



Acousto-Magnetic Configuration (AMC)
(For Century AM Detection Systems)

User Manual

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General Description

Thank you for choosing CSS Acousto-Magnetic EAS detection systems (CSS systems).

AMC (the abbreviation of [A](#)cousto-[M](#)agnetic [C](#)onfiguration) software is a unique configuration software designed for using with CSS systems. With AMC, technical persons can check the operational performance of CSS systems and tune the systems to the best possible performance by setting different parameters.

Tips:

- ◆ AMC is only compatible with CSS systems.

Note:

- ◆ For using AMC, CSS systems need to be connected with PC via RS485 serial port. A USB/RS485 converter needs to be adopted if there is no RS485 serial port on your PC (USB port is more popular).

Functions

Following functions can be found from the interface of the AMC.

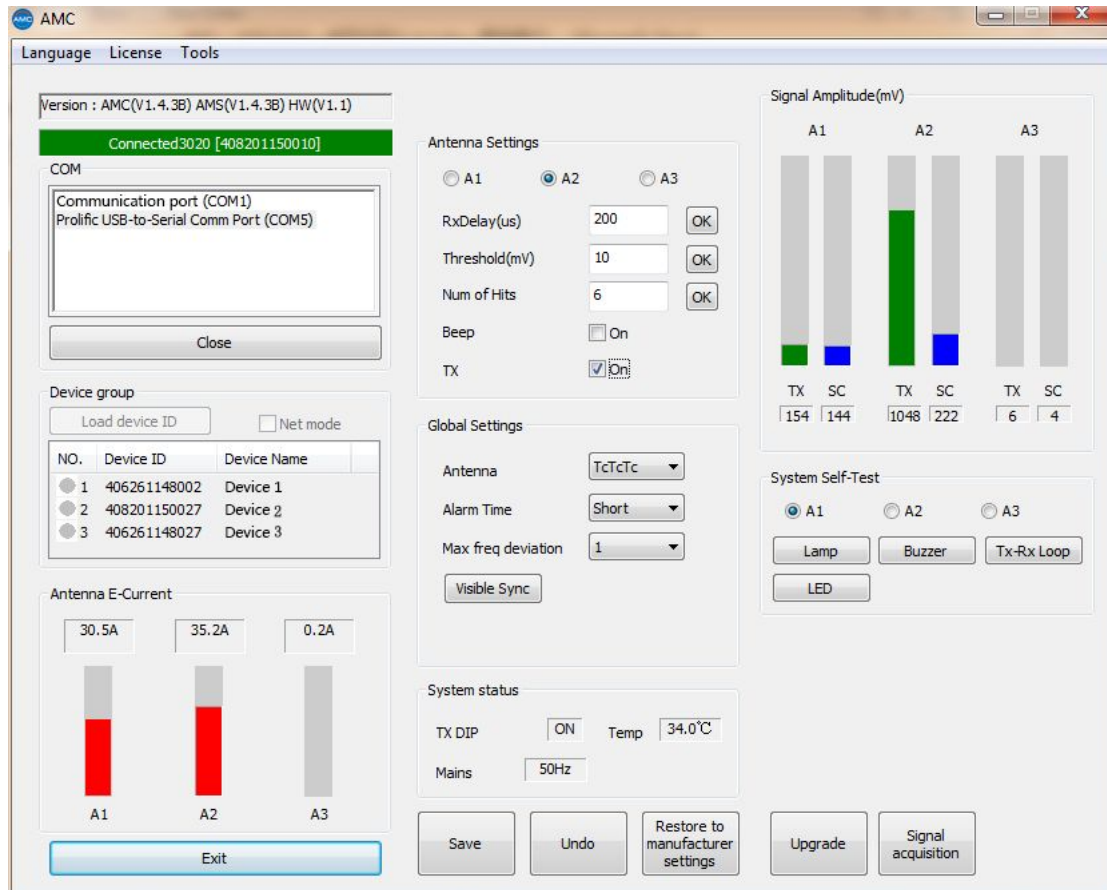


Fig.1: AMC Interface

- ◆ **Connected3020:**
After the connection is established, the status of AMS device could be viewing and operation by AMC software.
- ◆ **Antenna Settings:**
It is for configuration of parameters for selected antenna, it includes: Antenna selection, RxDelay, Threshold, NumOfHit, Beep and TX switch.
- ◆ **Global Settings:**
It is for configuration of parameters for all the antennas of a system.
- ◆ **System Status:**
Display the controller status, it includes: TX DIP, Temperature, Mains, Antenna E-Current & Signal Amplitude.

- ◆ **System Self-Test:**
Some basic functional self-test result of the system will be shown on the AMC software.

- ◆ **Signal Acquisition:**
Click [Signal Acquisition] to receive and save certain waveform of specific signal which will help technical persons of the original supplier of the system to analyze the system performance and the environmental interference status if there was any performance problem that could not be solved on site. This function is mainly used for remote support purpose.

- ◆ **Software Upgrade:**
AMS firmware can be upgraded by this function after click [Upgrade].

- ◆ **Save Changes:**
Click [Save] to save new settings to the memory.

- ◆ **Undo Changes:**
Click [Undo] to cancel all new settings which you do not want to save if the new settings were not saved yet.

- ◆ **Restore to Manufacturer Settings:**
Click [Restore to Manufacturer Settings] to adopt all default settings at factory. In this case, all non-default settings will be changed.

Operating Instructions

Please be sure that the system and the PC are connected and communicating with each other properly before setting parameters with AMC.

Tips:

Please connect the system and the PC correctly before power for the system is switched on. Otherwise, the system might be re-started.

Select Language

Double-click AMC icon on your PC. The configuration UI will appear.

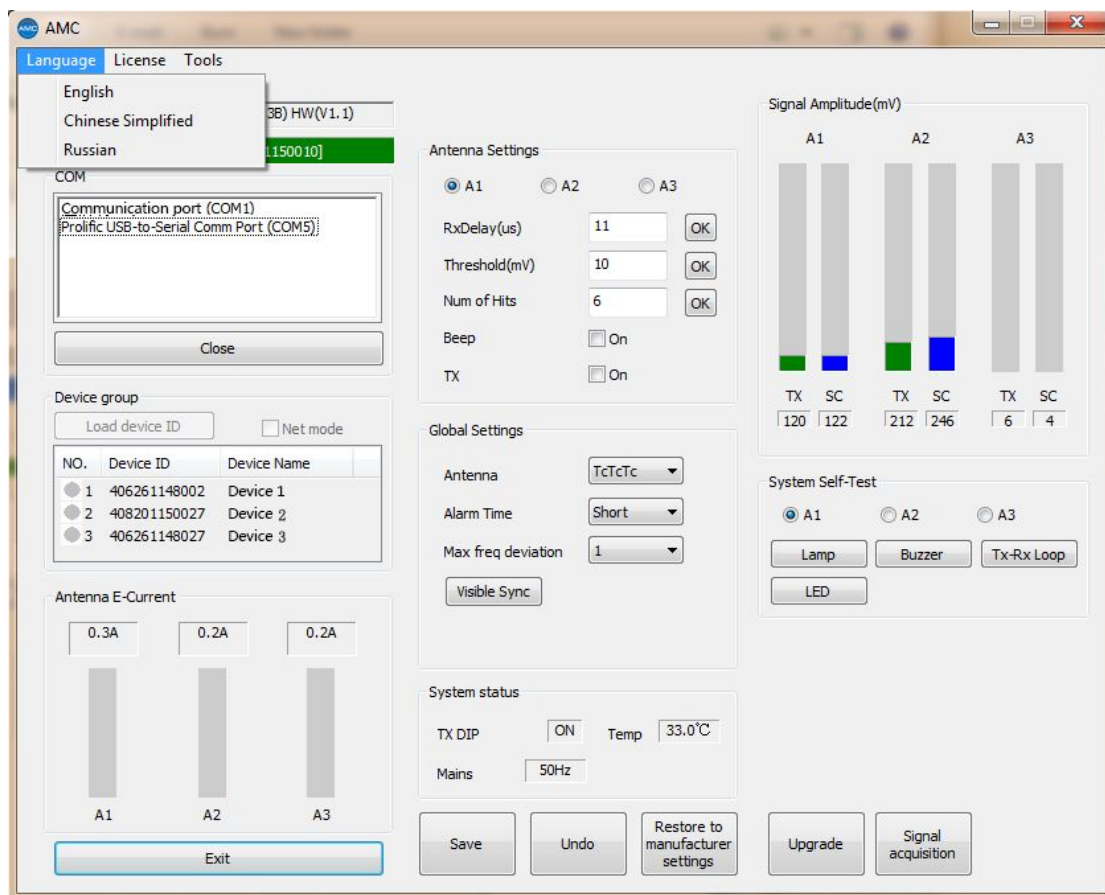


Fig.2: AMC Language Selection

- Click [Language], a drop-down list will be displayed.
- Click on the language you prefer – English, Simplified Chinese, Russian or any customized language.
- Selectable language can be switched freely at any time during tuning process.

Connection Mode Selection

Two Interface modes available: RS485 serial port and Bluetooth.

- **RS485 serial port**

Connection way:

- Connect the cable to AMC NET on AMS device, the other end of the cable is connected to USB socket of PC;
- Select the correct serial port named "Prolific USB-to-Serial Comm Port";
- For network tuning of the systems inside a point (a point can include all the systems or some of the systems inside a store), the connection way will be instruction in "Tuning Mode Selection";
- For standalone tuning, click directly [Open & Connect].

- **Bluetooth debugging interface**

Connection way:

- Please make sure the Bluetooth module of notebook computer under on-state;
- Fully open "control panel" of PC, find the "hardware and sound" and click on add equipment, then the computer will search to AMS3020 controller;
- Select the corresponding AMS3020 controller and click NEXT;
- Choose "Input device pairing code (E)" and enter controller's code "1234", then click NEXT;
- AMS3020 controller added successfully;
- Open AMC software to choose the corresponding serial number name beginning with Bluetooth;
- For network tuning of the systems inside a point (a point can include all the systems or some of the systems inside a store), the connection way will be instruction in "Tuning Mode Selection".
- For standalone tuning, click directly [Open & Connect].

