# CORVUS-400 Test Procedure

**Model Number: C-9235-400**

**1/21/2026**

**Document 18-10310 Rev- B**

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# Revision History

| Revision | Section | Change | Date | Initials |
|---|---|---|---|---|
| - | All | Initial Version Release | 12/10/24 | TD |
| A | 2 & 3 | Reworded Serial number check in 2.2.<br>Removed the Pass or Fail in steps 2.3.<br>Added 5V output check and BitLocker check | 1/14/2025 | TD |
| B | ALL | Updated entire document to match config. of new Corvus 400 Kit - specifically the placard | 1/19/2026 | MD |

# Table of Contents

# 1. SCOPE

Use this procedure to verify the major hardware components and interfaces on Corvus Model Number:C-9235-400. Upon passing this set of tests, you can consider the Corvus 400 under test suitable for shipment to a customer.

## 1.1 APPLICABLE DOCUMENTS

The following documents provide the basis for this document and can be used for reference.

- 01-09362 (Engineering Release)
- 21-09707 (Bill of Materials)
- 22-09578(Production Instructions)
- Production Travelers
- CORVUS 400 Users Guide
- CORVUS 400 Training Guide
- QA CHECK LIST

## 1.2 APPLICABLE Equipment

- SD Card with Corvus Reference Database and Trace's
- Computer system generating Bus Data using accepted DEMO software
- Wire Mapping Test cable
- Flat head Screwdriver
- 4 Triax cables
- Torque wrench for VNA connection's
- Adjustable wrench
- 2 port couplers with terminations for D-Corvus
- VNA cable under test

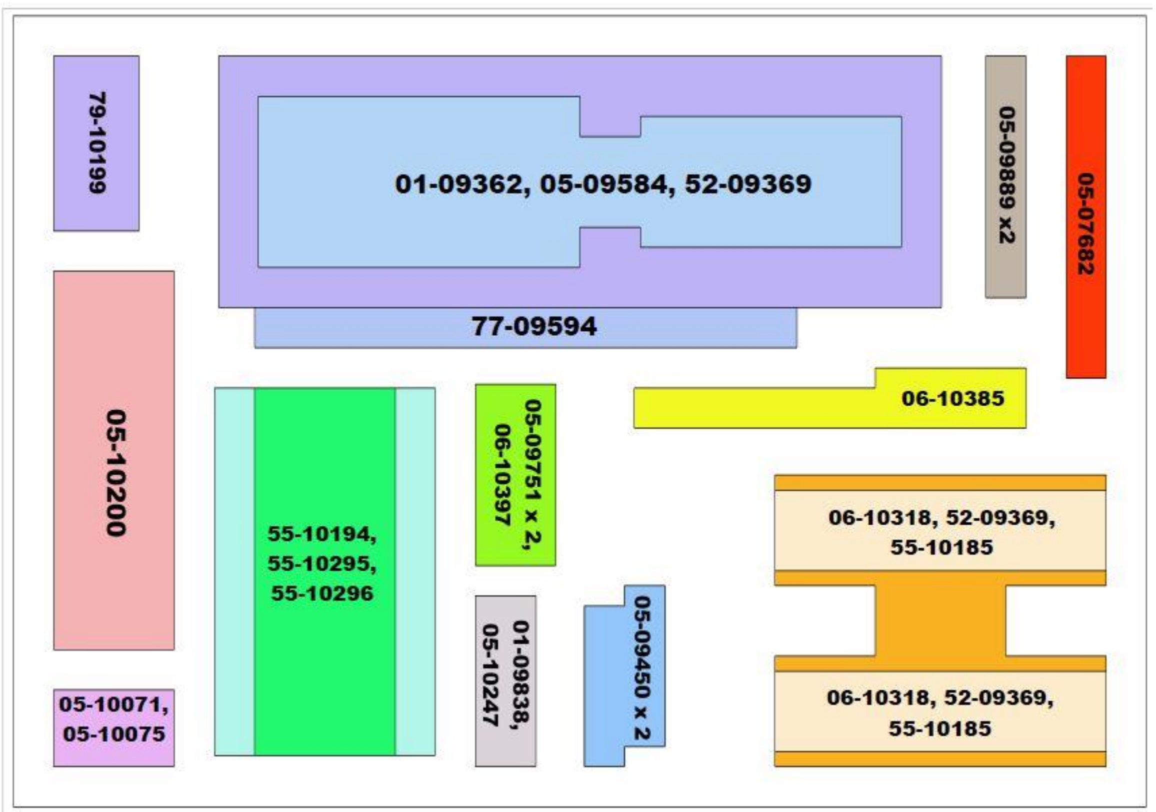
# 2. VISUAL INSPECTION

## 2.1 Verify Travelers

- Double check that Part Numbers and Serial Numbers are on Travelers
- Look for correct part numbers under chassis, circuit cards enclosed, kit contents, and travel cases
- Verify production checklist has been completed up to final QA check.

## 2.2 Verify Packing / Storage

1. Open the Packing Case verify all components are in the kit with part number/labels
2. Remove CORVUS, DCORVUS RX, TX and Vegas diodes, rotate carefully about each of three axes, and place it upright on a workbench.
3. Units have no obvious sounds of rattling or loose items inside the case; some rattling/sounds from the external cap-retention chains can be expected
4. Units will sit upright on the base on a level surface



## 2.3 Verify Model, Serial Number, and Windows Key

1. Observe the Model, Part Number, Serial Numbers and Windows Key from the label on the bottom of each unit.
2. Verify it matched the Traveler documentation

## 2.4 Verify Interfaces

Examine the Panel interfaces and confirm as follows:

### 2.4.1 SD Card

1. Remove the SD- cover and verify that the CORVUS flash-drive is installed and label with "BitLocker key"
2. After inspection, re-install the SD card and reattach the cover
3. SD Cover has been previously installed and secured with its retaining chain
4. SD Card is securely installed in its slot

### 2.4.2 VNA-N type

1. Remove the VNA N-type cover, inspect the connector, and replace the cover
2. Connector is clean and of proper coaxial type
3. Cover removes and replaces securely
4. Cover retention chain is secure and rotates freely

### 2.4.3 MIL-STD-1553

1. Remove the MIL-STD-1553 interface cover, inspect the connector, and replace the cover
2. Connector is clean and with no damaged or missing pin inserts
3. Cover removes and replaces securely
4. Cover retention chain is secure and rotates freely

