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Antenna Sharing Configuration using CommScope RET Controller Systems

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1 Overview

1.1 Introduction

The latest CommScope antennas support an Antenna Sharing feature. This feature provides independent beamtilt control from two radio controllers to the same antenna. The two separate AISG input ports on these antennas are internally connected to a RET control module, allowing operators to assign which radio has control for each band. CommScope RET Controller systems like the Antenna Tilt Controller (ATC) Lite on PC and RET Master application on mobile devices, implements the antenna sharing configuration process for these CommScope antennas. The following sections describes in detail about the features provided to manage and control antenna sharing.

The Antenna Sharing feature is available only in the ATC Lite version 8.4 and above. Commscope recommends visiting Commscope.com and downloading the latest version of the ATC Lite software.

Also the RETMaster apps are available in version 1.4.1 and above. Latest version of the RETMaster app can be downloaded from Apple iTunes store (iOS) or Google Play store (Android).

1.2 Acronyms & abbreviations

3GPP	Third Generation Partnership Project
AISG	Antenna Interface Standards Group
ALD	Antenna Line Device
API	Application Programming Interface
cRET	CommScope RET
IOT	Interoperability Test
RET	Remote Electrical Tilt
Single-RET	Single-Antenna Remote Electrical Tilt Actuator
Multi-RET	Multiple-Antenna Remote Electrical Tilt Actuator
UI	User Interface

2 Antenna Sharing Configuration using ATC Lite

2.1 Changing Antenna Sharing

NOTE: Your antenna will initially be configured from factory with all RETs assigned to the AISG port 1. Use the following steps to reassign the RETs to one or both of the AISG ports, and to select the operating mode of each AISG port (SRET or MRET).

Run the ATC lite software (from desktop) with connection to the AISG port 1 on the antenna.

1. Click on 'Find Devices' to perform a device search.
2. After the device search is complete, select the device from the display list as shown in Figure 2-1. For an MRET, any subunit can be selected for antenna sharing configuration of the RET system.

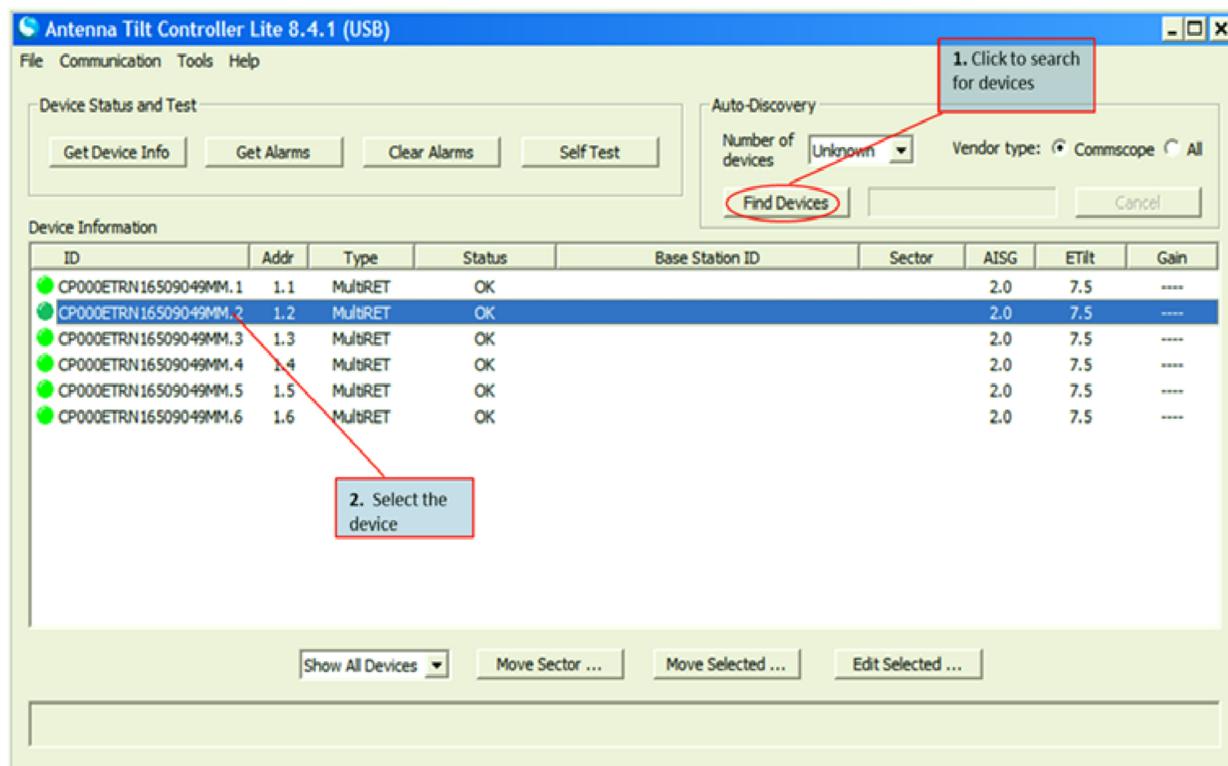


Figure 2-1 Finding devices through ATC Lite software.

3. Select the menu “Tools” → “Antenna Sharing Configuration” → “Change Selected Antenna’s Configuration...” as shown in the Figure 2-2.

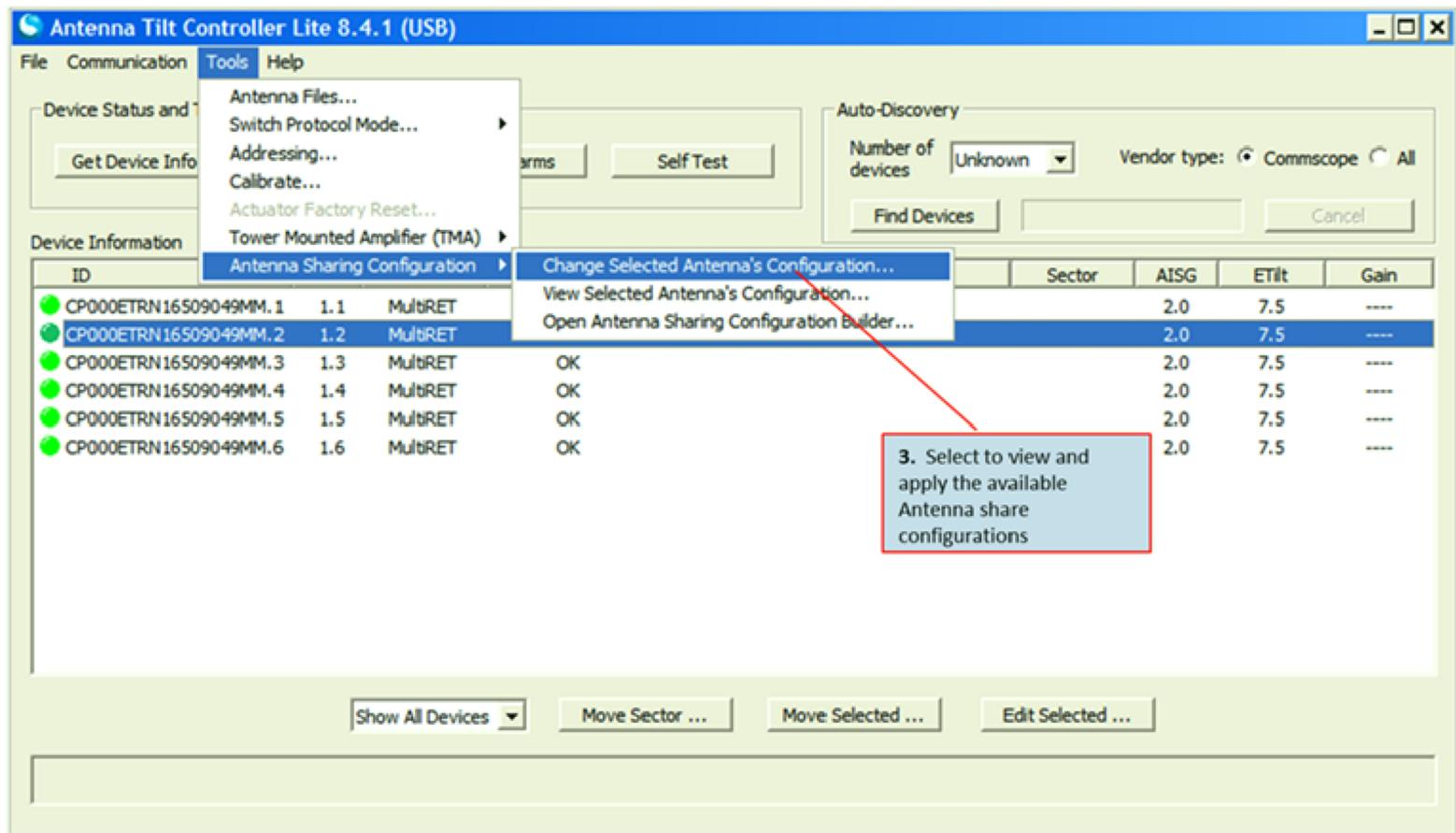


Figure 2-2 Menu selection of change antenna sharing.

