PCU-220 GUI User Guide

Version 5.10

I. Introduction

This is a user guide for installing the PCU-220 controller graphical user interface (GUI) and the required driver for the application. It also contains operating instructions for the GUI, antenna file, and firmware download, and for clearing COM ports.

II. GUI and driver installation

1. JMA tech support
   - Toll Free: +1-888-201-6073
   - techsupport@jmawireless.com
2. For system requirements, see Table 1, below.

Software specifications	
Windows operating system supported:	Windows XP thru Windows 8
USB-485 window-based VCP driver:	FDTI Window x64 2.08.28 WHQL certified
	http://www.ftdichip.com/Drivers/VCP.htm

Table 1 – Software specifications

3. Uninstall any previous version of the **JMA_AISG_RET** control.
4. Install the GUI first, then the driver. To install the GUI, run the setup file. Figure 1 is just an example; the rev could be different.
5. Follow the setup wizard and click **Next**, then **Install**. Allow the installation, and click **Finish** to complete the installation. Figures 1-4 are the same for setup23 or higher.

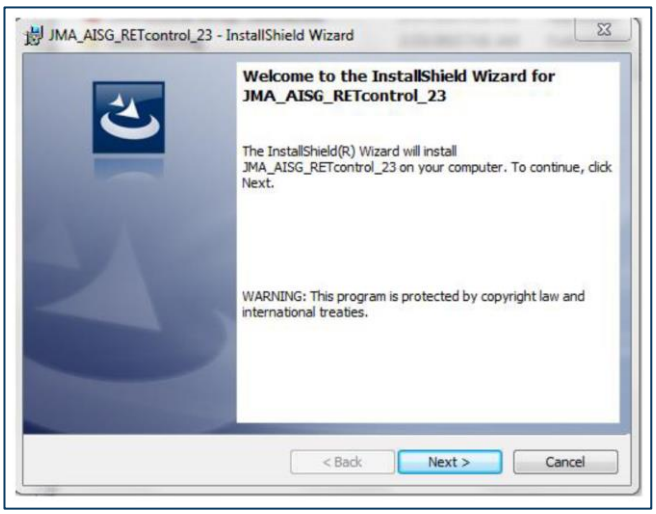


Fig. 1 – Welcome screen for installation

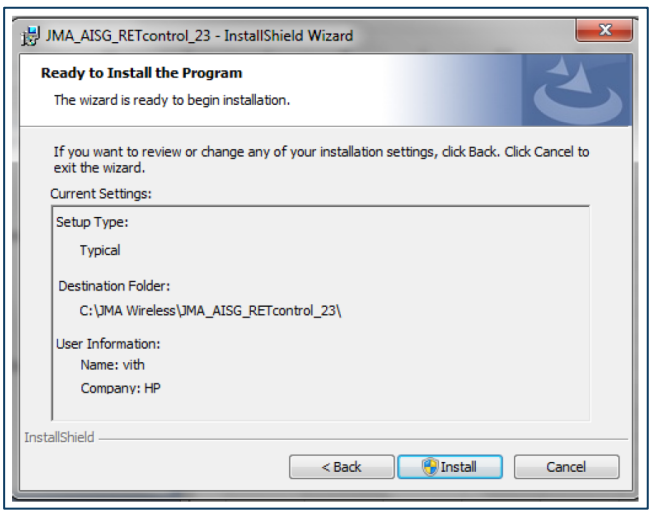


Fig. 2 – Beginning the installation

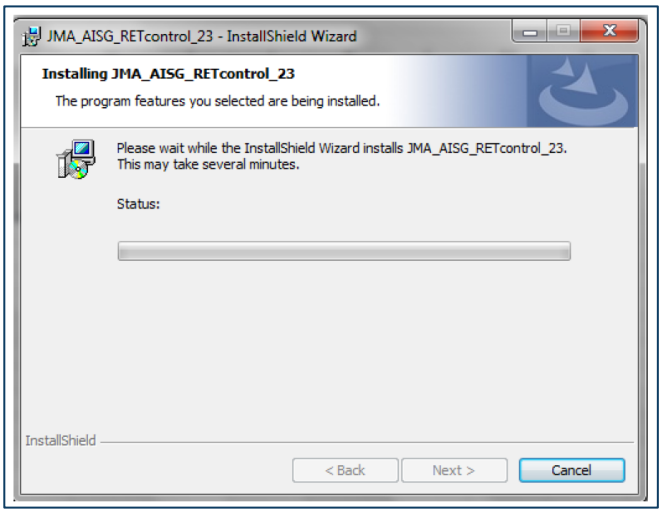


Fig. 3 – Installing the JMA software

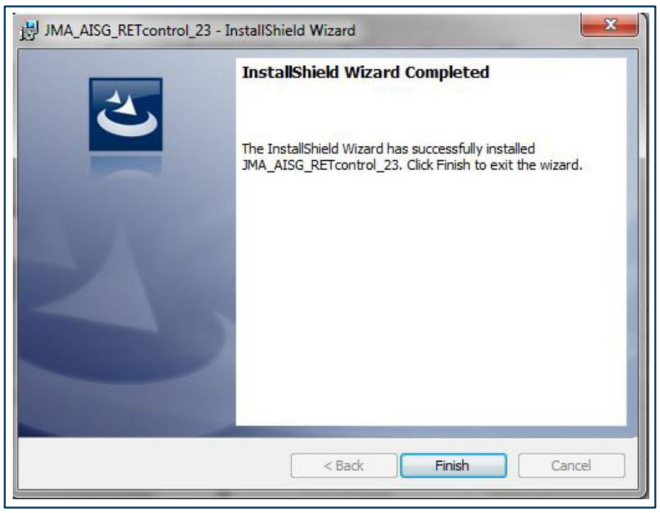
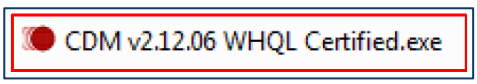


