QFlash User Guide

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About the Document

History

Revision	Date	Author	Description
1.0	2012-10-30	Yolanda YAO	Initial
1.1	2012-12-02	Yolanda YAO	Updated QFlash version to 1.1
1.2	2013-02-25	Karen REN	Updated QFlash version to 1.4
1.3	2013-05-20	Apple SONG/ Karen REN	Added USB port to upgrade firmware for U10 and UC20 module
1.4	2013-10-10	James CAI	1. Added the way to upgrade GCxx module 2. Updated QFlash version to 2.1
1.5	2013-11-05	Lucky DOU	Updated QFlash version to 2.2
1.6	2013-12-07	James CAI	Updated QFlash version to 2.3
1.7	2013-12-12	Lucky DOU	Updated QFlash version for UC15
1.8	2014-02-11	James CAI	Updated QFlash version to 2.4
1.9	2014-02-26	Steed NING	Updated QFlash version to 2.5
1.10	2014-03-18	James CAI	Updated QFlash version to 2.6
1.11	2014-04-24	Anny ZHANG	Updated QFlash version to 2.7
1.12	2014-06-25	James CAI	Updated QFlash version to 2.8
1.13	2014-08-13	Martin LI/ Roddick SUN	Updated QFlash version to 2.9
1.14	2014-10-08	Martin LI	Updated QFlash version to 3.0
1.15	2014-11-11	Mario XU	Updated QFlash version to 3.1
1.16	2015-03-05	Jesse ZHANG	Updated QFlash version to 3.3

1.17	2015-06-03	James CAI	Updated QFlash version to 3.4
1.18	2016-03-24	James CAI	Updated QFlash version to 3.5
1.19	2016-06-16	Sophie ZHU	1. Added the way to upgrade Ecxx module 2. Updated QFlash version to 3.6
1.20	2016-09-26	Dylan LIU	1. Added the way to load APP firmware 2. Updated QFlash version to 3.7
1.21	2017-07-24	Abby WU/ Upton XU	1. Added the way to upgrade SCxx and AG35 modules 2. Updated QFlash version to 4.3
2.0	2017-09-28	Joy WANG	1. Updated QFlash version to 4.4 2. Added information about applicable modules
2.1	2017-11-29	Joy WANG	1. Updated QFlash version to 4.5 2. Added the way to upgrade BC95 module
2.2	2018-01-03	Joy WANG	1. Updated QFlash version to 4.6 2. Added a note about firmware downloading in Firehose mode for Ecxx modules
2.3	2018-04-25	Kitty WANG	Updated QFlash version to 4.7
2.4	2018-05-21	Kitty WANG	1. Updated QFlash version to 4.8 2. Added notes about tool and firmware paths
2.5	2018-09-14	Kitty WANG	1. Updated QFlash version to 4.9 2. Added the way to upgrade EM12, BC95-G, BC68 and BC66 modules
2.6	2018-12-25	Kitty WANG	1. Updated QFlash version to 4.10 2. Added applicable module MC25, M25 and M26 3. For M26 and MC60 modules (MTK platform), added command line download method to upgrade firmware, in addition to the standard method. (Chapter 2.3.2)
2.7	2019-04-08	Anne QIU	1. Updated QFlash version to 4.11 2. Updated the list of applicable modules (Chapter 1.2) 3. Added the log printing description of BC95-G (Chapter 2.3.1)

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1 Introduction

1.1. OS and Version

This document mainly introduces how to upgrade the firmware with “QFlash” upgrade tool offered by Quectel. The tool can run on a PC without installation if the OS is among the ones listed below:

- Windows XP
- Windows 7
- Windows 8
- Windows 10

Any newer version of the tool will be informed and provided in advance.

1.2. Applicable Modules

QFlash is applicable to the following Quectel modules.

Table 1: Applicable Modules

LPWA Module Series	BCxx: BC95/ BC95-G/ BC68/ BC66 modules
	BG96 module
LTE Standard Module Series	ECxx: includes EC20/ EC25/ EC21 modules
	EG9x: includes EG91/ EG95 modules
	EM05 module
LTE-A Module Series	Ex06: includes EP06/ EG06/ EM06 modules
	EM12 module
Automotive Module Series	AG35 module

Smart Module Series	SCxx: includes SC20/ SC60 modules
WCDMA Module Series	UCxx: includes UC15/ UC20 modules
	UGxx: includes UG95/ UG96 modules
GSM/GPRS/GNSS Module Series	Mxx: includes M10/ M66/ M72/ M80/ M85/ M95/ M65/ MC65/ MC60 modules
	GCxx: GC10 module

1.3. About QFlash Tool

The QFlash tool developed by Quectel is shown as below.

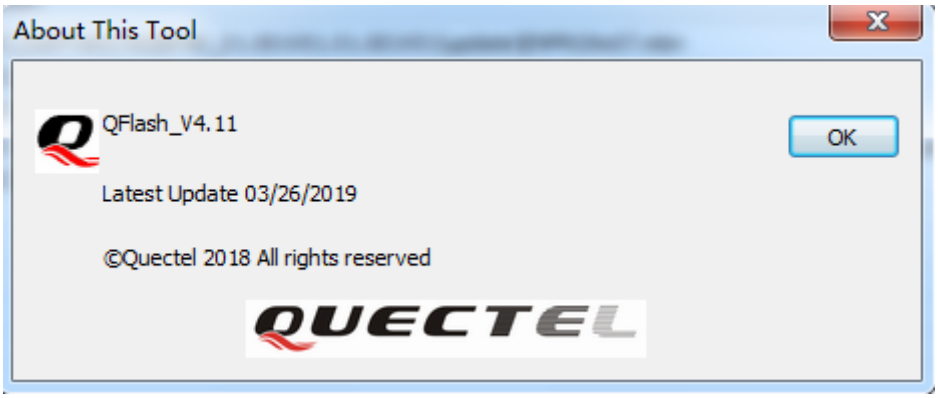

Figure 1: About the Tool

NOTES

1. If the operating system is Win10 and above, please start *QFlash.exe* by right-clicking the icon and selecting "**Run as administrator**".
2. The paths where the tool and firmware are stored should NOT contain any space, and English characters are preferred.

2 Firmware Upgrade Procedures

The firmware can be upgraded through the following three steps by the QFlash tool.

Step 1: Set serial port and baud rate.
Step 2: Load firmware files.
Step 3: Upgrade the firmware.

The following describes the details of how to use the tool to upgrade firmware.

2.1. Configure Serial Port and Baud Rate

After the QFlash tool is started, the main interface is shown as below.

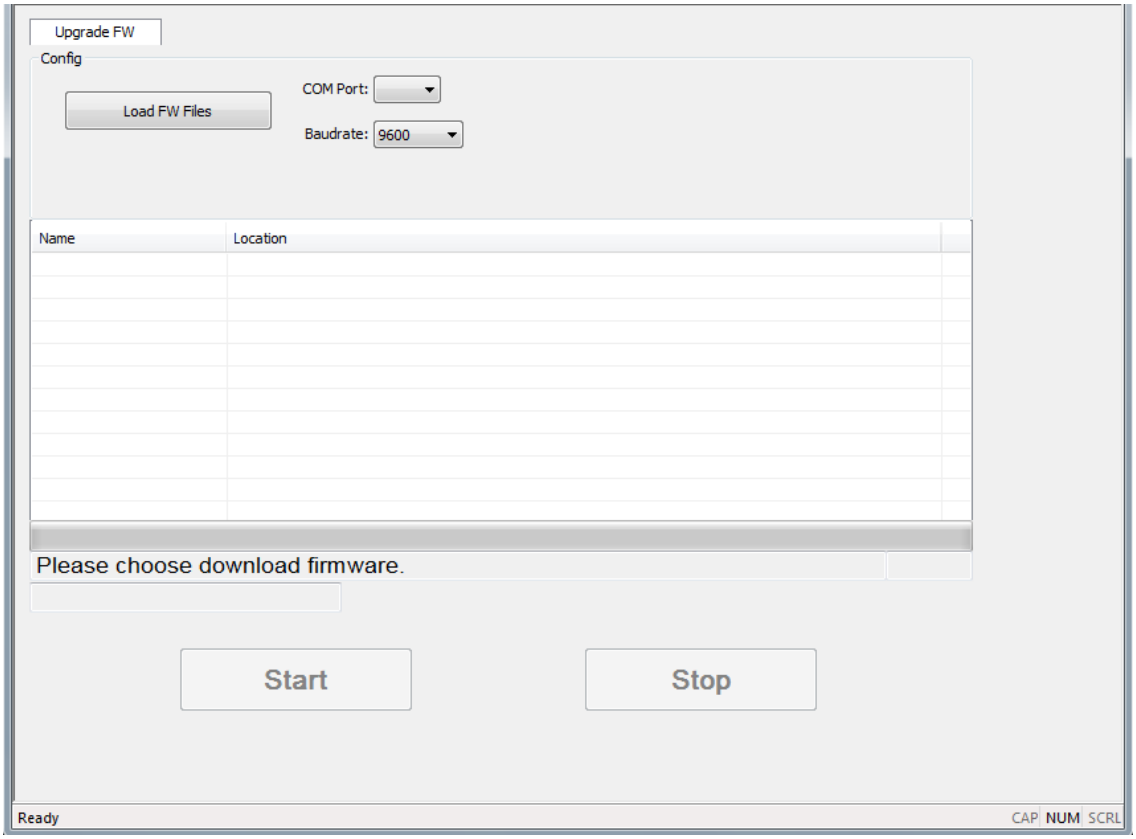

Figure 2: Main Interface of QFlash

2.1.1. Set COM Port

2.1.1.1. COM Port Selection for Mxx/GCxx/BCxx Modules

Click "**COM Port**" dropdown list to select the COM port through which the firmware is upgraded. As shown in the following figure.

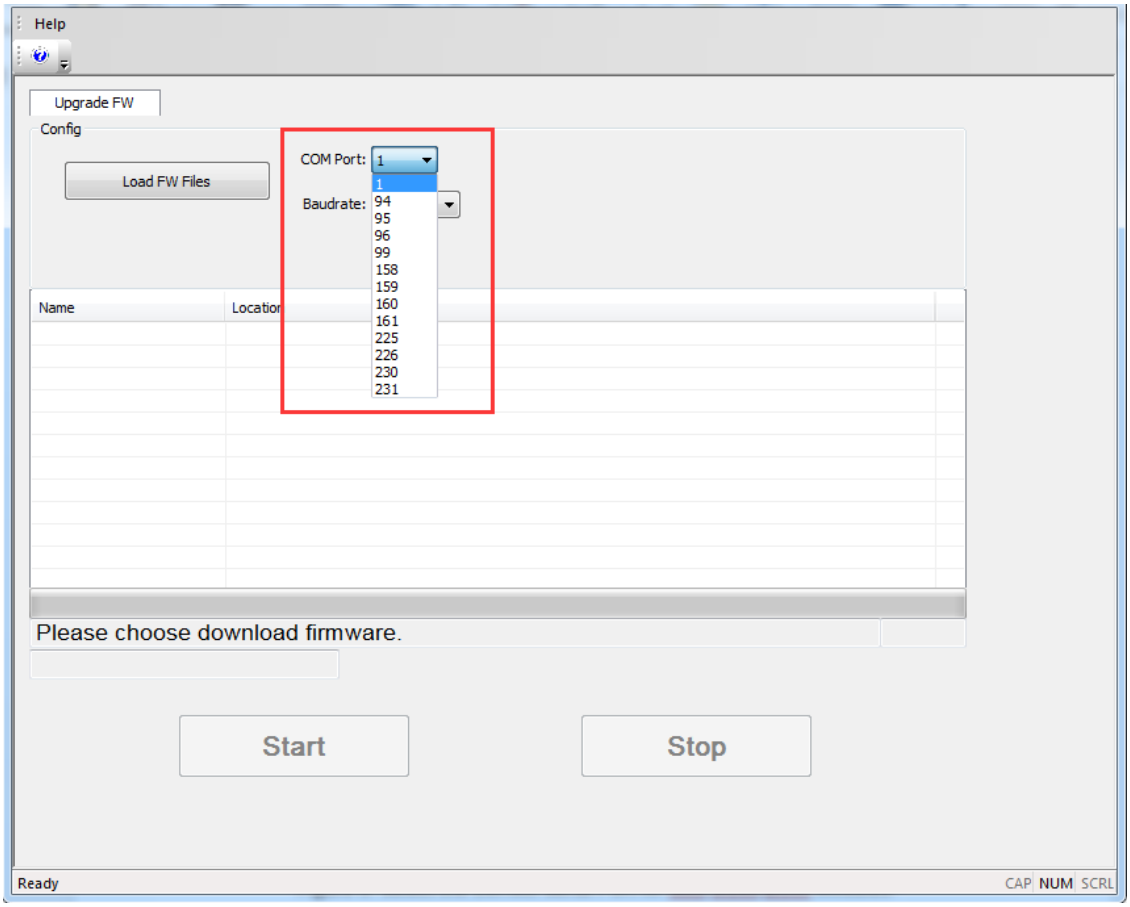

Figure 3: Select the Correct Serial Port for Mxx/GCxx/BCxx Modules

NOTES

1. For Mxx modules (except M65 and MC65), it is the main UART to be used for firmware upgrade. After the port is selected, please manually restart the module.
2. For M65 and MC65 modules, it is the USB port to be used for firmware upgrade, and the module will be automatically restarted after clicking "**Start**" button.
3. For GCxx modules, it is the USB port to be used for firmware upgrade, and then the module will be automatically restarted after clicking "**Start**" button.
4. For BC95 modules, it is the main UART to be used for firmware upgrade. After the port is selected, please click the "**Start**" button and wait for the prompt "**Module Reset By Hand**", and then manually

restart the module.

5. For BC66 module, it is the USB UART Ch A to be used for firmware upgrade. After the port is selected, please click the "**Start**" button and wait for the prompt "**[INFO]Start connect with target,Please reset DUT...**", and then manually restart the module.
6. For BC95-G and BC68 modules, it is the USB UART Ch A to be used for firmware upgrade. After the port is selected, please click the "**Start**" button and wait for the prompt "**reset**", and then manually restart the module.

2.1.1.2. COM Port Selection for UGxx Modules

For UGxx modules, it is the USB port to be used for firmware upgrade, and it can be selected automatically. When firmware files are uploaded, "USB" will be displayed in gray in "**COM Port**" dropdown list. The module needs to be turned off before clicking "**Start**". After clicking "**Start**", please turn on the module within 10 seconds. The interface is shown in the following figure.

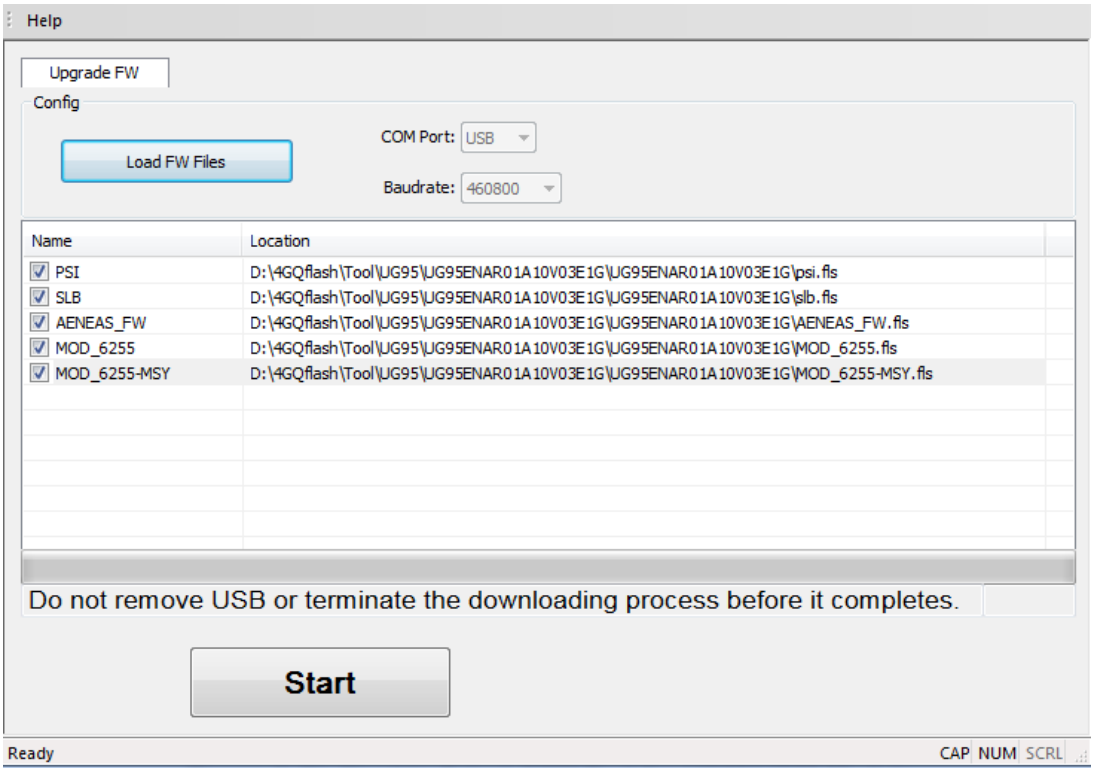

Figure 4: No Need to Select COM Port for UGxx Modules

2.1.1.3. COM Port Selection for UCxx/ECxx/EGxx/Ex06/EM05/AG35/BG96/EM12 Modules

For UCxx/ECxx/EGxx/Ex06/EM05/AG35/BG96/EM12 modules, the USB DM port can be used for firmware upgrade. Click "**COM Port**" dropdown list and select the USB DM port for upgrade, as shown in the

following figure.