4. The window titled “Antenna Share Configuration” is displayed. This window contains the list of Antenna Share Configuration files that are available for the given Antenna model. When a relevant configuration is selected, the preview of the bands that are mapped to AISG 1 and AISG 2 are displayed, as shown in Figure 2-3.

5. Select the appropriate configuration, verify the Mode and Bands are correct, and click on the “Send Configuration” button to send the configuration data to the device through AISG.

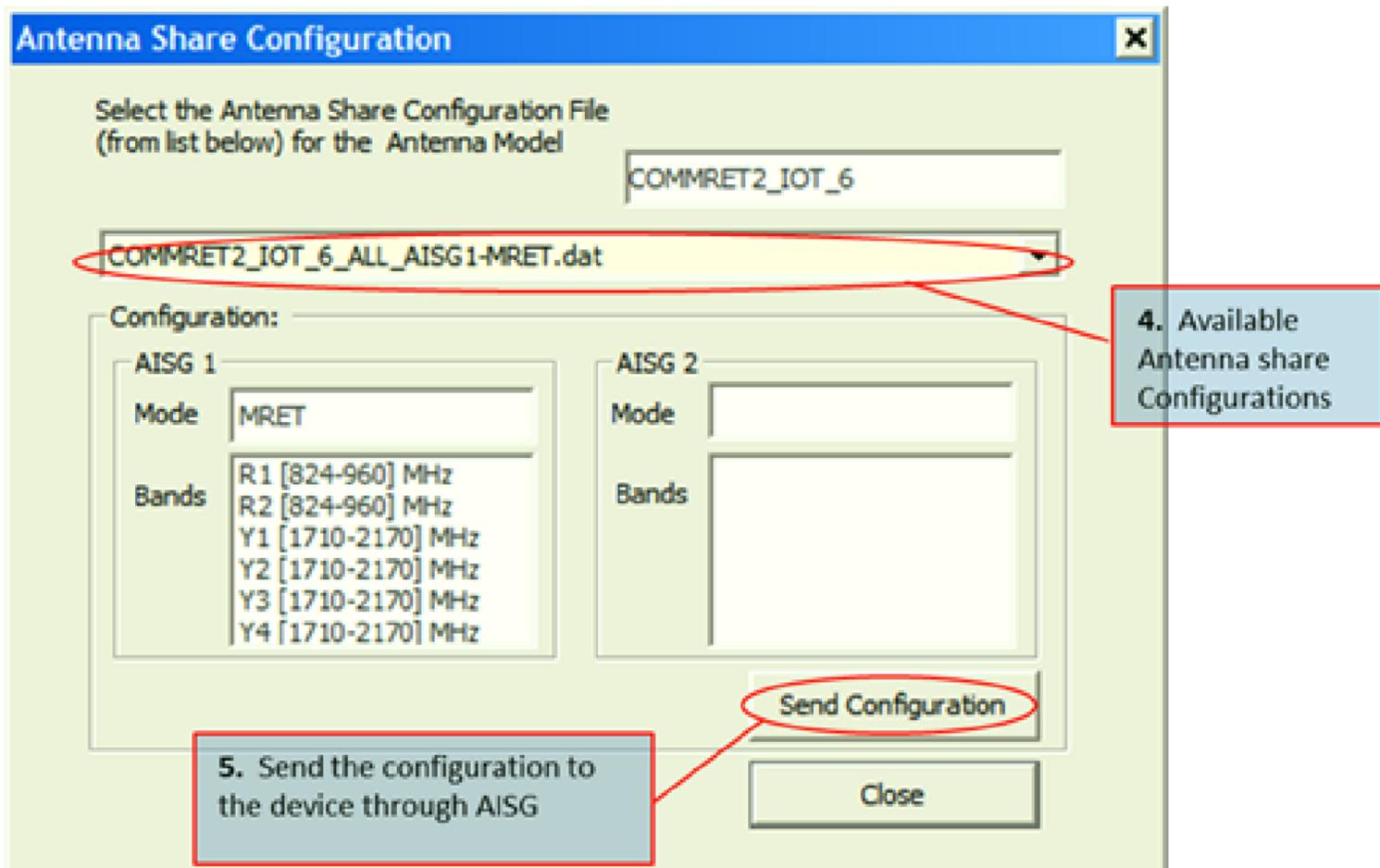


Figure 2-3 Select and send antenna sharing to antenna device.

6. After the configuration is sent to device, the RET system will reboot in the new configuration. From the main window use the “Find Devices” to search for the RET in its new configuration.

7. To see the RETs that were assigned to AISG 2, a search using ATC Lite software with connection to the AISG port 2 should be performed.

2.2 Viewing the Current Antenna Sharing Configuration

1. Click on ‘Find Devices’ to perform a device search.

2. After the device search is complete, select the device from the display list as shown in Figure 2-1. For an MRET, any subunit can be selected for antenna sharing configuration of the RET system.

3. From the ATC Lite software main window select the menu “Tools” → “Antenna Sharing Configuration” → “View Selected Antenna’s Configuration...” as shown in the Figure 2-4.

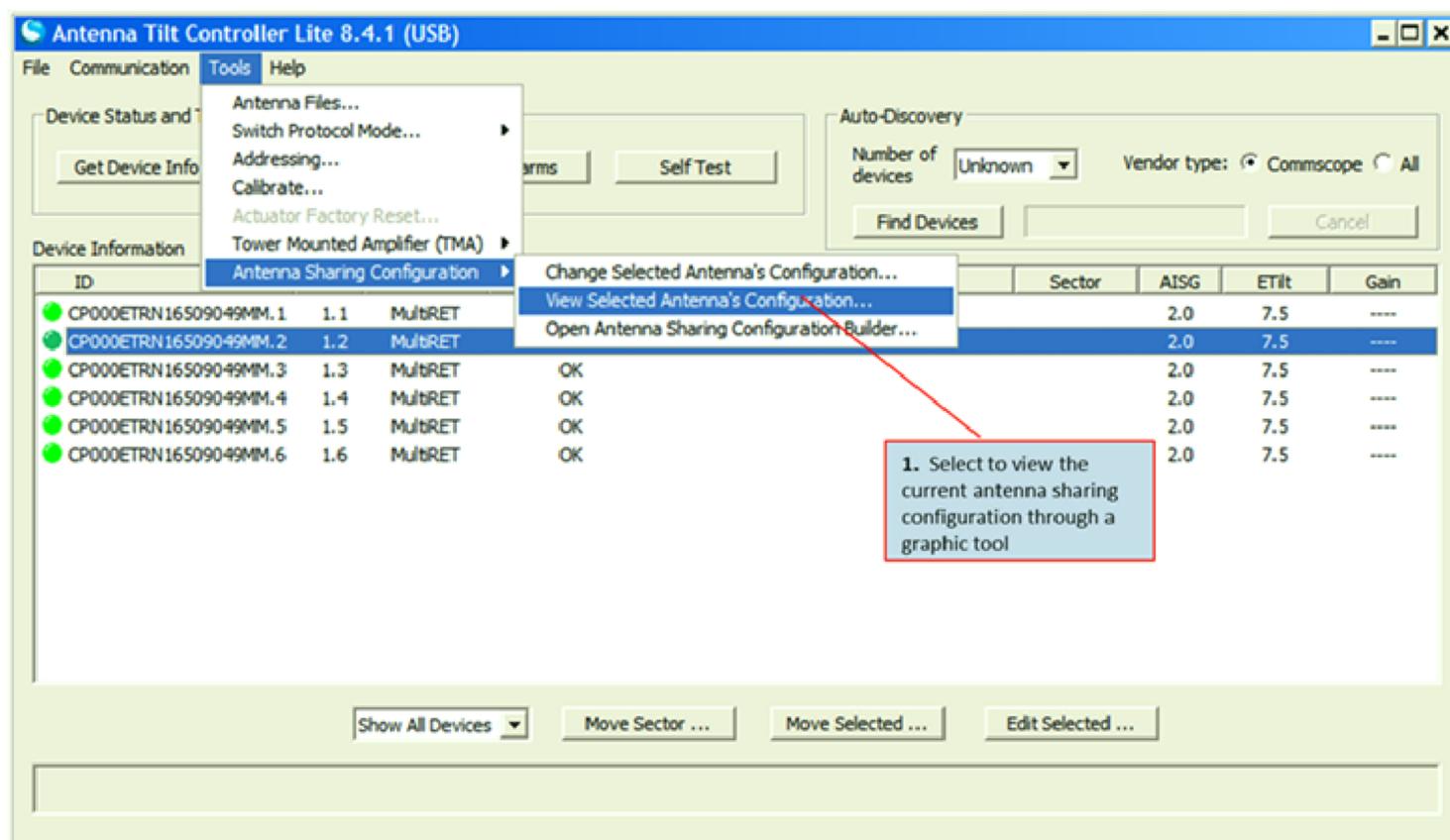


Figure 2-4 Menu selection for view antenna sharing.