Fig. 4 – The installation completed

7. The remote electrical tilt (RET) controller GUI icon will be automatically installed on your desktop. Do not launch the RET controller GUI yet.

8. Install the driver for the GUI.
   - If the driver was already installed from a previous version of the GUI, no need to install the driver again.
9. Run the CDM exe file per below.
   - Right-click on the driver file name and select “Run as Admin” if you have admin rights.
   - Extract, if the wizard indicates. You may need to repeat before the wizard starts.



10. Follow the installation wizard shown in Figures 5 and 6. Click **Next** for each window.

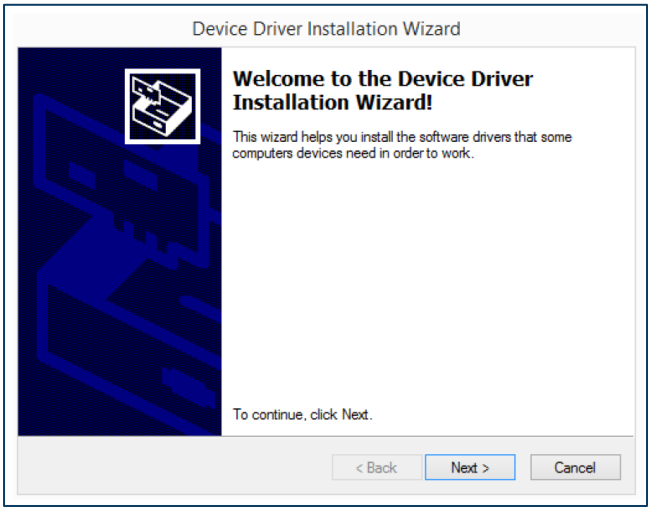


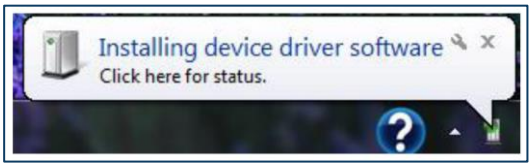
Fig. 5 – Device driver installation wizard

Fig. 6 – Device driver installation wizard completed

11. If any problems occur, please go to http://www.ftdichip.com/Drivers/VCP.htm to select the proper driver file for your operating system.
12. Restart your PC.

III. GUI display and functions

1. First connect the USB cable from the PCU-220 controller to the computer's USB port.
   - If the USB device (PCU-220 controller) is being plugged in for the first time, the computer may need time to install the driver to recognize the USB cable. Allow time for this to process.



   - **If all COM ports are used, go to "Clearing COM ports," Section VII, page 11, of this user guide.**