Note:

- ◆ If there are hard to find the correct Bluetooth serial number, please open "Device Manager" of PC to choose AMS "Property" and then "Hardware", the port number corresponding to AMS controller will be found.

Tuning Mode Selection

Two tuning modes available: standalone and network tuning.

- Standalone is the default mode, in which you can only tune with AMC one system connected to the PC. Click [Open & Connect] to connect the system with the PC.
- Net mode: If the systems inside a point (a point can include all the systems or some of the systems inside a store) are networking connected, select check box of Net Mode and load configuration file of the point, you will be able to tune all systems inside the point/network from any of the systems.

Note:

- ◆ Please make sure if all the systems you intend to tune were all networking connected.
- ◆ If a networking connected system was tuned under Standalone Mode, the UI of AMC would be flickering and the tuning could not be done correctly.

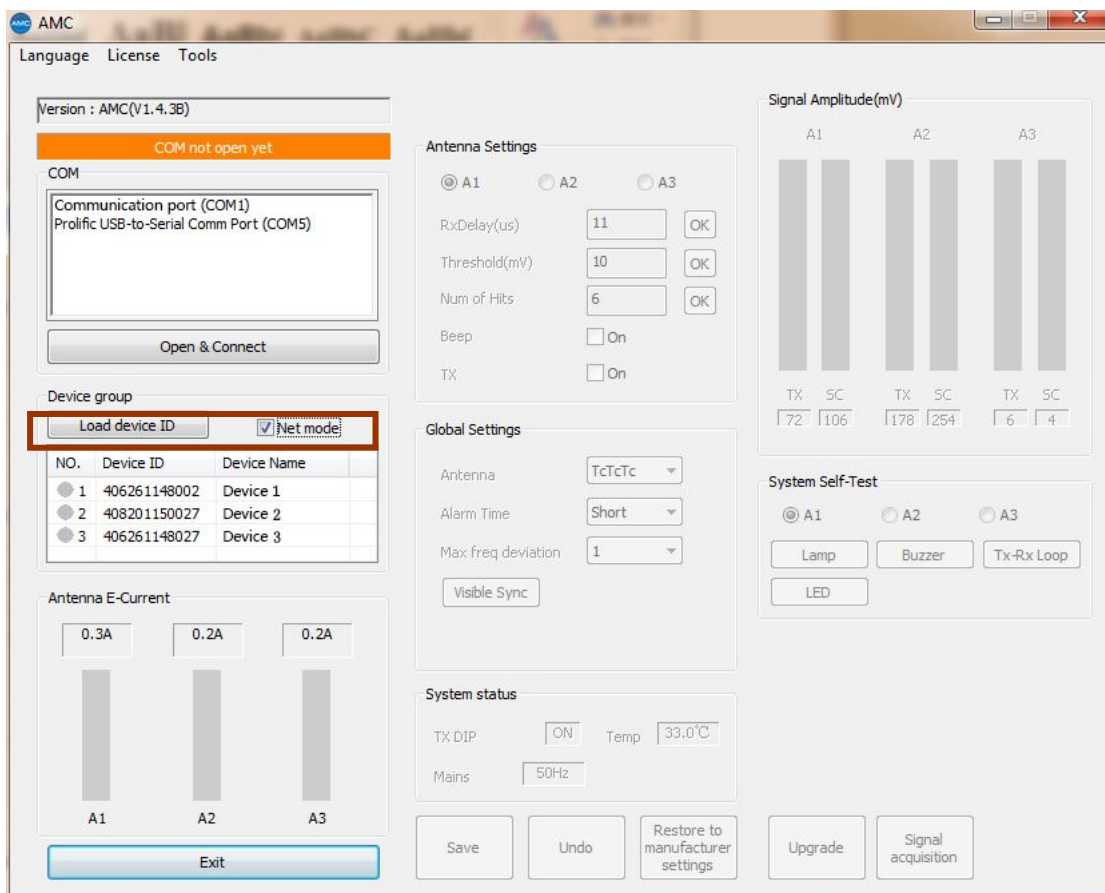


Fig.3: AMC Tuning Mode Selection

Load Configuration File

Three default dummy device IDs (not real ones) will be displayed when AMC is opened. After selecting Net Mode, user shall load configuration file for the real network point according to personal need.

- Click **【Load the device ID】**.
- Select configuration file "default.dev" for the network point from the folder displayed and open it.

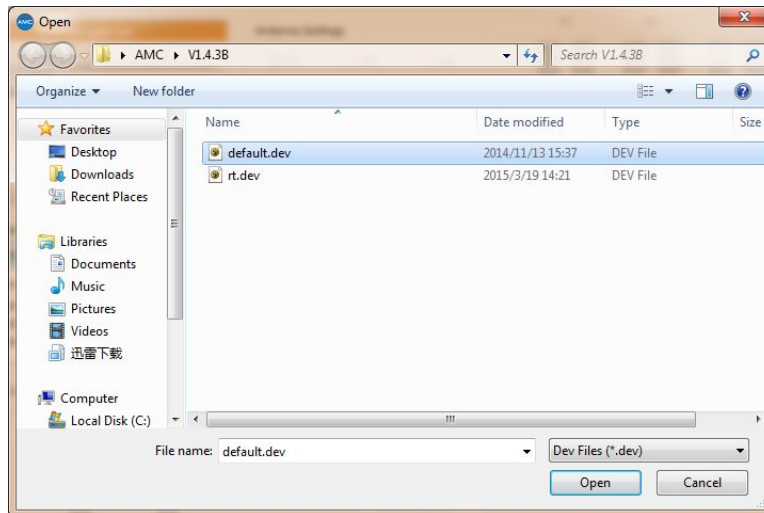


Fig.4: Select the device ID file

- The device display window will show all devices' ID within the network point.

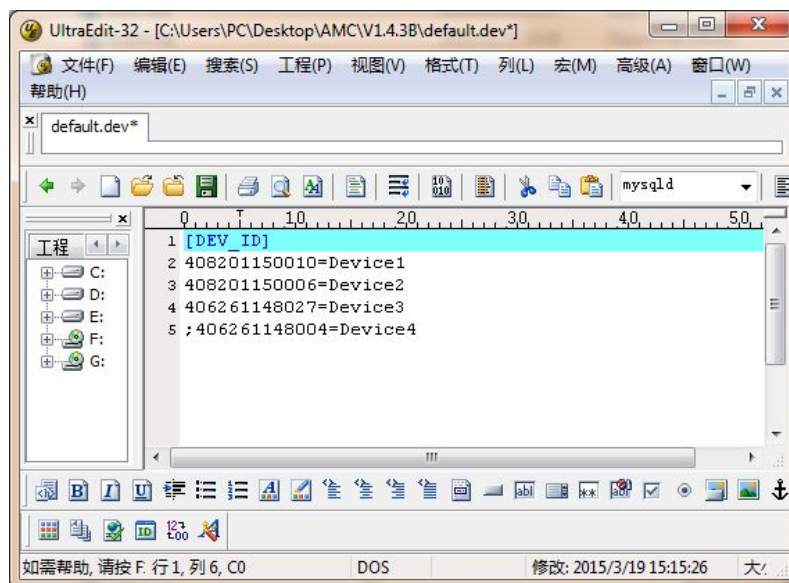


Fig.5: Select the device ID

- The device IDs could be added or deleted in default.dev file.

Creating Configuration File

If it was the first time to tune the systems within the network point, you need to manually create a configuration file for the network point.

- Create a 'default.dev' file in the AMC software package on PC, input following contents:

```
[DEV_IN]
```

```
1= ID of the 1st controller
```

```
2= ID of the 2nd controller
```

```
3= ID of the 3rd controller
```

```
4= ID of the 4th of controller
```

```
.....
```

- IDs of all the controllers within the network point shall be input into the configuration file.
- 12-digit ID number is stuck on each sub-board (shown as below).



Fig.6: ID number on each sub-board

Establish Connection

- Select the correct serial port.
- Click [Open & Connect].
- The system automatically into stand-alone debugging, this networking debugging function is non-editable status.

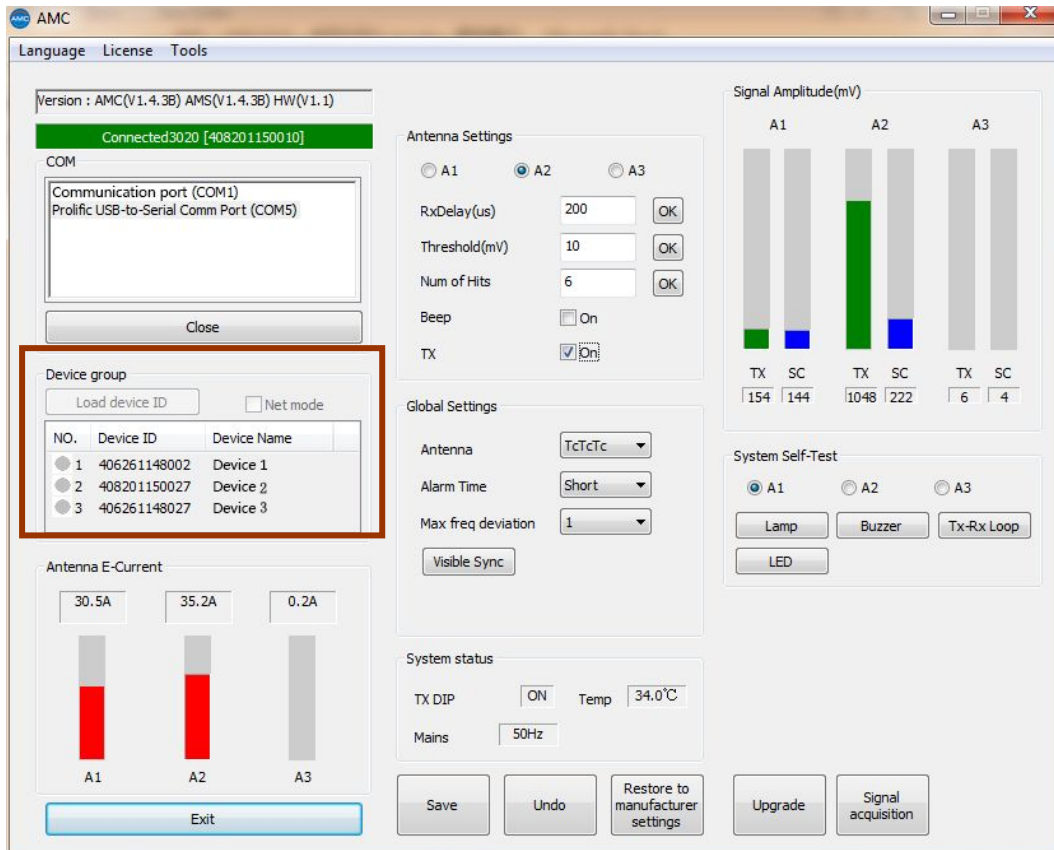


Fig.7: Successful connection for standalone tuning

- For networking mode, it has to select check box before Click [Open & Connect].
- After connection of networking mode is established, select the Device ID to be tuned, the status (represented by different colors) of the DOT in front of the device ID will be changed.
 - Green: Device has been selected for tuning and ready to go
 - Blue: Keep heartbeat
 - Grey: Device is not connected
 - Red: Device failure