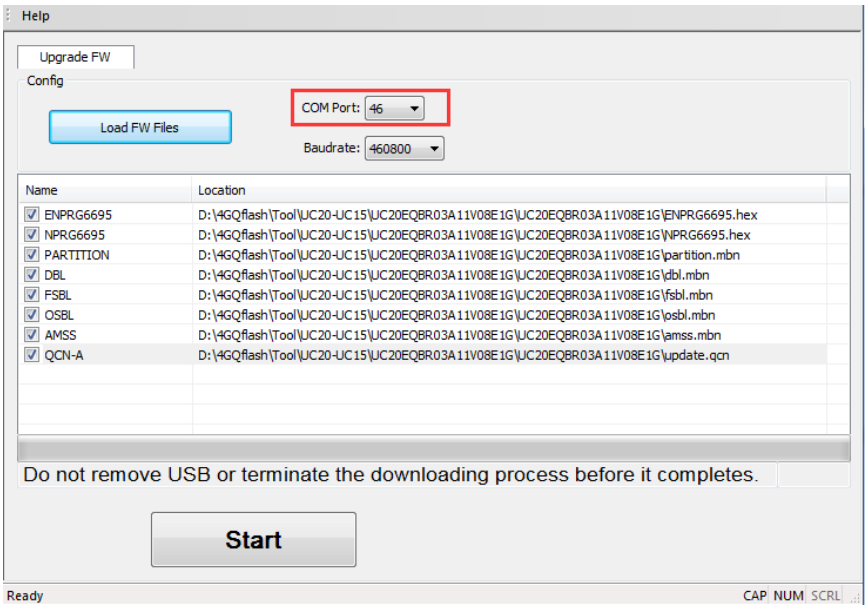

Figure 5: Select the USB DM Port for UCxx/ECxx/EGxx/Ex06/EM05/AG35/BG96/EM12 Modules

2.1.1.4. COM Port Selection for SCxx Modules

For SCxx modules, the HS-USB Diagnostics 9091 port can be used for firmware upgrade. Click "**COM Port**" dropdown list and select the HS-USB Diagnostics 9091 port for upgrade, as shown in the following figure.

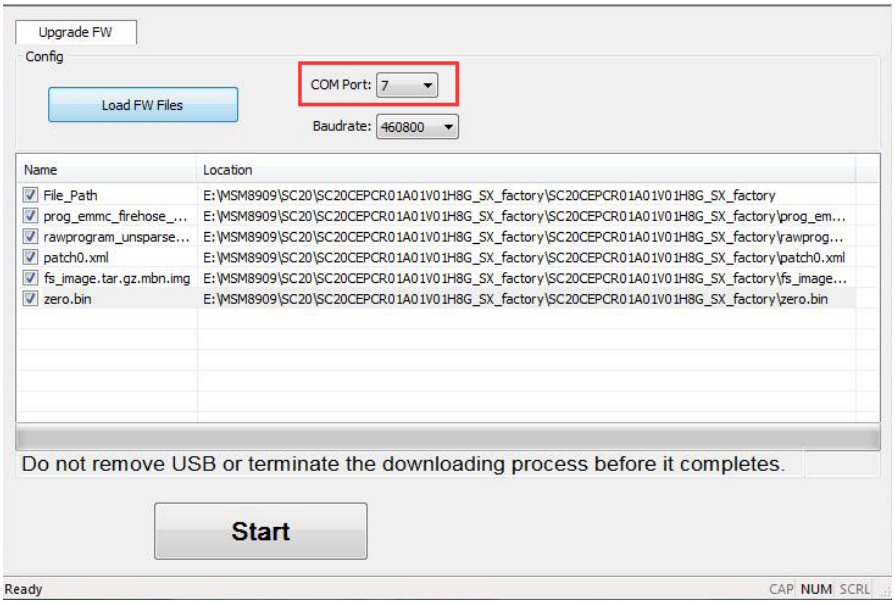

Figure 6: Select the HS-USB Diagnostics 9091 Port for SCxx Modules

2.1.2. Set Baud Rate

Click the "**Baudrate**" dropdown list and select an appropriate baud rate. It is recommended to select 921600 for GCxx modules, 9600 for BCxx modules and 460800 for other Quectel modules, as shown in the following figure.

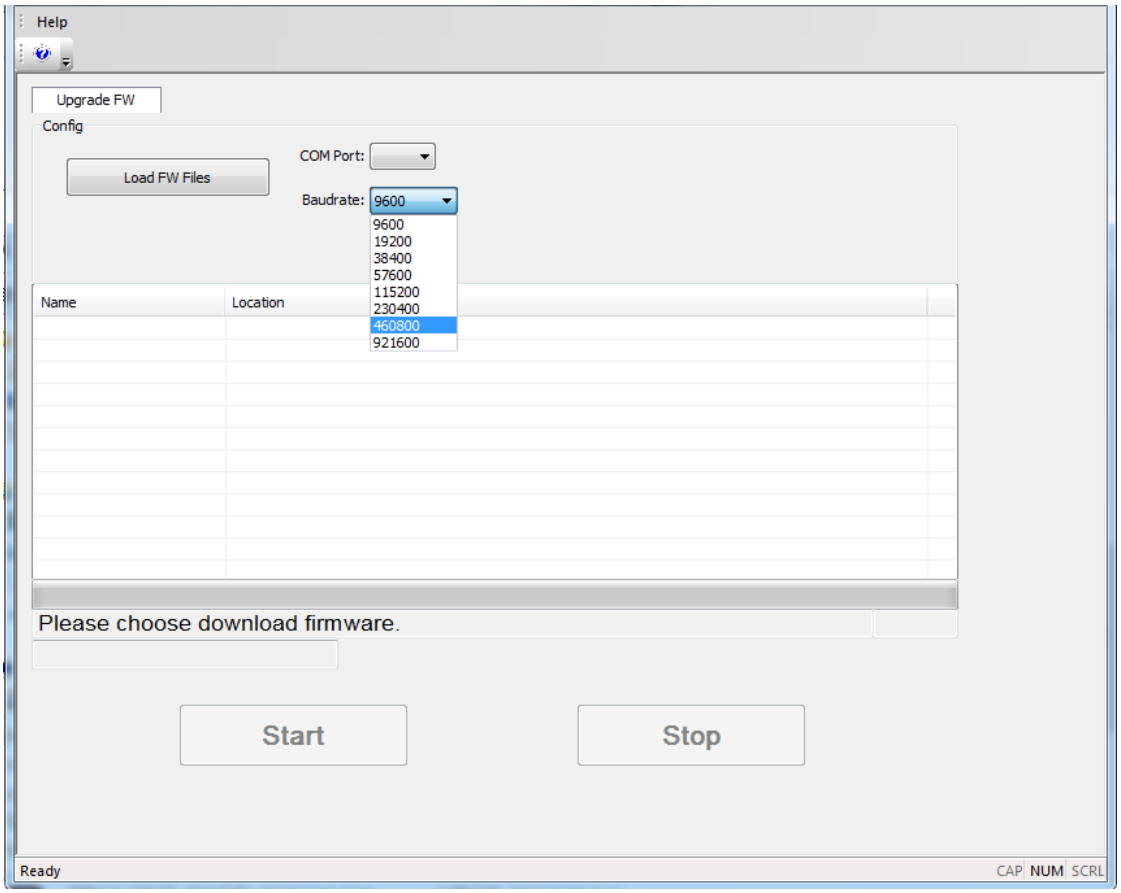

Figure 7: Select the Baud Rate

NOTES

1. Baud rates have many different values, and it is the hardware environment that determines whether a specified baud rate can be supported. If not supported, an error message will be returned.
2. Please set baud rate into 921600 when upgrading firmware for GCxx modules. Other baud rates may lead to an upgrading failure.
3. When upgrading firmware for BCxx modules, the baud rate is 9600 by default.
4. Baud rate setting is unnecessary for USB virtual ports.

2.2. Load Firmware Files

Step 1: Click the button "**Load FW Files**".

Step 2: Select the *.txt*, *.cfg*, *.mbn*, *.lod*, *.fls* or *.fwpkg* file which needs to be downloaded to the module.

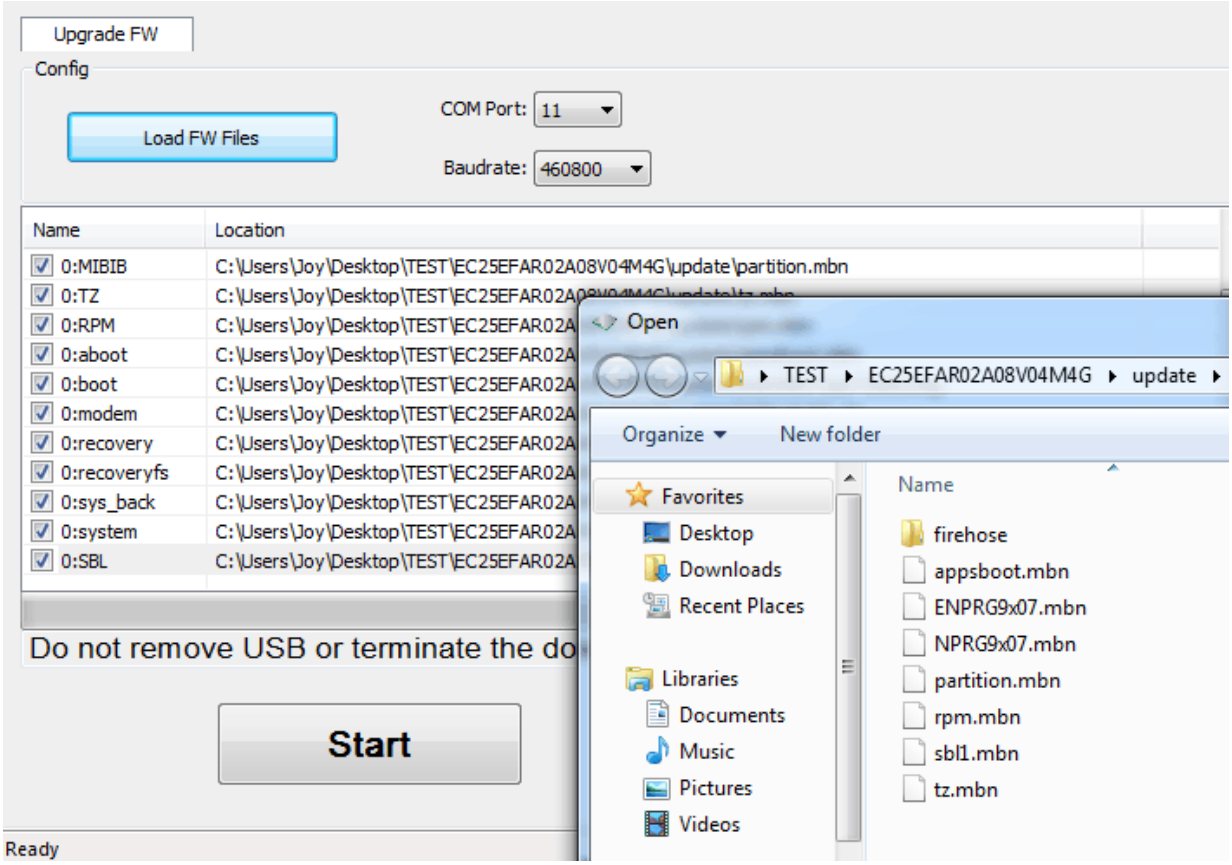

Figure 8: Select the File to be Downloaded

NOTE

The path where the firmware is stored should NOT contain any spaces, and English characters are preferred.

2.2.1. Load APP Firmware for OpenCPU or Quecopen Modules

This step is only necessary for Quectel OpenCPU or Quecopen modules.

Step 1: Click the button "**Load FW Files**", and select the *.cfg* file which needs to be downloaded to the module.

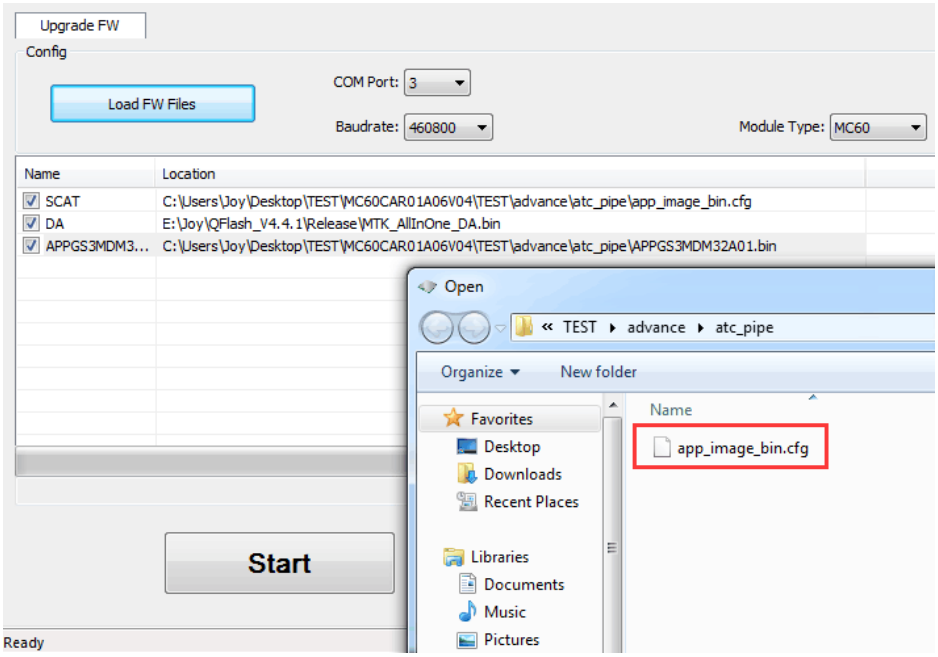

Figure 9: Select the .cfg File

NOTE

The path where the firmware is stored should NOT contain any spaces, and English characters are preferred.

Step 2: Click the "**Module Type**" dropdown list and choose an appropriate module type.

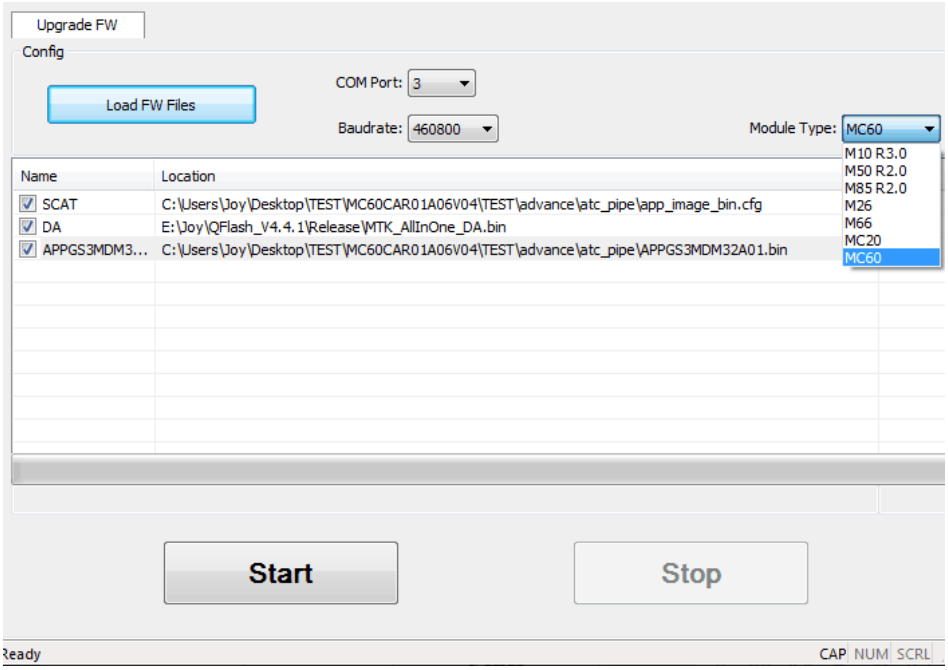

Figure 10: Select the Module Type

2.3. Upgrade Firmware

2.3.1. Standard Method to Upgrade Firmware

Step 1: Click "**Start**" button to upgrade the firmware. There is no "**Stop**" button while upgrading firmware for GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/BCxx/EM05/AG35/BG96/EM12 modules

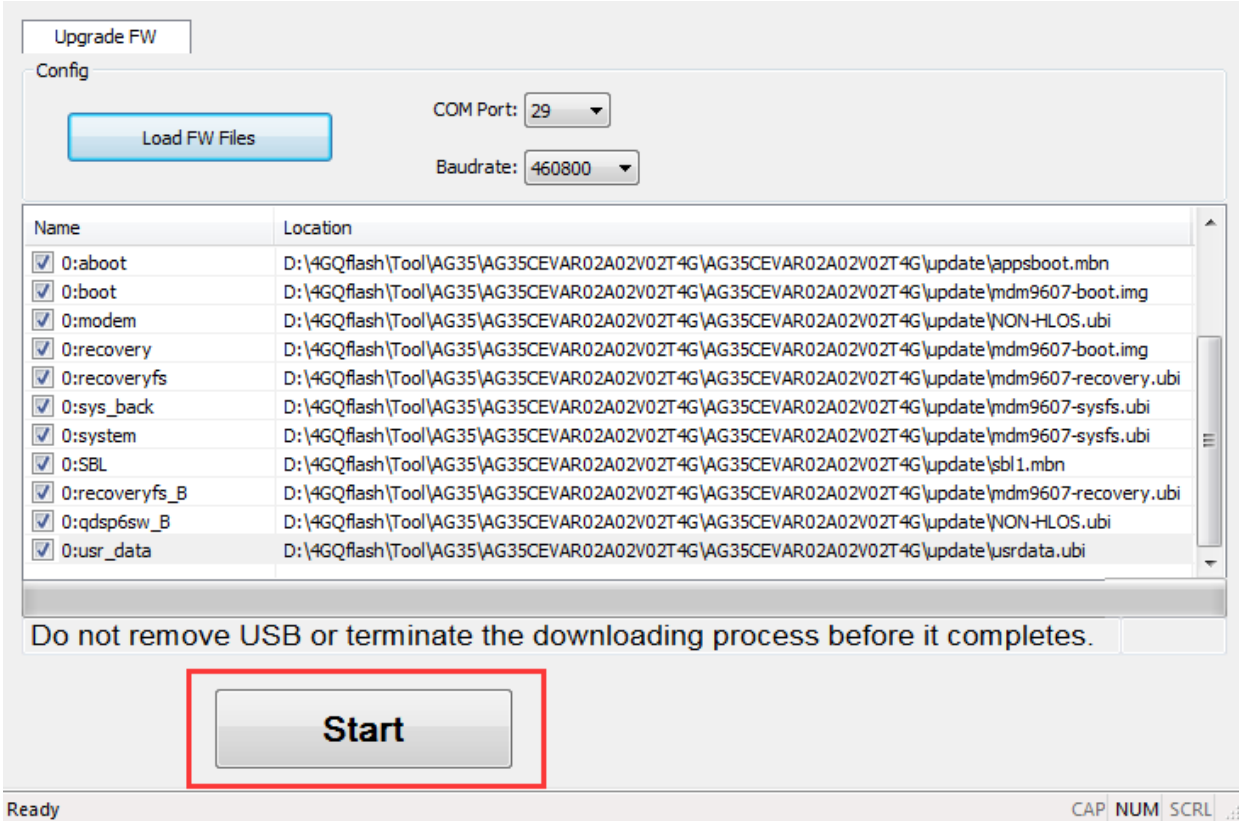

Figure 11: Click the Start Button

NOTES

1. Please note that it is NOT permitted to stop the upgrading process, and please do NOT remove USB or terminate the downloading process before upgrading is completed.
2. For ECxx modules, if the firmware contains a Firehose folder, then it will be downloaded in Firehose mode by default.