2. Launch the GUI from the shortcut on your desktop.

3. When launching the GUI, the screen or window display will first look like Figure 7.

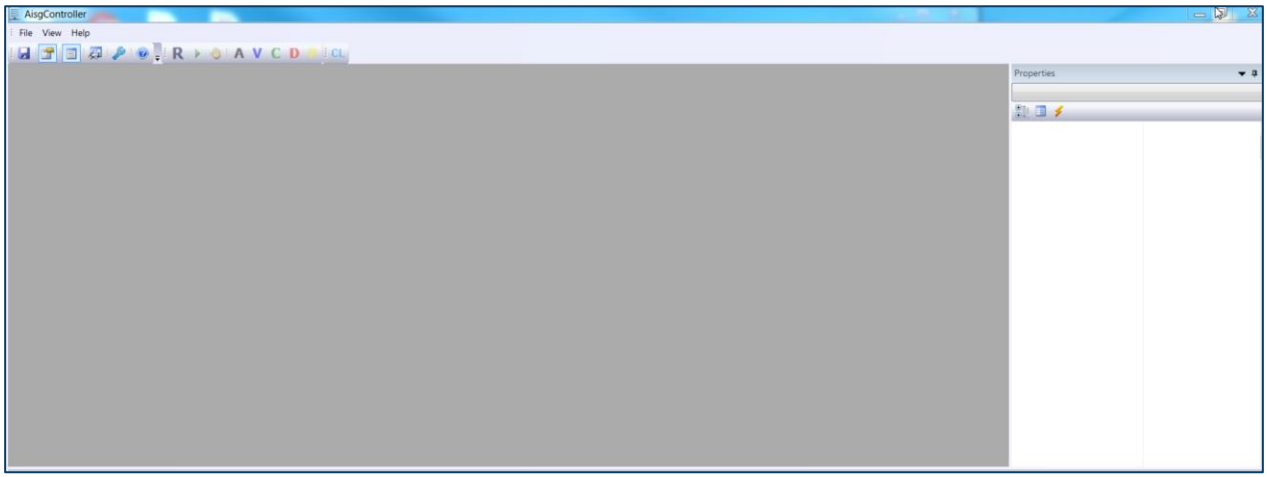


Fig. 7- Blank Commands and Properties windows

4. When you eventually enter RET commands, the window will begin to populate, as represented in Figure 8.

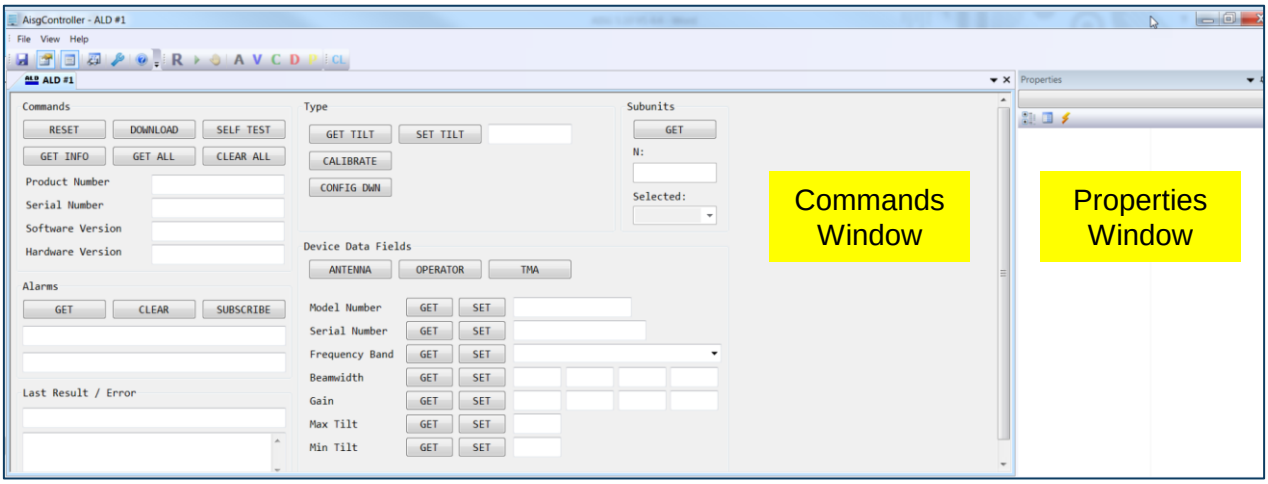
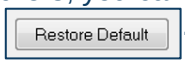


Fig. 8 - Commands and Properties windows before antenna information

5. If you accidentally close the Commands or Properties windows, or change it to where it no longer displays like Figure 8, you can go back to the default view by clicking on the  and selecting  . See Figure 9.

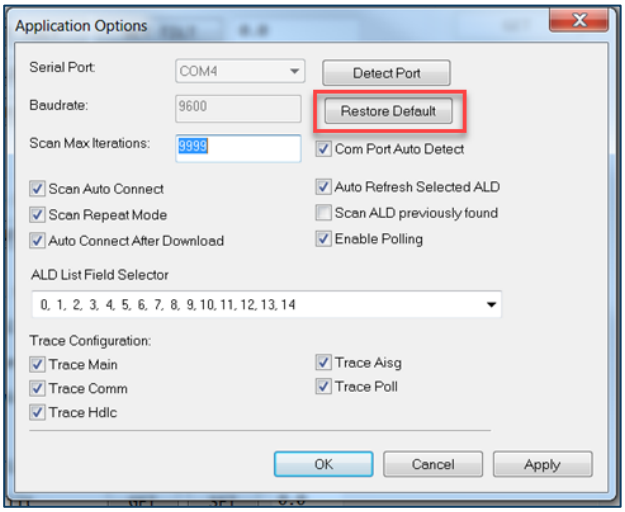


Fig. 9 – Options selections

6. Below are the various command buttons for RET operations.

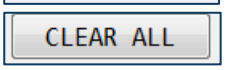
a. The COM setting options icon is used to verify that the COM port is recognized with an assigned COM#, and that options are selected per Figure 9.

b. Bus reset button to clear the device list for a new scan.

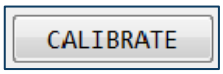
c. Scan button to scan for ALDs.

d. Stop scan.

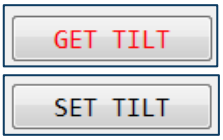
e. For device selection, use the drop down in the Properties window or click on ALD#.



f. Get or clear the RET data.



g. RET Calibrate button. The button will change to “calibrating” when calibration is in progress.



h. Set or Get Tilt buttons will change to “moving” when a set tilt is in progress.

i. Operator data such as Antenna Serial Number, Base Station, and Sector Id, etc.