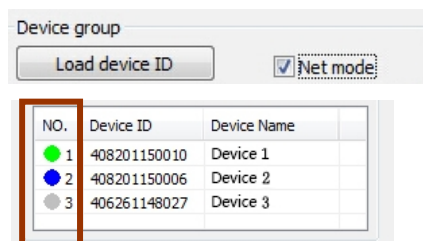


Fig.8: The Status of DOT in front of the device ID under networking mode

- All devices with green DOTs are ready to be tuned with the PC. The first device with green DOT on the list will be default selected. Any of the successfully connected devices can be selected for tuning by double clicking the Device ID.
 - The color of the DOT in front of the Device will change from blue to green.
 - The versions of the AMC software and the AMS firmware will be displayed.
 - The type/model and the ID of the device will be displayed as well.
 - The AMC window will be changed from non-editable status to editable.

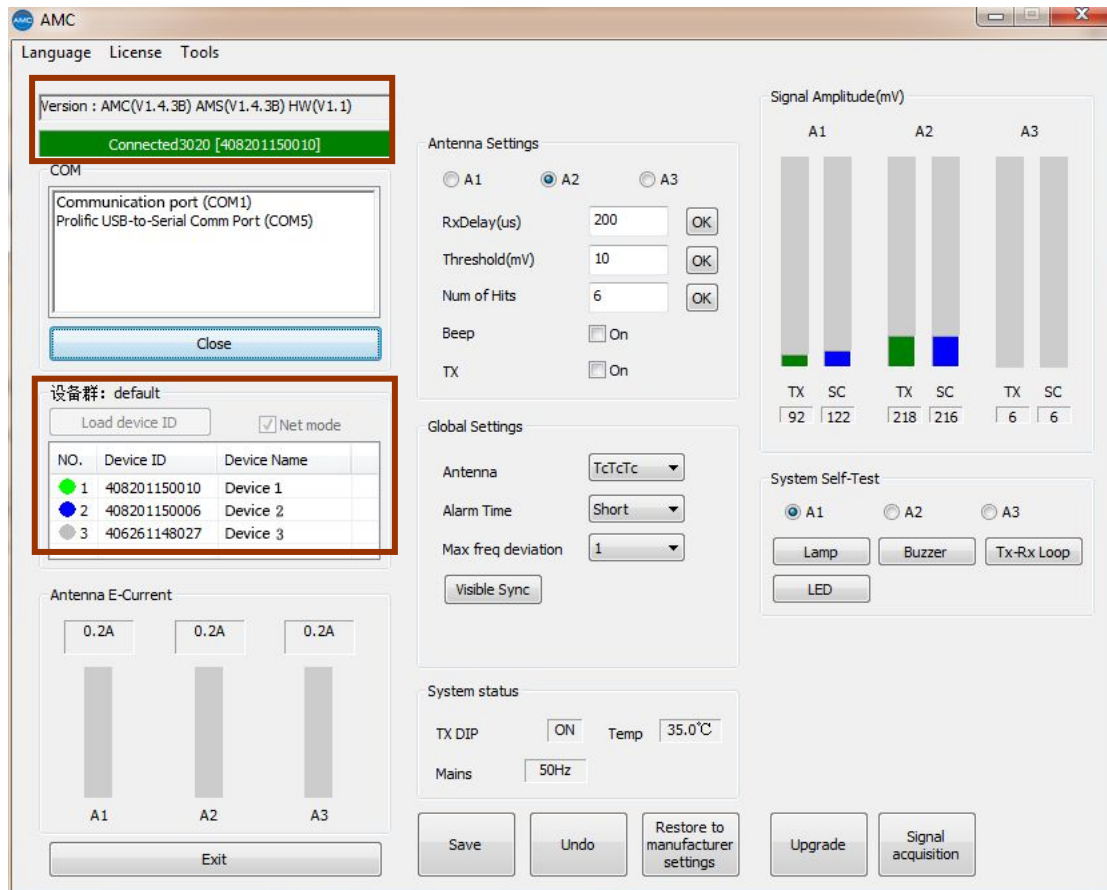


Fig.9: Successful connection of all devices for network tuning

Check Device Status

We try to use the AMC software to check the device status and help to find out possible defects happened to the device. Certain defects can be displayed on the AMC.

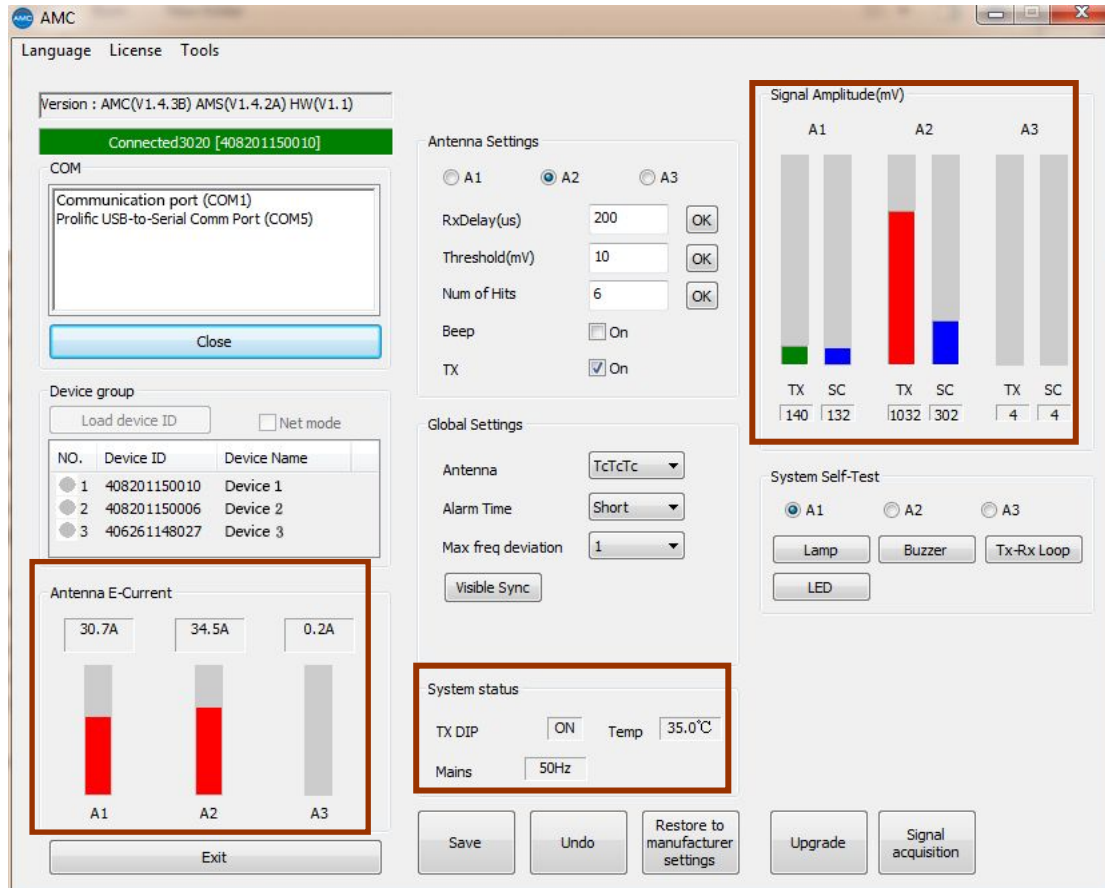


Fig.10: AMC status display

➤ Display Antenna E-Current:

The transmitting current of each channel is displayed in digit and color bar.

➤ System Status Display:

● TX DIP ON/OFF status:

A Hard TX Switch is adopted to switch on and off the transmitter. This hard switch of transmitter has higher priority level than the soft switch of transmitter in the AMC. When antenna selection is successfully, the AMC software will display the status of this hard switch.

- ✧ ON: In this case, the soft switch (TxCtrl) of transmitter works for each channel.
- ✧ OFF: In this case, the transmitter of the device is switched off. The software switch (TxCtrl) of transmitter in the AMC will not effective.

- **Temperature Display:** the temperature of controller under current running state.
 - **The Mains Display:** the display of the power frequency.
- **Signal Amplitude Display:** Users can observe the signal and noise level of the antennas, which are connected to the controllers, receive.
- TX: The level of signal received by receiver when transmitter is working.
 - SC: The level of signal received by receiver when transmitter stops working.

Antenna Settings

Antenna setting includes: antenna selection, RxDelay, Threshold, Num of Hits, Beep and TX switch.