### 2.4.4 Wiremapping A

1. Remove the interface cover, inspect the connector, and replace the cover
2. Connector is clean and with no damaged or missing pin inserts
3. Cover removes and replaces securely
4. Cover retention chain is secure and rotates freely

### 2.4.5 Wiremapping B

1. Remove the interface cover, inspect the connector, and replace the cover
2. Connector is clean and with no damaged or missing pin inserts
3. Cover removes and replaces securely
4. Cover retention chain is secure and rotates freely

### 2.4.6 Keyboard(USB Port)

1. Remove the USB interface cover, inspect the connector, and replace the cover
2. Connector is clean and with no damaged or missing pin inserts
3. the cover should be inserted with correct orientation and fully cover the opening to the interface

### 2.4.7 28 VOLT DC Interface

1. Inspect the coaxial power interface
2. The interface should be clean
3. The center pin should be straight and centered in the connecter

### 2.4.8 Fuse

1. Use a flat head screwdriver to remove fuse
2. Inspect the fuse for damage and that the fuse stays in the holder
3. Reinstall fuse

### 2.4.9 Ground Plug Connector

1. Inspect the post
2. The post should be clean and free from any object lodged in the hole

### 2.4.10 Power Button

1. Inspect With the CORVUS unconnected to a power supply, depress the POWER Button fully and release, two times
2. Leave the BUTTON in the 'OFF' position at the end of this test
3. The POWER should move freely in its cylinder
4. The 'ON' position will be slightly recessed (~2 mm) compared to the 'OFF' position (flush with mounting ring)

### 2.4.11 5 VOLT DC OUT Interface

1. Inspect the coaxial power interface
2. The interface should be clean
3. The center pin should be straight and centered in the connecter

### 2.4.12 Fan Covers

1. Inspect the fan covers at each end of the unit
2. The fan covers should be free from damage and dirt, dust, or other obstruction.

### 2.4.13 D-CORVUS Triax

1. Remove the MIL-STD-1553 interface cover, inspect the connector, and replace the cover
2. Connector is clean and with no damaged or missing pin inserts
3. Cover removes and replaces securely
4. Cover retention chain is secure and rotates freely

### 2.4.14 Vegas Diode Triax

1. Remove the MIL-STD-1553 interface cover, inspect the connector, and replace the cover
2. Connector is clean and with no damaged or missing pin inserts
3. Cover removes and replaces securely

# 3. POWER TEST

## 3.1 Start CORVUS Operation

1. Depress Power Button
2. Power Button LED, Fans, and CORVUS Display Panel all turn on
3. Display shows PC boot sequence, ending at the Government Warning splash screen.
4. Click ok and verify the unit automatically logs into the CORVUS user account.
5. Verify that the initial CORVUS Display Window appears within 60 seconds

## 3.2 Verify Powered Operation without failure.

1. Leave the CORVUS with power on for at least 10 minutes
2. Fans and Display remain in operation
3. Lack of any apparent odors or sounds of mechanical distress

## 3.3 Stop CORVUS operation

1. Depress Power Button to the off position
2. Power Button LED, FANS, and CORVUS Display Panel all turn OFF

## 3.4 Test BitLocker Function

1. Remove SD Card
2. Depress the Power Button
3. Verify the BitLocker screen pops up preventing windows from booting.

## 3.5 Test CORVUS operation on Portable Battery

1. Plug CORVUS into the battery pack
2. Enable power on the output of the battery
3. Power Button LED, Fans, and CORVUS Display Panel all turn on
4. Display shows PC boot sequence, ending at the Government Warning splash screen.
5. Click ok and verify the unit automatically logs into the CORVUS user account.
6. Verify that the initial CORVUS Display Window appears within 60 seconds

# 4. VNA TEST

## 4.1 Start the VNA Module Operation

1. Power On CORVUS
2. Select the VNA Icon on the CORVUS Main Screen:
3. 

4. Wait while the VNA application loads

## 4.2 Calibration

**1.** Select CALIBRATION at the upper left side menu (Figure 44). A pop-up menu will appear as shown in (Figure 43.

**2.** Connect the VNA Lead Cable (PN 05-10200) to the VNA port on the CORVUS bulk-head labeled VNA. Tighten the N connector hex nut to 1.1 – 1.2 Nm with a Cinch 134-0000-901 torque wrench if possible. A loose connection will cause improper calibration.

**3.** Select the N611-F calibration kit by scrolling down the options.

**4.** Using the N611 calibration kit provided (See Figure 42), connect the lead cable to the N611 OPEN port ensuring connector tightness as done in Step 2. Select "Open -F-" text by placing the cursor on the text. The check box is lit when completed.

