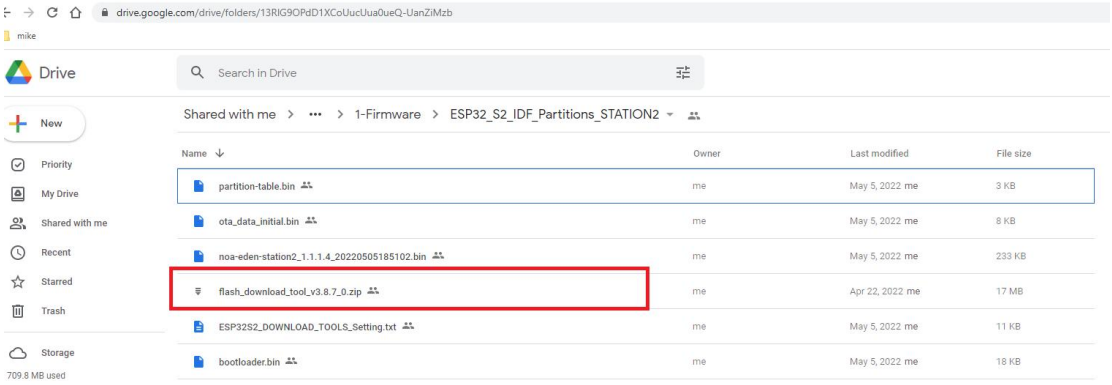
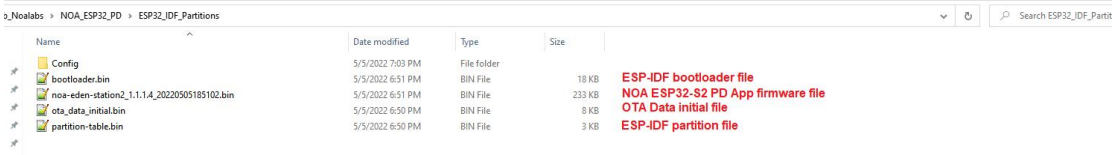
How to burn ES32-S2 IDF NOA PD Firmware
With ESP download tool(1.0.0.7)

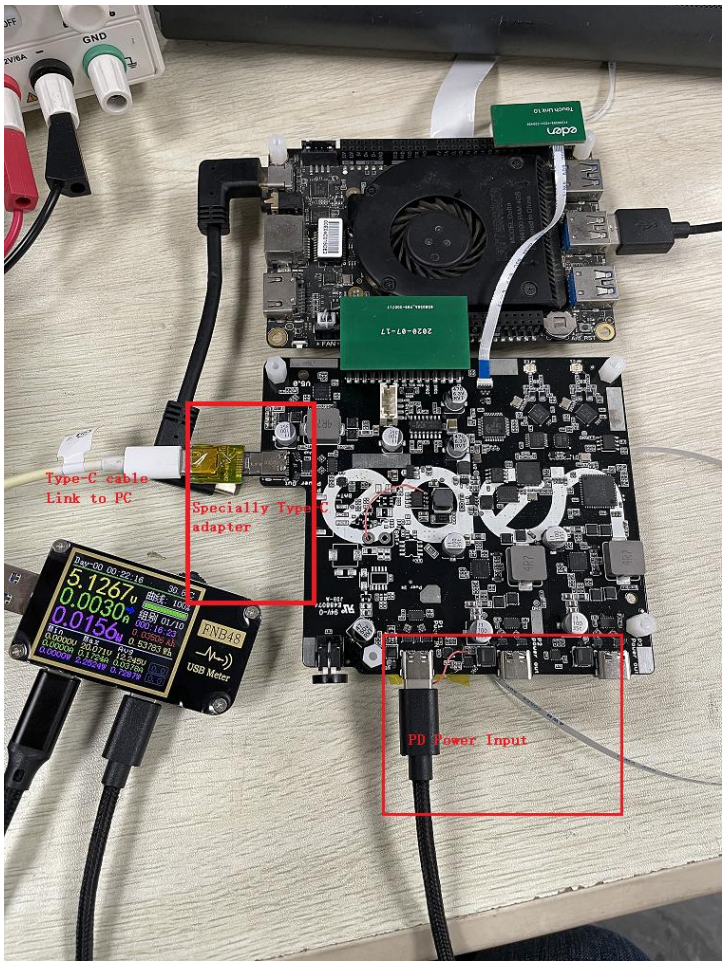
1) Get Firmware download tools(flash_download_tool_3.8.7.zip) from NOA google drive site



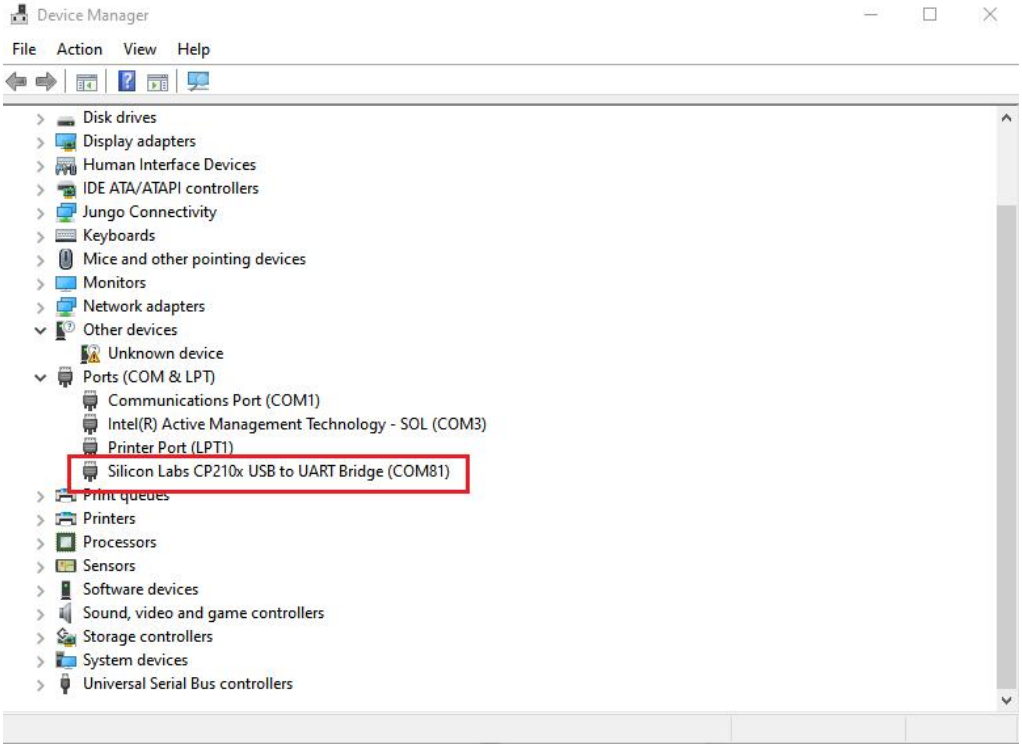
2) Get ES32-S2 IDF NOA PD firmware, put them in a directory