4. Using the selected antenna’s endcap image, the current antenna sharing configuration is displayed, as shown in the Figure 2-5. Note that all RETs are assigned to AISG1 in this example.

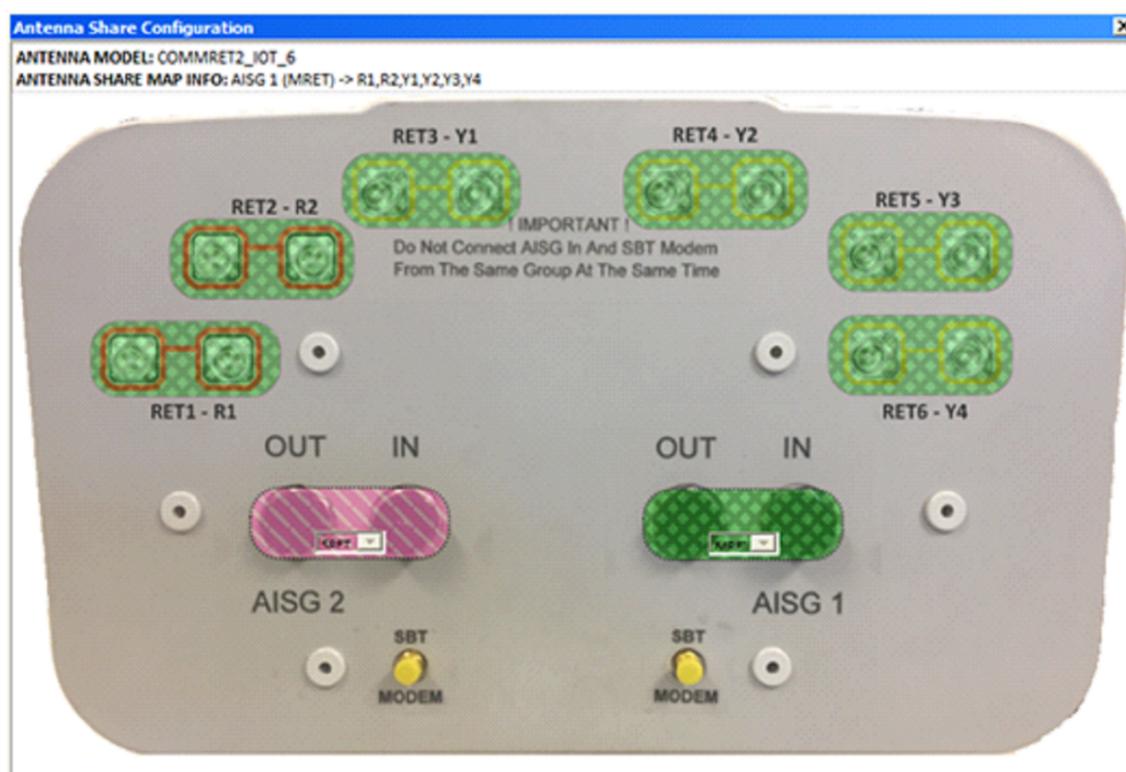


Figure 2-5 Graphical display of the current antenna sharing configuration.

2.3 Antenna Sharing Configuration Build Tool

Antenna sharing data files used in previous steps can be built using the Antenna Sharing Configuration Builder Tool. This tool can be launched from the ATC Lite program. The detailed user guide for this tool is available in a separate document. Refer to this document for generating the antenna sharing data files.

2.4 Importing Antenna Sharing Configuration Data and Support Files to a PC from External Sources

Antenna sharing data files have extension name “dat” and contain an antenna sharing mapping. These files, created with the Antenna Sharing Configuration builder tool, can be applied to an antenna by any PC.

Following steps describe how to import antenna sharing support files created on a different PC.

1. Obtain the antenna sharing support file from the external storage location (USB flash drive or e-mail attachment) and save to the local machine folder using Windows Explorer.
2. From the saved location copy the files to the respective folder path as mentioned in the table below and shown in the figure 2-6.

File Type	Extension name(s)	Folder location in the local machine
Antenna Sharing Data	.dat	C:\Program Files (x86)\Commscope\ATC Lite\AntennaShareData
Antenna Sharing Support	.ngcr2 .ANNTOD_ .png or .jpg	C:\Program Files (x86)\Commscope\ATC Lite\AntennaShareConfig

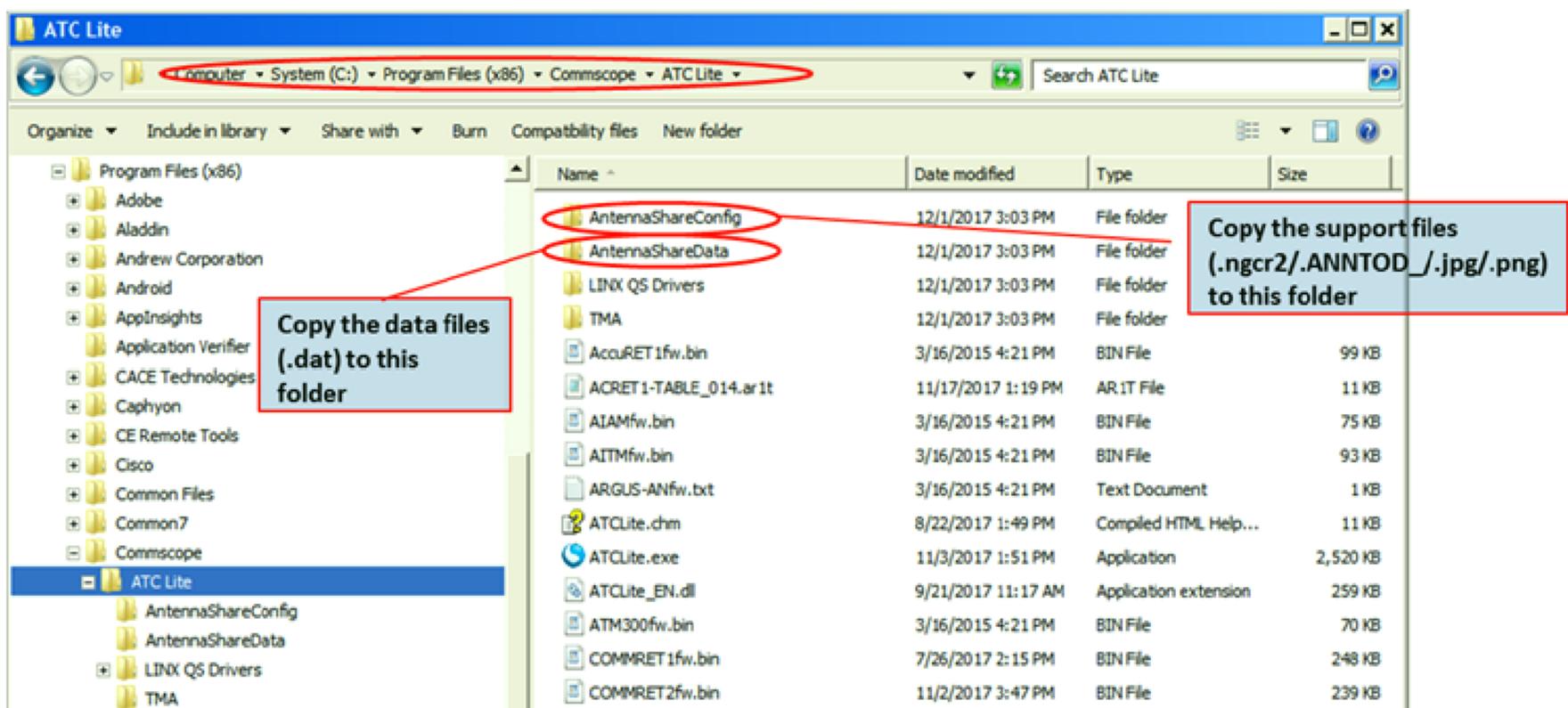


Figure 2-6 Folder locations to copy antenna sharing support and data files.