Step 2: For Mxx/BC95 modules (except M65 and MC65), switch the D/L to "**ON**" on EVB within 30 seconds after clicking "**Start**" button, and then manually restart the module. It will start to upgrade the firmware as shown in the following figure.

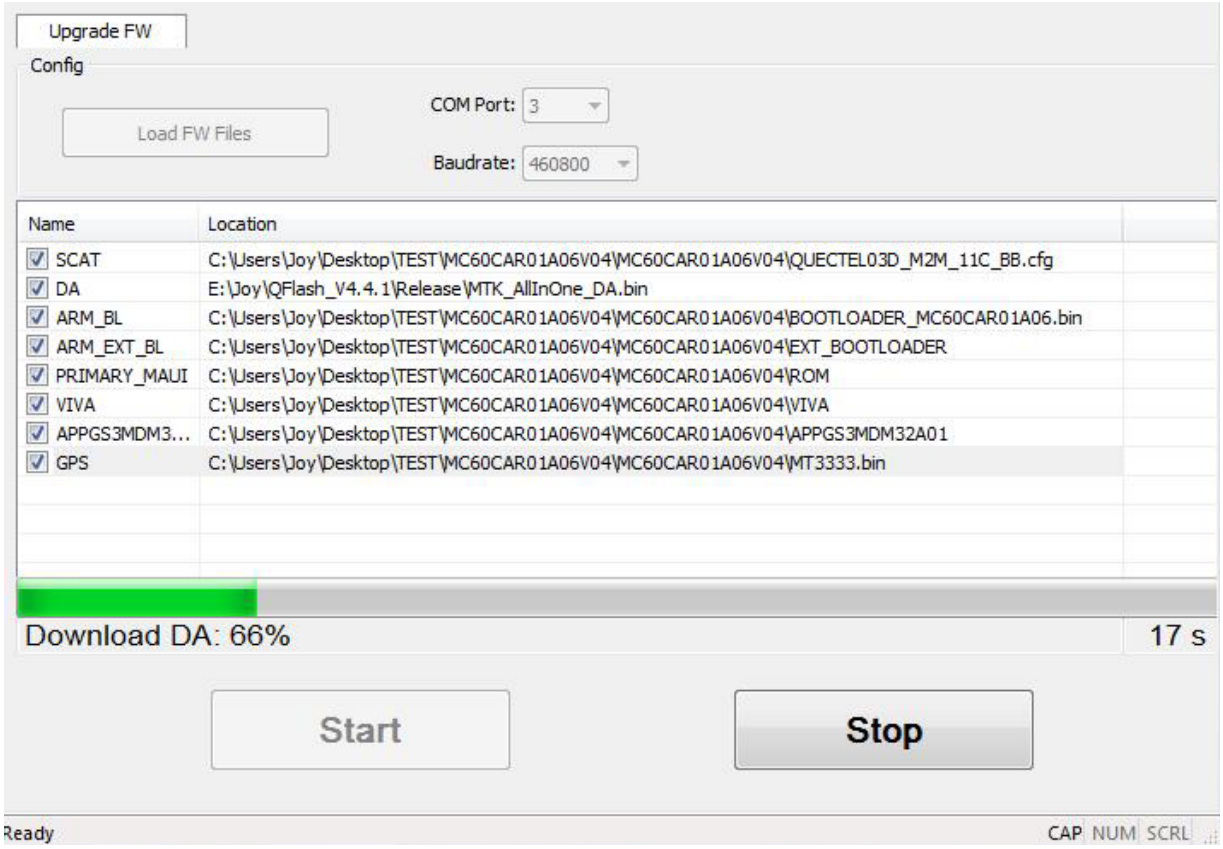

Figure 12: Start to Upgrade after Restarting Mxx Modules

NOTES

1. On Mxx modules, please make sure the EVB is powered by 5V power supply when switching the D/L to "**ON**", and then manually restart the module.
2. For M65 and MC65 modules, after clicking "**Start**", the module will be automatically restarted.

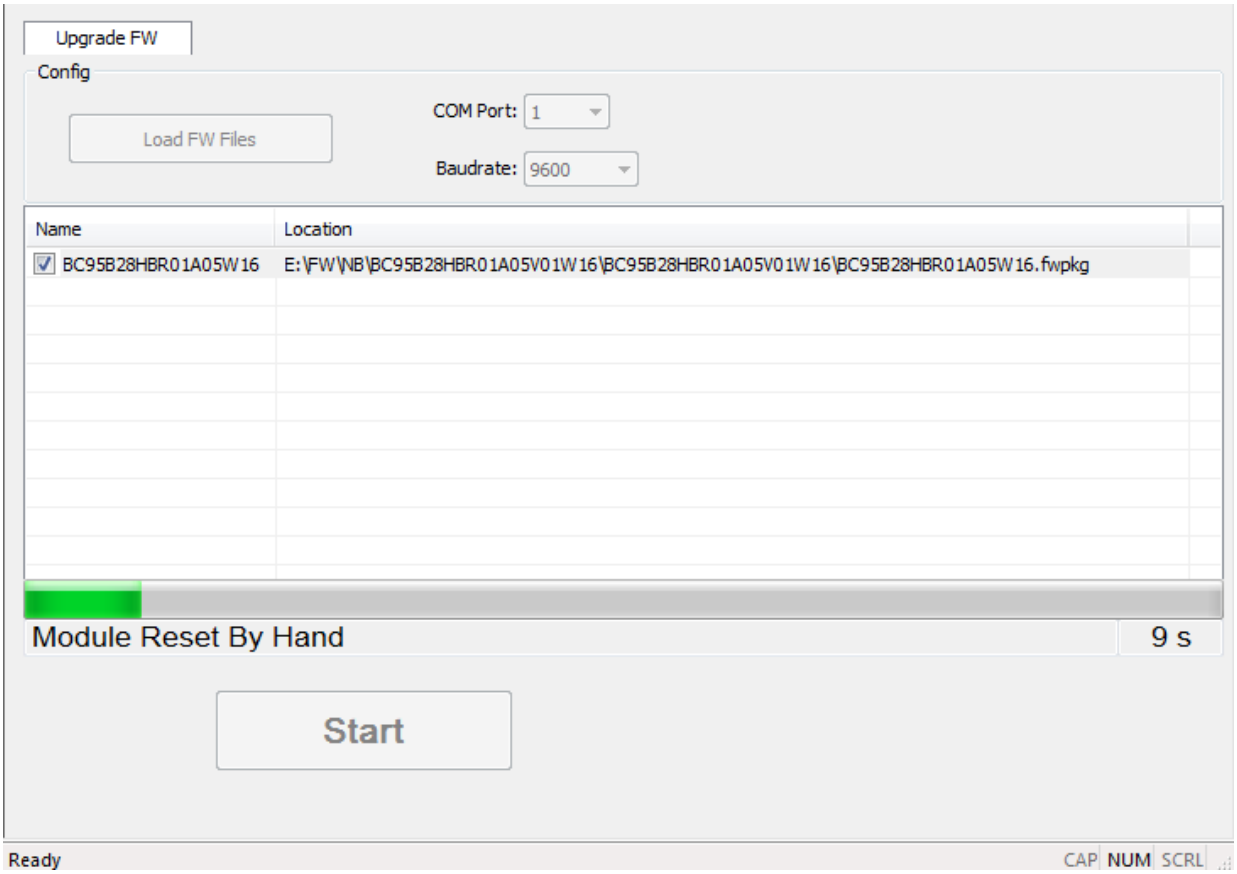

Figure 13: Start to Upgrade after Restarting BCxx Modules

NOTE

On BC95 module, please make sure the EVB is powered by 5V power supply when switching the D/L to "**ON**", and click the "**Start**" button and wait for the prompt "**Module Reset By Hand**", then manually restart the module.

For firmware upgrading of BC95-G, BC68 and BC66 modules through TE-B, please wait for the prompt "**reset**" (for BC95-G and BC68) or "**[INFO]Start connect with target,Please reset DUT...**" (for BC66) after clicking the "**Start**" button, and then manually restart the modules.

Log will be printed in the path *QFlash_V4.11\Release\NB-IoT\1* when BC95-G module is upgraded.

If users are upgrading the firmware for GCxx/UCxx/UGxx/ECxx/EG9x/Ex06/SCxx/EM05/AG35/BG96/EM12/M65/MC65 modules, the module will be restarted automatically, so there is no need to restart the module manually. Please refer to the following figure.

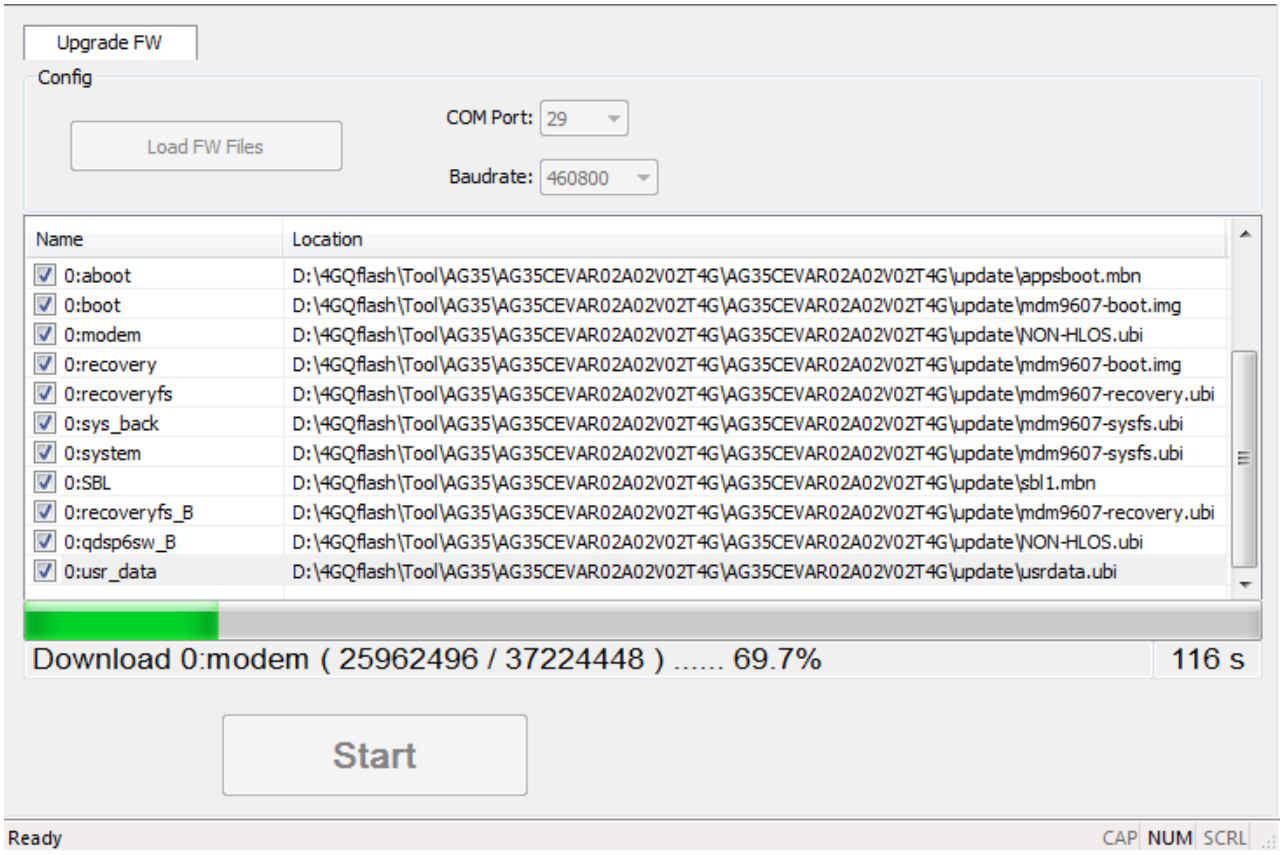

Figure 14: Start to Upgrade Firmware

NOTE

If there is no EVB for module firmware upgrading, please drive the PWRKEY pin to low level after clicking the "**Start**" button in 30 seconds.

Step 3: "**PASS**" will be shown on the interface after the firmware has been successfully upgraded, as shown in the following figure.

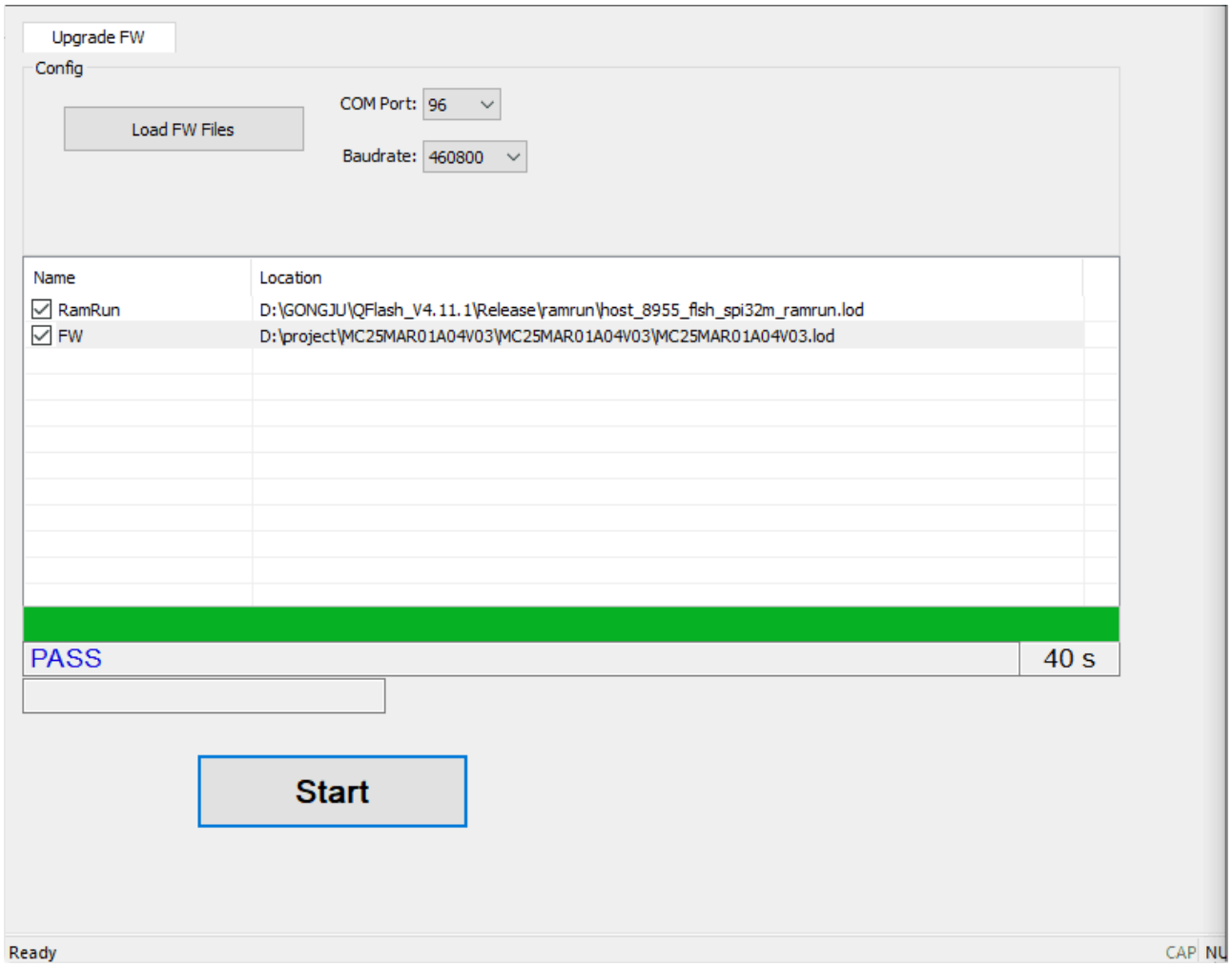

Figure 15: Successful Firmware Upgrade

2.3.2. Command Line Download to Upgrade Firmware (M66&MC60)

For M66 and MC60 modules, in addition to the firmware upgrade method described in ***Chapter 2.3.1***, the command line download method is also supported to upgrade the firmware. The procedures are as follows:

Step 1: Enter the file *Release* in the tool package, open the file *MainConfing.ini*, change "QFLASH_CMD=0" to "QFLASH_CMD=1" and save the setting.