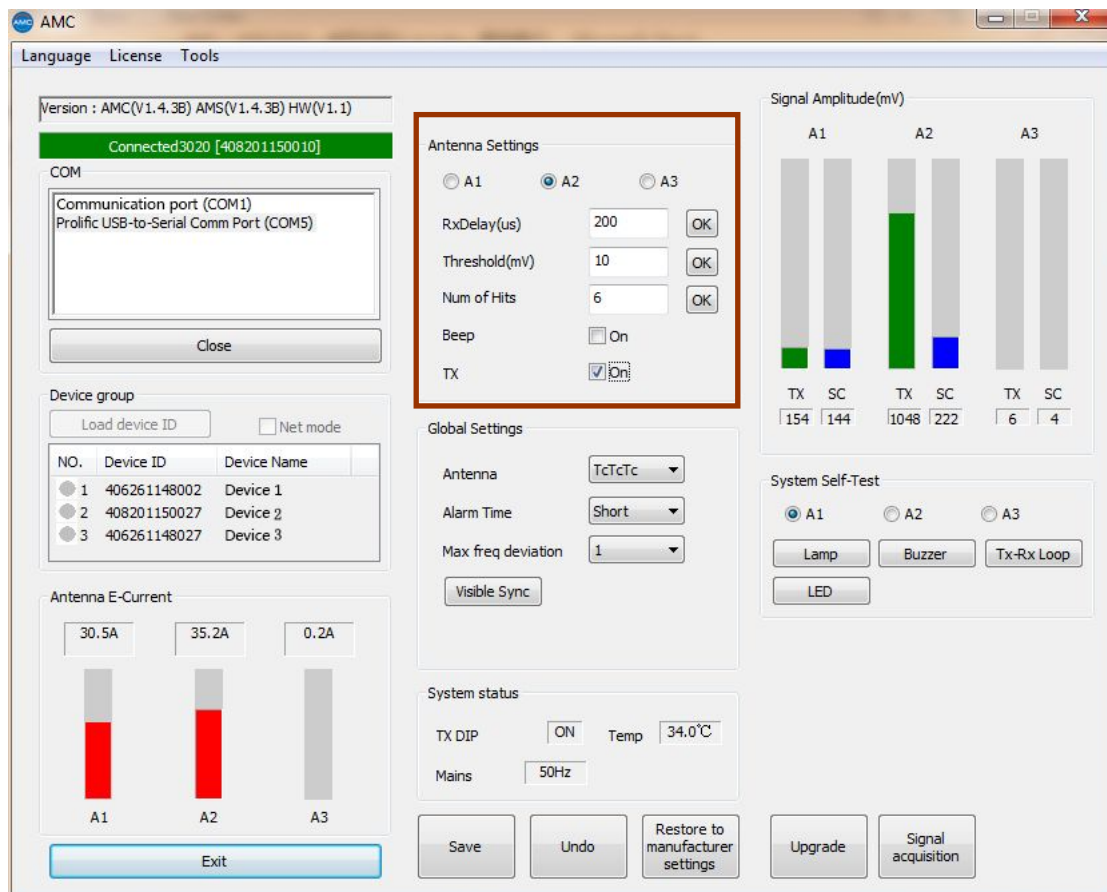


Fig.11: AMC antenna settings

Modify the parameters step:

- Select the antenna to be tuned (AMS device provides three antennas).
- Adjust values of parameters.
- Click **【OK】**

- Click **【Save Changes】** when one or more settings is/are confirmed.

Explanation of antenna parameters:

① **RxDelay:**

For reducing interference caused by large metal object closing to the system antenna. Range of the parameter is from 10 to 1000us. The default value is 10us. When there is a large metal object or metal frame closing to an antenna, increase the value. After increasing this value, the alarm will triggered a little bit later. Input a value within the range, then click **【OK】** to apply.

② **Threshold:**

Used to be filter the environmental noise. When there is noise signal from environment, adjust this parameter to filter out the noise and signal is less than the value of Threshold. The range of this parameter is from 0-500mv, the default value is 10mv. Click **【OK】** to apply.

③ **Num of Hits:**

The parameter is for determining the number of detection of tag before the alarm of the channel is triggered. The higher the value is, the slower the alarm will be triggered. Ranging from 1 to 10. The default is 6. Click **【OK】** to apply the parameter.

④ **Beep Switch:**

Select check box "√" is mean open position, otherwise it is closed position. If open position is selected, there is light with be blinking with sound when alarm is triggered. If it is closed position, only light will be blinking with no sound when alarm is triggered.

⑤ **TX Switch:**

The soft switch of transmit in the AMC software, this setting decides ON and OFF of transmission of selected antenna. Select check box "√" of TX switch is mean switch on the transmitter, otherwise it is switch off the transmitter.

Global Settings

Global Settings are for configuration of parameters for all the channels of a system, it includes: Antenna mode, Alarm Time, Max Frequency Deviation, Visible Sync.

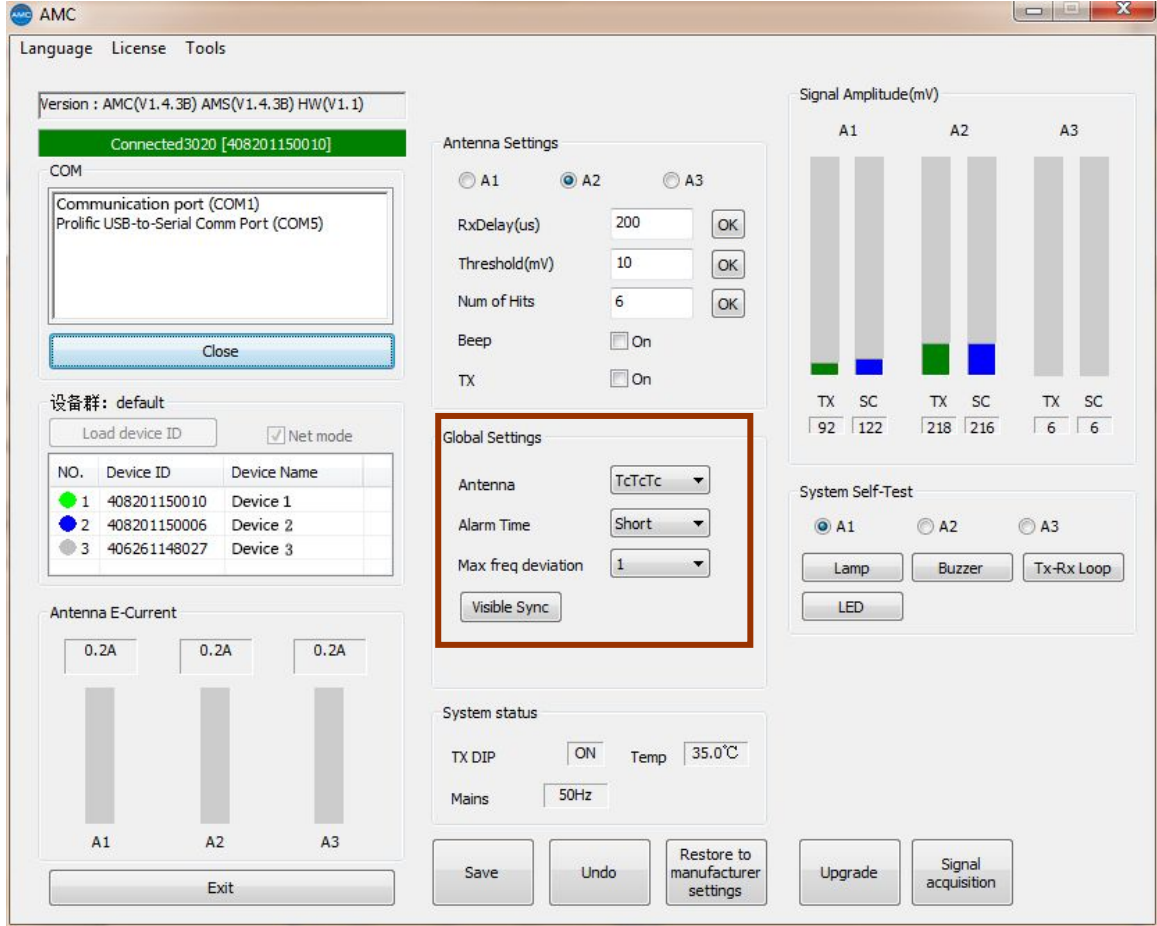


Fig.12: AMC Global Settings

Explanation of parameters of Global Settings:

- ① **Antenna mode:** There are four (4) modes of the combination of Tc, Tx and Rx for the three channels of a system – TcTcTc, TcTxRx, RxTxRx and TxRxTx. The sequence of the channel represented is Channel 1, 2 and 3.

Rx	Receiver
Tx	Transmitter
Tc	Transceiver

Antenna 1	Antenna 2	Antenna 3	Channel mode	Function
Tc	Tc	Tc	TcTcTc	All of three antennas are transceiver

Tc	Tx	Rx	TcTxRx	A1 is transceiver+A2 is transmitter+A3 is receiver
Rx	Tx	Rx	RxTxRx	A2 is transmitter only+A1&A3 are receiver to set up dual channel
Tx	Rx	Tx	TxRxTx	A2 is receiver only+A1&A3 are transmitter to set up dual channel

② **Alarm Time Setting:**

The default value is [short]. If choose [long], the value is, the longer the duration of blink and beep will be after the alarm is triggered.

③ **Max Freq Deviation:** it can detect the signal bandwidth of label/tag. The higher the value is, the more width signal bandwidth will be detected. When the detection performance is not good enough, adjusted [Max Freq Deviation] to get better detection performance. The purpose of this parameter is compatible with poor-quality labels to avoid false alarm or no alarm.

④ **Visible Sync:**

This parameter is the most important for synchronizing the system (under tuning) with foreign AM-EAS devices (detection systems and/or deactivators from Century or other companies). On one hand, the fixed noise in the environment can be transferred from the receive window to avoid noise interference; on the other hand, transmission synchronization with other AM-EAS devices to avoid interference from foreign AM-EAS devices.

➤ **Noise Adjustment:**

- Click the [Visible Sync] to select the antenna to be tuned. The default is [all antennas]. Shown as below.