NOTE: data files (.dat) copied can be accessed and used for antenna sharing through the “Change Selected Antenna’s Sharing” feature of ATC Lite software.

3 Antenna Sharing Configuration using RET Master apps

RET Master apps are available on iOS and Android platforms running on mobile devices (smartphones or tablets). RET Master app needs a RET Master device that is connected to the antenna device through AISG for communication.

NOTE: RET Master app startup steps as given below:

- On the mobile device use WiFi feature to connect to the RET Master device’s SSID.
- Launch the RETMaster app by clicking on the icon.

3.1 Changing Antenna Sharing

1. From the RET Master app's main screen, select "Find Devices" to perform a device search.
2. On completion of the search, select the device from the list to display the Device Details screen, as shown in Figure 3-1.

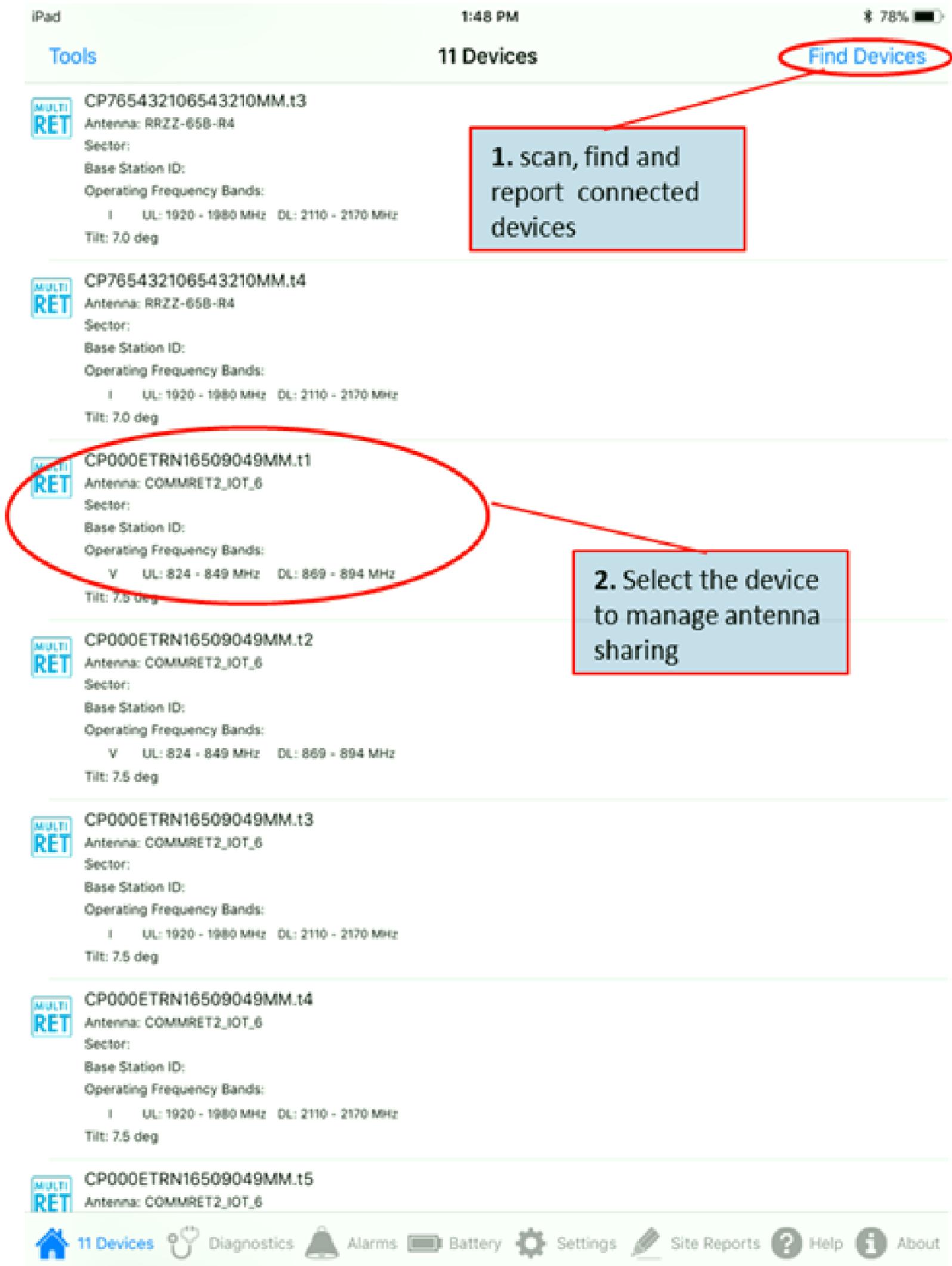


Figure 3-1 Select device for change antenna sharing.

3. In the Device details screen scroll down to the bottom of the view, among the list of buttons select “Change Antenna Sharing” as shown in the figure 3-2.

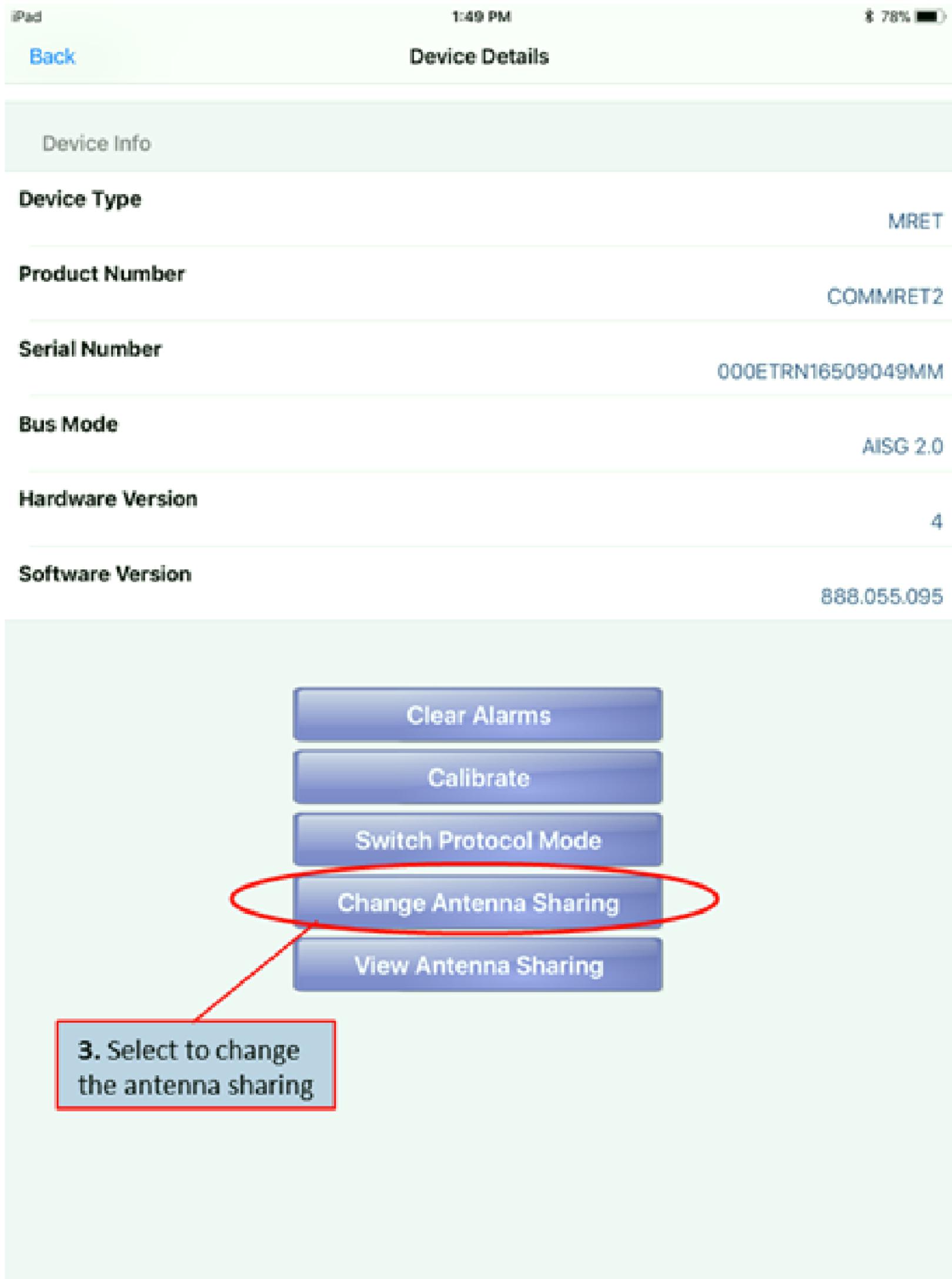


Figure 3-2 Initiate change antenna sharing.