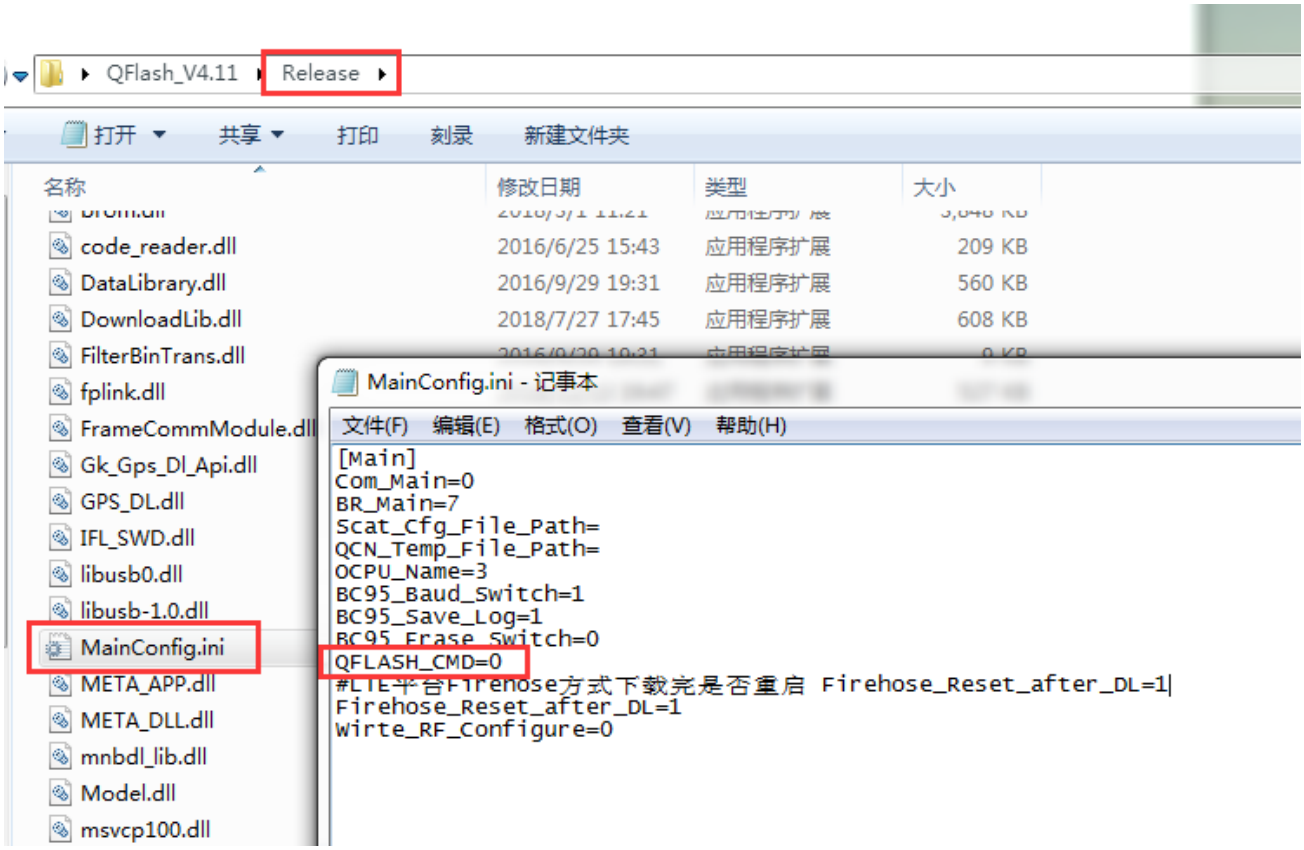

Figure 16: Change the MainConfing.ini Setting

Step 2: Open the file *QFlash_V4.11* in *Release* folder, enter “Port: 37”, “Baudrate: 115200”, and the “Firmware Path: …”, as manifested in the figure below.

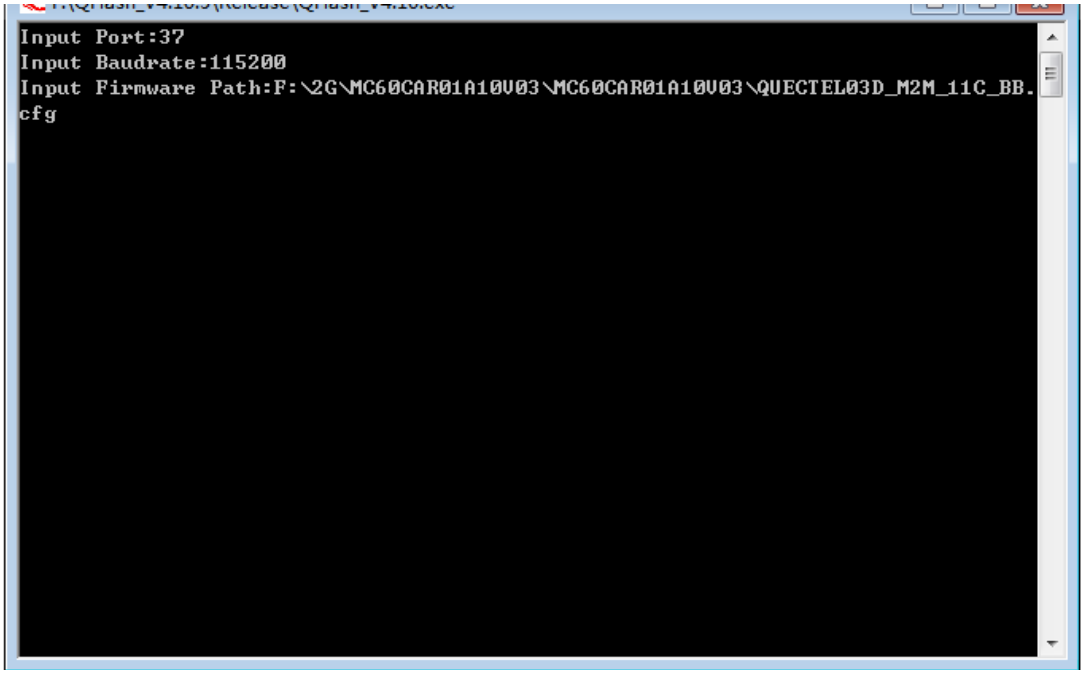

Figure 17: Enter “COM Port”, “Baudrate” and “Firmware Path”

Step 3: Restart the module when prompted as shown in the following figure.

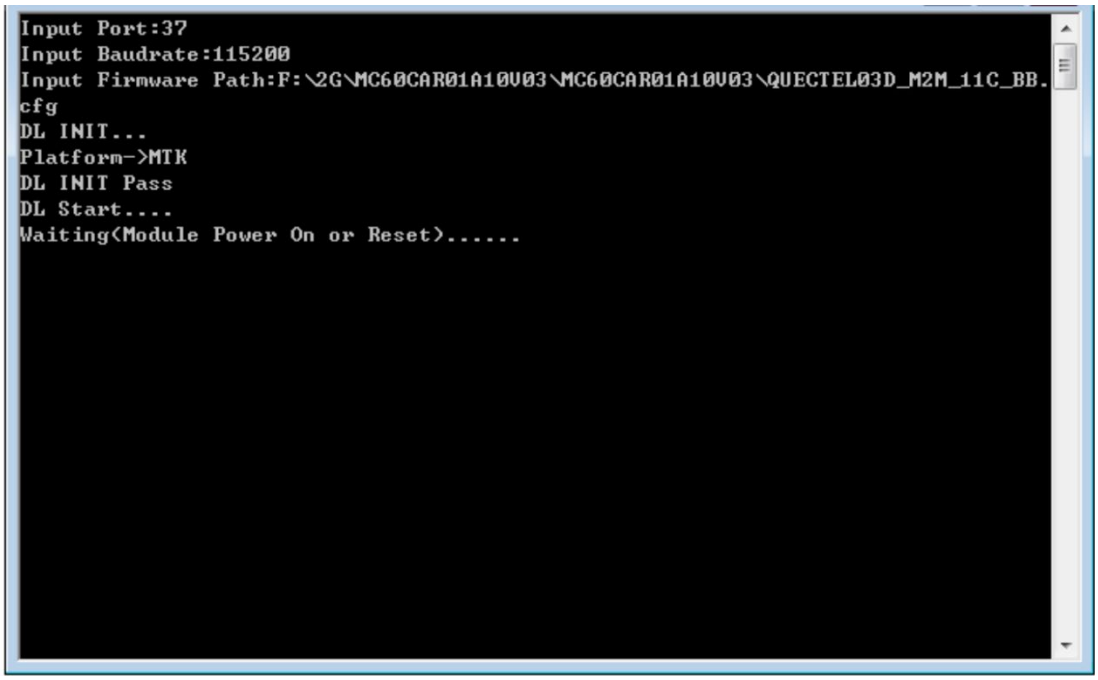

Figure 18: Restart the Module

Step 4: Firmware is upgraded successfully.

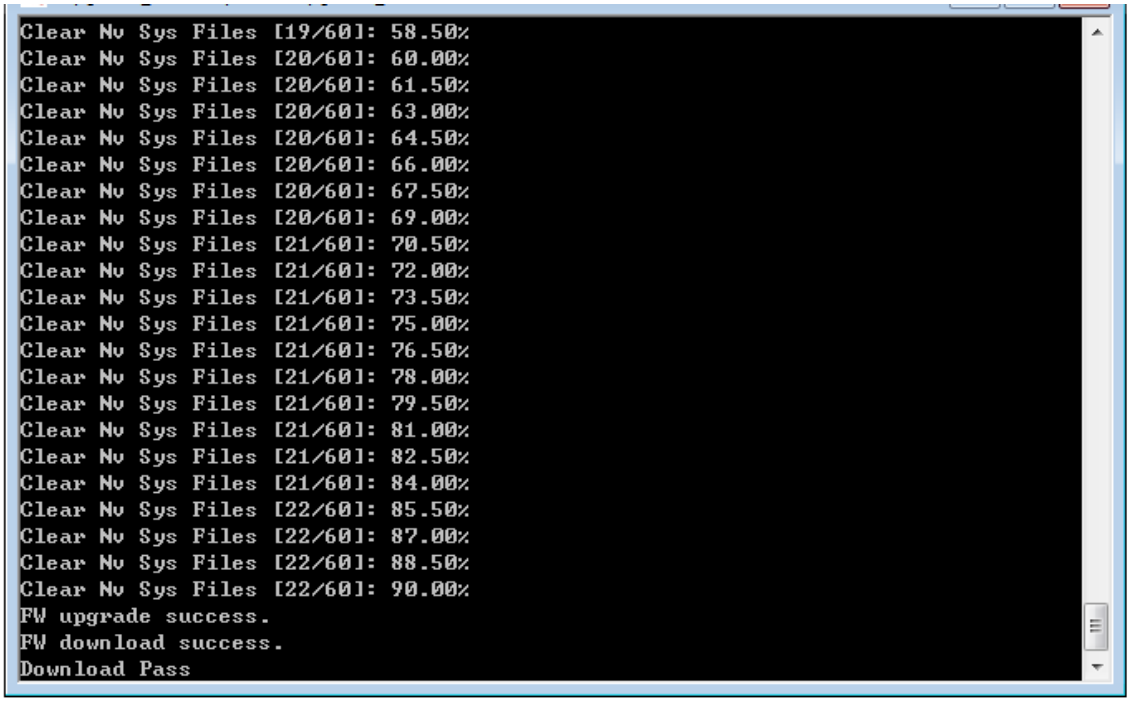

Figure 19: Successful Firmware Upgrade

2.4. Abnormalities

Abnormalities may be caused by incorrect parameter of baud rate, damaged EVB/TE-B or invalid files, etc. The following illustrates some common abnormalities.

2.4.1. Selected a Wrong Serial Port

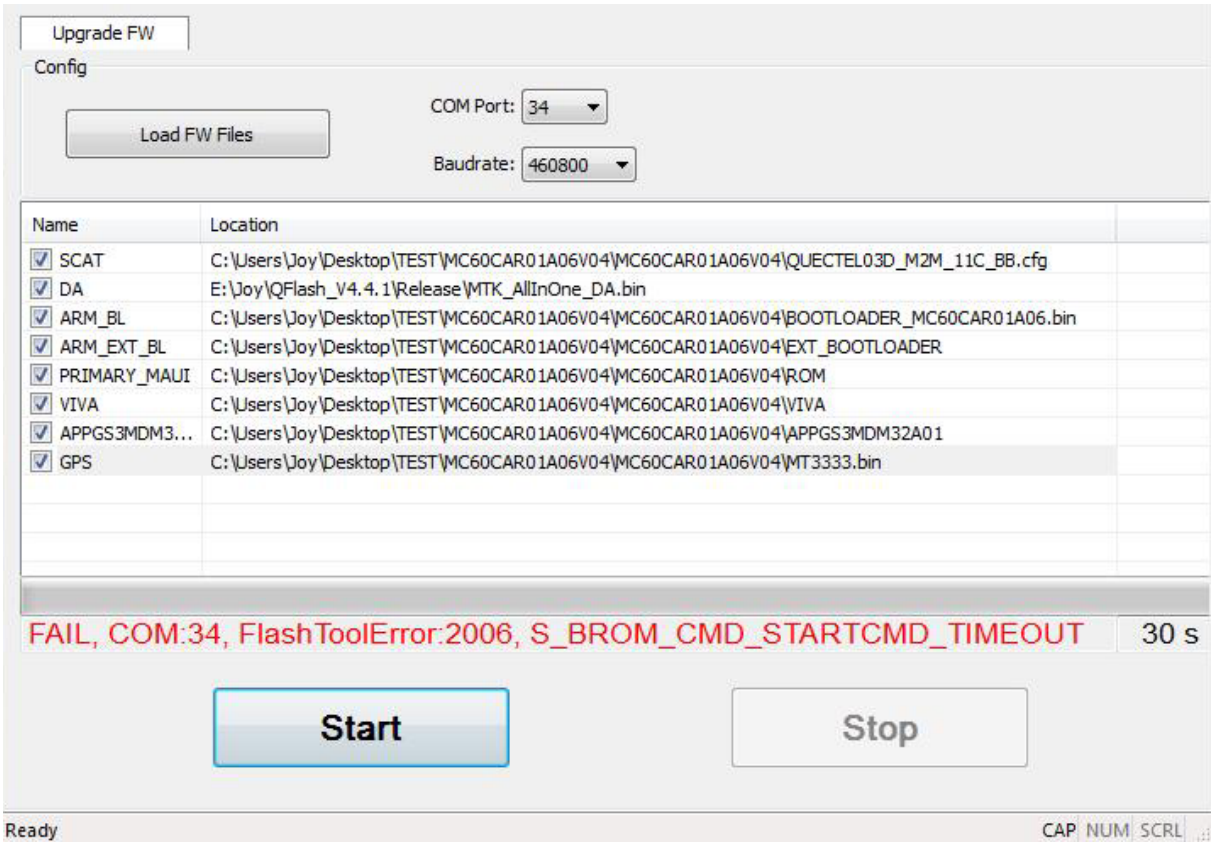

Figure 20: Connected to a Wrong Serial Port (Mxx Modules)

NOTE

After selecting a correct serial port, if Mxx modules are not restarted, then the error message will be the same as that of selecting a wrong serial port.

