	SV in View
Test 1	31	44	46	12
Test 2	28	44	46	12
Test 3	27	44.5	47	12

EVB 40 x 30 mm	TTFF (s)	AVE 4 CN	Peak CN	SV in View
Test 1	26	41.75	43	10
Test 2	31	42.25	44	11
Test 3	27	42.25	44	11

All data measured with M20072 EVB

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Document version

1.01 released Nov 8th 2022

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