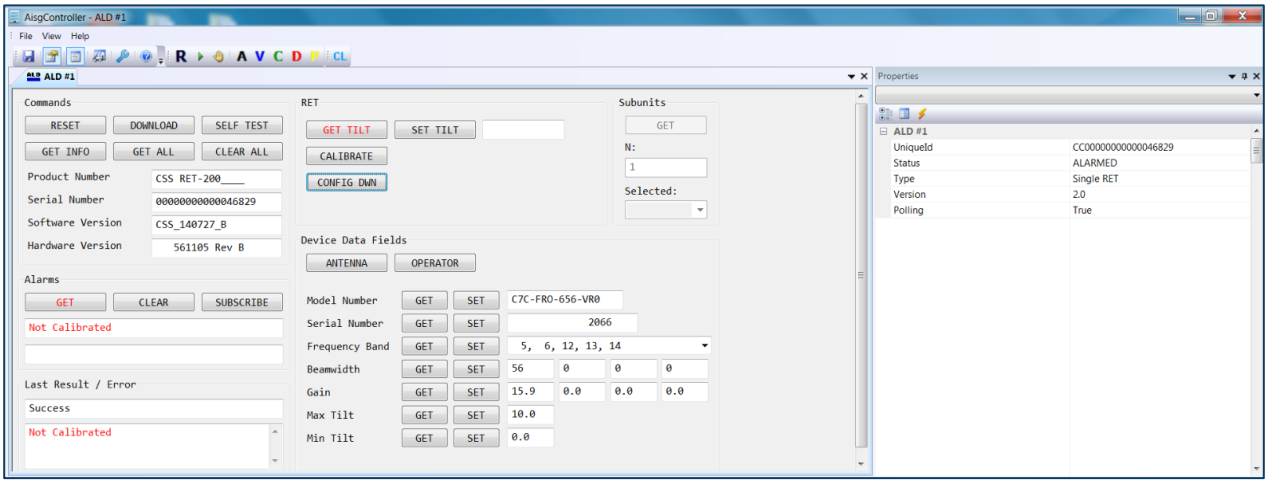


Fig. 10 - The Command and Properties windows, with sample antenna information entered.

j. This icon is for saving the report in .txt format for the devices from the ALD list. See Figure 11.

```
################################################################
ADDRESS                    : 1
STATUS                     : CONNECTED
TYPE                       : SINGLE RET
VENDOR                     : CC
SERIAL_NUMBER              : 00009201703026-B1
PRODUCT NUMBER             : R1000
SOFTWARE VERSION           :       FW_V1.1.0
HARDWARE VERSION           :      HW_R1000_B
ALARM                      : NONE
RET TILT                   : 0.0
ANTENNA MODEL NUMBER       : MX08FRO860-02B1
ANTENNA SERIAL NUMBER      : ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
ANTENNA FREQUENCY BAND     : 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31,
ANTENNA BEAMWIDTH          : 60 0 0 0
ANTENNA GAIN               : 19.0 0.0 0.0 0.0
ANTENNA MAX TILT           : 9.0
ANTENNA MIN TILT           : 0.0
OPERATOR INSTALL DATE      : ÿÿÿÿÿÿ
OPERATOR INSTALL ID        : ÿÿÿÿÿ
OPERATOR BASESTATION ID    : ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
OPERATOR SECTOR ID         : ÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿÿ
OPERATOR ANTENNA BEARING   : 65535
OPERATOR MECHANICAL TILT   : -0.1
################################################################
```

Fig. 11 – Sample RET report

IV. RET system & GUI operation

1. Follow the connection diagram in Figure 12 which shows the various RET system diagram connections to the PCU-220 controller and PC.
   - Homerun cable to RET
   - Smart Bias T to Smart Bias T to RET
   - Smart Bias T to AISG TMA to RET