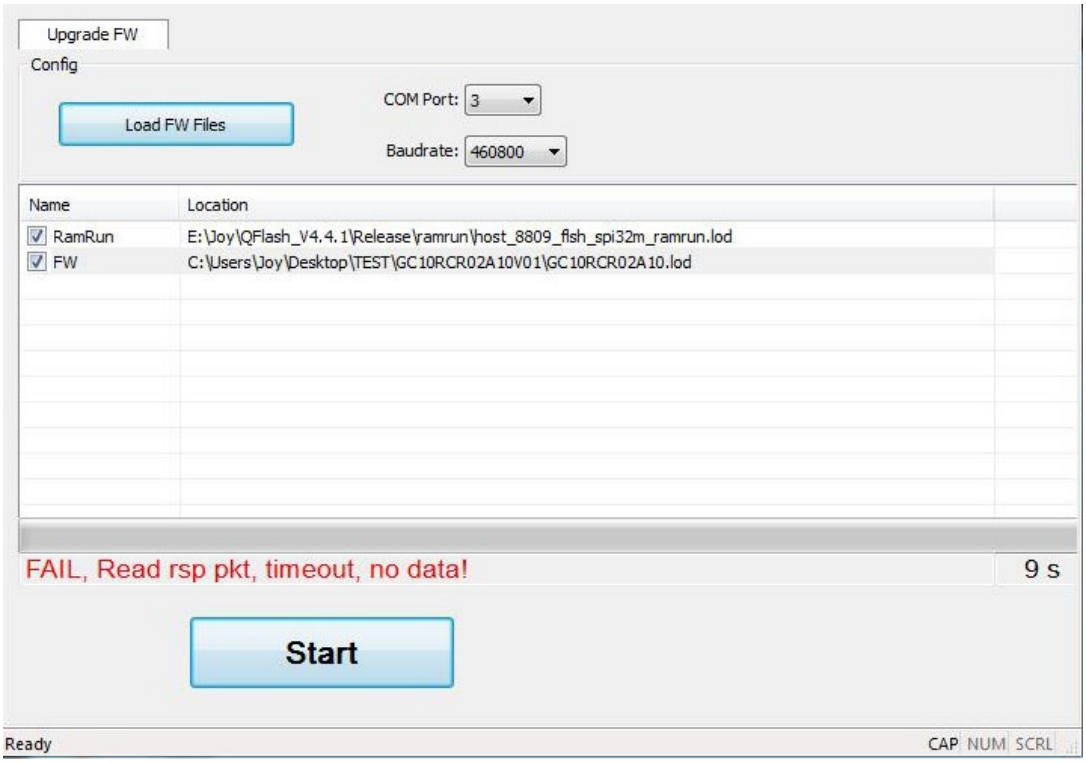

Figure 21: Connected to a Wrong Serial Port (GCxx Modules)

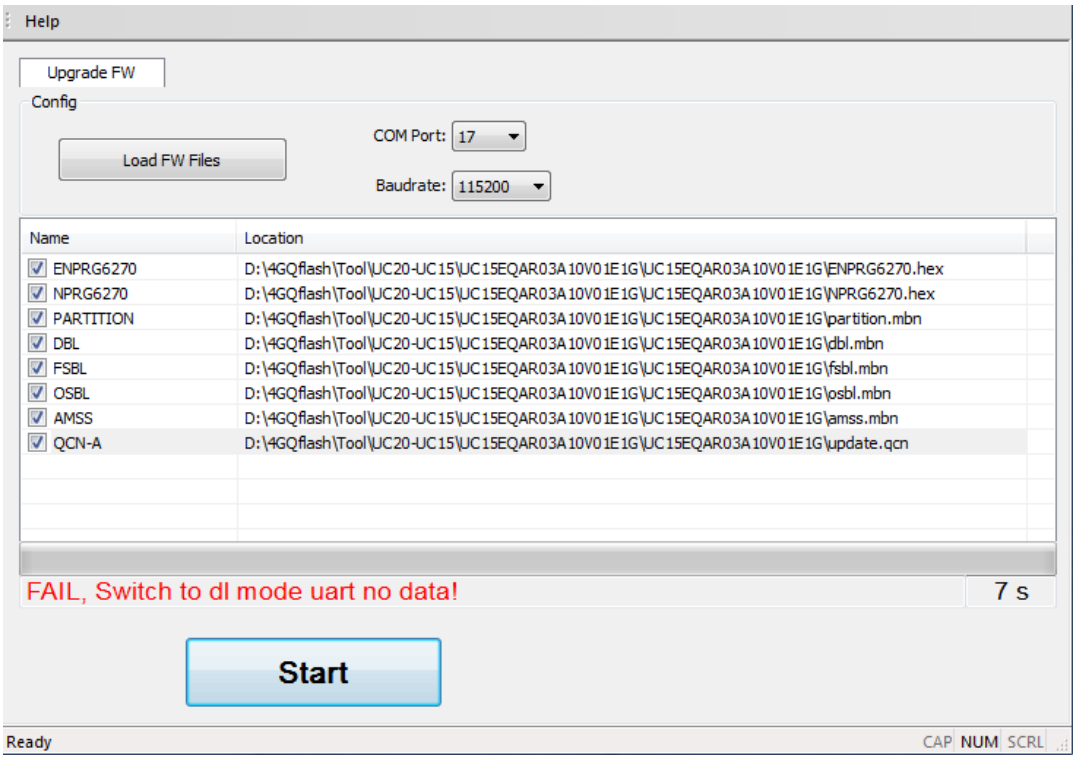

Figure 22: Connected to a Wrong Serial Port (UCxx Modules)

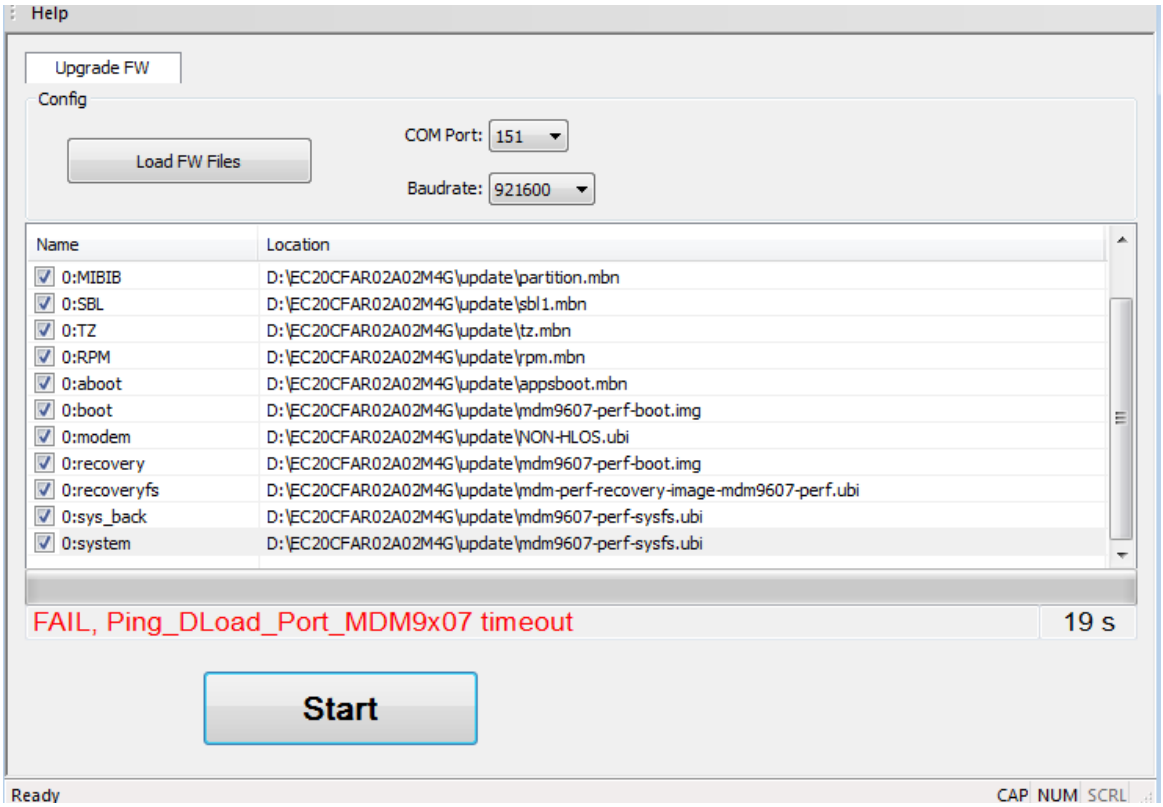

Figure 23: Connected to a Wrong Serial Port (ECxx/EG9x/Ex06/EM05/BG96/EM12 Modules)

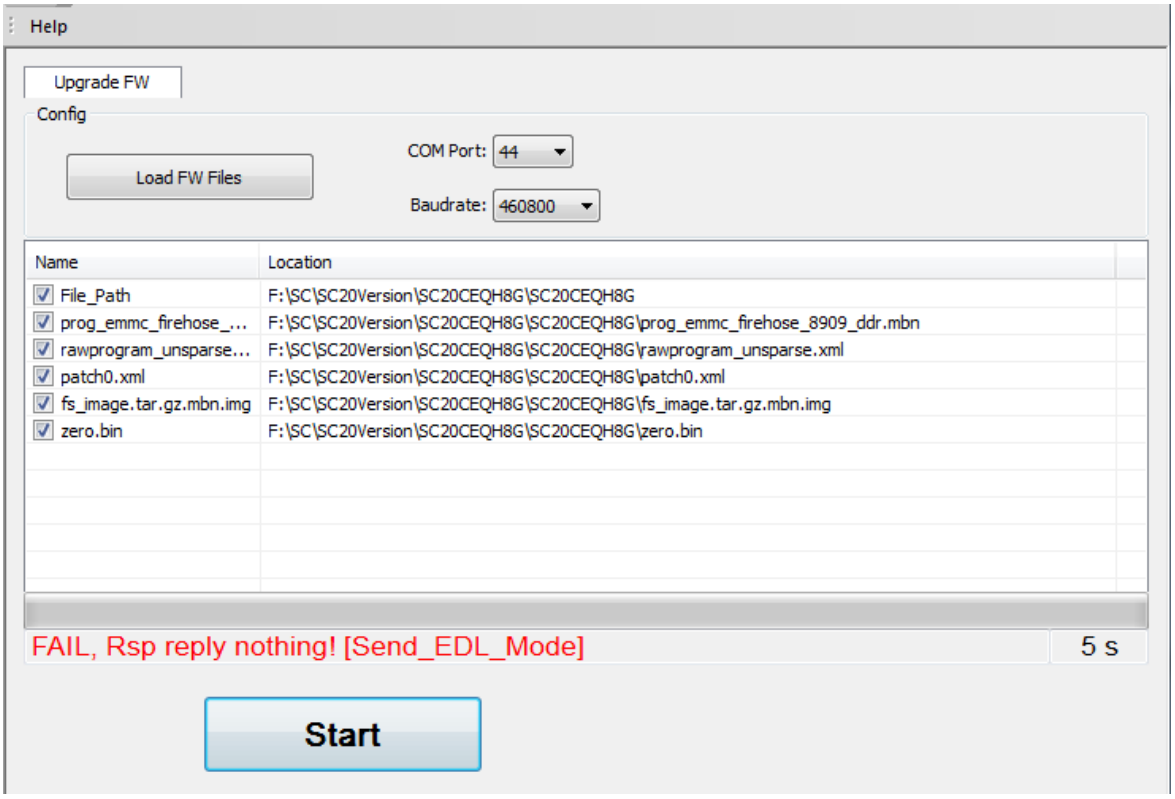

Figure 24: Connected to a Wrong Serial Port (SCxx Modules)

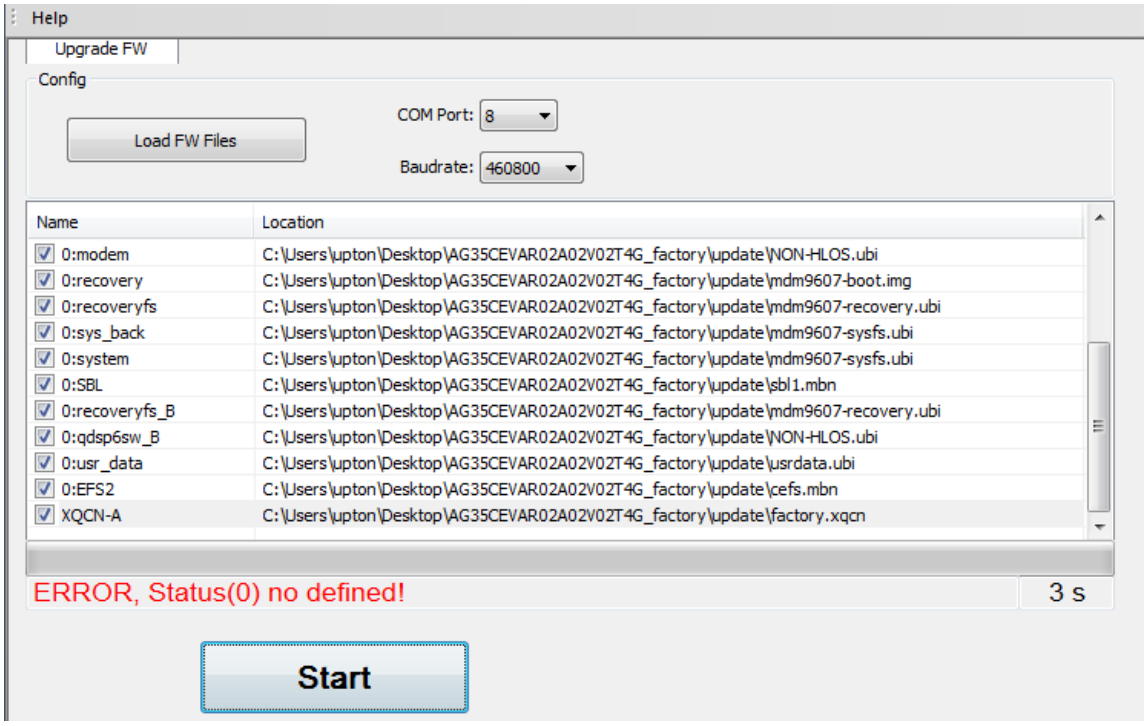

Figure 25: Connected to a Wrong Serial Port (AG35 Module)

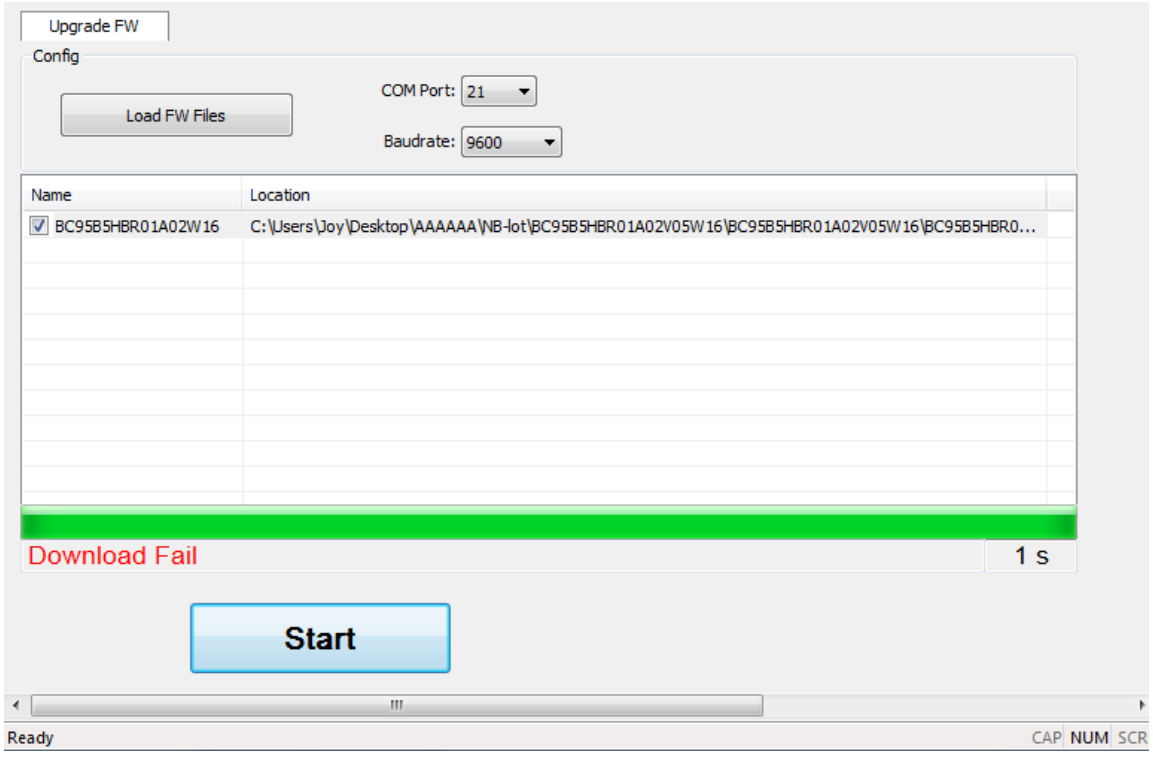

Figure 26: Connected to a Wrong Serial Port (BCxx Modules)

2.4.2. Connected to an Occupied Serial Port

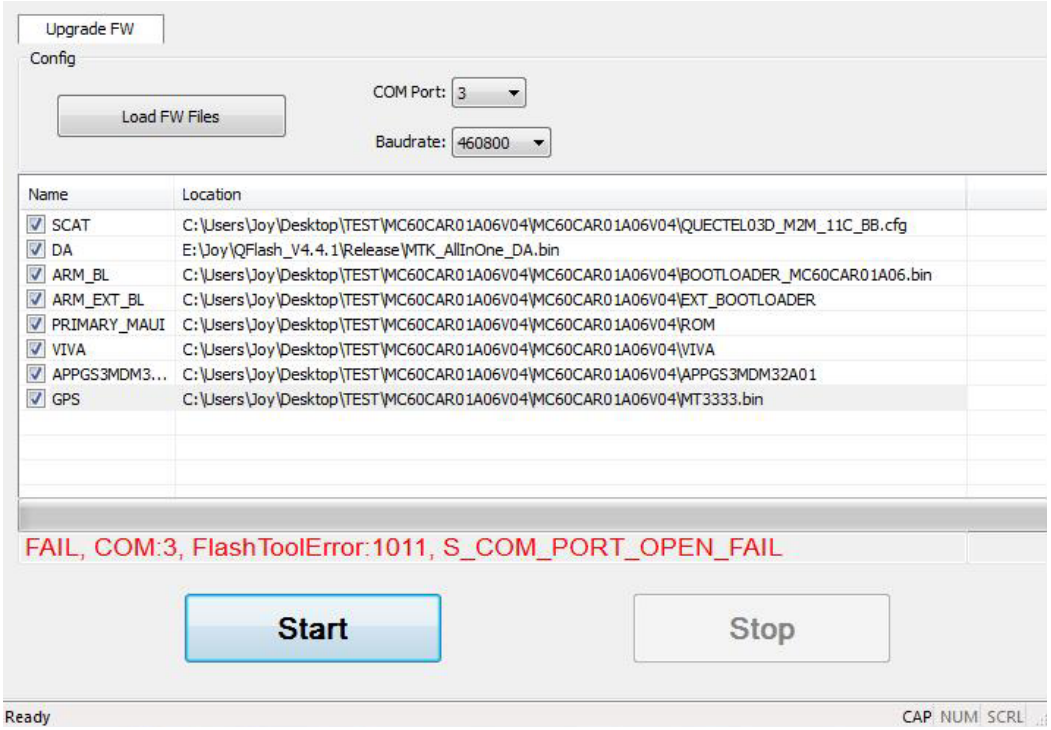

Figure 27: Connected to an Occupied Serial Port (Mxx Modules)