4. In the “Antenna Sharing Configuration” screen select the “Data File” row to select a new antenna sharing configuration data file as shown in figure 3-3.

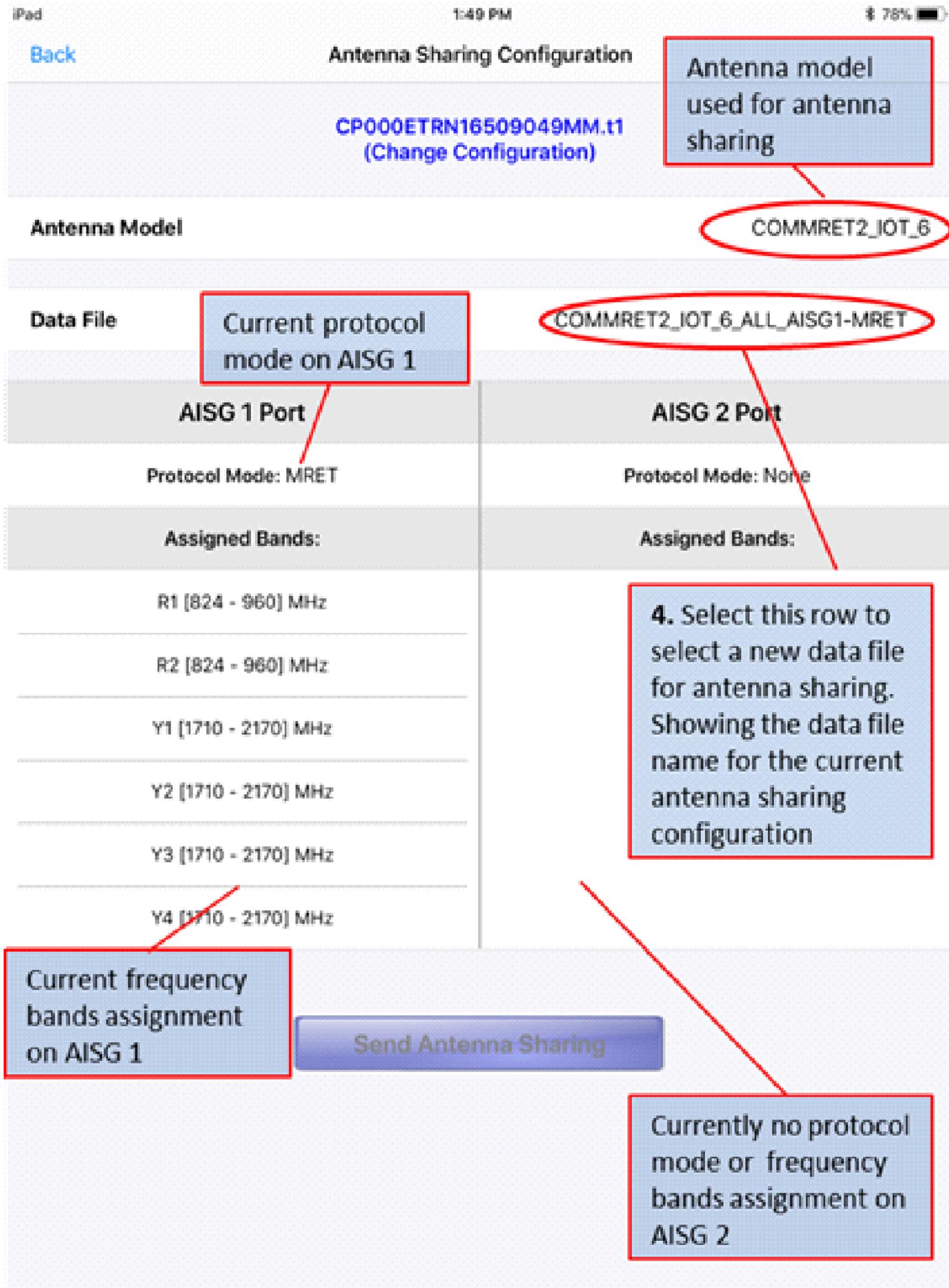


Figure 3-3 Select new antenna sharing data file.

5. The “Antenna Share Data Files” screen is shown with a list of file names. The current antenna sharing configuration’s file name is shown selected as shown in the figure 3-4. Select the new antenna sharing configuration by selecting a file name from the list and select on “back” to return to the “change configuration” screen. For this example select the name COMRET2_IOT_6_LO_AISG1-MRET_HI_AISG2-MRET.

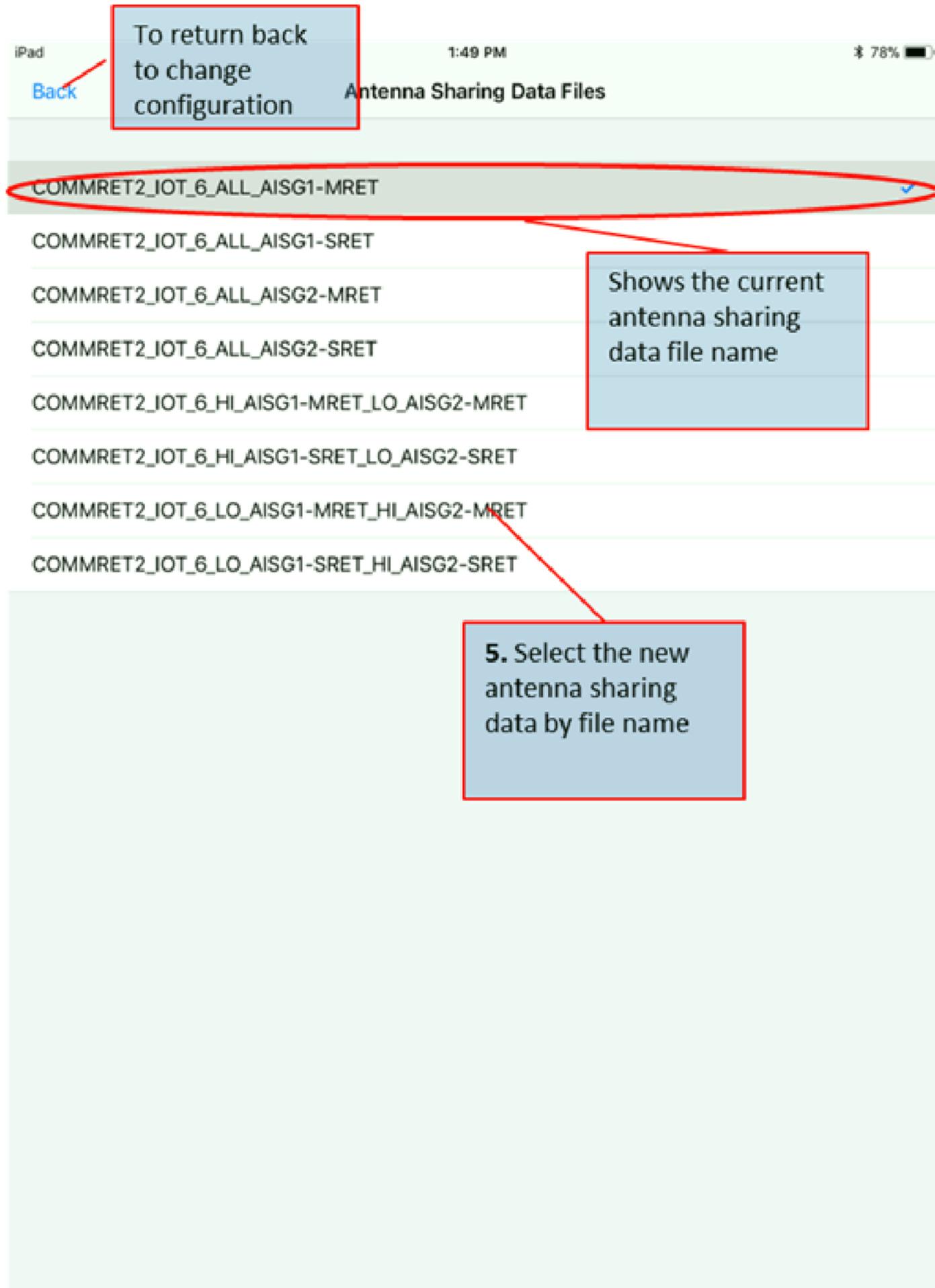


Figure 3-4 Select and return to change configuration.