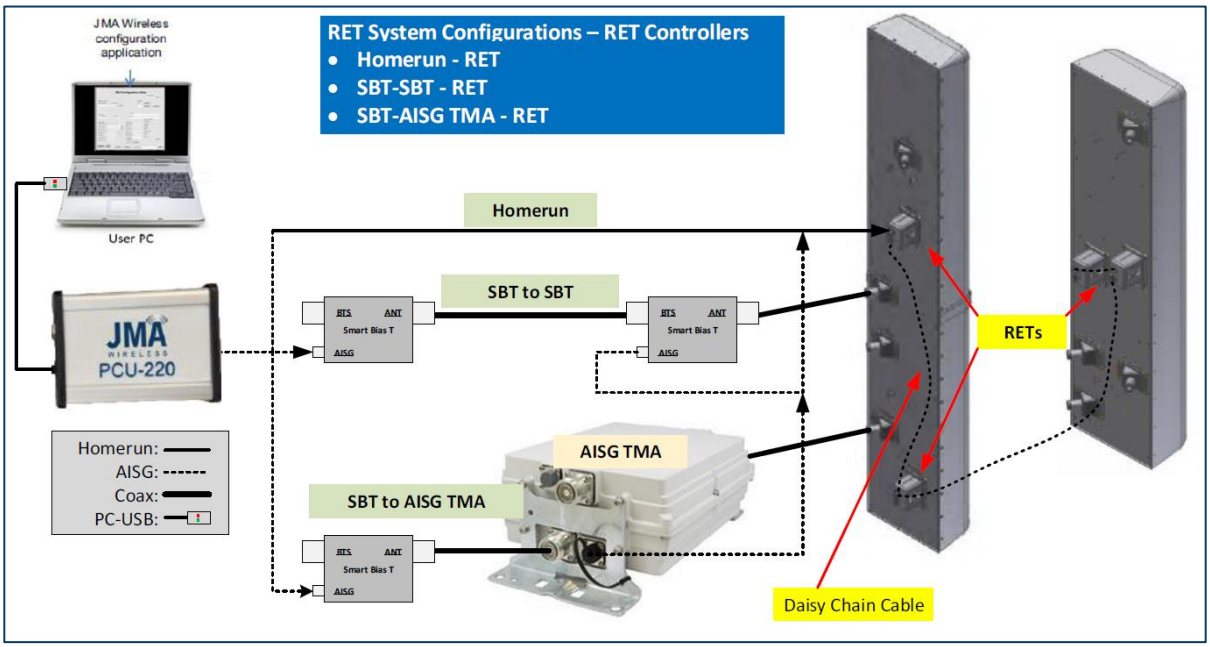


Fig. 12– RET system connection diagram

2. Note the RET firmware rev and serial number in Figure 13.

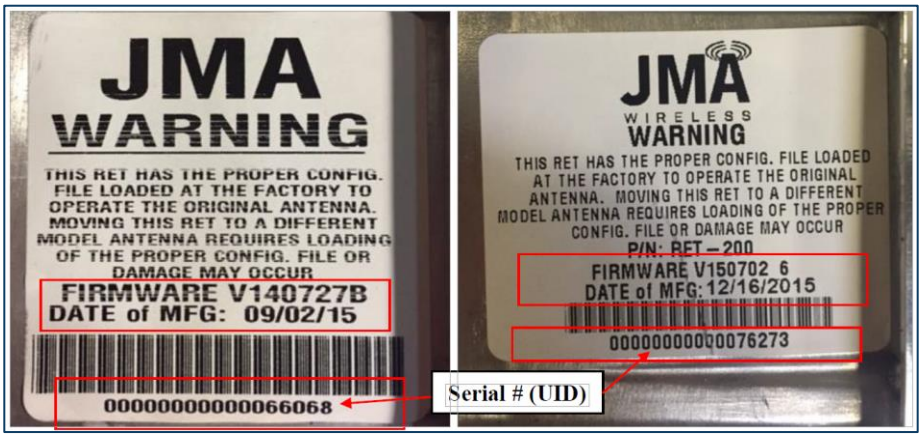


Fig. 13 – RET firmware rev and serial number

3. Verify that COM port is chosen by selecting  and clicking on the COM# to the right of “Serial Port.”

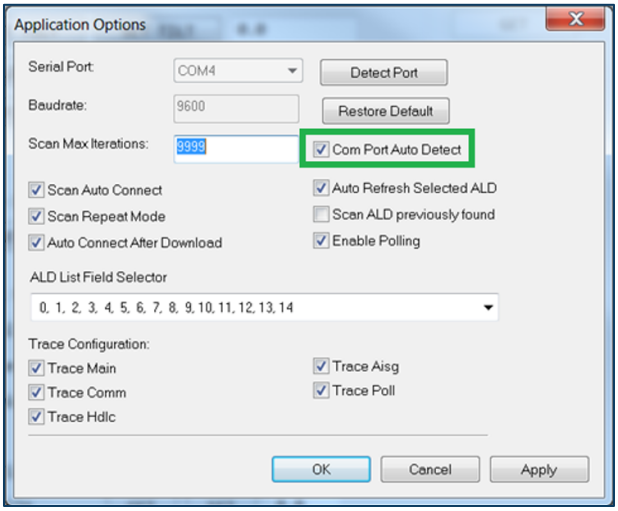


Fig. 14 – Application options

- Do NOT click on 

This works when ONLY one RET is connected.
- If you see multiple COMs on the Serial Port drop down, select one at a time and do a scan to see which one will work.
- If the USB does NOT flash GREEN-RED, then it’s not the correct one and the scan will not find any motor.
- Try another COM. Find the one that flashed GREEN-RED during the scan.

4. Always perform a bus reset prior to starting a scan by clicking the 

icon.
5. Click the Scan button  to scan for RETs (ALDs).
6. After the scan is completed, the list of devices will show in the properties box.
7. Select the device you want to control and configure from the Properties window drop down list or single click on the ALD#, and ALD fields will load in the Command window. A single click will load data when there are multiple ALDs.
   - 

will also read from the device and load ALD fields.
   - Verify that the antenna model is correct; if not, refer to “ACF download,” Section V, page 10, for instructions to load the correct antenna file.