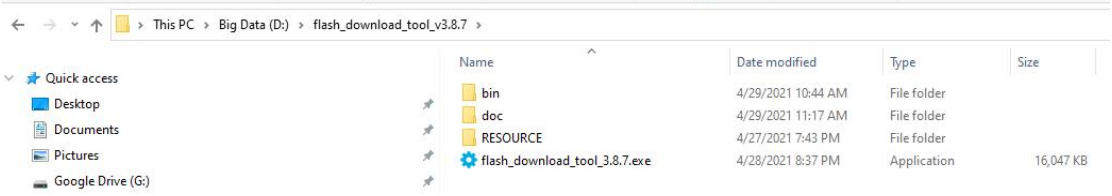
3) Link ESP32-S2 NOA PD Station2 board to a PC via a Specially Type-C adapter and USB Type-C cable



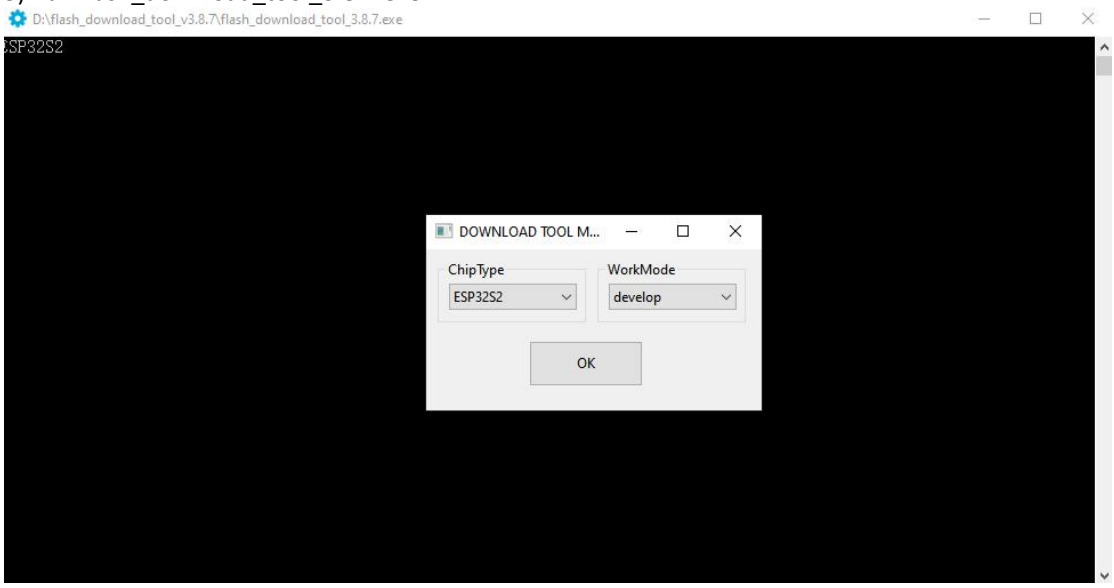
Check A USB Serial Device(COM*) is enabled in PC system



4) Unzip flash_download_tool_v3.8.7_0.zip file in PC to a directory that is named as D:\flash_download_tool_v3.8.7