6. The “Change Configuration” screen shows the antenna sharing information for the selected data file as shown in the figure 3-5. Click on the “Send Antenna Sharing” button to initiate the sending of antenna sharing to the antenna device.

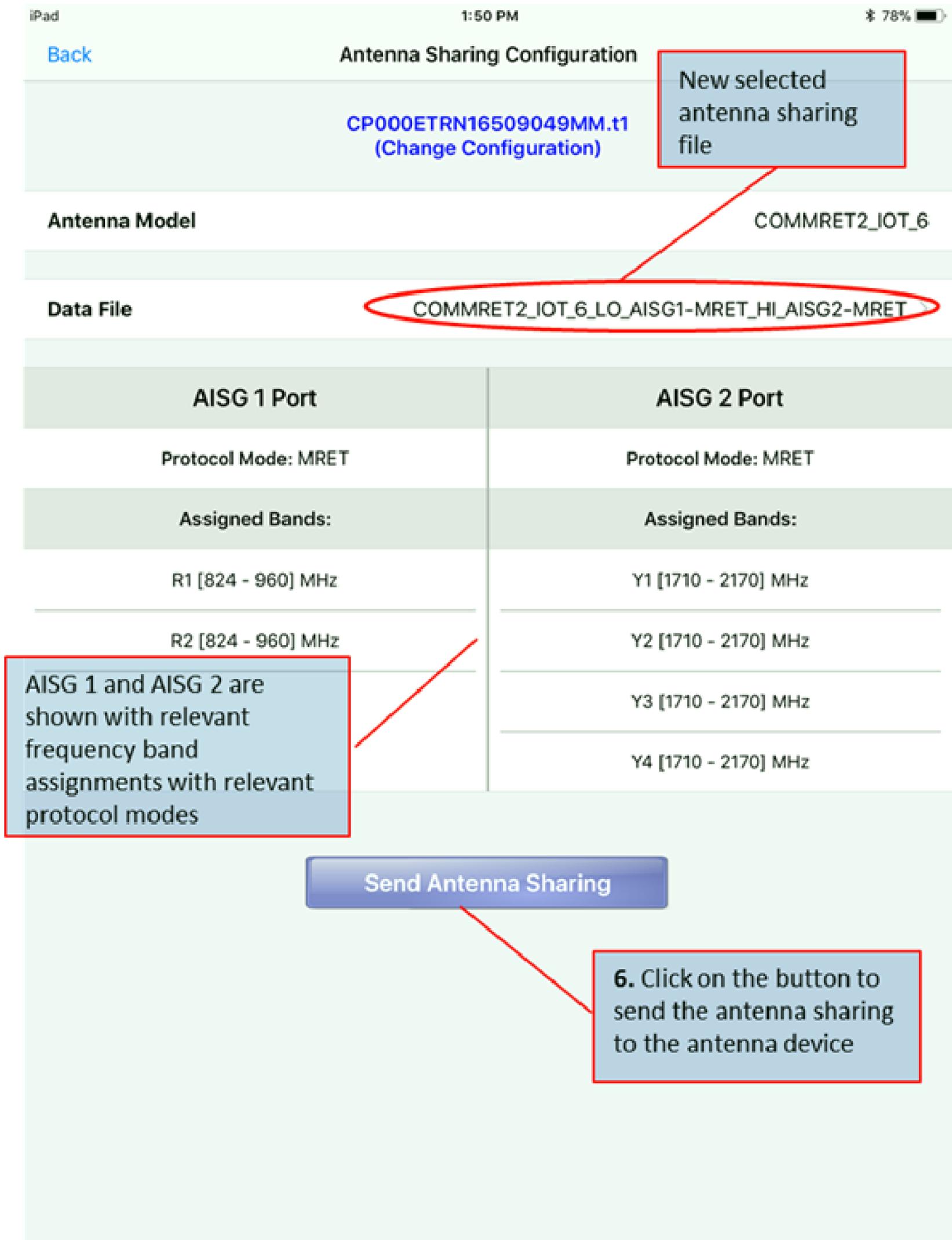


Figure 3-5 Send antenna sharing to device.

7. Once the new antenna sharing configuration is sent to the device, the “Change Configuration” screen is closed and returned back to the Device Details screen, and the status of the configuration is displayed, as shown in figure 3-6. Click on OK to close the status window.

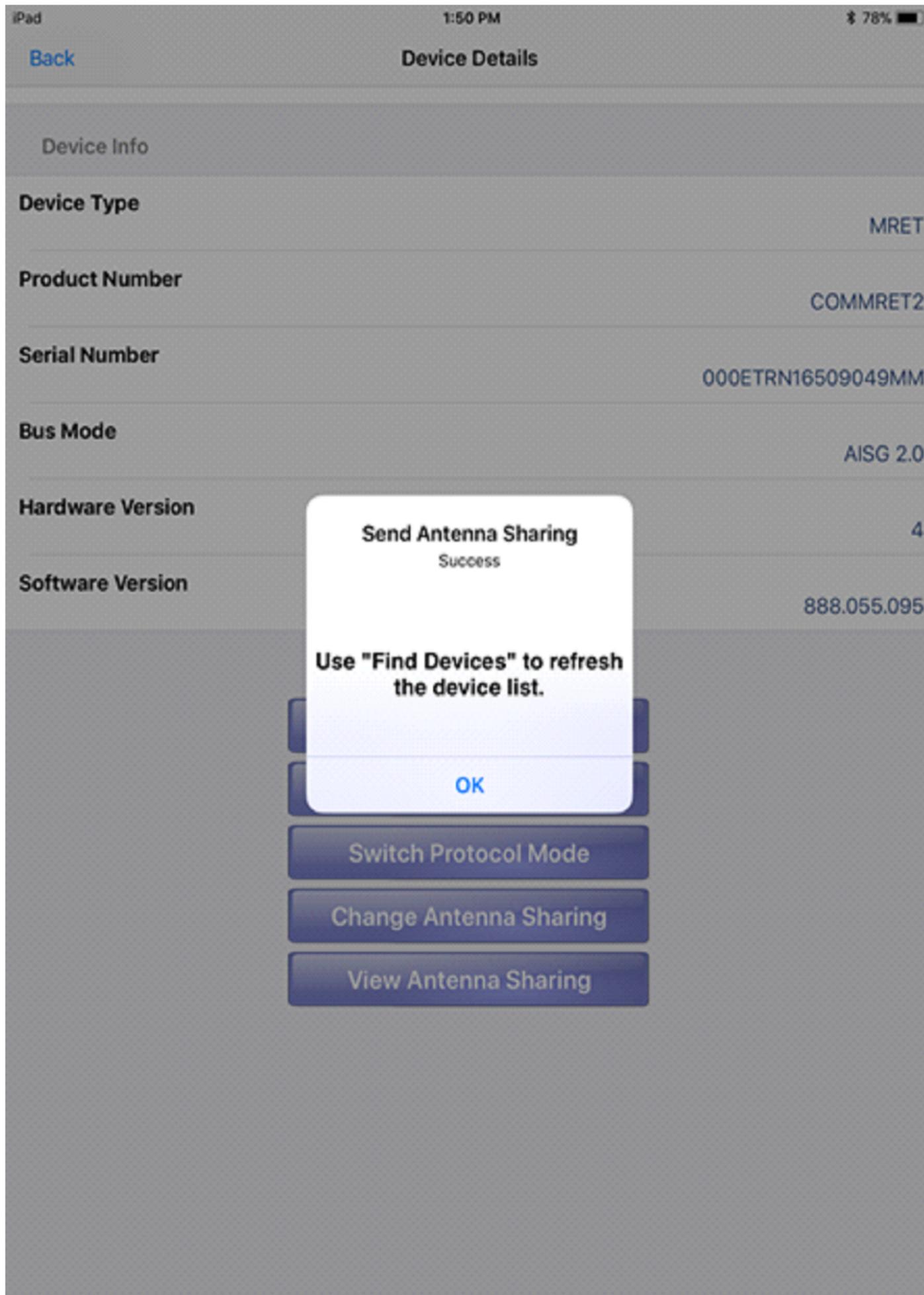


Figure 3-6 Send antenna sharing completion message.