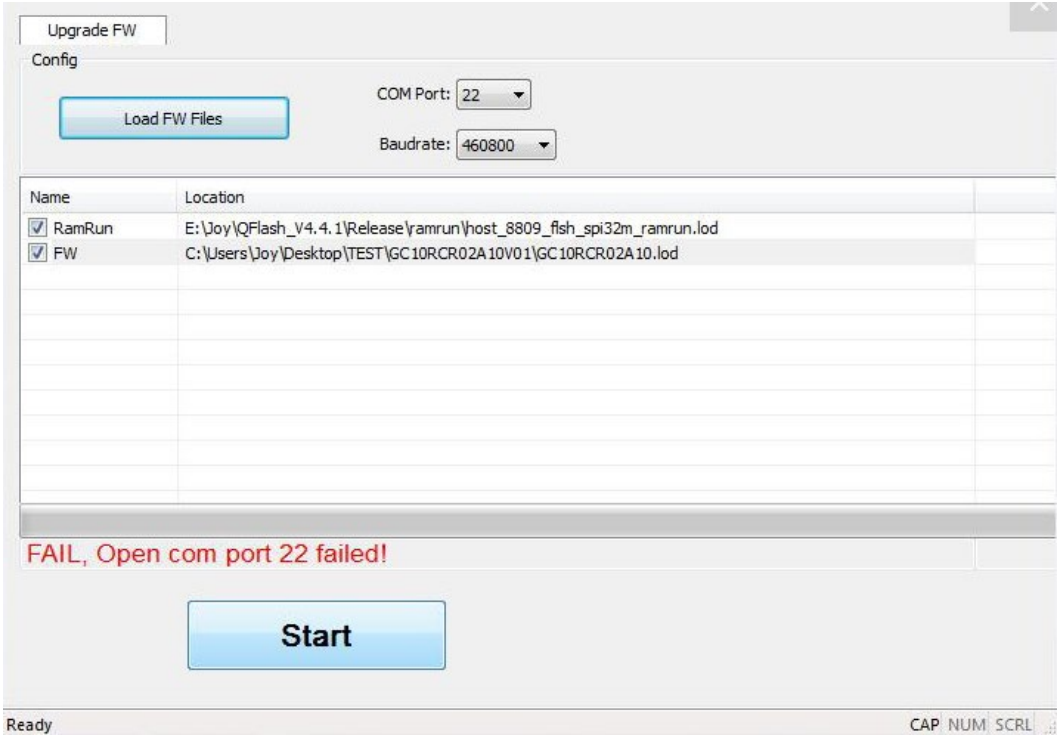

Figure 28: Connected to an Occupied Serial Port (GCxx Modules)

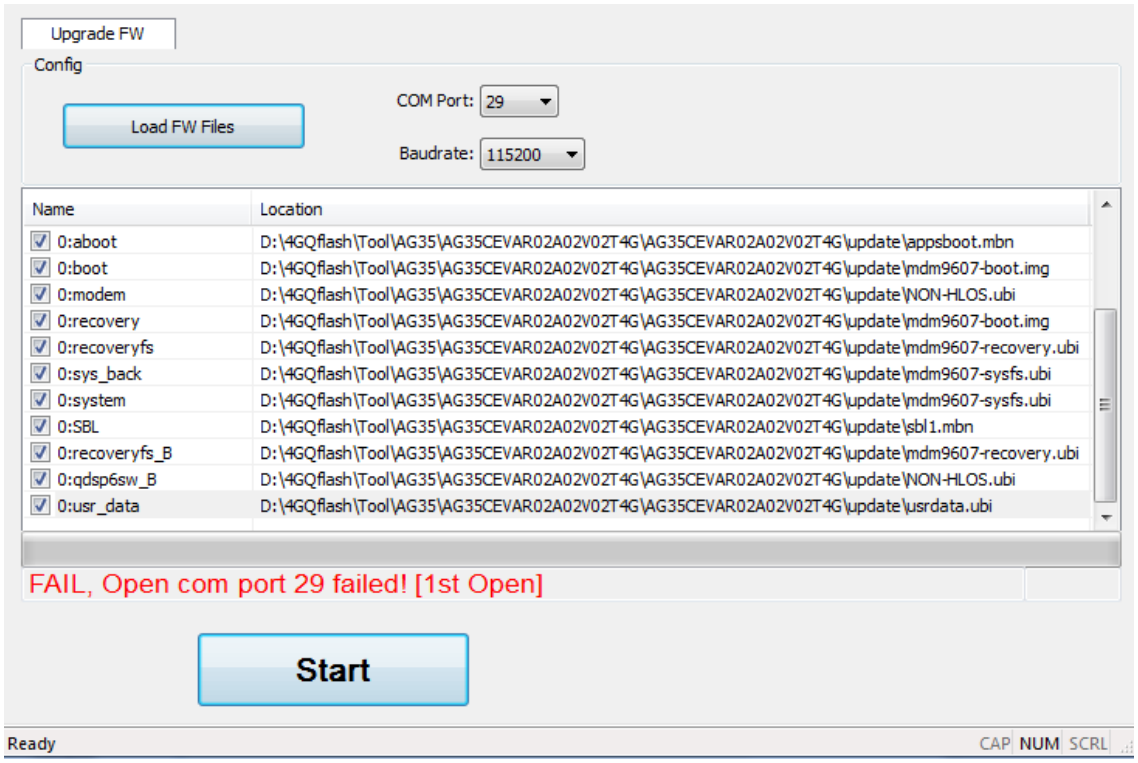

Figure 29: Connected to an Occupied Serial Port (UCxx/ECxx/EG9x/Ex06/SCxx/EM05/AG35/ BG96/EM12 Modules)

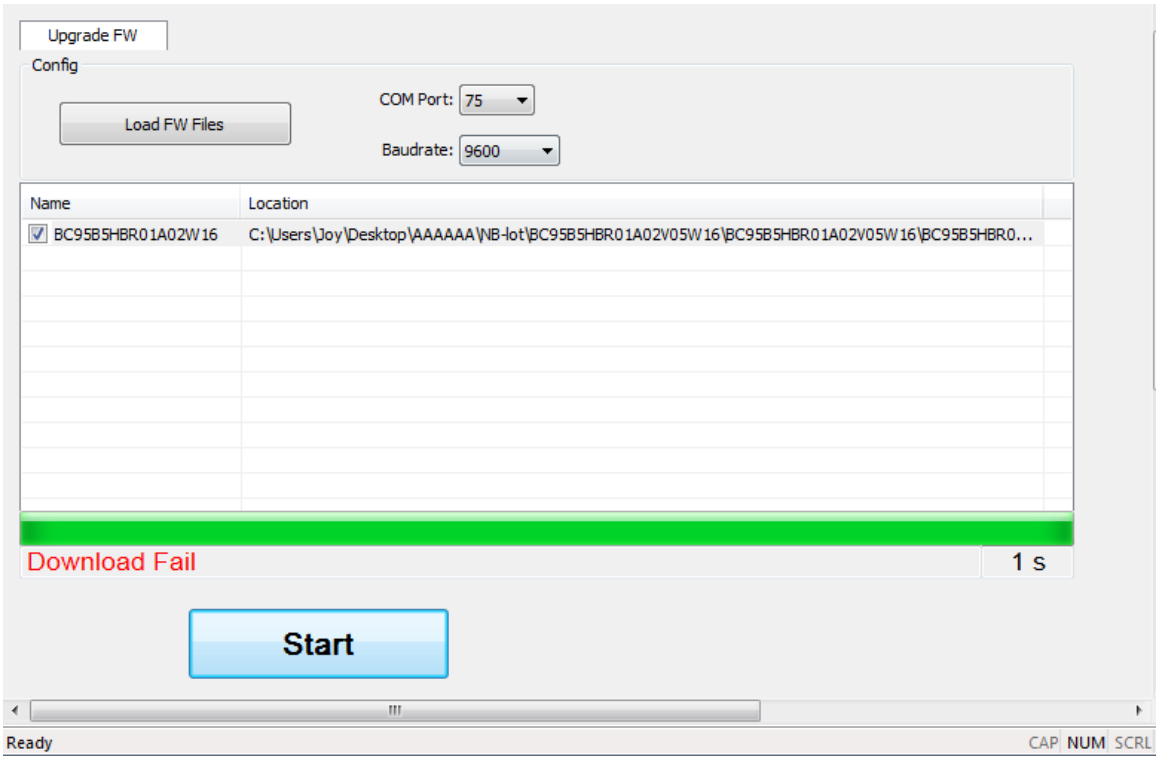

Figure 30: Connected to an Occupied Serial Port (BCxx Modules)

2.4.3. Selected an Unsupported Baud Rate

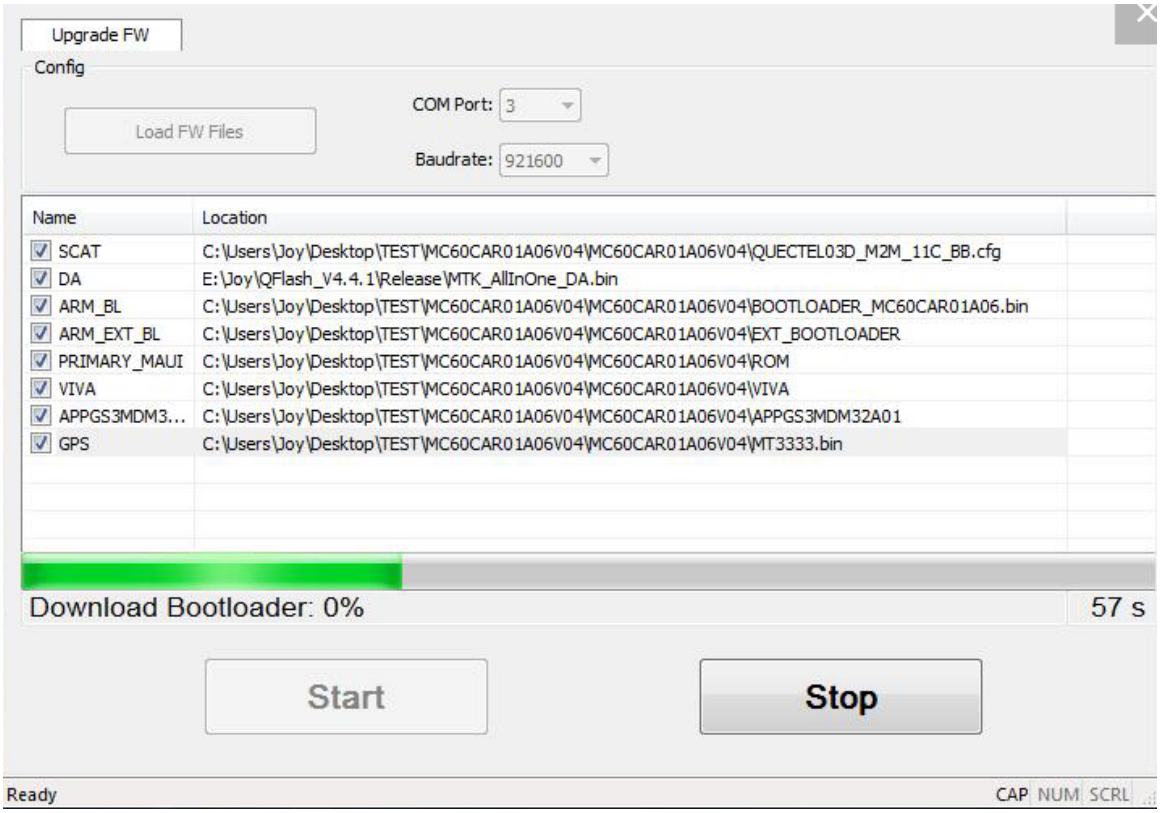

Figure 31: An Unsupported Baud Rate is Selected (Mxx Modules)

NOTE

For Mxx modules, if an unsupported baud rate is selected, the tool will stop running and no error message will be prompted. In such case, please click the "**Stop**" button to re-select a supported baud rate to restart with.

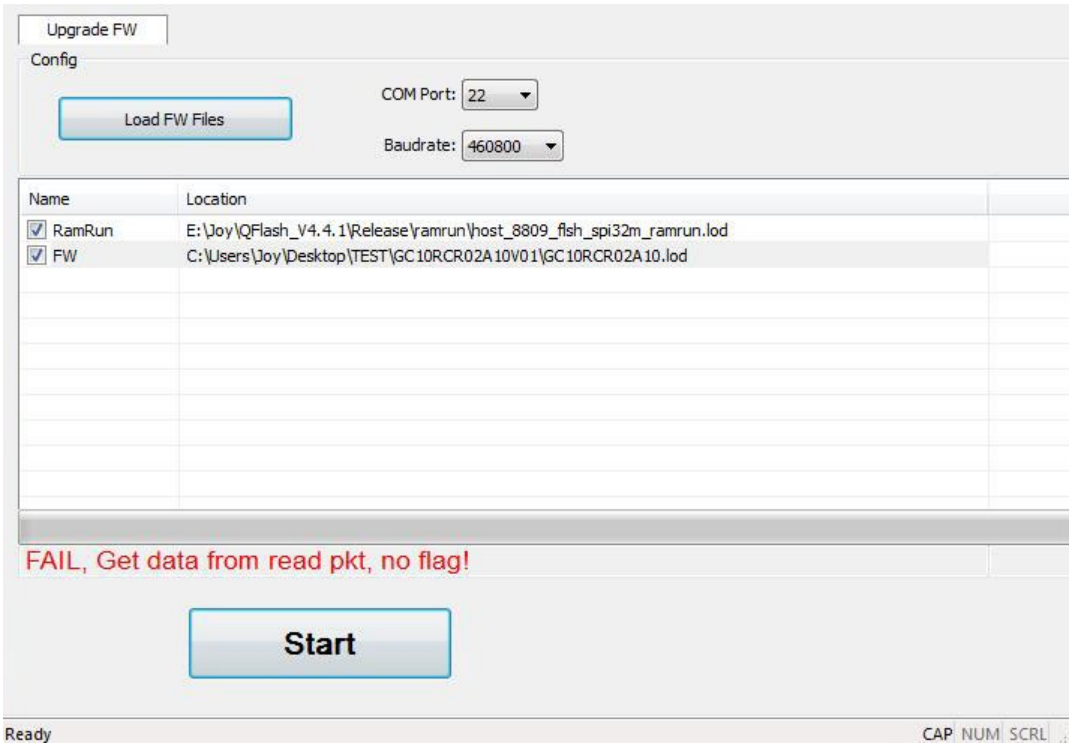

Figure 32: An Unsupported Baud Rate is Selected (GCxx Modules)

2.4.4. Selected an Invalid Load File

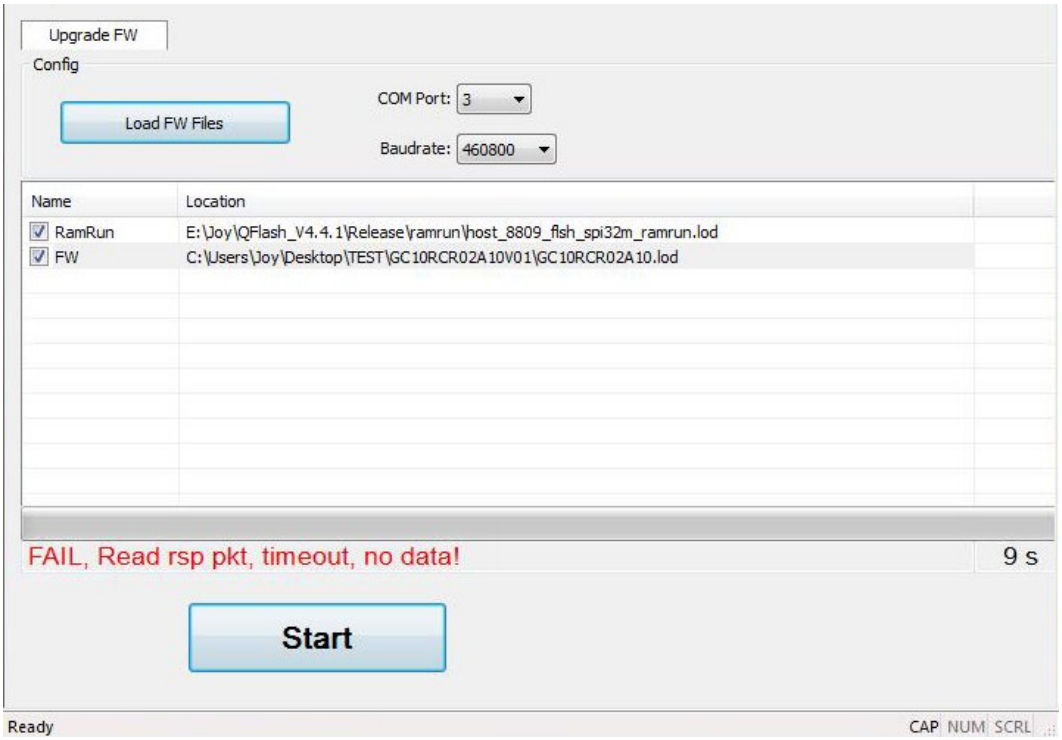

Figure 33: An Invalid Scatter File is Selected (Mxx Modules)