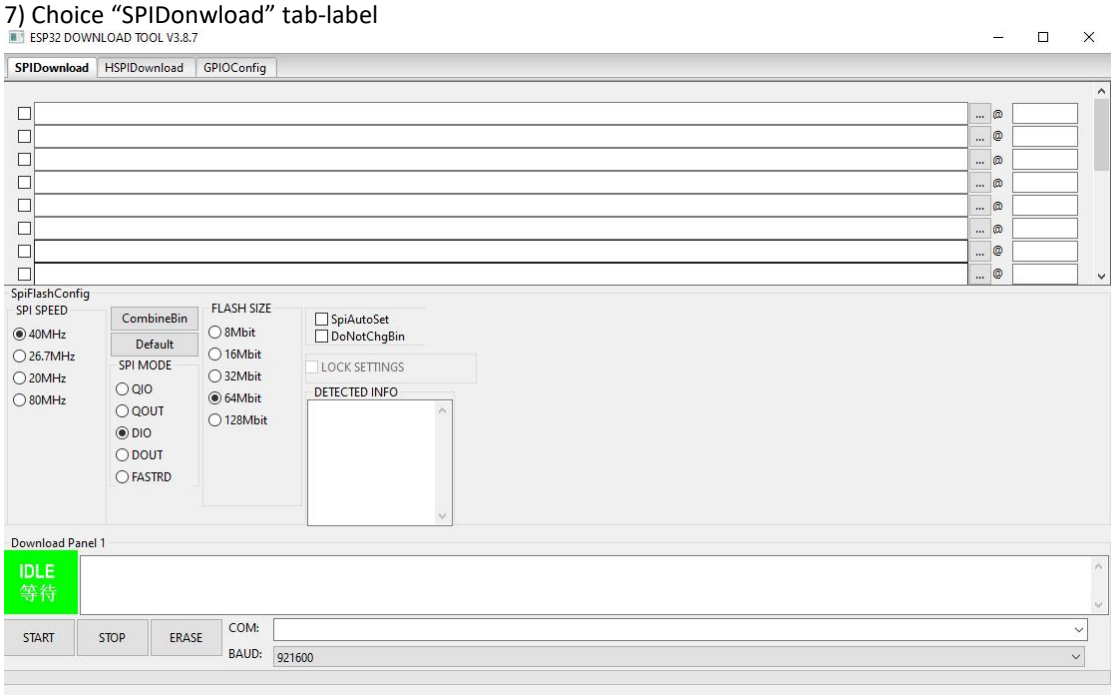


5) Run flash_download_tool_3.8.7.exe

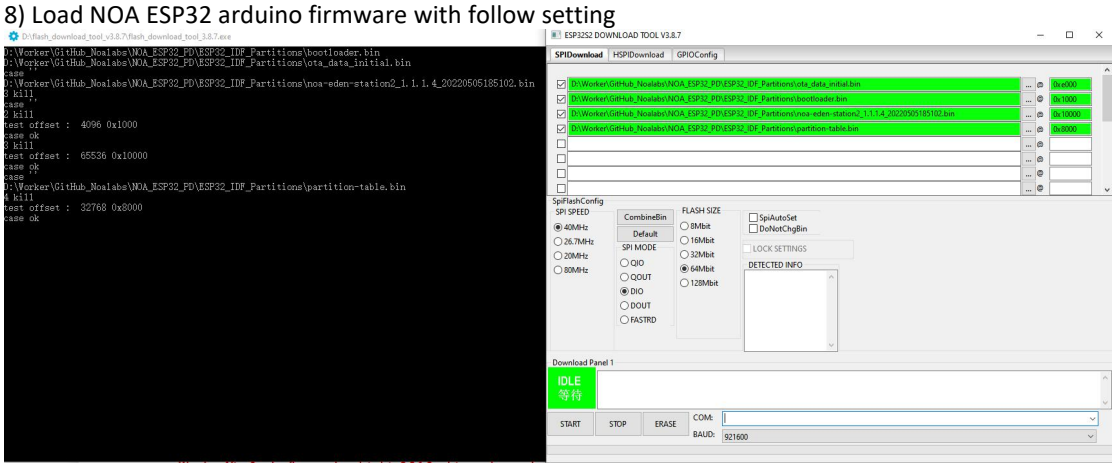


6) Select ESP32S2 for “ChipType” and develop for “WorkMode”, click “OK” for continue

7) Choice “SPIDonwload” tab-label



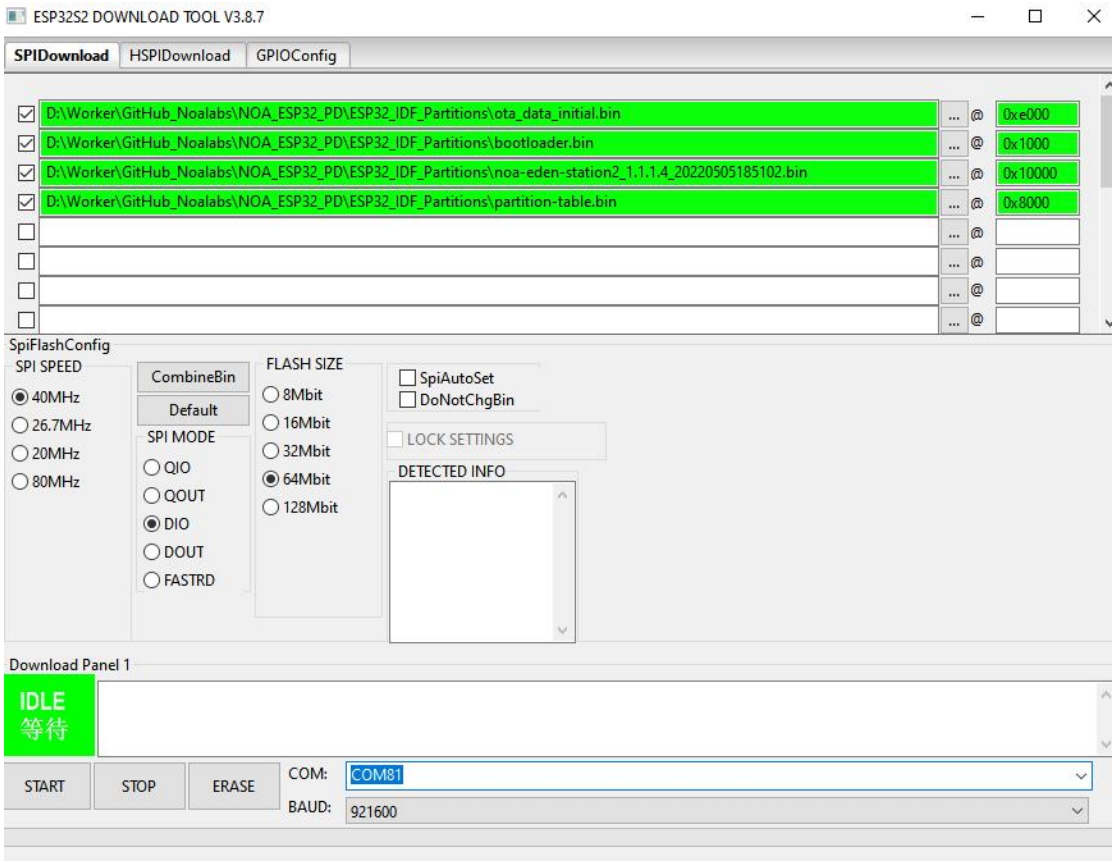
8) Load NOA ESP32 arduino firmware with follow setting



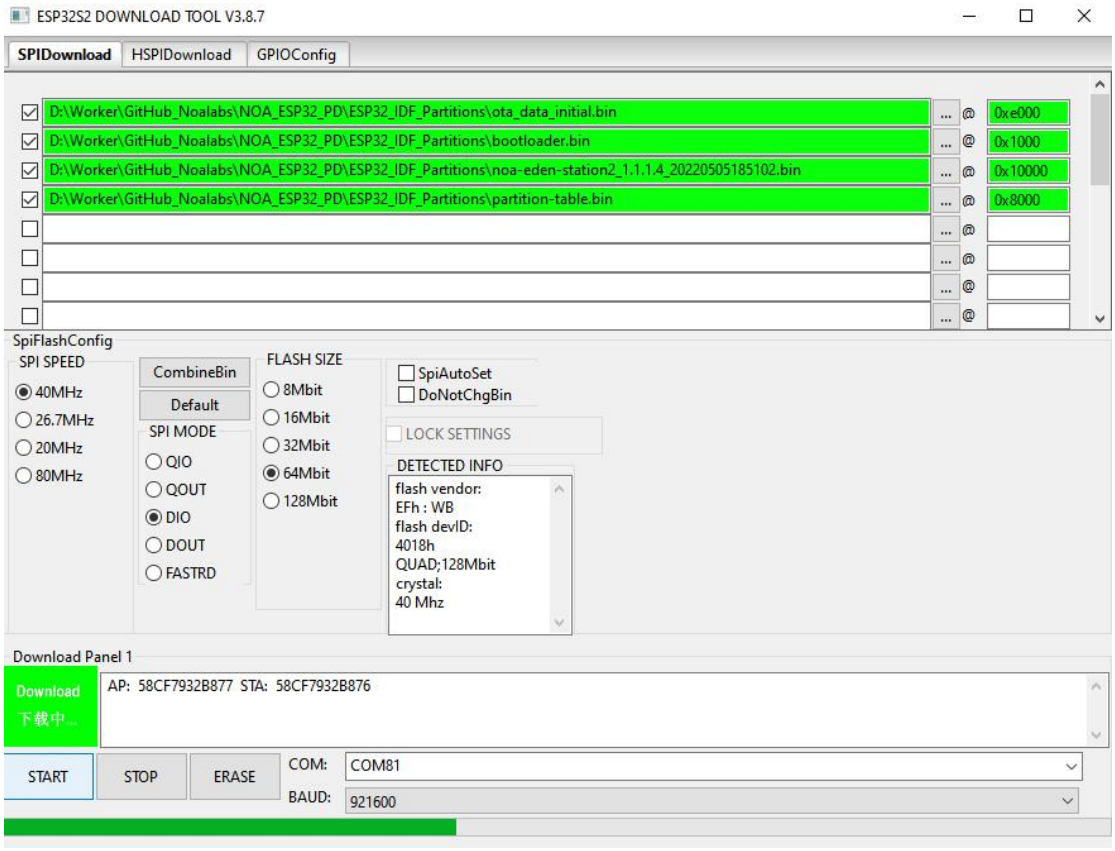
ota_data_initial.bin	0xe000
bootloader.bin	0x1000
noa-eden-station2_x.x.x.x_xxxxxxxxxxxxxx.bin	0x10000
partition-table.bin	0x8000