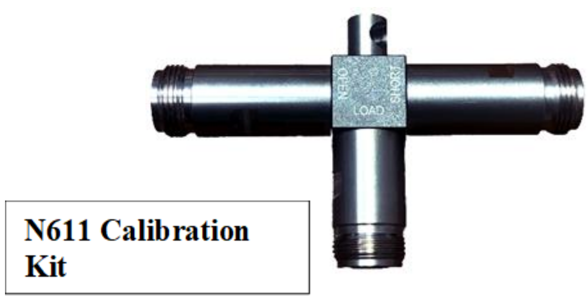



*Figure 1 - VNA Calibration kit*

**5.** Repeat the steps for "Short -F'" and "Load".

6. Select APPLY at bottom right of pop-up when complete. (Figure 2.)

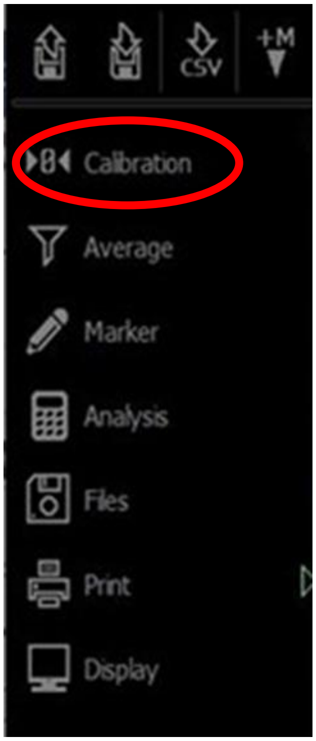



*Figure 3 - VNA Calibration*

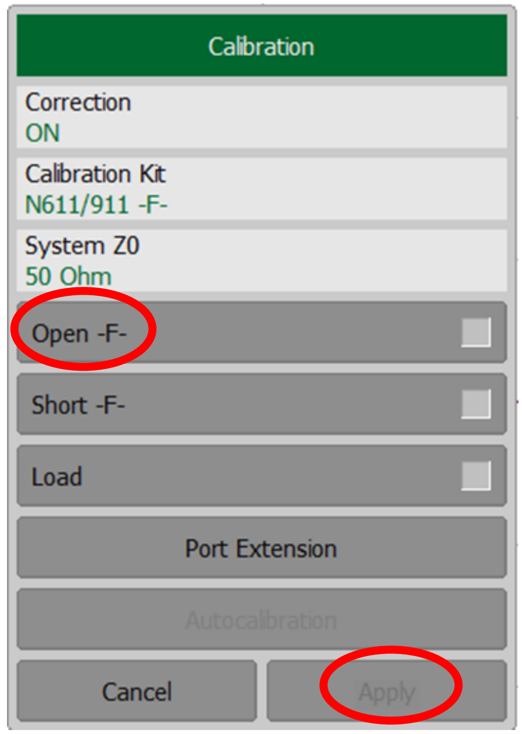



*Figure 2 - VNA Calibration Popup*

7. Remove the N611 from the end of the lead cable and the trace should be a flat line at 0.0 (small ripples are normal). See Figure 45. The VNA is now calibrated so that only the UUT is being analyzed, and the Lead Cable effects are nulled out.


*Figure 4 - VNA Calibration Result*

## 4.3 Distance to Fault test

1) Load preset file as described in VNA preset section
2) Connect lead cable and follow Calibration steps (Page 9). Calibration moves the measurement plane to the end of the lead cable.
3) Connect UUT
4) Select Analysis adjust stop distance to a few feet longer than UUT. The start and stop distance can be adjusted to effectively zoom in a portion of the cable under test that is of interest.
5) Select Scale and adjust Ref Value to position plot vertical position and scale ohms/div for desired vertical resolution

# 5. 1553 BUS MONITOR TEST

## 5.1 Connect Bus Simulator and Cables

1. On Connect the Triax cables to Primary and Secondary CORVUS unit's 1553 connectors.
2. Attach the other end of the Primary triax cable to the test bus setup coupler B.
3. Attach the other end of the Secondary triax cable to the test bus setup coupler D.
4. Connect a triax cable to the simulation machine channel 1A connector.
5. Attach the other end of the triax cable to the test bus setup coupler A.
6. Connect a triax cable to the simulation machine channel 1B connector.
7. Attach the other end of the triax cable to the test bus setup coupler C.
8. Connectors mate smoothly and cleanly without requiring excessive force.

## 5.2 Start Simulated '1553 Bus traffic

1. Turn on the simulation machine
2. Wait for Windows to load
3. Run the Bus Simulator application.

## 5.3 Start and Verify capability to Monitor Default Bus Configuration

1. Select Bus Monitor Icon
2. 

3. Select the "View Default" button on the Landing screen.
4. Verify the default start-up screen with a full, default bus with 32 terminals from address 0-31

## 5.4 Verify and Monitor Bus Activity

1. Turn Select the Green "Play" button to start monitoring the bus.
2. Verify Bus activity indicators for each terminal
   Green = active
   Grey = inactive, and
   Red = errored operation detected
3. Simulator output is consistent
4. Note: Details may vary as a function of simulator output and randomization of error events.

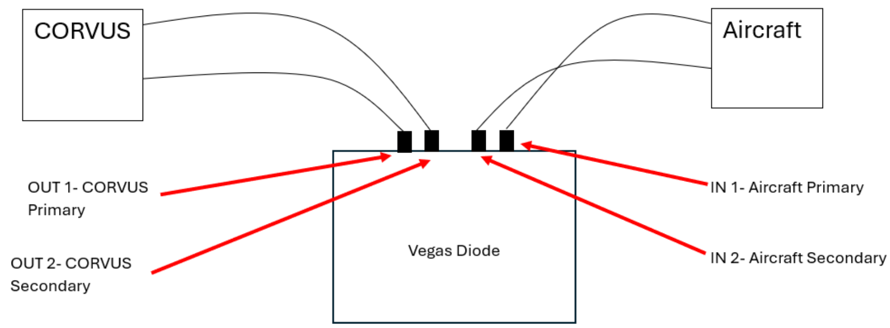
## 5.5 Verify Capability to Monitor individual terminal activity.

1. Select a terminal with activity.
2. Verify that a log of that terminal's monitored data is shown below the bus configuration

# 6. VEGAS DIODE TEST

## 6.1 Vegas Diode test

1. Connect the Vegas Diode between the Aircraft 1553 and the CORVUS (See figure below)



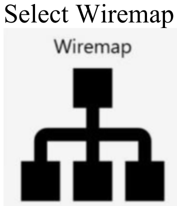

2. Ensure Triax Connectors are Fully engaged on the Vegas
3. Connect the Vegas to 5V power on the CORVUS top panel
4. Click play button
5. Data passes through the Vegas with no problem
6. Reverse the connections and verify that no data passes through the Vegas

# 7. WIREMAP TEST

## 7.1 Connect First Cable Under Test

1. Connect cable under test to Wiremap ports A& B
2. Connector inserts and threads cleanly securely and without force required.