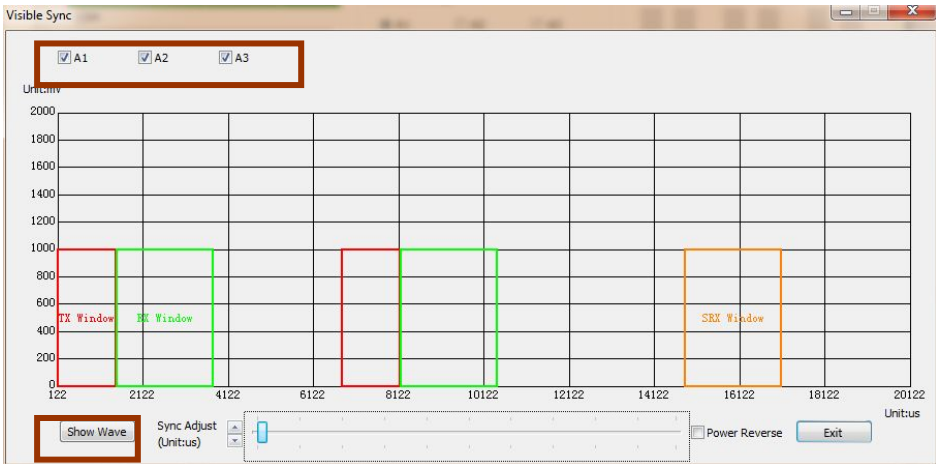


Fig. 13: AMC visible sync
15 / 30

- Click [Show Wave], you can clearly see if there was any interference inside the first green listening window. Shown as below.

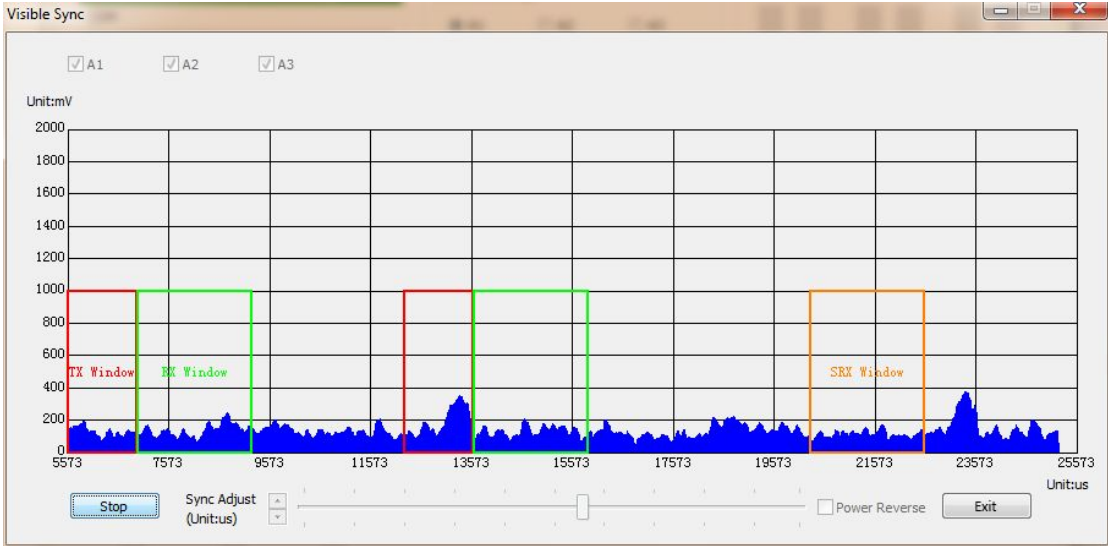


Fig.14: AMC noise adjustment of visible sync

- Click [Stop], the waveform graph displayed will be frozen. Drag scroll bar and select check box of "Power Reverse" to adjust precise value of the phase shift to minimize the noise values of the first green and the yellow listening window to reduce the noise interference. Shown as below.

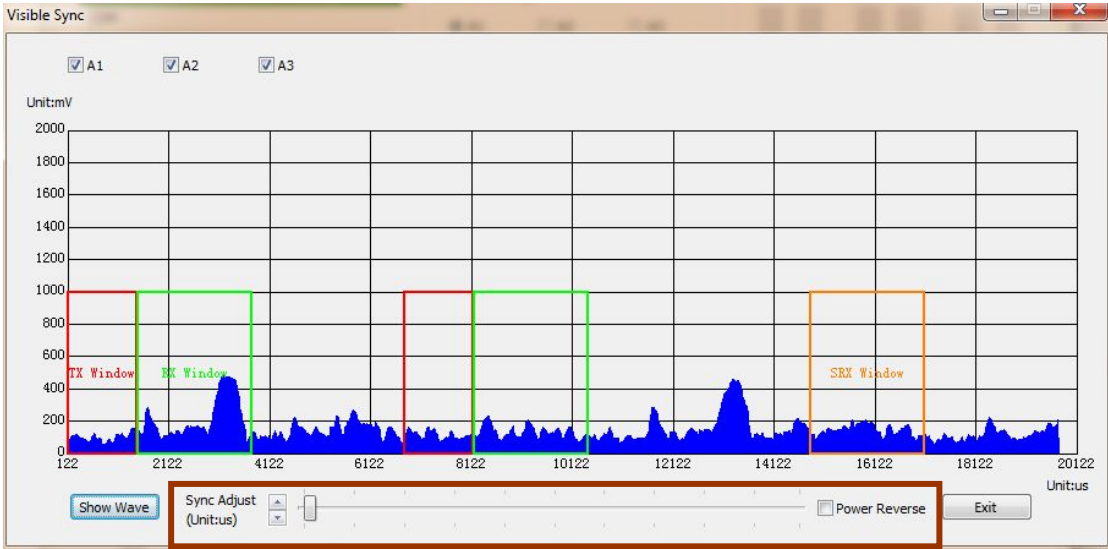


Fig.15: AMC noise adjustment of visible sync

- After the adjustment is completed and confirmed, click [Exit] to return to AMC interface.

➤ **Sync Adjustment:**

- Click the [Visible Sync] to select the antenna to be tuned.
- Click [Show Wave], you can clearly see if there was any interference inside the listening window. Shown as below.

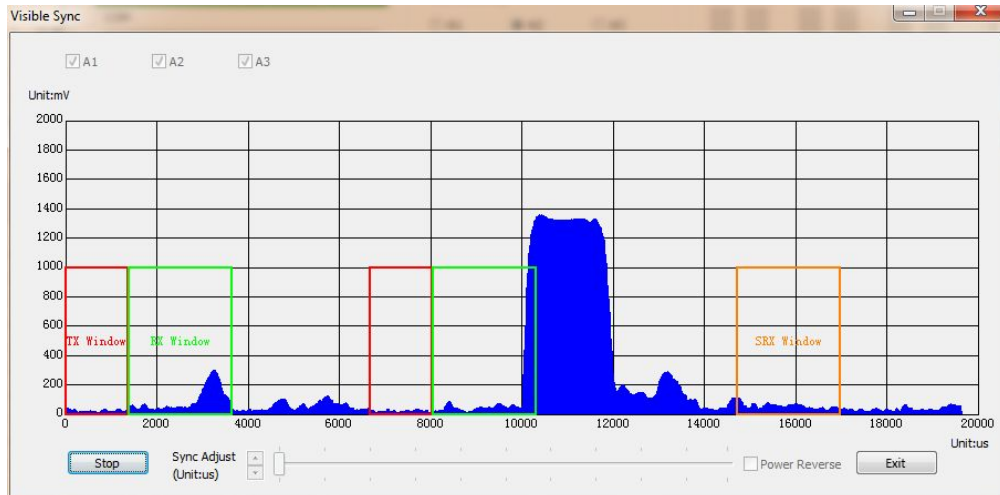


Fig.16: AMC sync adjustment of visible sync

- Click [Stop Show], the waveform graph displayed will be frozen. Put the start position of waveform to align the ordinate to avoid the interference from other AM-EAS devices with transmission. Shown as below.

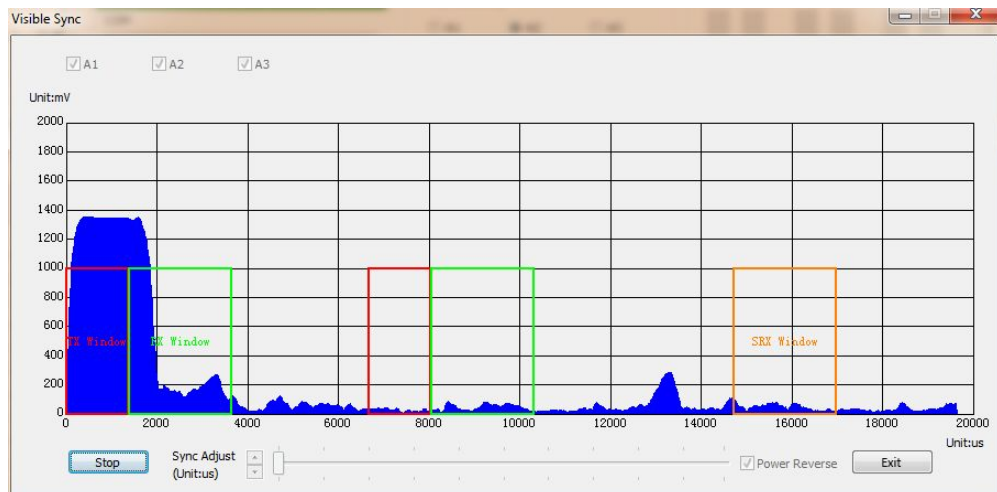


Fig.17: AMC sync adjustment of visible sync

- After the adjustment is completed and confirmed, click [Exit] to return to AMC interface.

Note: The start position of waveform which it is from foreign AM-EAS device with transmission has to align the ordinate. Otherwise, the sync adjustment will be failed, and there will be mutual interference to decrease the sensitivity of each other.

System Self-Test

Users run Self-Test to make sure if all the parts of the system worked well.