Set “SPI SPEED” to 40MHz
Set “SPI MODE” to DIO
Select 64Mbit for “FLASHSIZE”
Unchecked “DoNotChgBin”
Make sure “Download Panel1” show a green “IDLE” logo

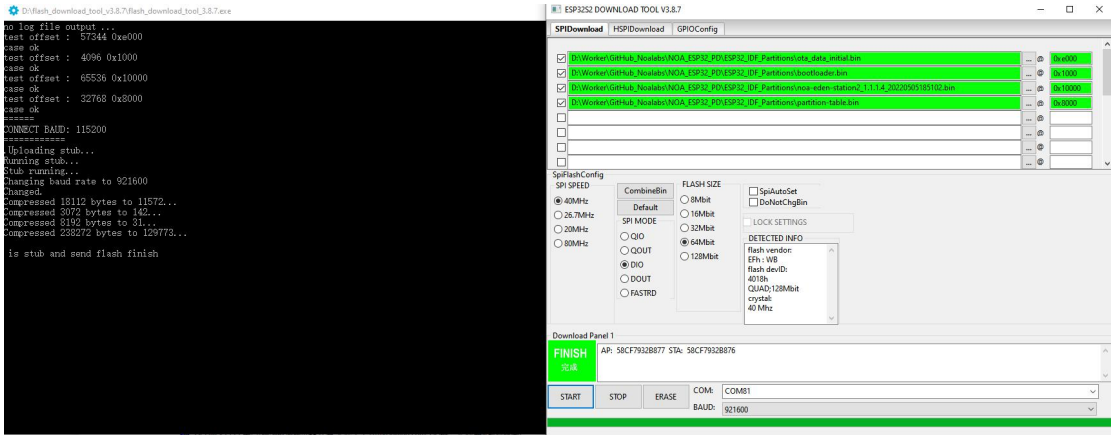
9) Choice the COM port that is enabled in step 3), set the BAUD to 921600 or 115200,



click “START” button to download firmware to NOA PD board

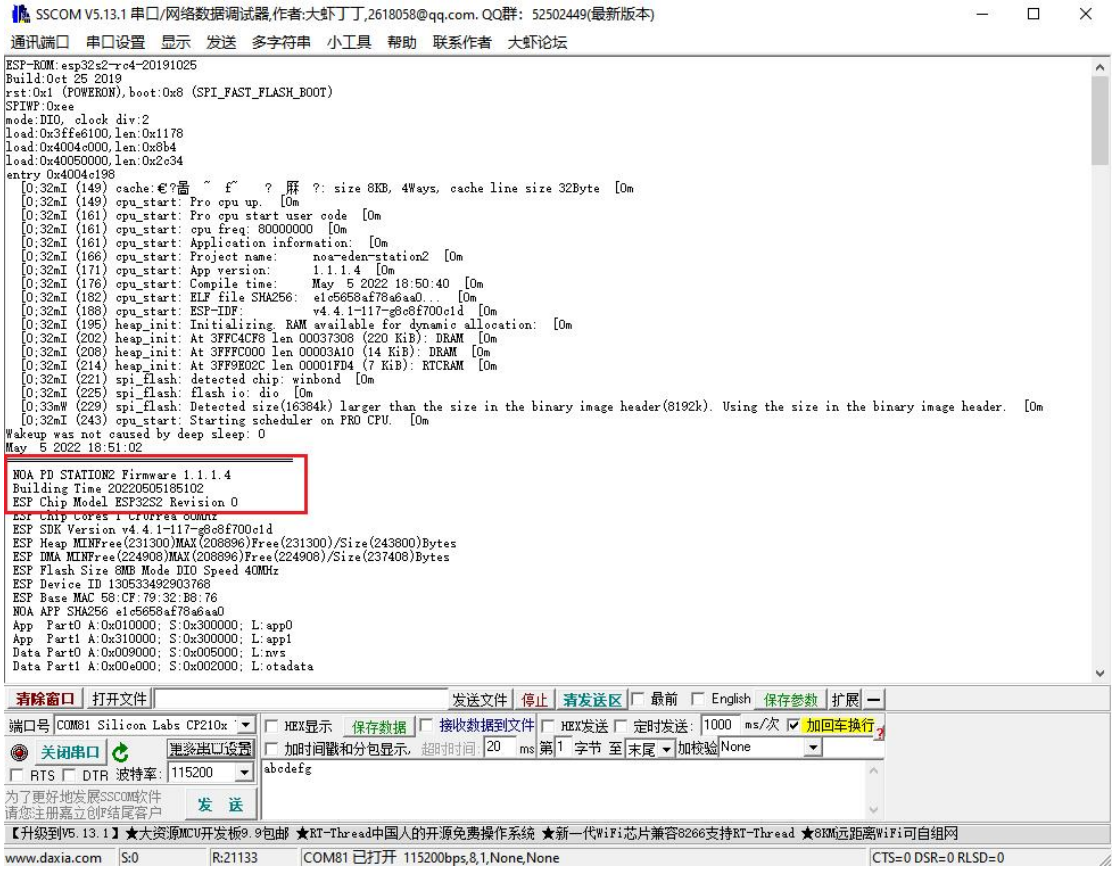


If everything is OK, the tools UI shows green “FINISH” logo for firmware downloading is complete.



click “ERASE” button, the tools can help us erase the SPI flash value and make the flash clean.