8. Calibrate the RET by clicking CALIBRATE
9. Set/get the tilt within the min/max range: SET TILT GET TILT
10. Verify that the results show “Success” and verify that there are no alarms by clicking GET under “Alarms.” See Table 2 for alarm lists.
11. Configure the operator data such as Antenna Serial#, Base Station Id, and Sector Id, etc. Click **Set** for each item to write to the RET.
12. Save a report using  for the devices from the ALD list in the Properties window.
    - Name the report and save.
    - Allow time for the report to generate. GET ALL will show “Running” while each motor is being accessed to get the data for the report.
    - A report will be generated for ALL ALDs connected – see Figure 11 for a report sample.
13. Alarms are listed below in Table 2 with recommended actions.

Basic alarm	Reason	Corrective action
Not calibrated	Antenna is in an un-calibrated state. This can be caused by ACF download, power cycle during motor movement, or an invalid tilt was set.	Run the Calibration sequence.
Busy	The RET is busy processing another command.	Allow the active command to complete.
Motor/actuator jam	The RET was unable to move properly during a Calibration or Set Tilt command.	1. Ensure the proper antenna configuration file is loaded in the RET. 2. Run the Calibration sequence. 3. If the problem persists, contact technical support.
Out of range	An invalid tilt value was set.	1. Run Calibration sequence. 2. Set the tilt to a valid number within the range shown for max/min tilt.
Read only	User trying to write data to a read-only field.	No corrective action. Fields cannot be changed by user.

Table 2 – Alarm list and corrective actions

V. Antenna configuration file (ACF) download

1. RET configuration files can be obtained from our website or by contacting JMA tech support
   - Toll Free: +1-888-201-6073
   - techsupport@jmawireless.com
   - www.jmawireless.com
2. ACF selection is based on antenna model, frequency band, and RET firmware rev. See Figure 15 for an example.

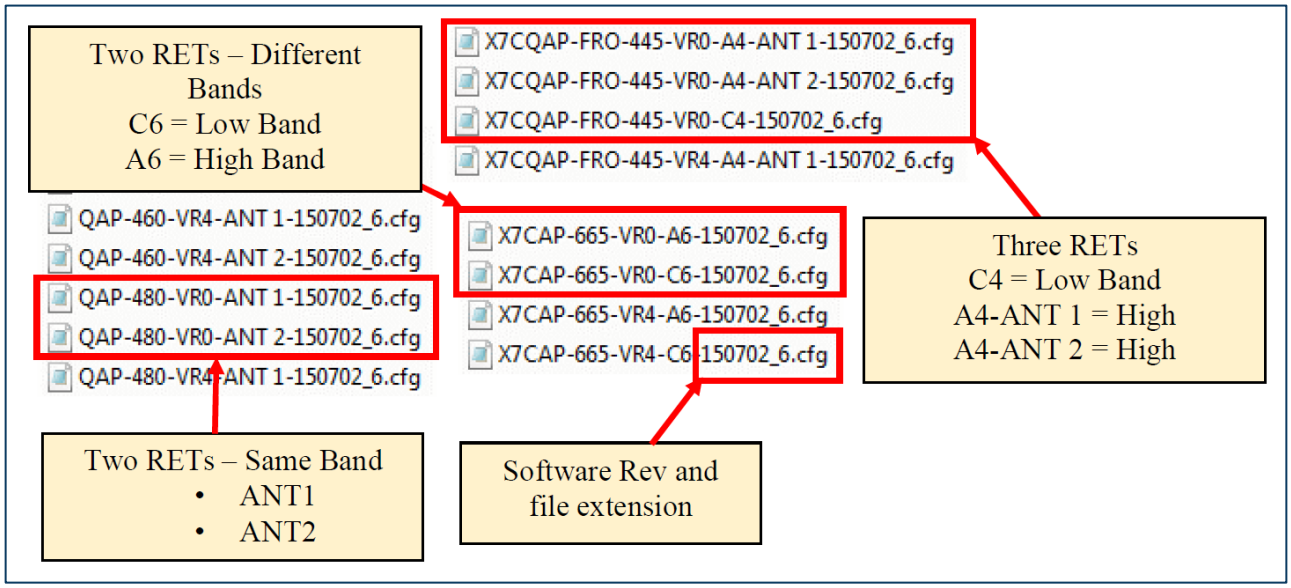
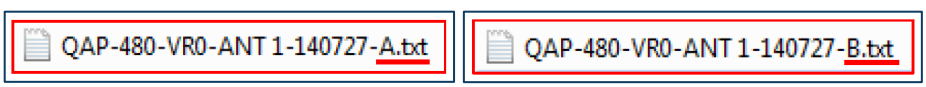