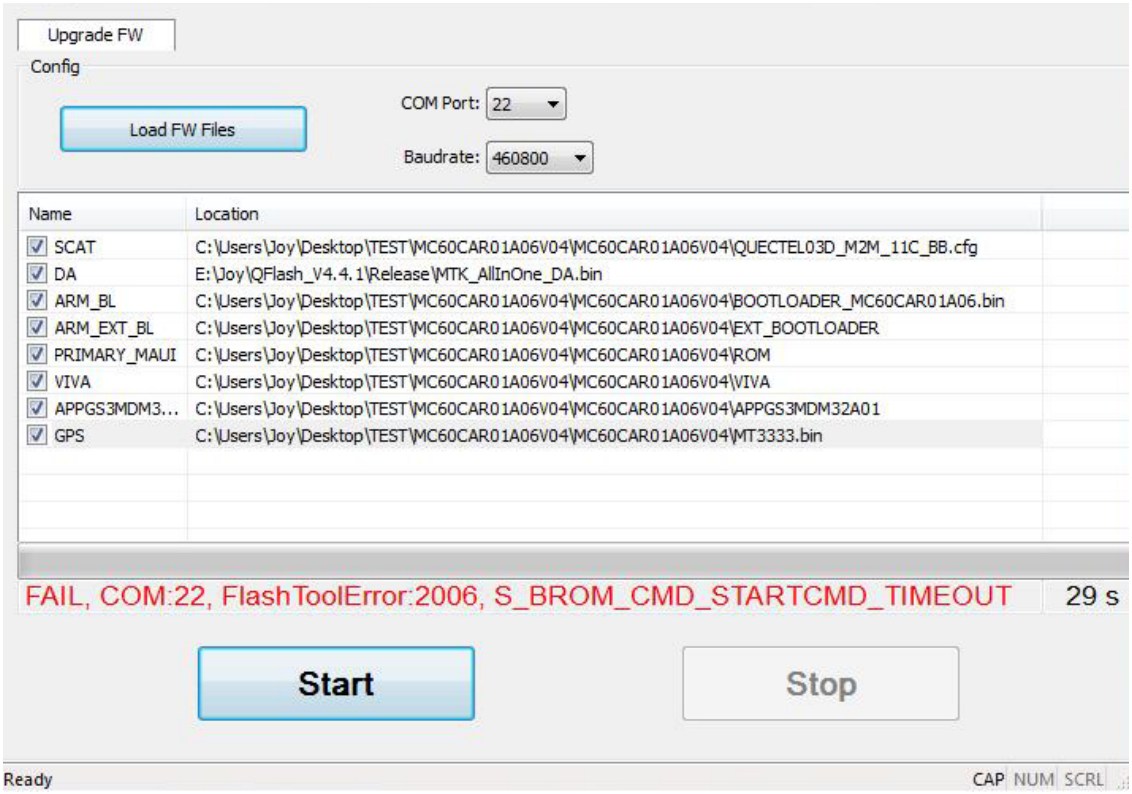

Figure 34: An Invalid Load File is Selected (GCxx Modules)

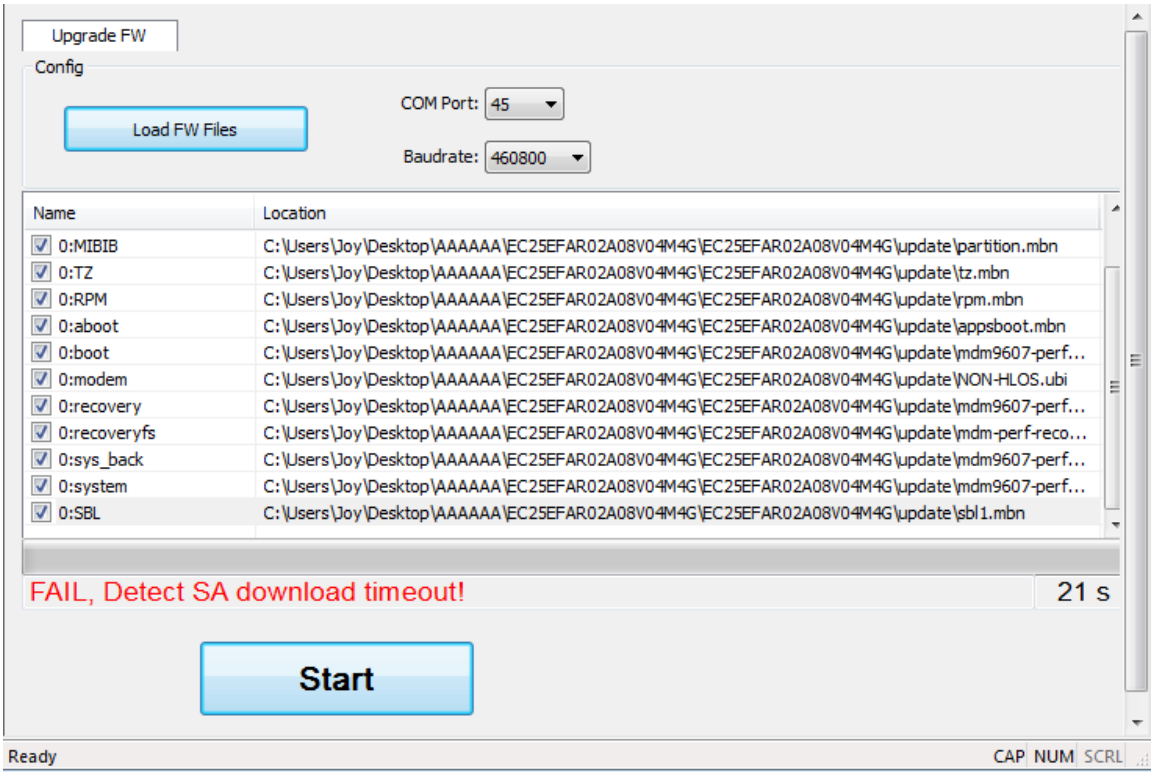

Figure 35: An Invalid Load File is Selected (UCxx Modules)

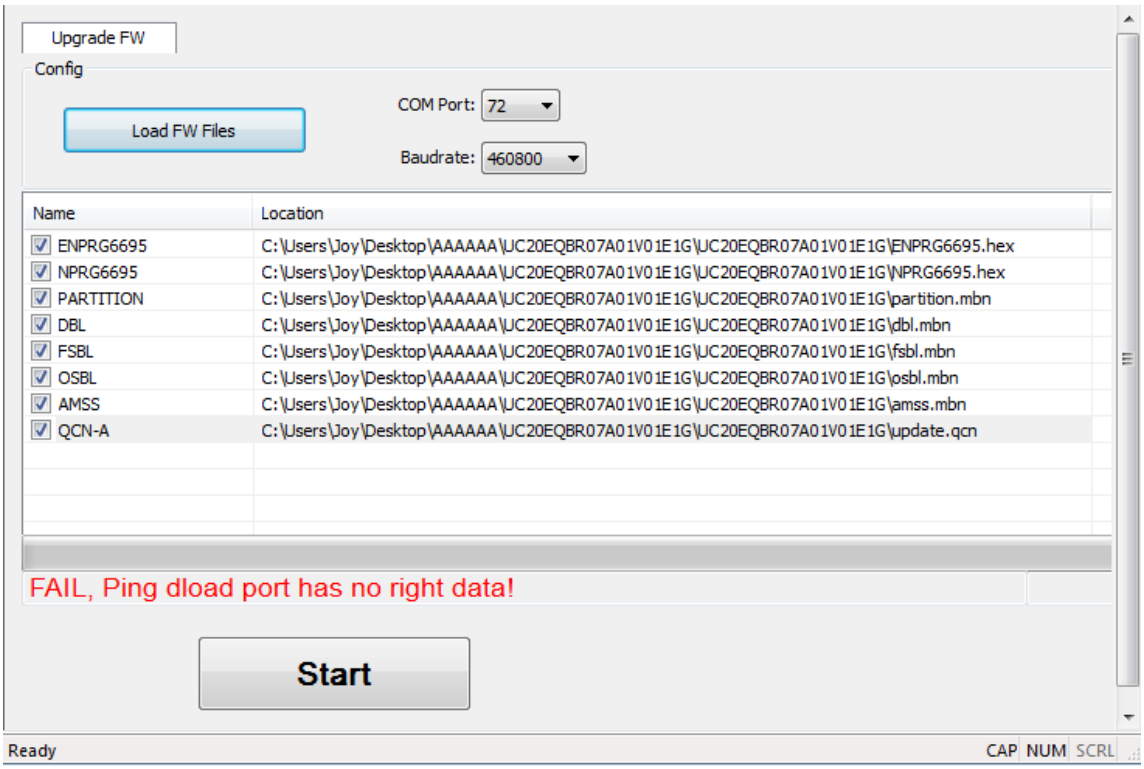

Figure 36: An Invalid Load File is Selected (ECxx/EG9x Modules)

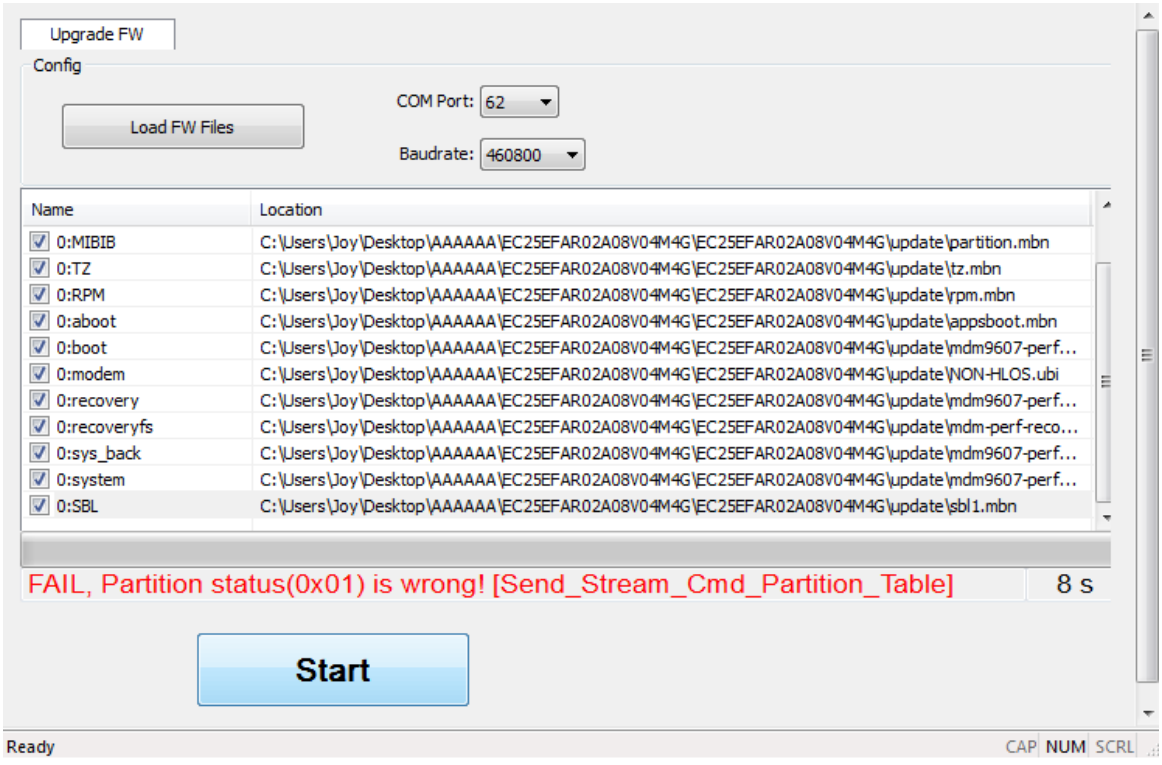

Figure 37: An Invalid Load File is Selected (Ex06/AG35/BG96/EM12 Modules)

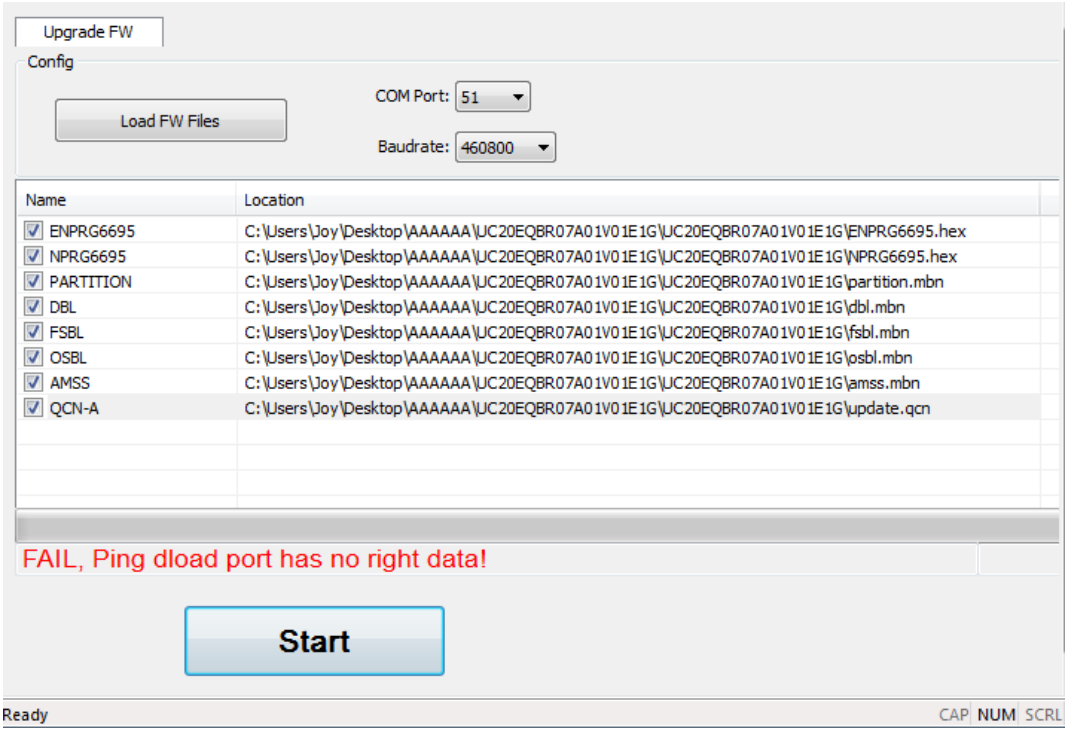

Figure 38: An Invalid Load File is Selected (EM05 Module)

2.4.5. Power Supply is Abnormal

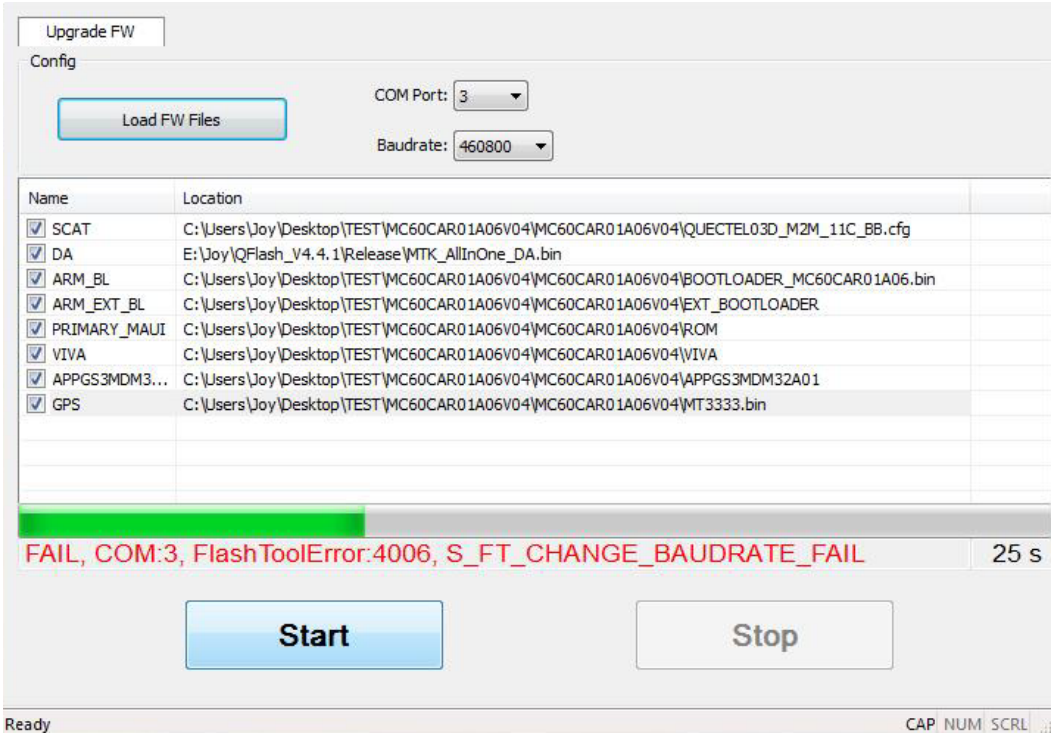

Figure 39: Power Supply is Abnormal (Mxx Modules)