10) Close “ESP32 DOWNLOAD TOOL” app to finish the work. Unplug and plug the type-c cable again, open the COM port that is enabled in step 3) with 115200 setting via “SSCOM” tools, it will show some booting log.



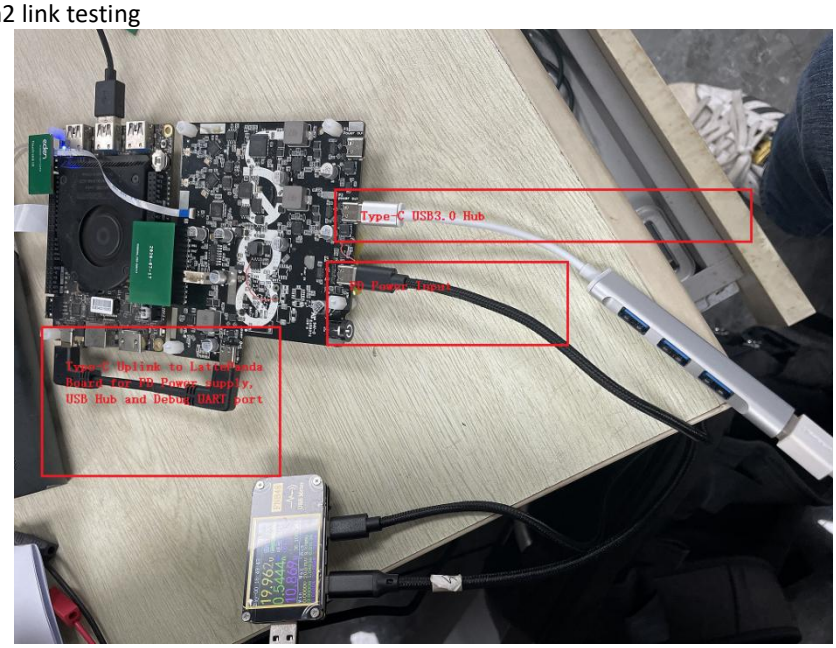
Check the Firmware version and Building Time, if it is same with the NOA ESP32 PD App firmware filename, that is mean the NOA PD board is working with the new firmware.

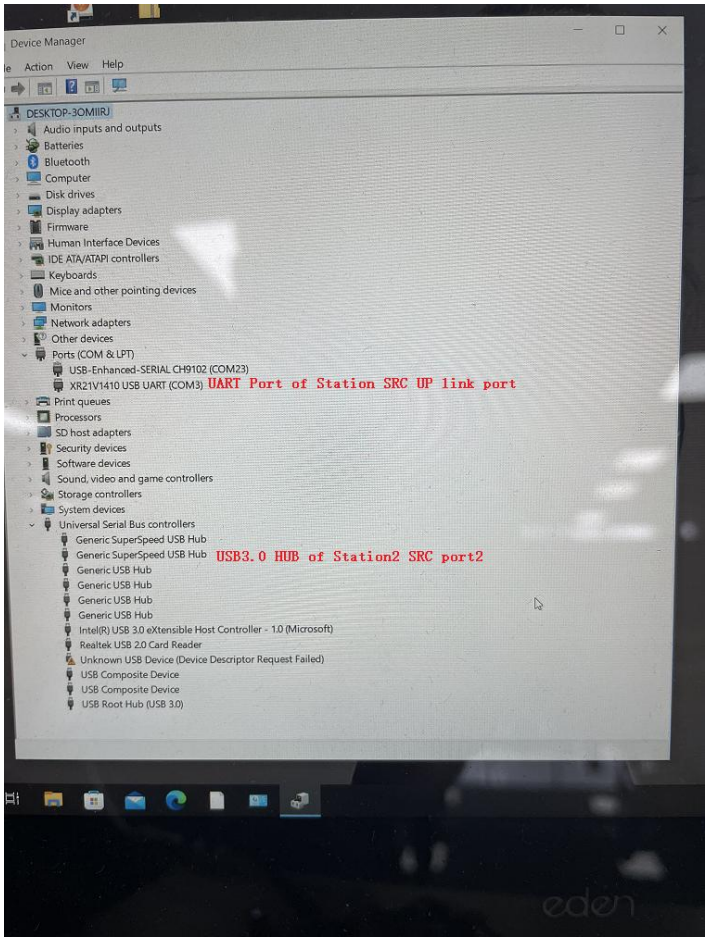
11) Simple Testing

* For all NOA PD devices, the PD SNK port is always request the max voltage output of PD adapter
* For all NOA PD devices, the PD SRC port is zero voltage output without connection in default
* Power Up lattepanda device with PD station board