Fig. 15 – ACF selection guide

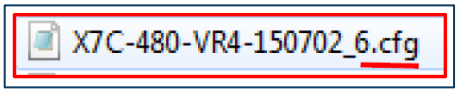
- Antenna models with one RET will only have one file.
- If antenna models have two or three RETs:
  - For different bands, one for low and one for high band:
    - A is High Band file (Remember A for AWS)
    - C is Low Band file (Remember C for Cell)
  - For two of the same bands:
    - -1 is for Ant 1
    - -2 is for Ant 2

3. Click on 

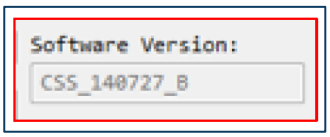
– ACF load button.
4. Browse for the antenna configuration file.
   - Software **Version 140727_A** or **140727_B** are in .txt format and are NOT compatible with motors having **Version 150702_6**.

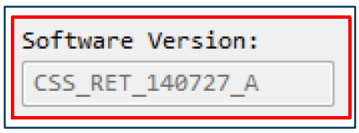


- Software **Version 150702_6** is in .cfg format and is NOT compatible with motors having **Version 140727_A** or **140727_B**.



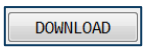
5. Verify the software/firmware version of the motor, as shown in the GUI, to select the correct Ant file, then go to the folder for that version. Examples below.





6. In the folder, select the antenna file per the selection guide in Section V: step 2, referring to Figure 13 as necessary.
7. Double click on the antenna file or click **Open** to load to the RET.
8. The “Antenna Model Number” will update to the new file.
9. Calibrate the RET.
10. Set Tilt. Done.

VI. RET firmware download

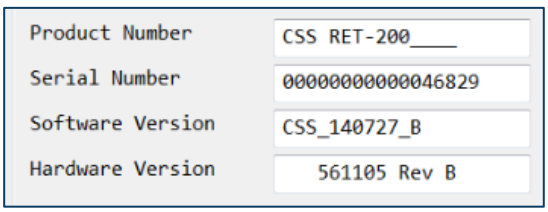
1. Click on 

2. Browse for the new firmware file.
3. Double click on firmware file or click **Open** to load to the RET.
4. 

will change to “Downloading.”
5. This will take approximately 5-6 minutes to load (32000 bytes).
6. When completed, the button will change back to 

7. Click 

and verify that the software version changed to the new rev.



8. Done.

VII. Clearing COM ports

1. For additional support, go to this link:
   - The link below has the same instructions, so you can use it to copy the commands and paste them in Command Prompt. You won’t be able to copy the commands from this user guide since it is in PDF.
   - http://answers.microsoft.com/en-us/windows/forum/windows_xp-hardware/how-do-i-clear-com-ports-that-are-appearing-as-in/0c3a3e6c-5623-4d93-ba89-124399d90448