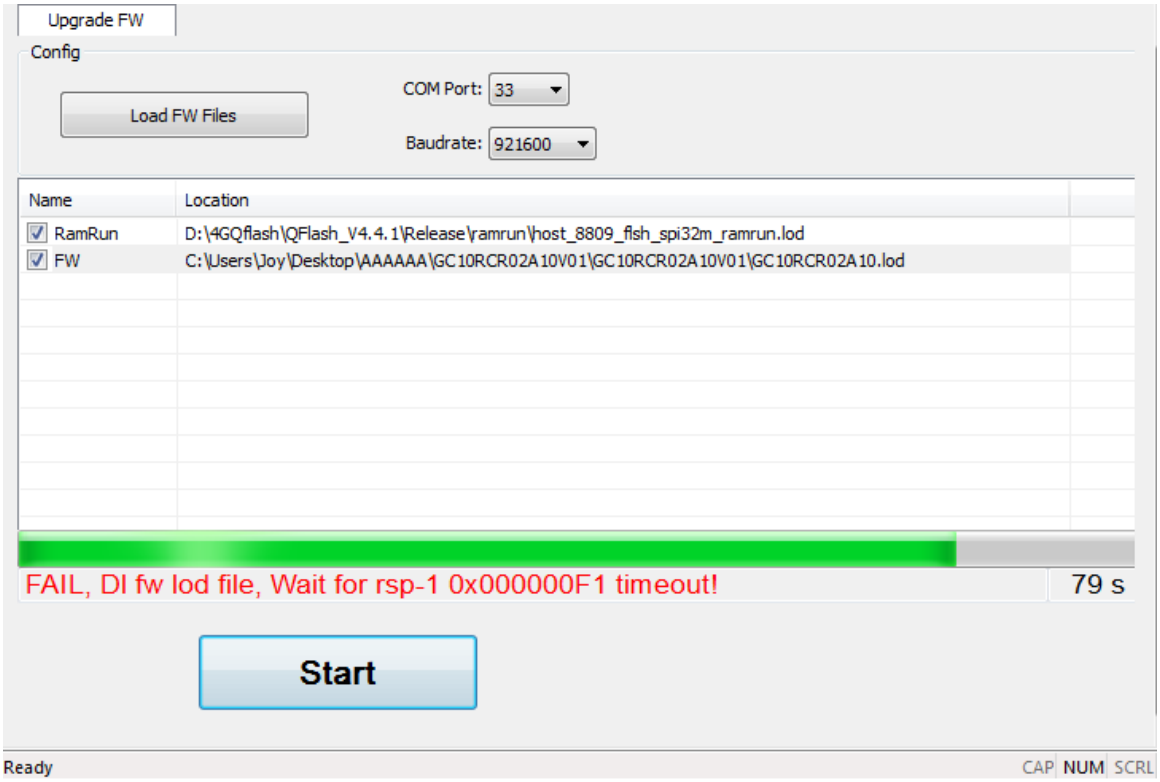

Figure 40: Power Supply is Abnormal (GCxx Modules)

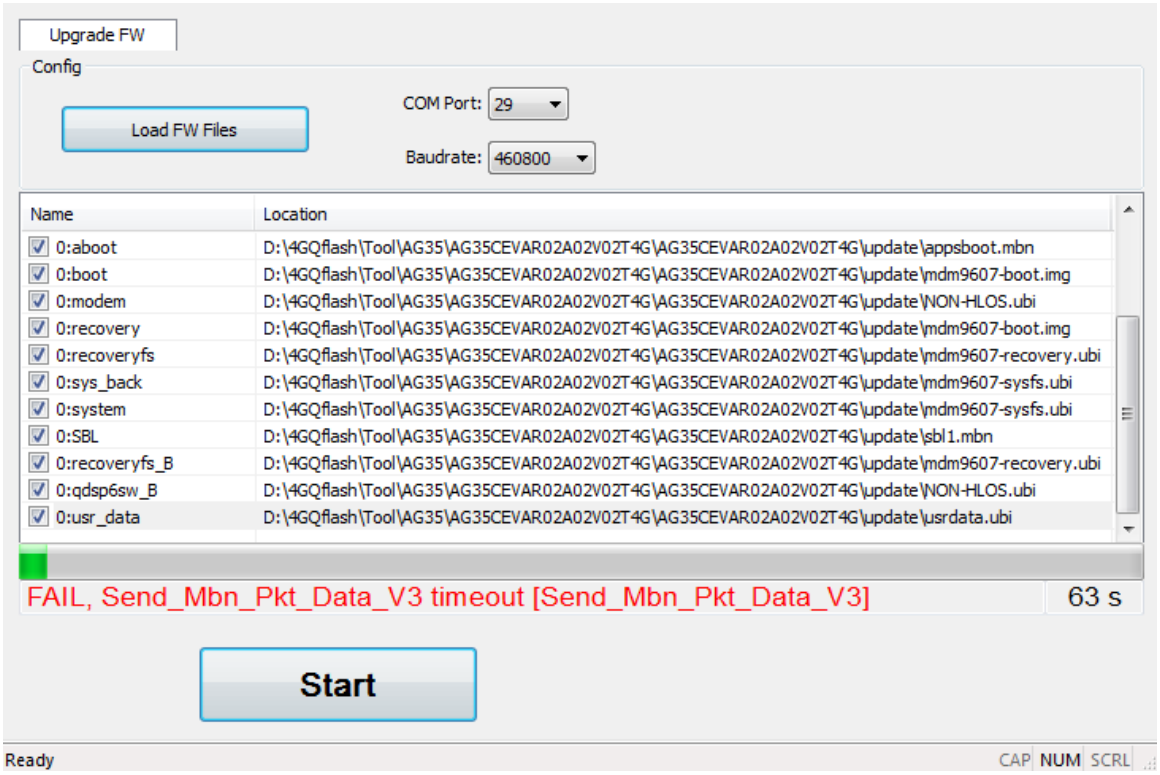

Figure 41: Power Supply is Abnormal (UCxx/ECxx/EG9x/Ex06/EM05/AG35/BG96/EM12 Modules)

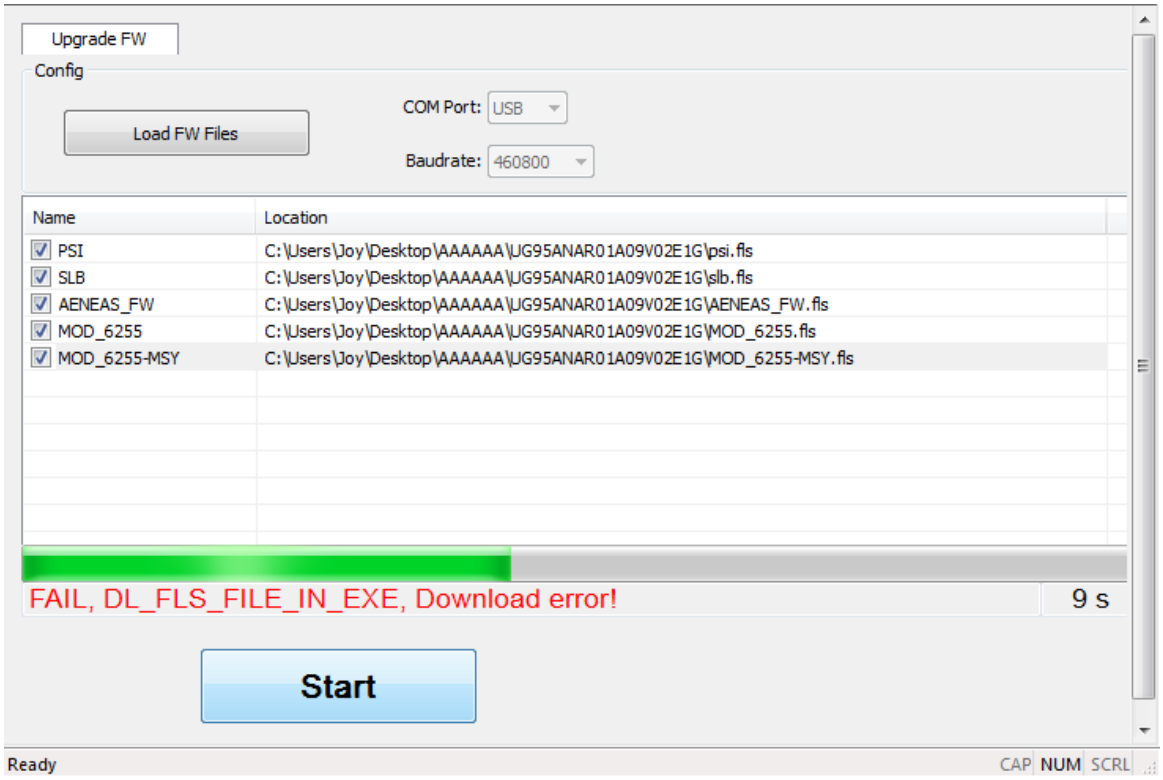

Figure 42: Power Supply is Abnormal (UGxx Modules)

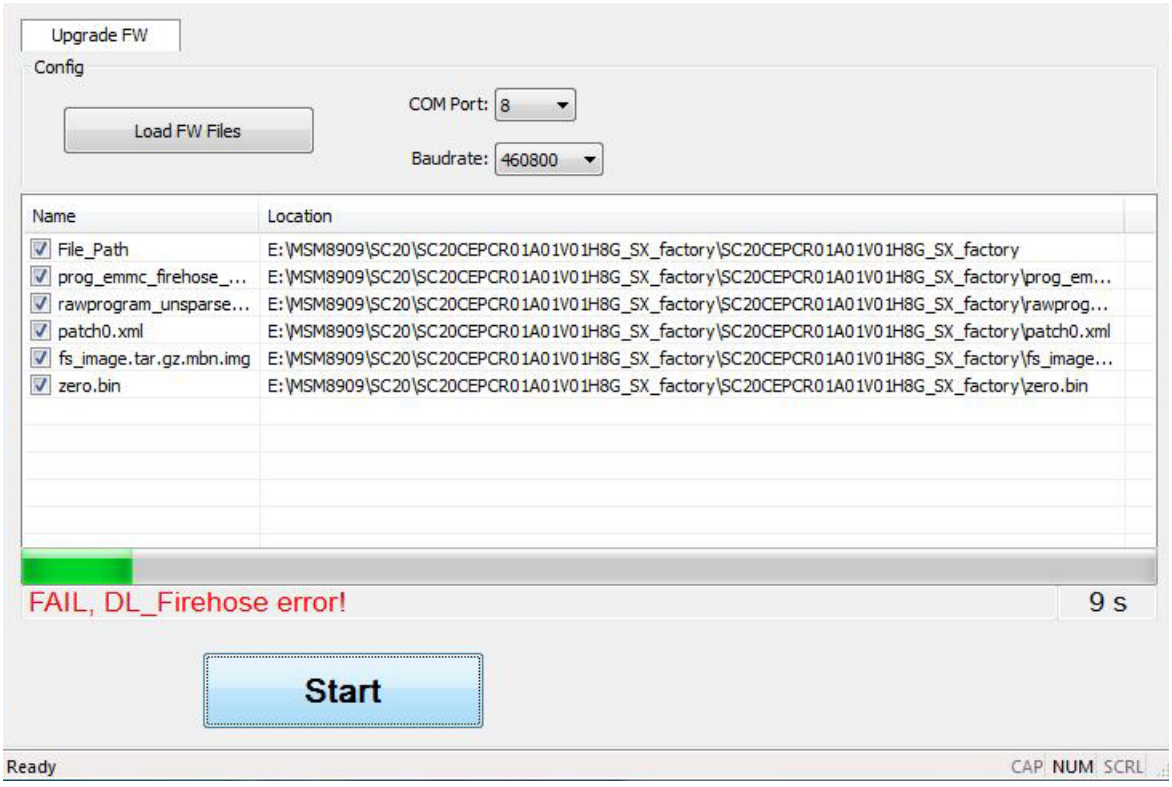

Figure 43: Power Supply is Abnormal (SCxx Modules)

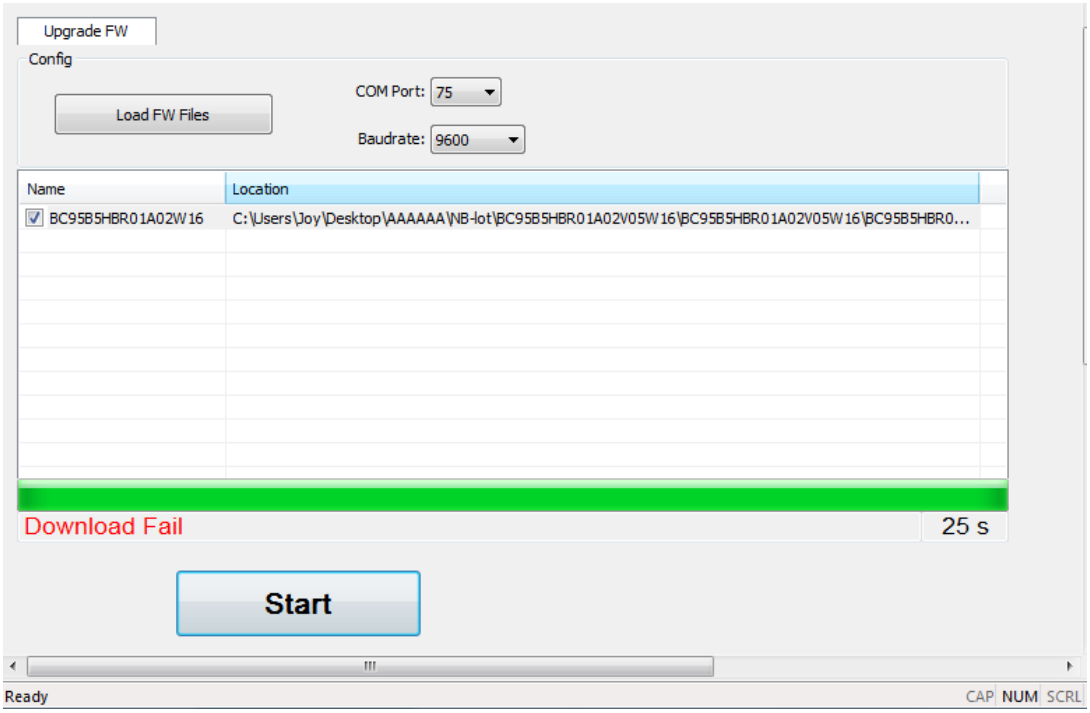

Figure 44: Power Supply is Abnormal (BCxx Modules)

2.4.6. USB to RS-232 Converter Cable is Abnormal

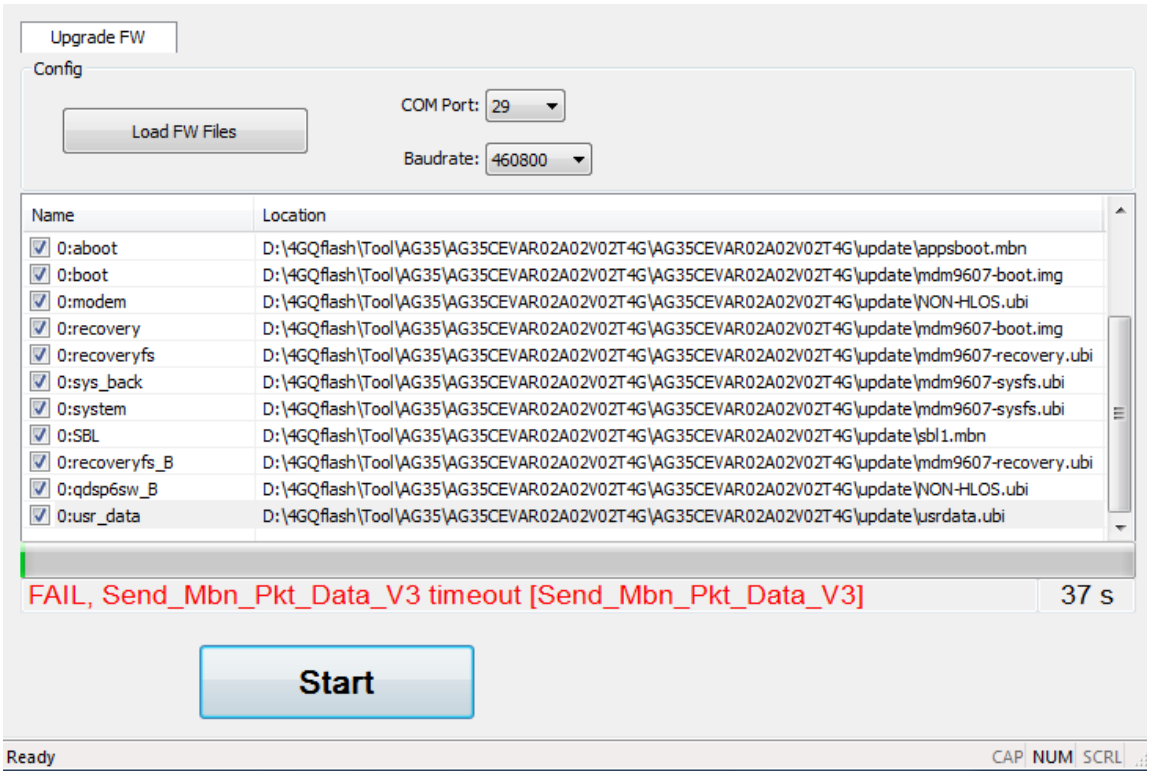

Figure 45: USB to RS-232 Converter Cable is Abnormal