Go back to the RETMaster home screen and select “Find Devices” to initiate a fresh device scan. On the reported list of devices, the configured RET should have the protocol mode (Multi-RET or Single-RET) and the relevant subunits (in case of Multi-RET) or devices (in case of Single-RET) reflecting the new antenna sharing configuration. Note that only the devices assigned to AISG 1 input port will be found and displayed.

To see the RETs that were assigned to AISG 2, a search using RETMaster app with the RETMaster device connected to the AISG port 2 should be performed.

3.2 Viewing the Current Antenna Sharing Configuration

From the RETMaster app's main screen, select "Find Devices" to perform a device search.

1. On completion of the search, select the device from the list to display the Device Details screen, as shown in Figure 3-1. In the "Device Details" screen, scroll down and click on the "View Antenna Sharing" button as shown in the Figure 3-7.

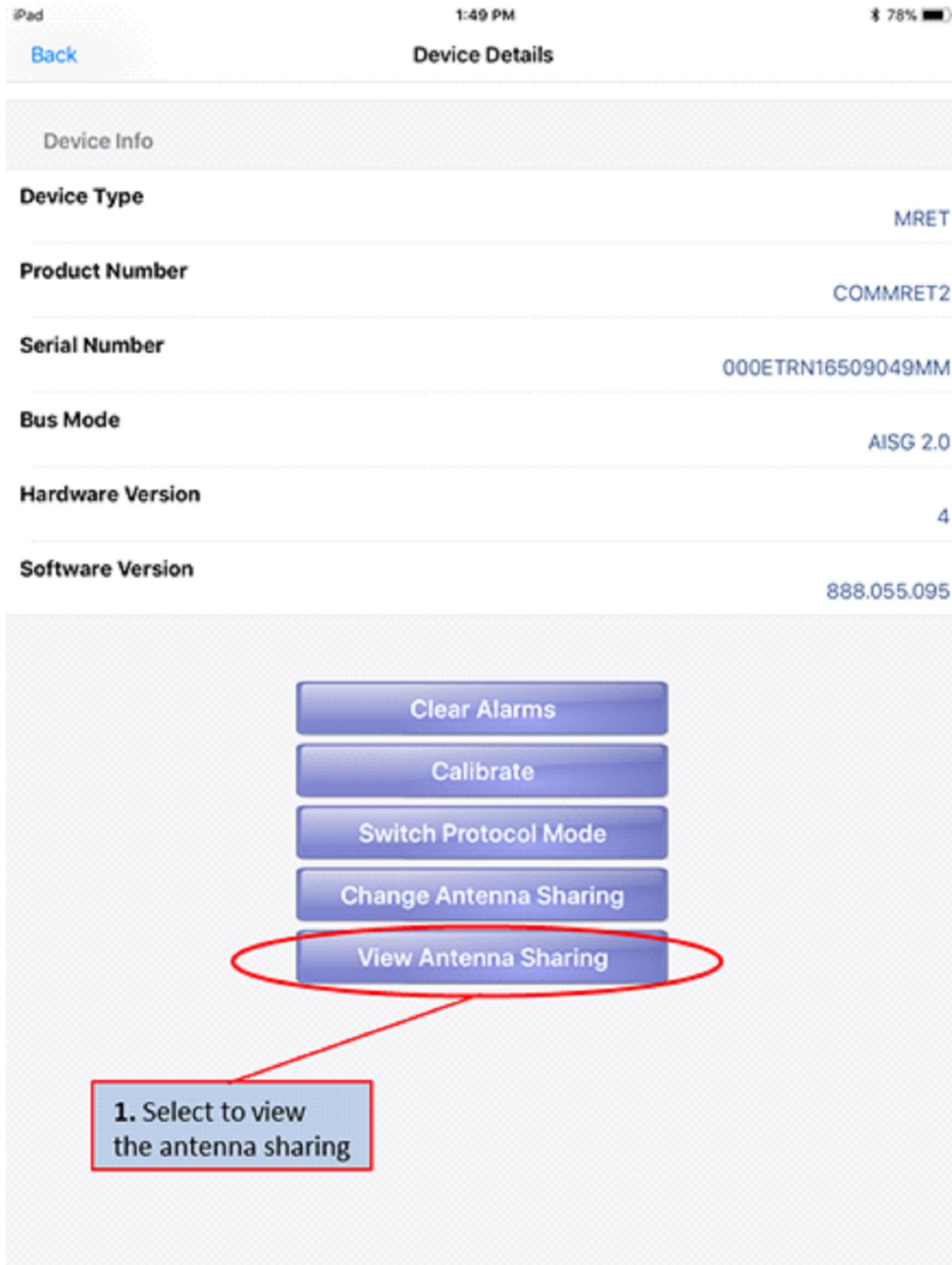


Figure 3-7 Button for view antenna sharing.

2. The “Antenna Sharing Configuration” screen is shown with the current antenna sharing configuration; including the protocol mode and band assignments for both AISG ports of this RET system. See Figure 3-8.

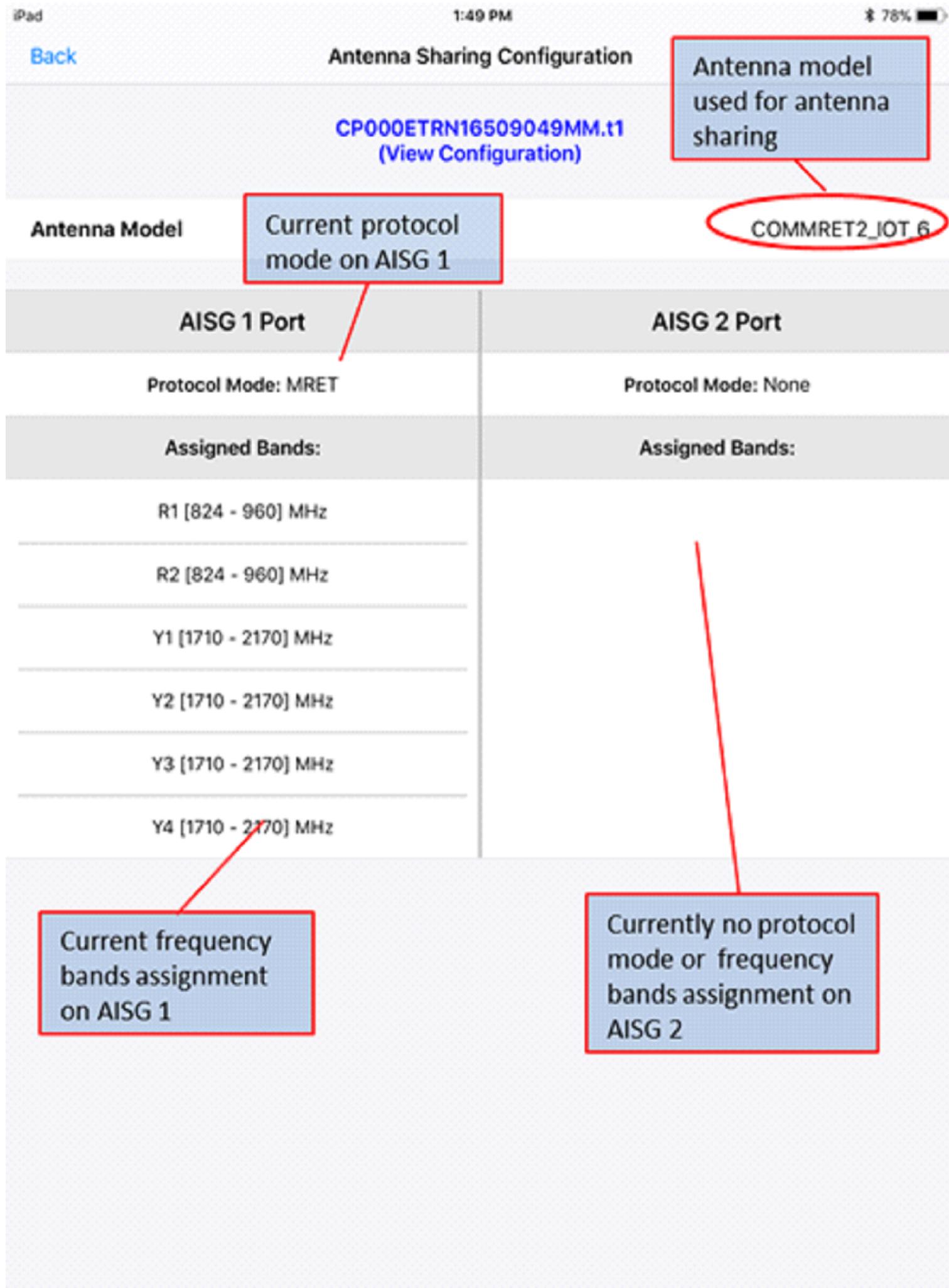


Figure 3-8 Current antenna sharing configuration information.