## 7.2 Open Wiremap Application

1. Select Wiremap Icon from Top-Level-Shell
2. 

3. Verify Wiremap-Mode Starts
4. The Wiremap application is ready to run when the application GUI is displayed

## 7.3 Setup initial conditions and start tests

1. Select the Read button on the wiremap application
2. The Wiremap function scans the connected cable (05-09451)
3. Verify Port A connections 1-32 are connected to Port B connections 1-32(B) and Port B connections 1-32 are connected to Port A connections 1-32(A) as expected
4. One to one connection for all 32 pins are expected
5. Discontinuities, unexpected shorts or miss wires are not shown.
6. Select Save button and save file to file name 05-09451.xml
7. Select Compare button and select 05-09451.xml as compare file
8. All 32 IO are highlighted Green indicating a perfect match with saved cable connection file.
9. To Verify opens remove cable under test P/N 05-09451
10. Select the Read button on the wiremap application
11. Verify all 32 IO on both A and B ports show no connections

# 8. DCORVUS TEST

## 8.1 Calibration and Wi-Fi Test

1. Connect equipment as shown in Figure 5.
2. Connect CORVUS ACCESS POINT (06-10385) with USB-A to USB-B adapter to USB splitter to also Verify Wi-Fi functions as intended

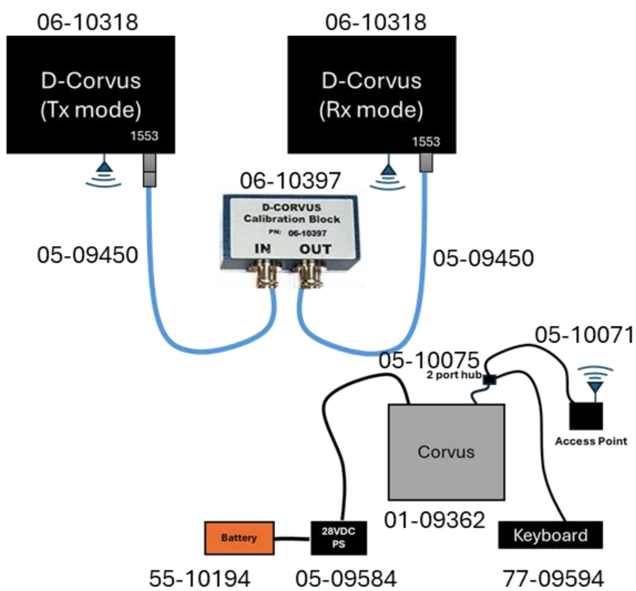



*Figure 5 - D-Corvus Calibration setup*

3. Apply power to the Corvus unit per the startup procedure on
4. Apply power to the D-Corvus units following start up
5. Once the Corvus completes its boot cycle the Corvus main menu is displayed.
6. Select the D-CORVUS application icon as shown in Figure 6.

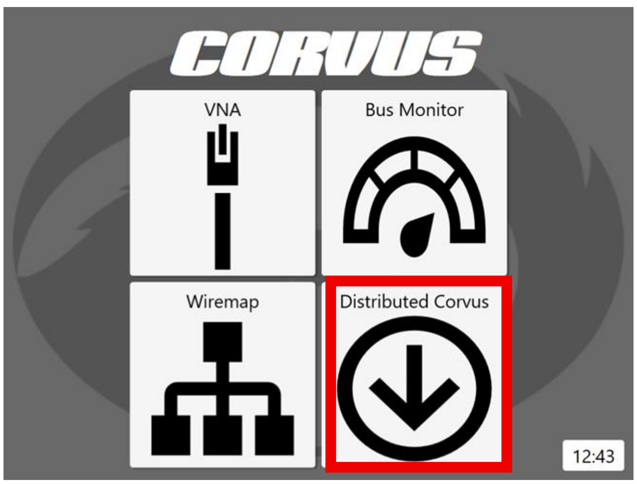



*Figure 6 - D-Corvus Icon*

7. Figure 7 the D-CORVUS home screen user interface after the application is selected and running.

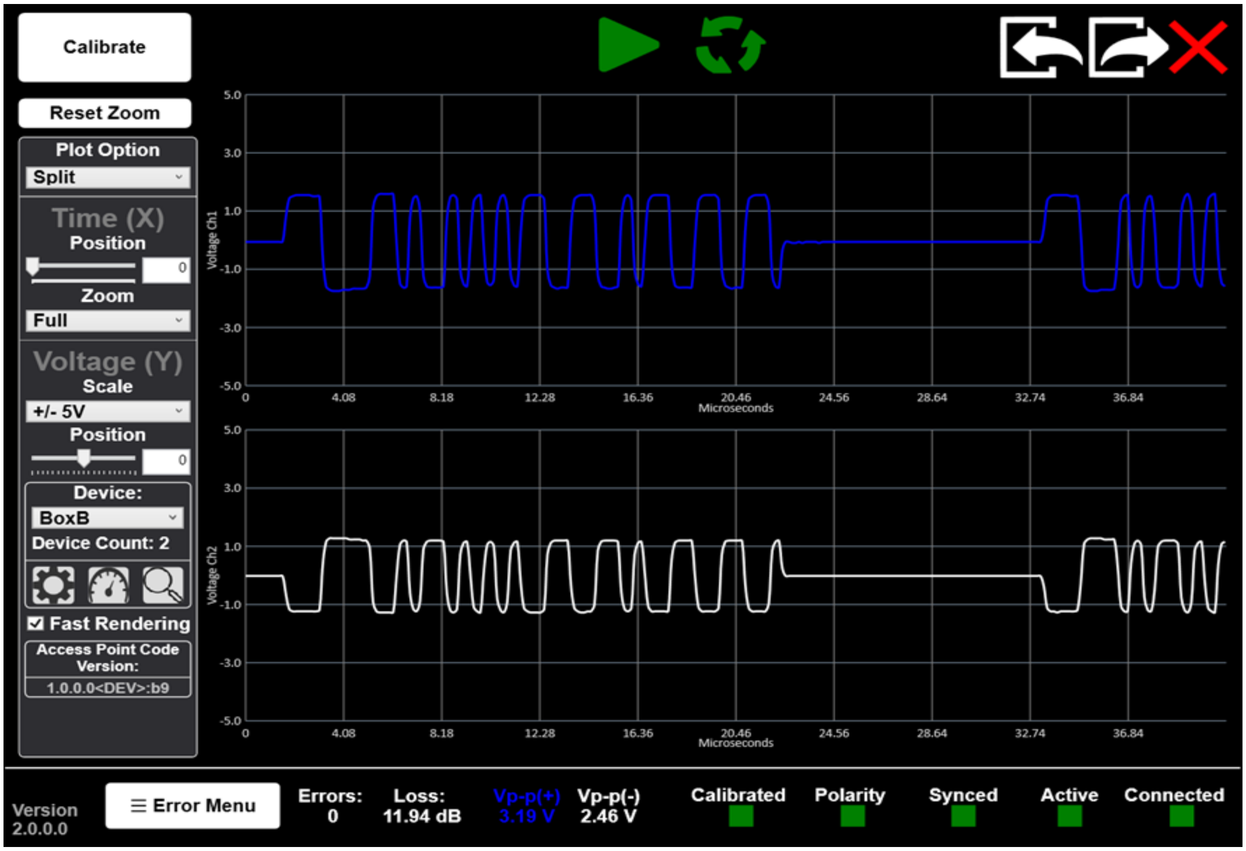
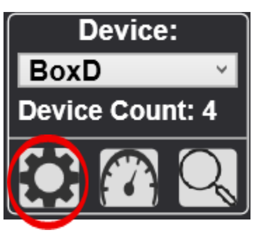