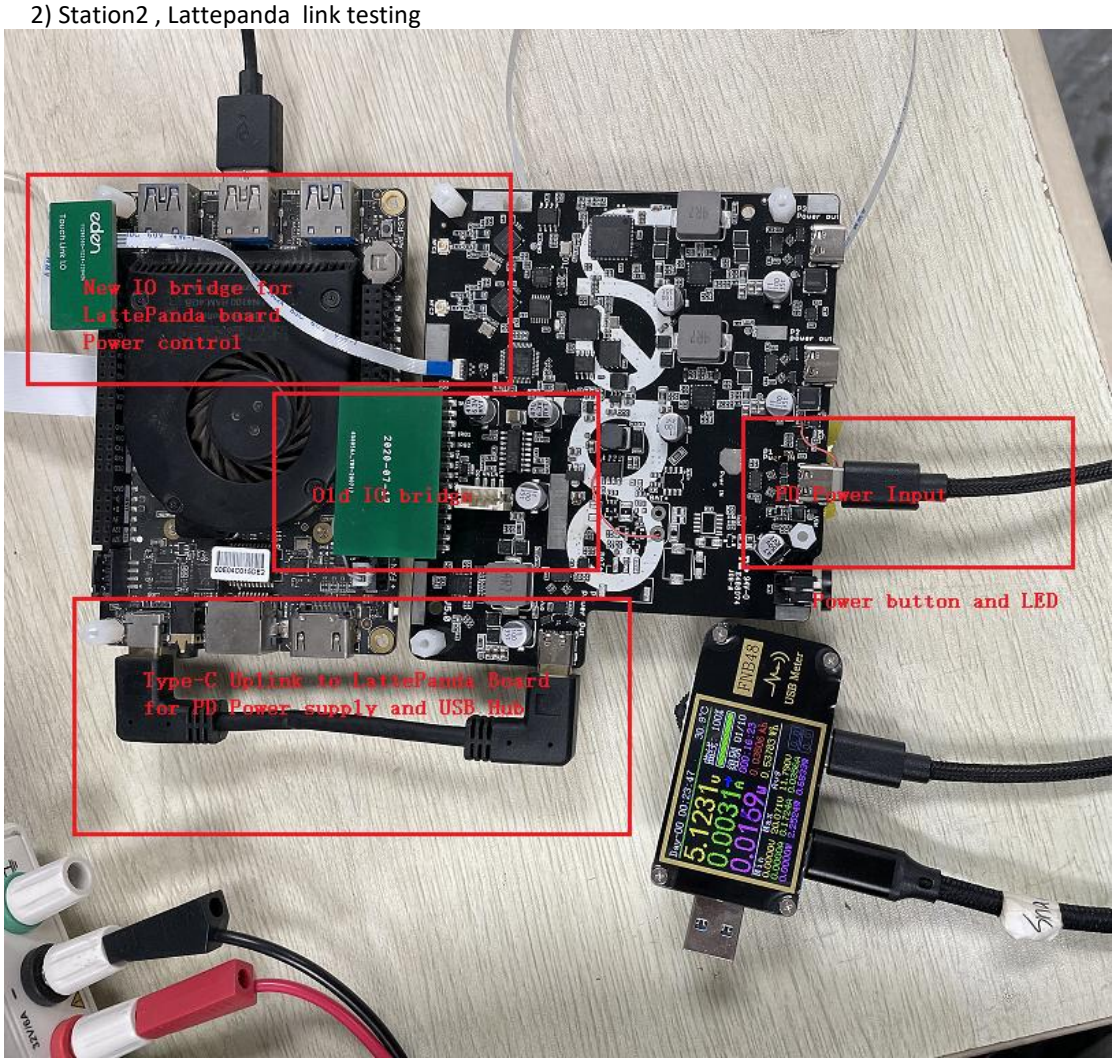
……

* USB HUB link testing
  1) Station2 link testing





2) Station2 , Lattepanda link testing



* Power control of Windows version Latte Panda board with Station2 board

1) Plug input PD power input port from a PD adapter, make sure the Power LED is blinked with 0.5 sec light on and 0.5 sec light off, that is mean the PD power is ready for station2 board

2) Long click(more than 1 sec) Power button to boot up the LattePanda board, make sure the power LED is long light on and LattePanda platform is booting up.

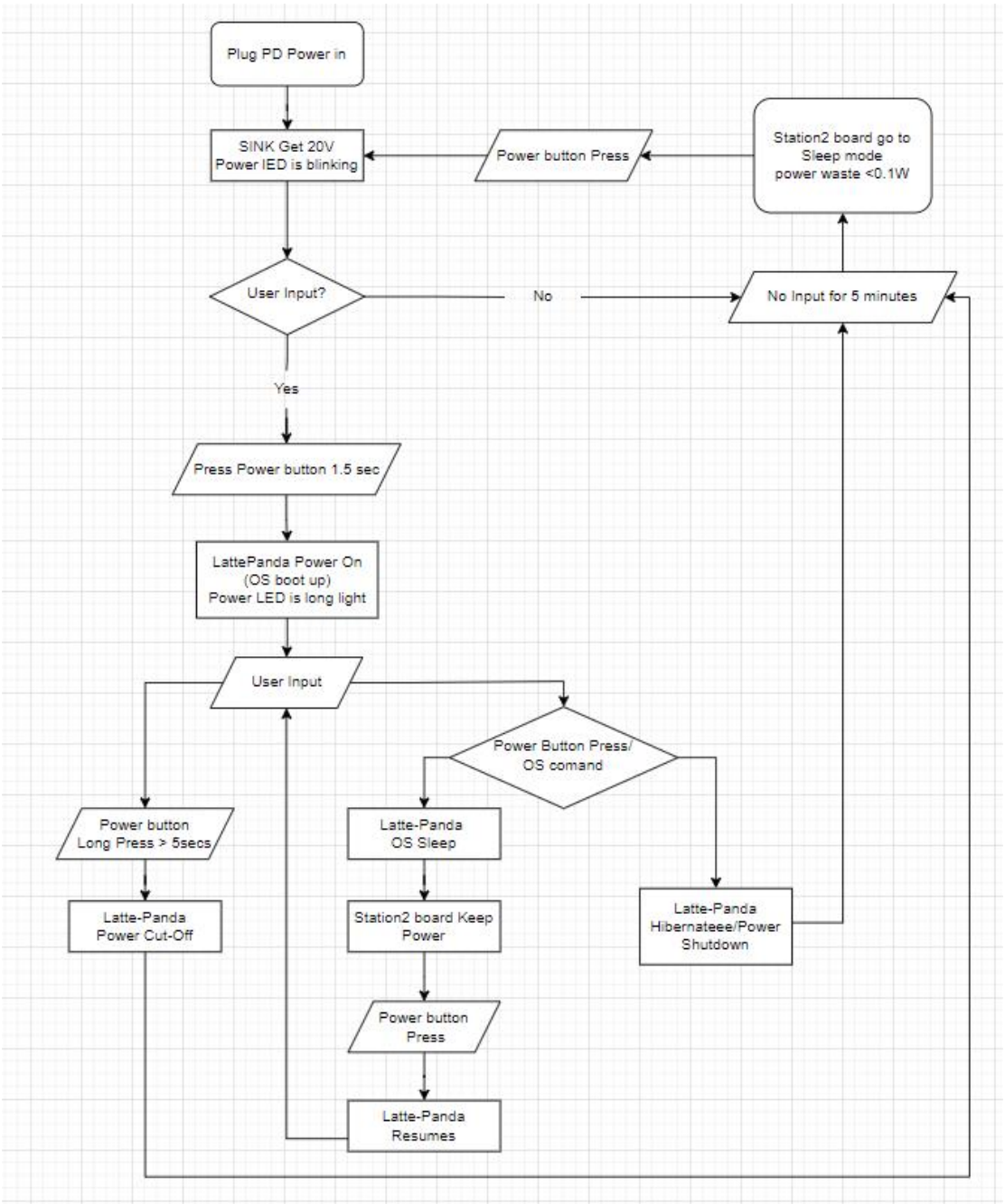
3) After LattePanda platform is boot up, Short click(less than 1 sec) the Power button to shutdown or sleep the LattePanda platform, Long click(more than 3 secs) will cut down the power of LattePanda board