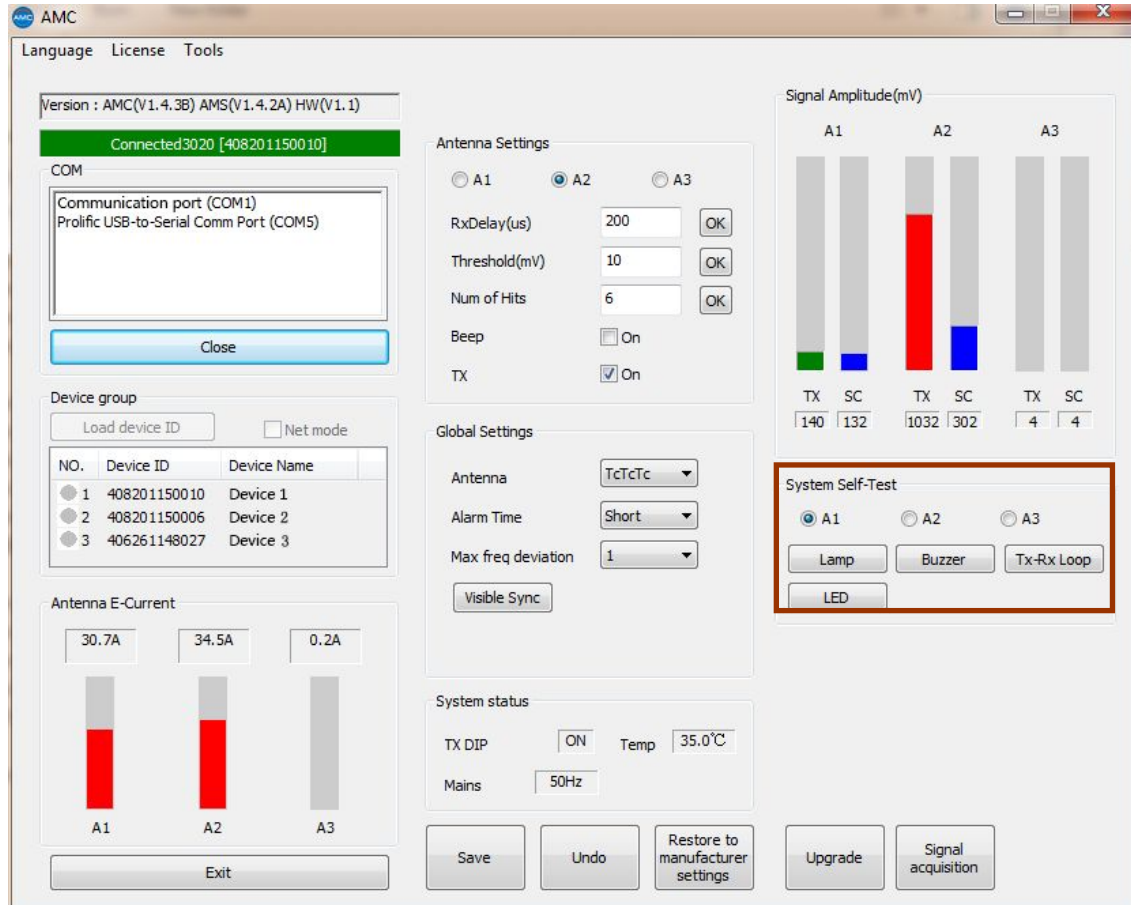


Fig.18: AMC System Self-Test

- Select the antenna to be tested (AMS device provides three antennas).
- Click a button to be tested.

① **Test Lamp:**

Click the **【Test Lamp】** , a window appears as below.

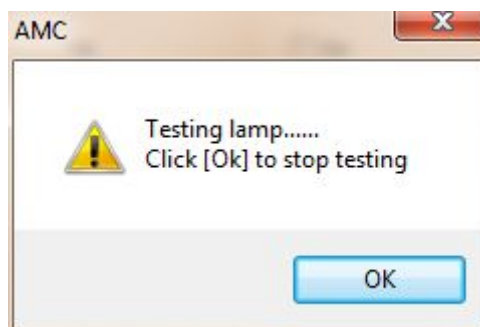


Fig.19: Test Lamp

If the alarm lamp of the antenna and the first two LED on first column LED of the controller blink continuously (A1 was selected), it means that the alarm indication of the channel works properly. Otherwise, the lamp is damaged. Click **【OK】** to end the test.

Note:

The first column LED of the controller is for Antenna 1;

The second column LED of the controller is for Antenna 2;

The third column LED of the controller is for Antenna 3.

② **Test Buzzer:**

Click **【Test Buzzer】** , a window appears as below.

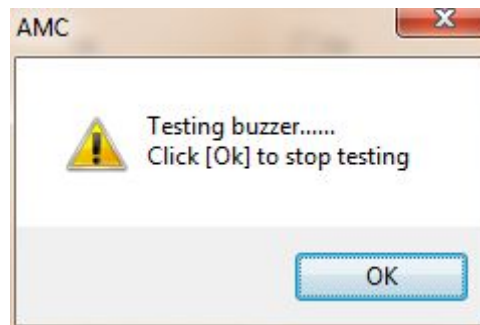


Fig. 20: Test Buzzer

If the alarm buzzer of the antenna beeps and the first three LED on first column LED of the controller blink continuously (A1 was selected), it means that the alarm buzzer of the channel works properly. Otherwise, the buzzer is damaged. Click **【OK】** to end the test.

③ **Test Tx-Rx Loop:**

This is to assist user to identify if the loops of transmitter and receiver connected to the antenna is working properly. Click **【Test Tx-Rx Loop】** , the system will generate a signal at around 1000mV. A window appears as below.

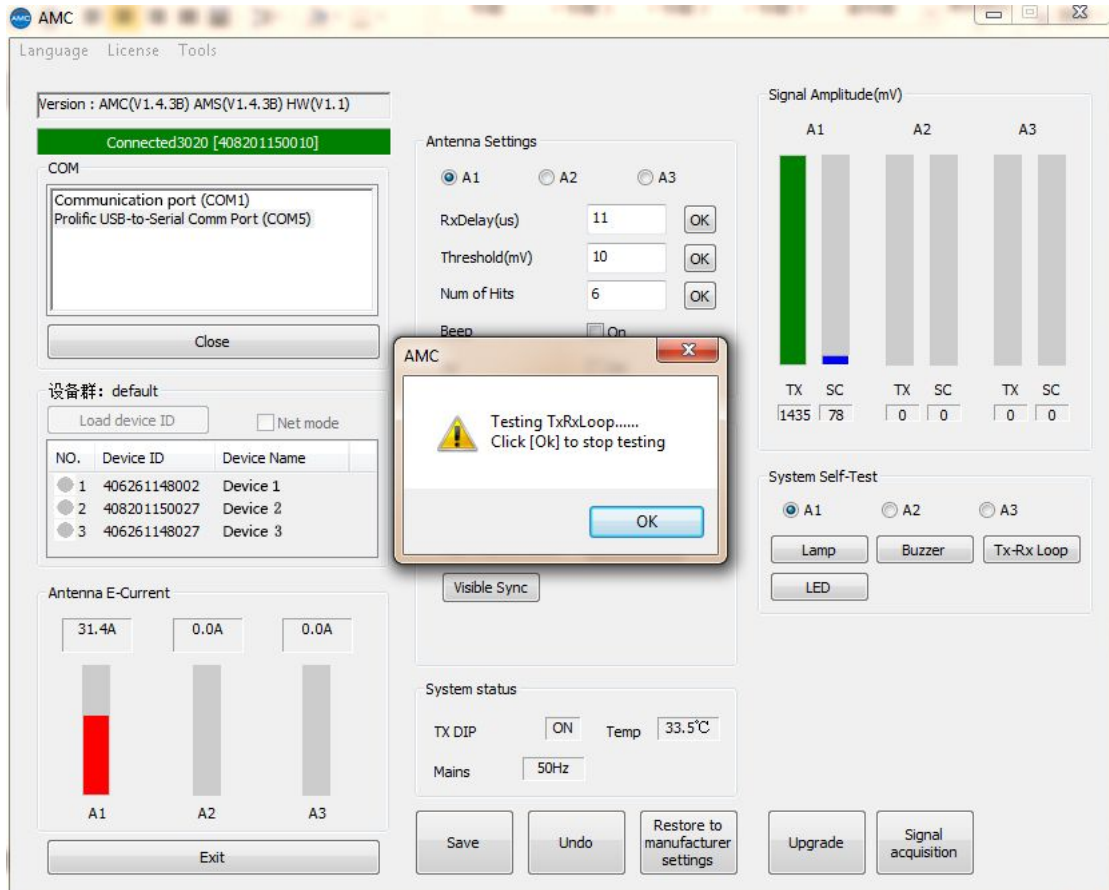


Fig.21: Test Tx-Rx Loop

When a 1000mV signal is generated by the system, for a normal system channel, the receiver shall receive the signal and "signal/TX" level displayed shall be 1000mV or higher (adding noise) and the "noise/SC" level displayed shall be same as displayed before. Click **【OK】** to end the test. If the "signal/TX" level displayed in the window does not increase to 1000mV or more, something might be wrong with the transmitter and/or receiver loops.

Note: The test result might not reflecting the reality if the transmitting current was not within the correct range or the environmental noise level was higher than 100mV, i.e., in this case, the test result might show that the TxRx loops have problem but the reality is that they are all working fine.

④ **Test LED:**

Click **【Test LED】**, no need select antenna. A window appears as below.

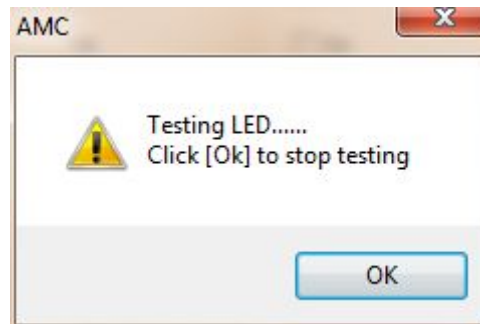


Fig.22: Testing LED

All 16 LED indicators (except power indicator) shall be continuously lighting at the same time.

If all the LED indicators work well during the testing, you can be sure that all the LED are fine. Click **【OK】** to end the test.

Signal Acquisition

Click **【signal acquisition】** to captured and saved the real time waveform of Tag & Noise, it is for help to analyze the current working environment of the device.