*Figure 7 - D-Corvus Home Screen User Interface*

8. Select the device manager button to see the units connected wirelessly to the CORVUS. This opens the device manager



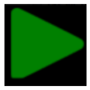

The device manager screen shows the D-CORVUS transceiver units connected to the CORVUS and indicates them by Device Name, Identifier (serial number of unit), Code version and if they are in RX mode or TX mode.

*Figure 8 - Corvus Device Manager*


9. Select a device by right clicking on one of the devices in the list or using the touch screen. When the device is selected it will highlight blue.

9. The selected device can be given a customized name making it easy to follow where it is being used in the system. For example, if a unit is going to be connected to test the GPS1 stub you might call this device GPS1. For a more generic test setup, call the Transmit unit TX unit and the Receive unit RX unit.
10. Decide what unit is going to be the Transmit (TX) unit and uncheck the Receiver check box. When we select save, this unit will become a TX unit and start transmitting the 1553 mimic data pattern.
11. Select Save
12. When save is selected the TX / RX selections are applied. This can be verified by looking at the TX mode LED on the front panel of the D-Corvus transceiver.
13. Select Back to close the Device manager window.

14. On the main menu with the Calibration setup connected as shown in Figure 5 and one unit designated as the Tx unit we should see Polarity, Synced, Active and Connected indicators illuminated. If these are not all illuminated, recheck the calibration setup.
15. Select the single collect button to capture one frame of the TX data



16. The TX data is received by the RX unit and displayed on the user interface. It should look similar to what is shown in Figure 9.

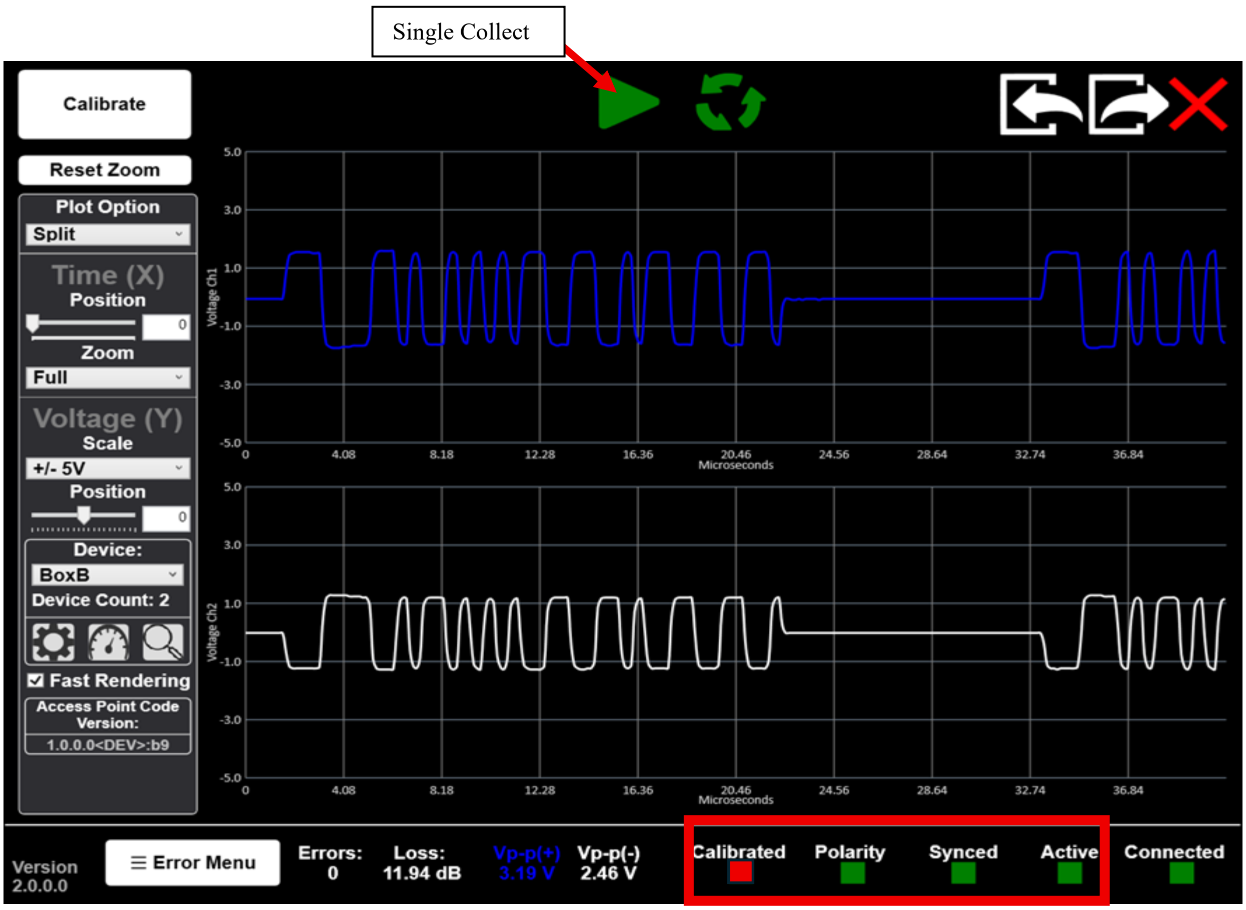
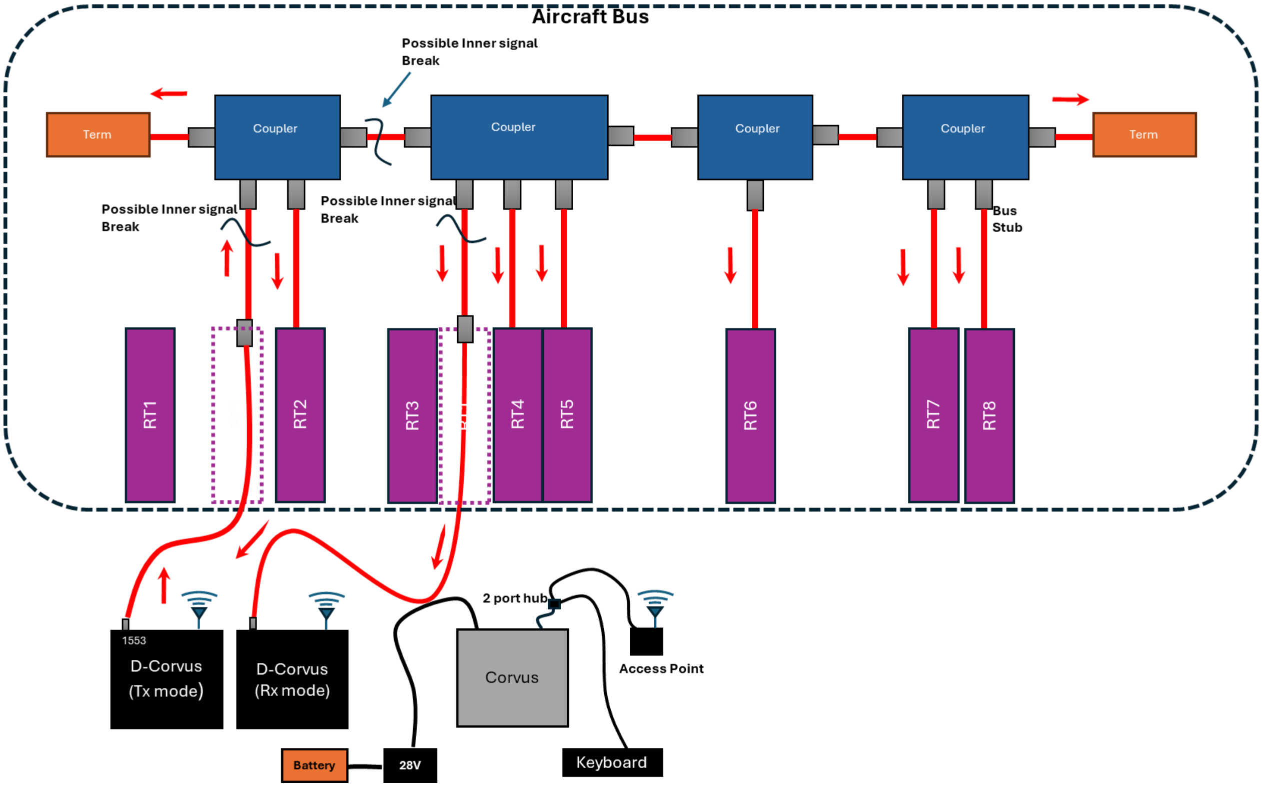