4) After LattePanda platform is Shut Down, Station2 board will be sleep mode after 5 minutes without any control, then the power waste is less than 0.1w

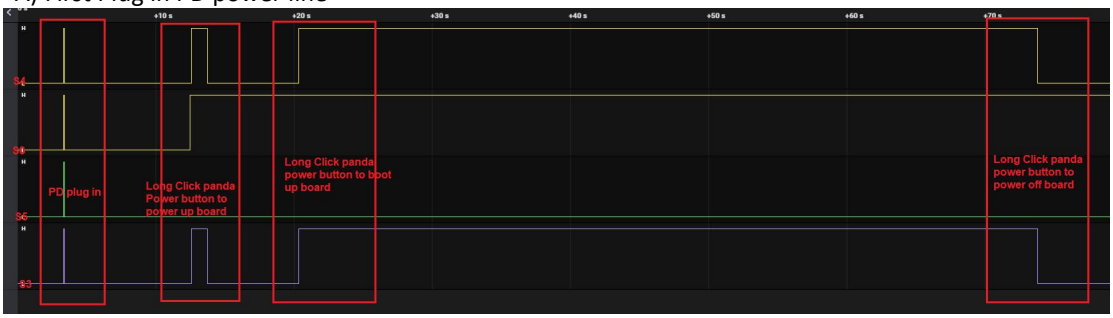
5) When Station2 board is in sleep mode, short click(less than 1 sec) power button can wake up station2 board, Power LED will blink with 0.5 sec light on and 0.5 sec light off again

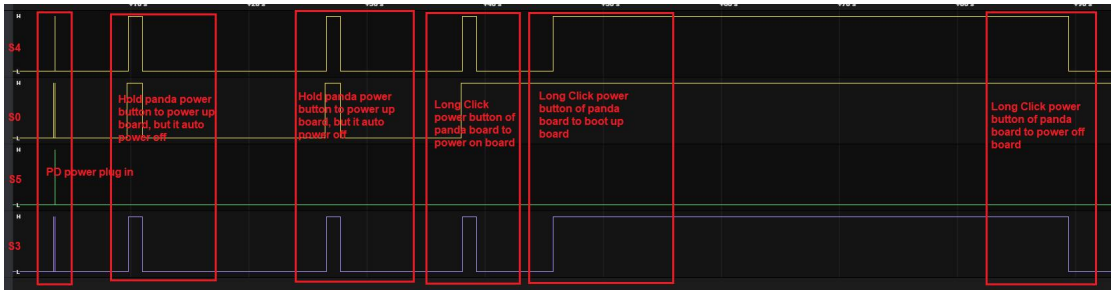
6) Plug input PD power input port from a PD adapter, don’t click any button, station2 board will auto be sleep mode after 5 minutes

7) Hold power button about 12 seconds, station2 board will be sleep mode directly.