2. Right-click “Command Prompt” in Accessories and choose “Run as Administrator.” See Figures 16 and 17.

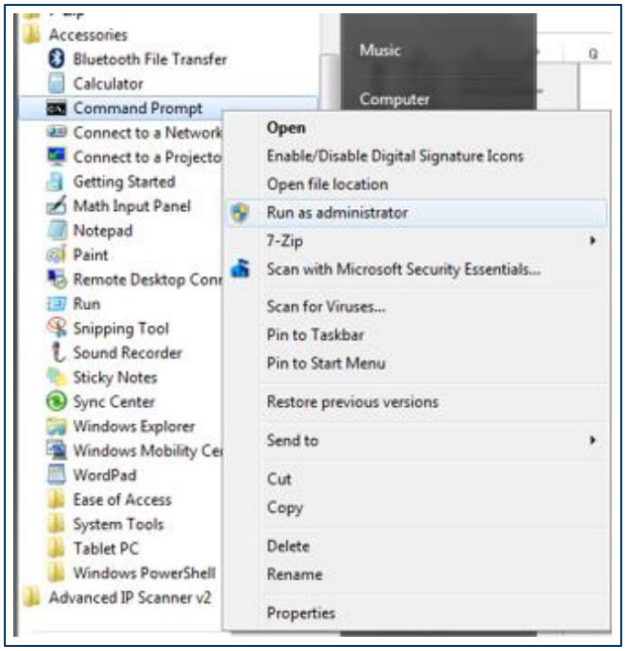


Fig. 16 – Accessories – command prompt selection

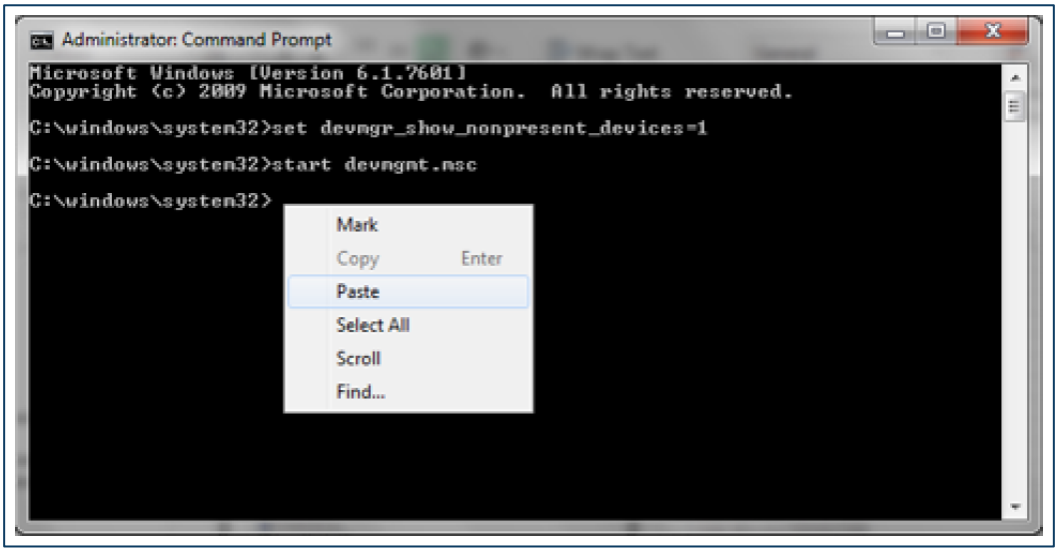


Fig. 17 – Command prompt

- Copy the commands below without the quotes and paste (right click) in the Command Prompt. This will prevent misspelling.
- Enter “set devmgr_show_nonpresent_devices=1″ without the quotes.
- Enter “start devmgmt.msc” without the quotes.

3. In the box that opens, select “Show hidden devices” in the “View” menu. See Figure 18.

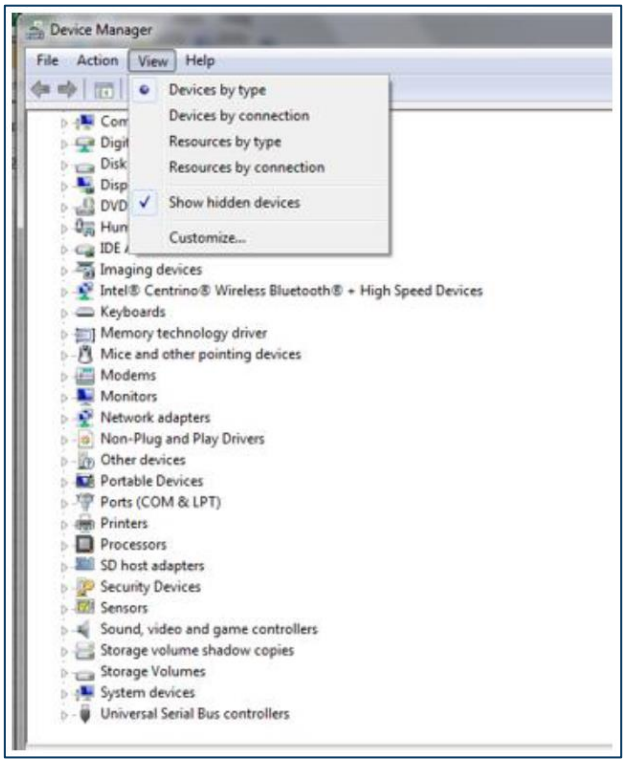


Fig. 18 – Device manager view selection

4. If you expand the section on COM ports, all the COM ports that have ever been created will be displayed, the non-present ones being in gray. You can uninstall anything that you don’t want (right click, select uninstall). See Figure 19.

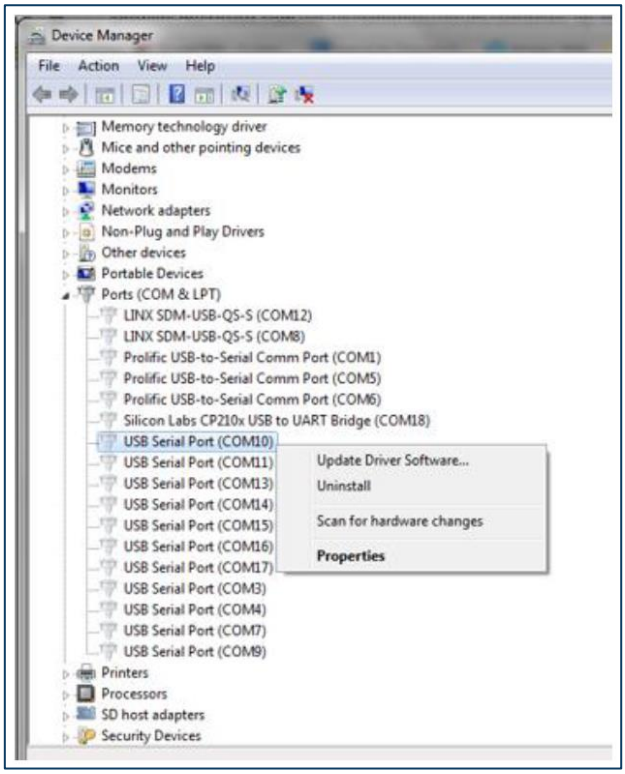


Fig. 19 – COM port uninstall