*Figure 9 - Rx Data*

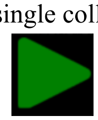
Select the Calibrate button at the top left of the screen. This captures the TX data after passing through the 12 dB calibration block. The Calibrated indicator at the bottom of the screen changes to green and the system is calibrated and ready to connect to the aircraft and to make insertion loss measurements as shown in 1553 Stub Coupler Use Case that follows.

## 8.2 Operation Test

1. When calibration is completed, connect to aircraft bus stubs as shown in the following figure.




1. Select the single collect button to capture one frame of the TX data.



2. The following shows a good bus capture.

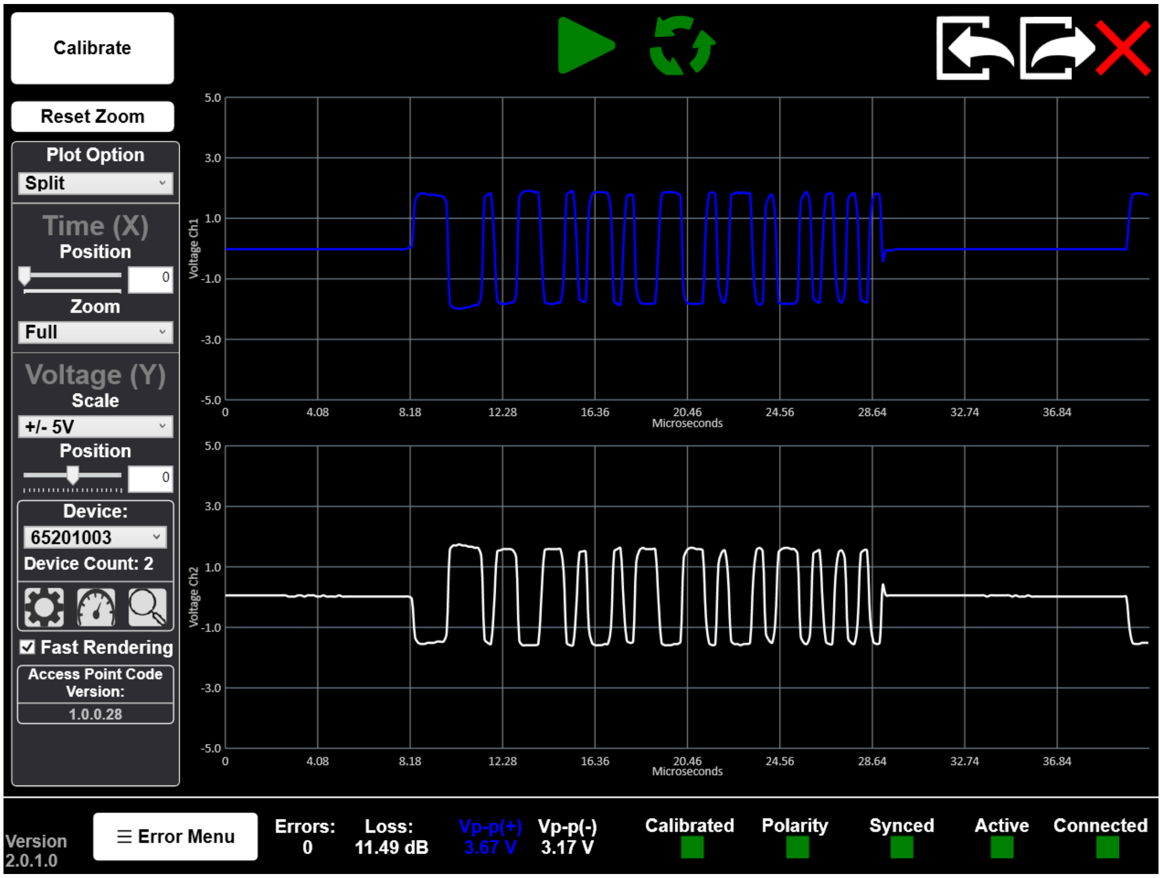



*Figure 10 - D-Corvus good bus capture*

3. All of the status indicators show green, and the insertion loss is 12 dB +/- 1 dB.
4. Select Error Menu and select Start Error Capture. This starts the error checking and verifying every data word. Allow the system to run for at least 30 seconds to see if any errors occur.
5. Zero errors should be found. This can be a good way to find intermittent connections by flexing cables or tapping on connections and looking for data errors to occur.
6. The following shows an example of bad Rx stubs.

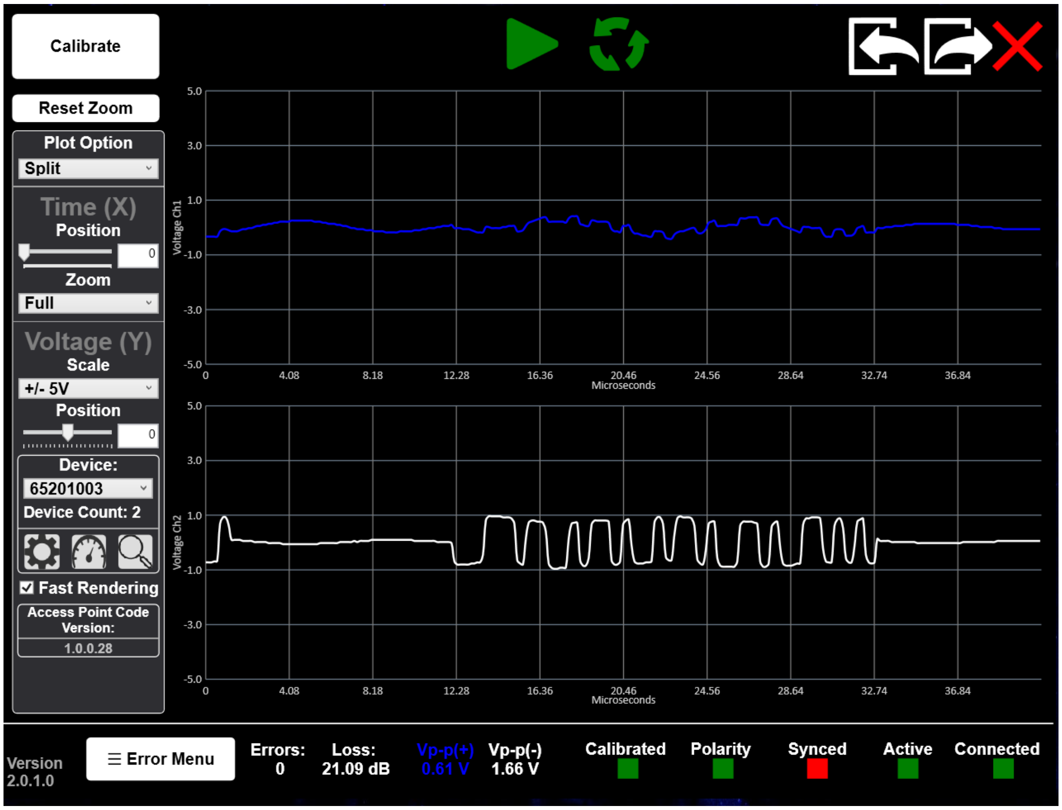
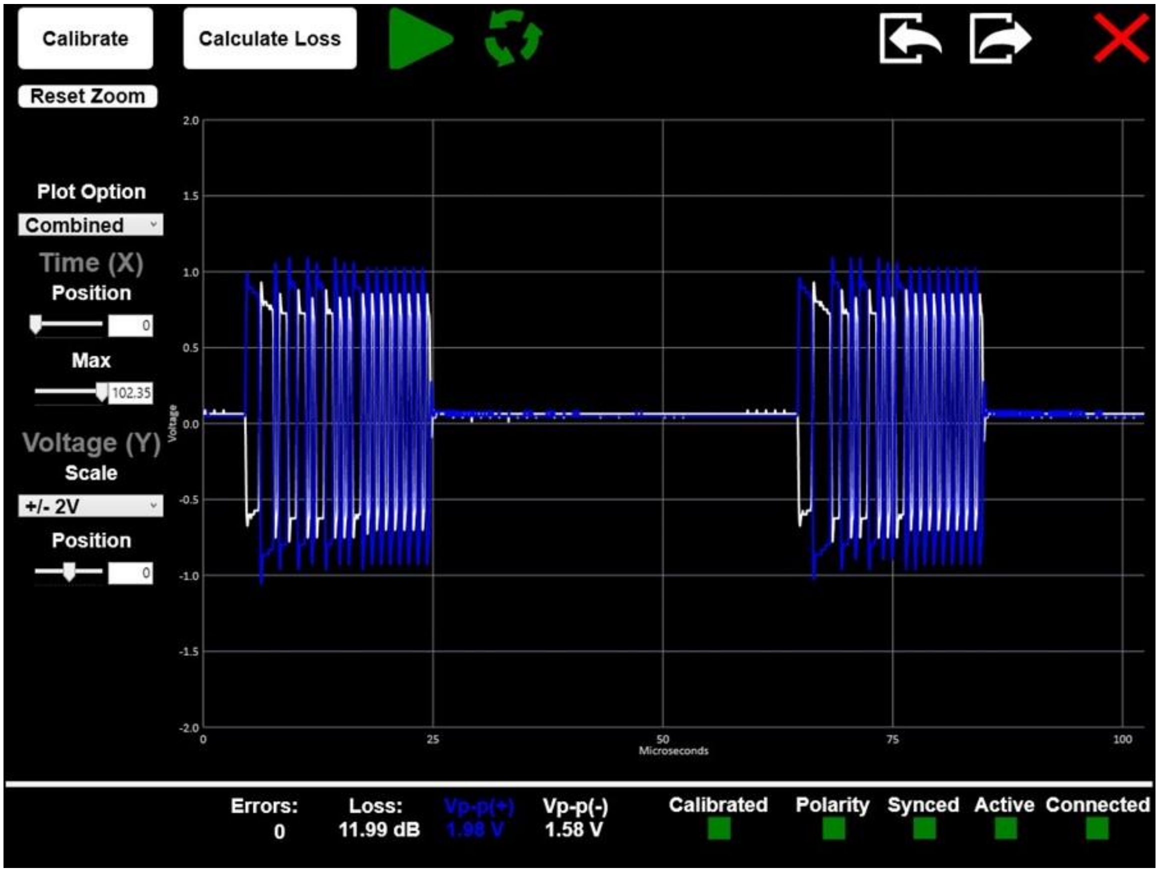