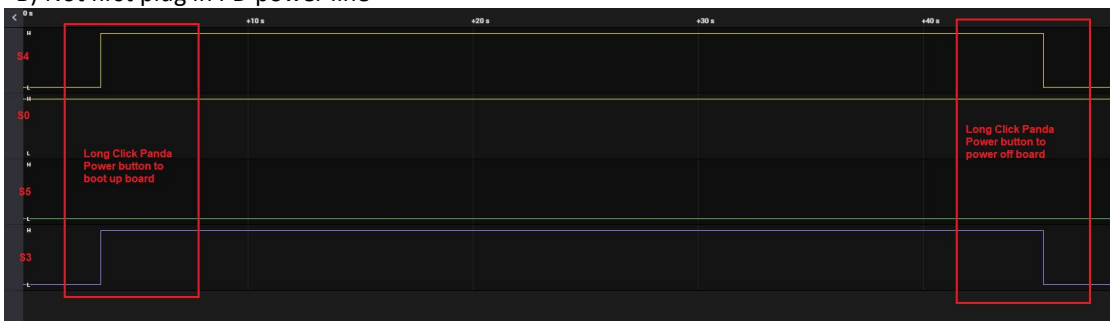


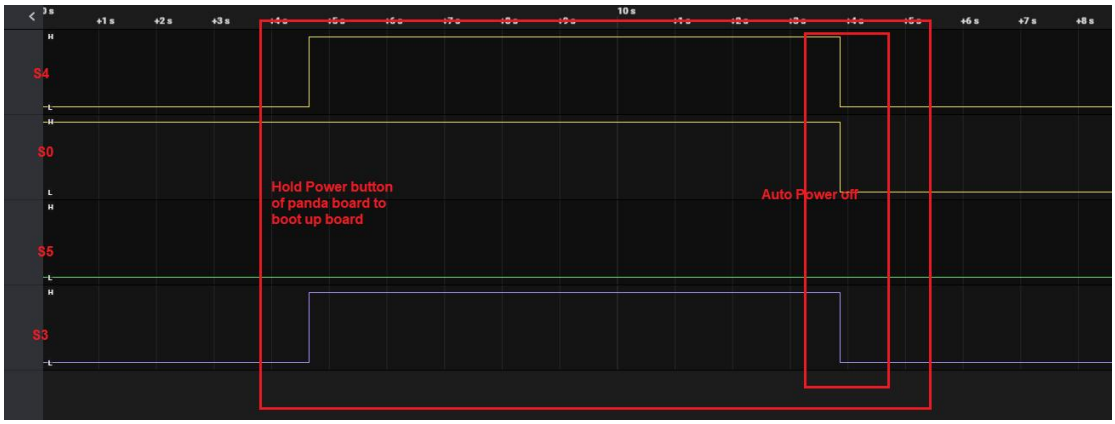
A) First Plug in PD power line



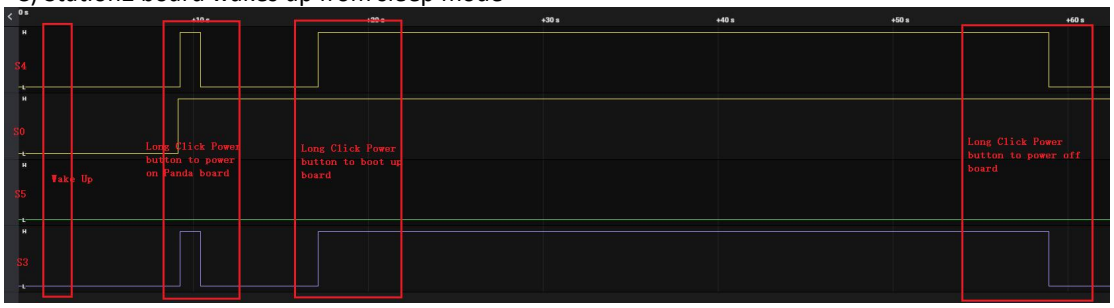


B) Not first plug in PD power line





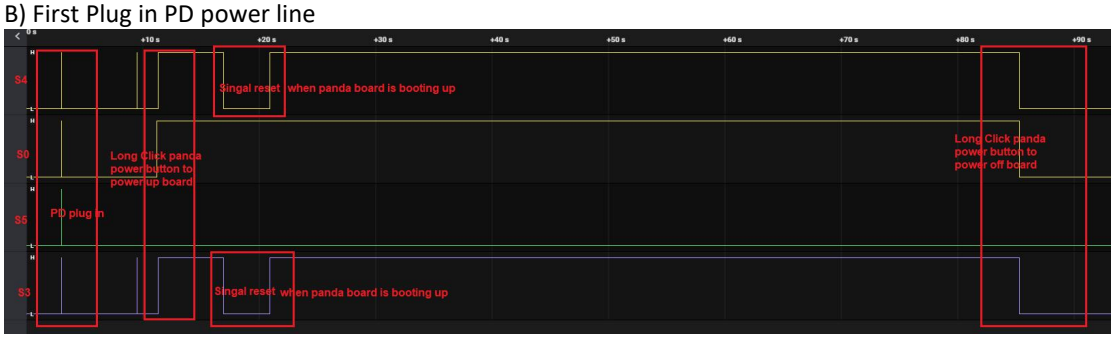
C) Station2 board wakes up from sleep mode



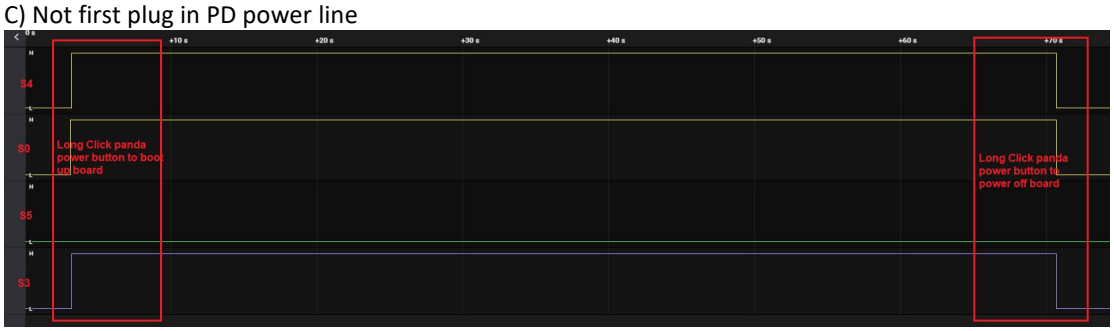
D) .....

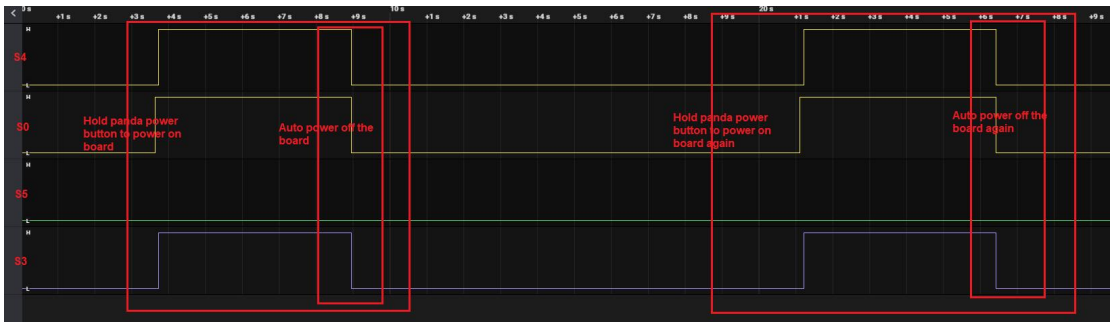
* Power control of Linux version Latte Panda board with Station2 board

B) First Plug in PD power line

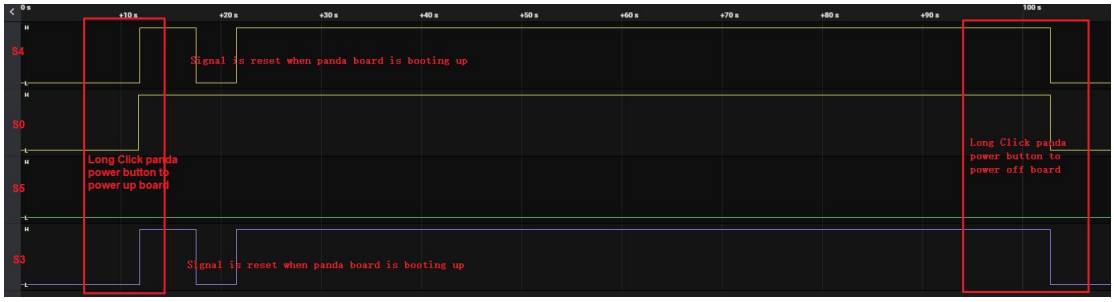


C) Not first plug in PD power line





D) Station2 board wakes up from sleep mode



E) .....

* Power save testing of Station2 board
  1) When Station2 board is boot up and the system of LattePanda board is boot up, the power waste of Station2 board is about 10.4xxx W(19.96x V and 0.5xxx A)
  2) When Station2 board is boot up and the system of LattePanda board is not boot up, the power waste of Station2 board is about 3.1xxx W(20.0xx V and 0.15xx A)
  3) When Station2 board is in sleep mode, the power waste of Station2 board is about 0.01xx W(5.1xxx V and 0.003x A)

* Voltage Value of each ports
.....

12) Note:
  1) Known issues:
    .....
  2) Warning issues：
    *** P0 port of Station2 board is a 15V voltage output, don't link it to any PC USB hub port directly, it will burn the device. The port is linked to LattePanda board only.**

  3) .....