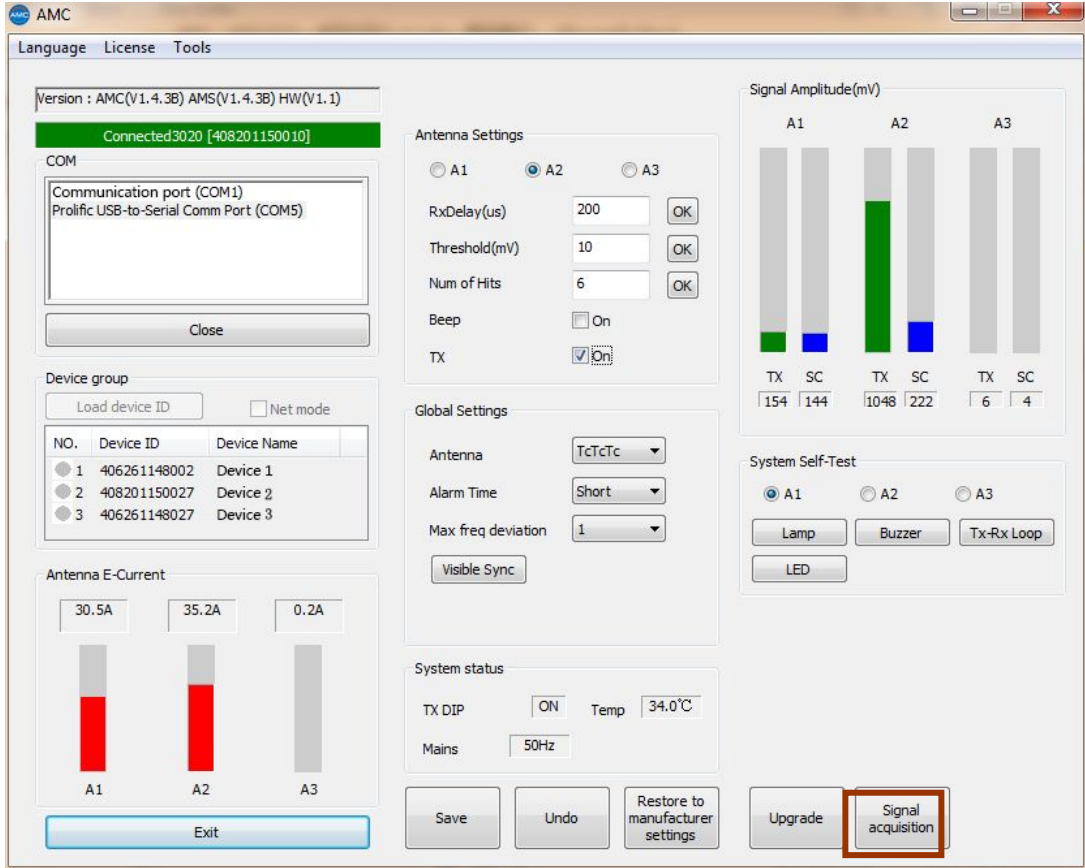


Fig.23: AMC Signal acquisition

Two optional data can be captured and saved – Realtime data & Tag Data. Default setting is Tag data.

- Select **【signal acquisition】** ,A window will appear as below.



Fig.24: AMC Signal acquisition

- Select **【Antenna】** which antenna to be operation;
- Select **【Signal type】** what kind of data to be captured;
 - **【Realtime data】** : Continuous signal data will be captured every three (3) seconds;
 - **【Tag data】** : Signal data will be captured only when a tag is detected.
- Select **【Slot】**
 - **【TX】** : The signal received by receiver when transmitter is working.
 - **【SC】** : The signal received by receiver when transmitter stops working.
- Click **【Start】** ;
- A window will appear as below.

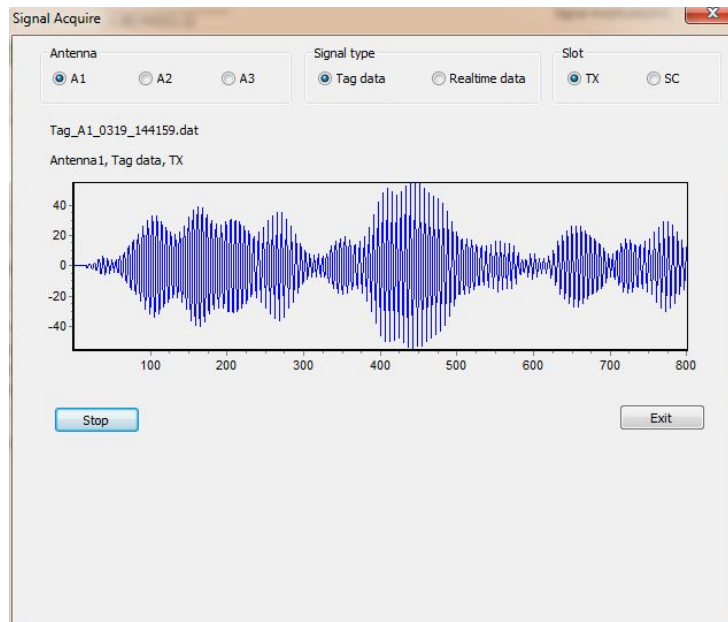


Fig.25: AMC Signal acquisition

- Wait for certain period as you prefer (remember that signal data will be captured every three (3) seconds);
- Click **【Stop】** to end the capturing;
 - Click **【Exit】** to return to Signal Acquisition interface.
 - All captured graphs will be stored in the file **【signal】** in the directory where the AMC software locates.

Upgrade

The system can be upgraded with AMC software to make the program function better.

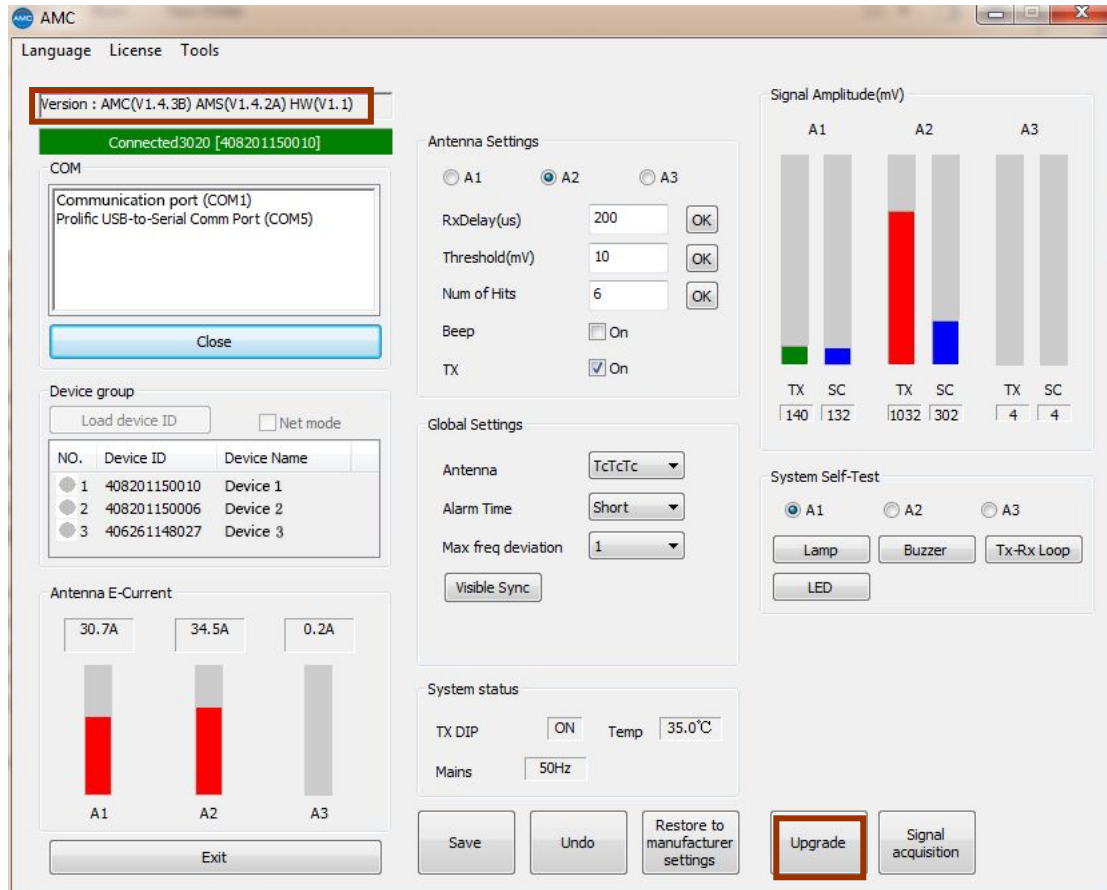


Fig.26: AMC Upgrade

Note:

- ◆ During upgrading process, the power for the controller cannot be switched off. Otherwise, the sub-board might be damaged;
- ◆ During upgrading process, the USB/RS485 converter cannot be removed from the PC and the AMS device. Otherwise, the upgrading will not succeed.

➤ Click **License**, an authorization .lic file will be automatically generated with file name: ID number. lic, such as:

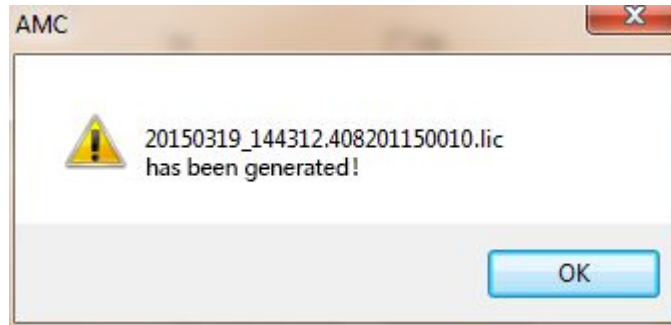


Fig.27: AMC Upgrade file

- User shall send the authorization file to CSS service personnel, who will issue an upgrading file, generated based on the authorization file to the user.
- When the user receive the upgrading file, click "upgrade", a window for selecting upgrading file will appear.
- The user selects the correct upgrading file (with same ID of the AMS device), click [Open].