3.3 Importing Antenna Sharing Configuration Data and Support files to RET Master app

The antenna sharing support files (with extensions .dat or .ngcr2) can be imported to the RET Master app via email. These files can be used to reconfigure an antenna sharing RET system.

1. Open the e-mail application on the mobile device and select the attachment. On the iOS a list of applications that can open the attachment is shown. This list will also have the RET Master app as shown in Figure 3-9.

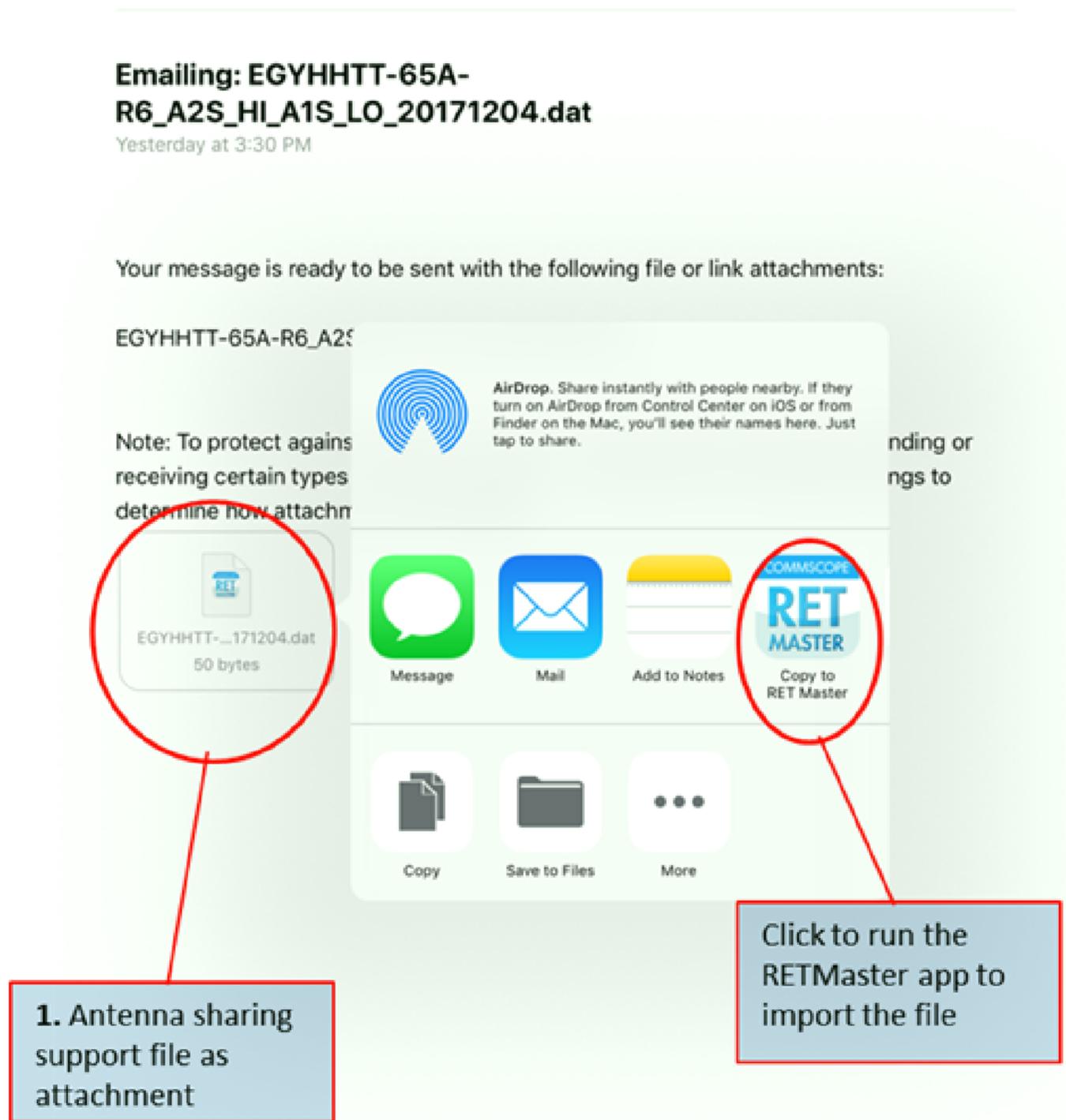


Figure 3-9 Import antenna sharing support file on iOS.

2. On the Android select the download icon to transfer the file to the download folder as shown in the Figure 3-10.

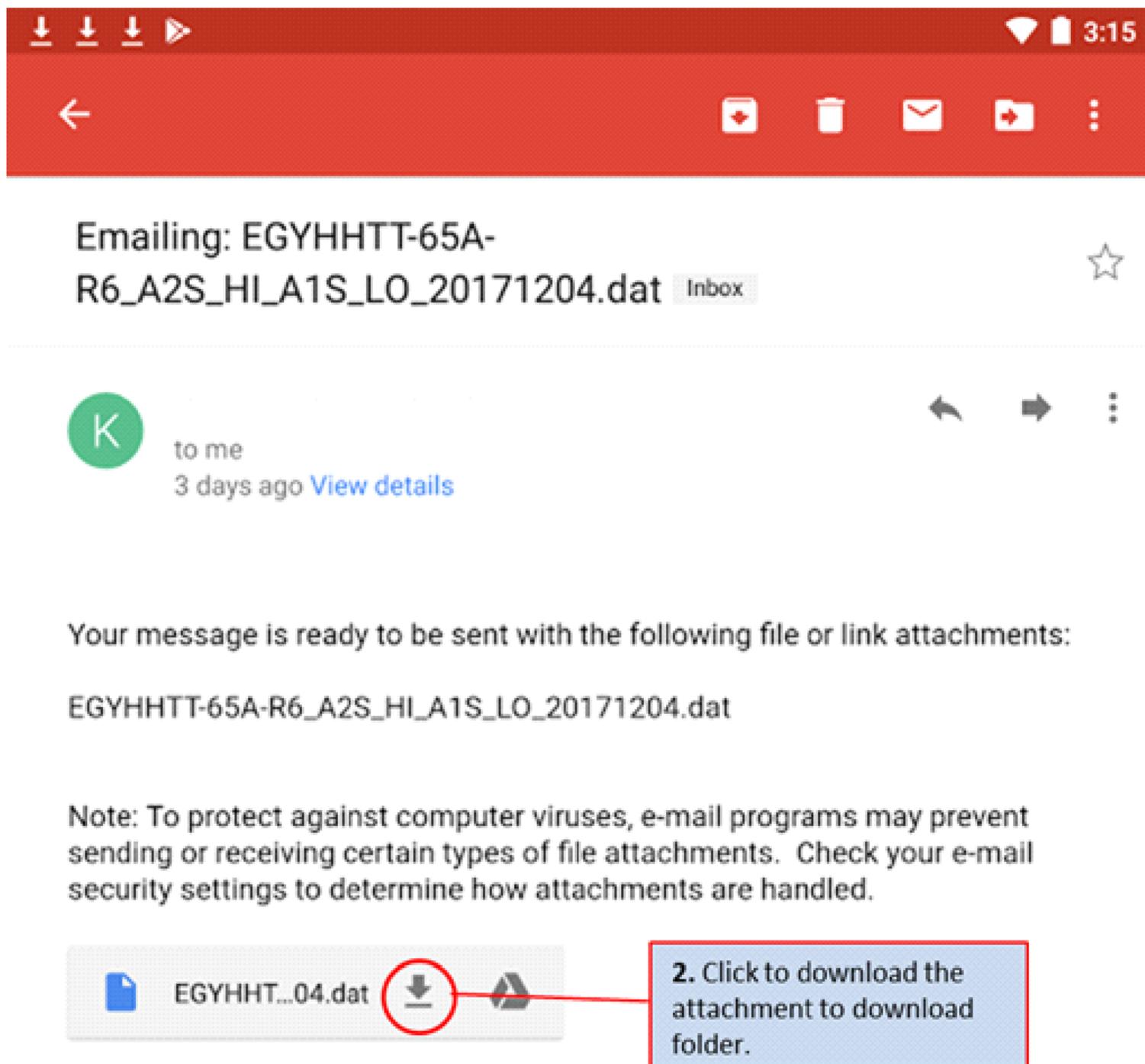


Figure 3-10 download attachment in Android.

3. The imported file will now be available from the RET Master app the next time it is opened.