*Figure 11 - D-Corvus capture bus failure*

7. The TX data is received by the RX unit and displayed on the user interface. As shown in the figure below we can see the signal loss is 21.09 dB and Synced is red indicating failure to sync to signal. The insertion loss should be around 12dB +/- 1 dB typically.

   Because we have some high insertion loss, Vp-p(-) ( 1553 outer signal) has some data pattern representation and Vp-p(+) is just showing low level noise it appears to be an open signal on the Rx stub inner conductor.

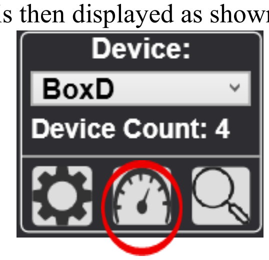
   If after moving the D-Corvus unit in receive mode to another stub on the bus under test results in good test results, then we have a failed receive stub or coupler failure.




## 8.3 STRESS TEST

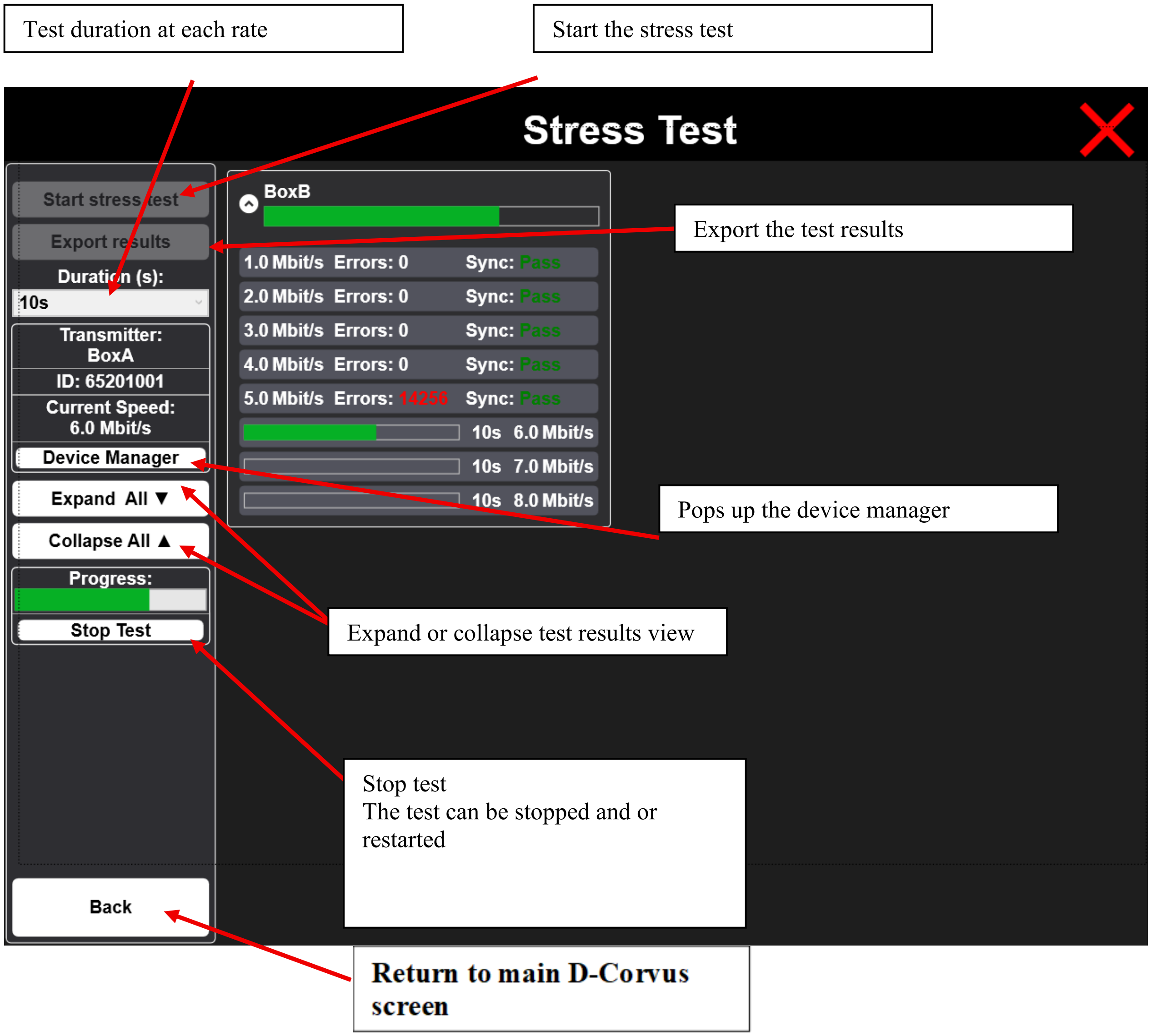
**The stress test is only supported when the units are operated in Wi-Fi mode.**

1. Perform calibration of units used during the stress test
2. Connect the units to the Coupler
3. Select the Stress test menu icon.
4. The Stress test menu is then displayed as shown below.




5. Select the Duration in seconds for each of the data rates. A 30 second duration will complete the test in approximately 4 minutes.
6. Select start test and the stress test will begin.

**7.** The Stress test completes when each of the data rates is operated for the duration selected.



# 9. QA CHECK LIST

- Once all steps have been completed and unit passes all tests, fill out QA checklist appropriately. Then Initial and date.
- If issues come up document them on the QA checklist and inform Production of all the issues found. Initial and date the issues once they have been corrected.