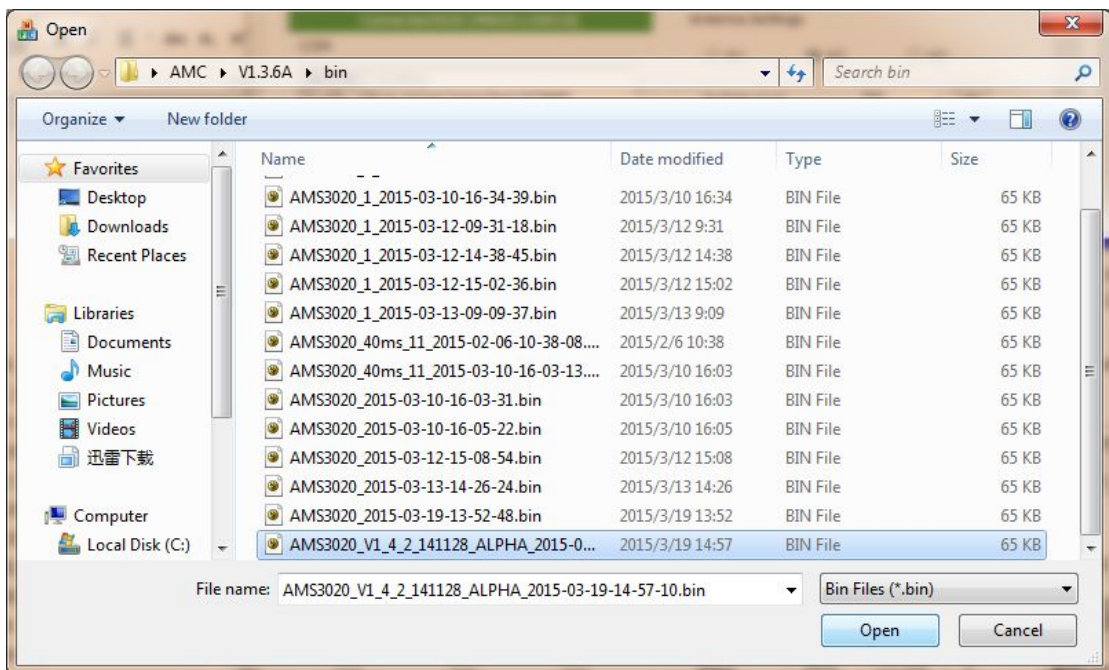


Fig. 28: Select correct upgrading .bin file

- Upgrading starts and display bar appears. During the upgrading process, "DONE" button is grey and cannot be used.

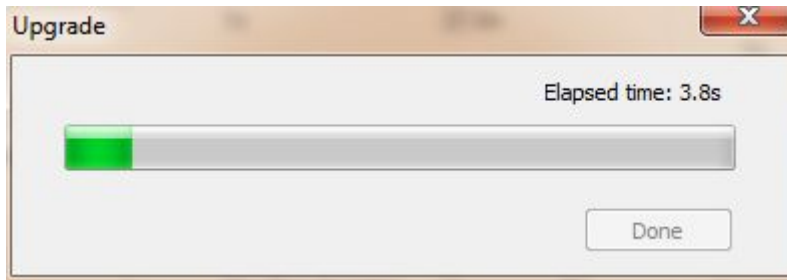


Fig.29: In upgrading

- When upgrading is completed, click [Done] to end the upgrading process.

Description: If the upgrade failed during process, just reboot the controller to continue upgrading.

- After successful upgrading, the new AMS version will be displayed when open AMC which matches the new AMS version.

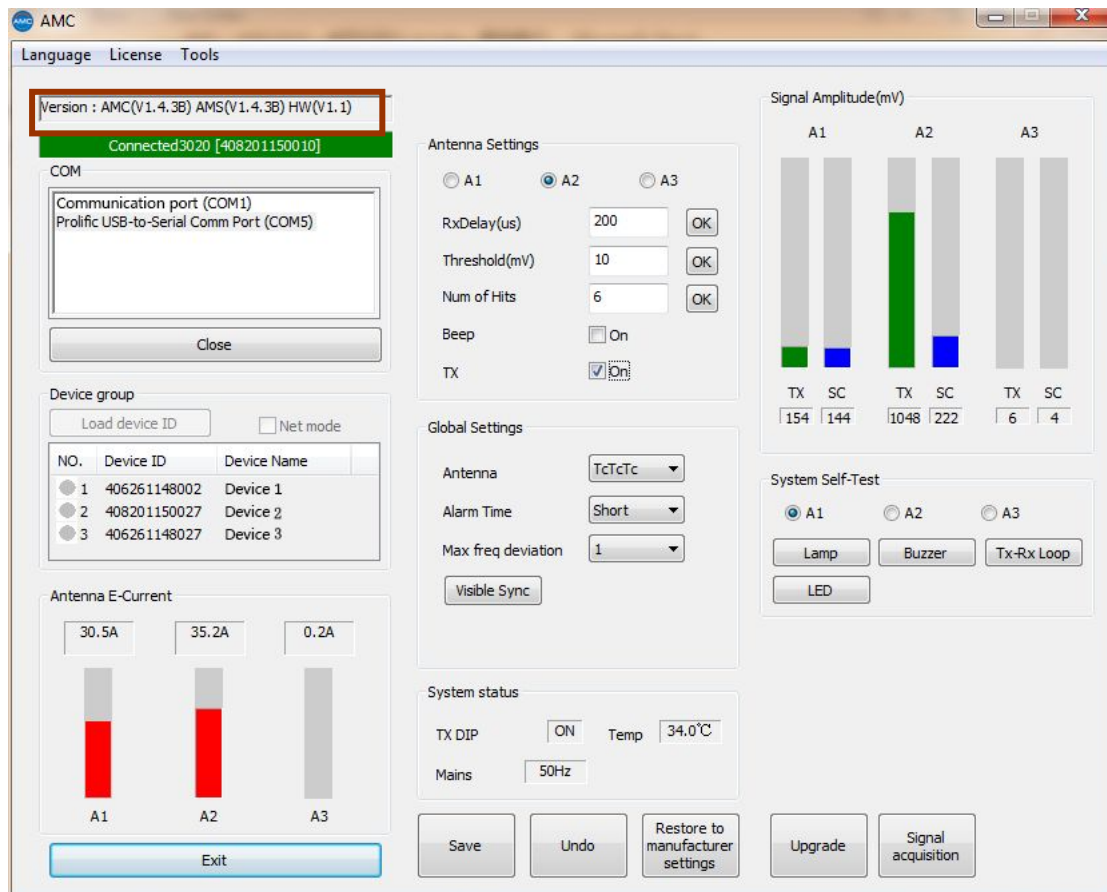


Fig. 30: AMC upgrade success

Real Time Clock Settings (set RTC)

AMC interface can complete the real time clock setting for the future development of people counting & alarm statistics functions.

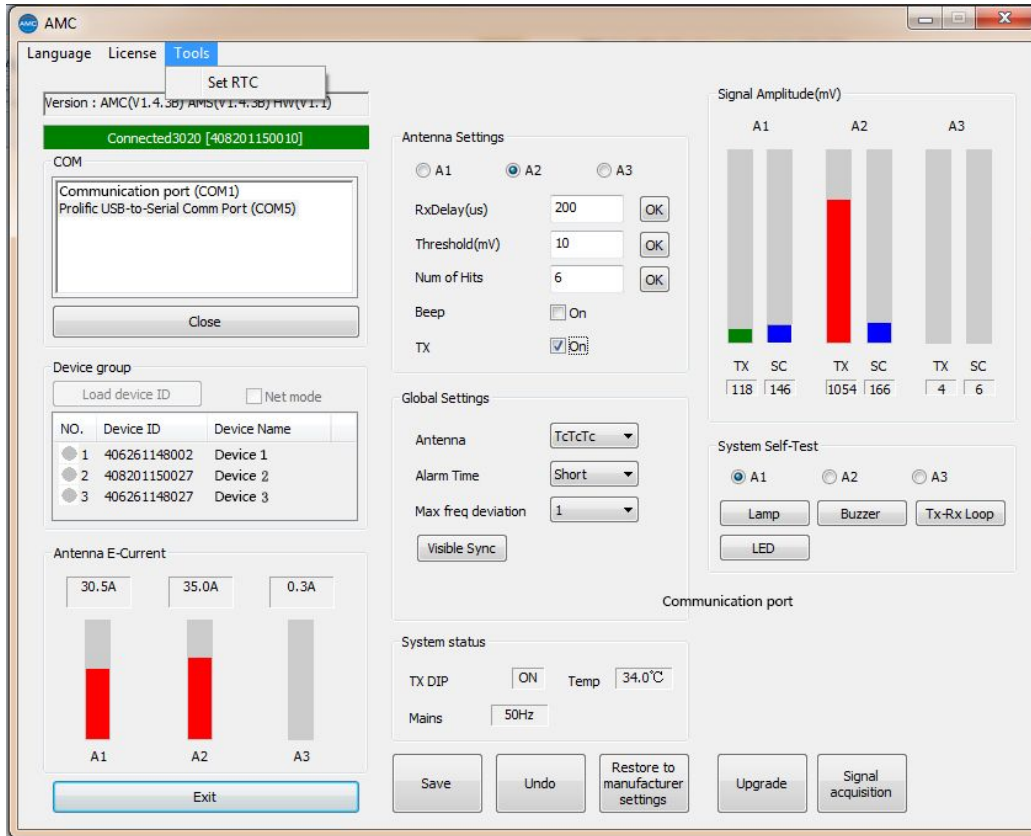


Fig. 31: AMC Set RTC

- **Click** [Tools]
- **Click** [set RTC], a window appears.

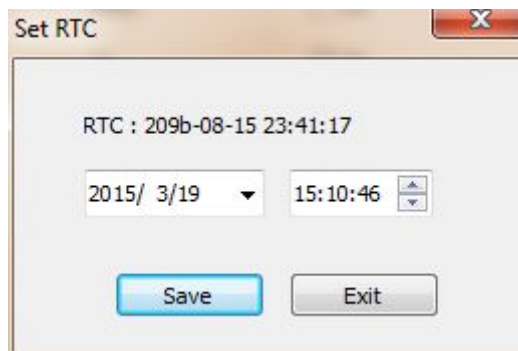


Fig.32: Setting RTC

- Setting the date and time
- Click [Save] to end the setting, the setting successfully.

Service Contact:

This manual applies for AMC software version: 1.4.3 beta.

Should you find any problems or have any comments or questions, please feel free to contact:

Mr. Raymond Liu (temporary contact)

E-mail: raymond@century-cn.com

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Skype: raymond-yun-liu

Mobile phone: +86 13501233505

Tel & Fax: +86 10 88508024

Thanks.