REVISION HISTORY

JUNIPER® systems			1132 W 1700 N Logan, Utah 84321 (435) 753-1881		
Type of Document: MAP	Description: 23400SC-02 AR2 RMA Test			Document No: 23400SC	Revision: 04
Generated By:	**Date:**	**Lead Service Tech Approval:**	**REV #**	**ECO #**	**Description**
John Thatcher	17Feb14	John Thatcher	00	5264	Initial Service test release
John Thatcher	11Jun14	John Thatcher	01		Updated touch screen firmware versions and installation instructions, added JSCAB installation instructions.
John Thatcher	4May2015	John Thatcher	02	6247, 6189	Update OS, test suite versions, and max. currents
John Thatcher	16Nov2015	John Thatcher	03	6810	Updated Test Suite and OS revisions , added CDMA model registration process
John Thatcher	24Feb2016	John Thatcher	04	7159	Corrections and updated Desktop test suite version

Symbols

 Important

 Quality Stamp

 Inspect

 Next Slide

 Previous Slide

 Menu

 Link to Quality Database

MENU

SELECT MODEL TO BE TESTED

- **AR2 Standard**
  - **Pre-Chamber – Juniper Systems Only**
  - **Preliminary Inspection & Test**
  - **Final RMA Test & Inspection**

- **AR2 Geo**
  - **Pre Chamber – Juniper Systems Only**
  - **Preliminary RMA Inspection & Test**
  - **Final RMA Test & Inspection**

- **AR2 Geo Cell**
  - **Pre Chamber – Juniper Systems Only**
  - **Preliminary RMA Inspection & Test**
  - **Final RMA Test & Inspection**

- **AR2 Geo Barcode**
  - **Pre Chamber – Juniper Systems Only**
  - **Preliminary RMA Inspection & Test**
  - **Final RMA Test & Inspection**

- **AR2 Geo Cell Barcode**
  - **Pre Chamber – Juniper Systems Only**
  - **Preliminary RMA Inspection & Test**
  - **Final RMA Test & Inspection**

- **Setup *Archer2_INI.csv* File for Wi-Fi & BT Tests**
- **OS & Firmware Update Instructions**
- **Update Serial Number**
- **Desktop Test Suite Diagnostics**

Setup Archer2_INI.csv File for Wi-Fi & BT Tests

Set Wireless Test Configuration

You must enter both the name of your Wi-Fi access point and the name of your Bluetooth test device in the **Archer2_INI.csv** file _before_ the **Archer2_Test_Suite.exe** can test Wi-Fi and Bluetooth.

NOTE: Your Wi-Fi access point should be OPEN (no password) with no connection to the Internet (for security). _If you use a PW, you will have to manually connect each Archer to the network prior to running the Archer2_Test_Suite.exe._

1. Insert Archer 2 Test USB drive into your PC.

2. Go into the AR2 Test Suite v*.** folder on the USB drive.

3. Open the **Archer2_INI.csv** file in Excel.

4. Enter the name of your Wi-Fi access point in cell B1 and the name of your BT Test device in cell B2.

5. Save your changes.

Press ESC to return to test procedure.

Equipment Required – GC

Parts List		
Qty	**JSPN**	**Description**
1		Emulator
1		Test battery
1		Micro USB cable
1		Micro SD card
1		USB Test flash drive
1		Audio Cable or Stereo Headset with Microphone
1		COM Loopback Plug
1		Power Supply with adjustable voltage
2		Banana jack test lead
1		Ammeter

Items are not to scale

● **Initial Setup for Wi-Fi/BT Tests (press ESC when done)**

Equipment Required – GBC

Parts List		
Qty	**JSPN**	**Description**
1		Emulator
1		Test battery
1		Micro USB cable
1		Micro SD card
1		USB Test flash drive
1		Audio Cable or Stereo Headset with Microphone
1		Barcode Target
1		COM Loopback Plug
1		Power Supply with adjustable voltage
2		Banana jack test lead
1		Ammeter

Items are not to scale

● **Initial Setup for Wi-Fi/BT Tests (press ESC when done)**

Equipment Required – Std & Geo

Parts List		
Qty	JSPN	Description
1		Emulator
1		Test battery
1		Micro USB cable
1		Micro SD card
1		USB Test flash drive
1		Audio Cable or Stereo Headset with Microphone
1		COM Loopback Plug
1		Power Supply with adjustable voltage
2		Banana jack test lead
1		Ammeter

Items are not to scale

● **Link to Initial Setup for Wi-Fi/BT Tests (press ESC when done)**

Equipment Required - GB

Parts List		
Qty	JSPN	Description
1		Emulator
1		Test battery
1		Micro USB cable
1		Micro SD card
1		USB Test flash drive
1		Audio Cable or Stereo Headset with Microphone
1		Barcode Target
1		COM Loopback Plug
1		Power Supply with adjustable voltage
2		Banana jack test lead
1		Ammeter

● **Link to Initial Setup for Wi-Fi/BT Tests (press ESC when done)**

Items are not to scale

Set up Power Supply for Preliminary Inspection

Test Instructions

1. Attach one banana jack test lead to the positive (red) terminal on the power supply.
2. Attach the other end of this lead to the *V Ω Cap* input of the meter.
3. Attach one banana jack test lead to the negative (black) terminal on the power supply.
4. Attach the other end of this lead to the *Common* input of the meter.
5. Turn the meter dial to the VDC setting.
6. Turn on power supply.
7. Set power supply to 3.65 +/- .5 volts.
8. Remove the banana jack lead from the power supply positive terminal and meter.
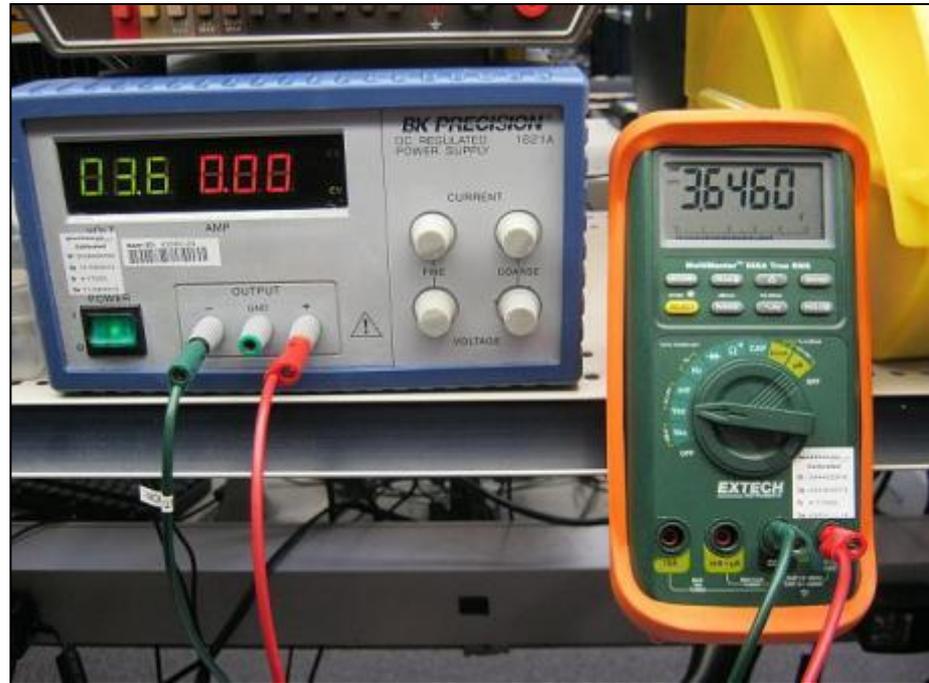
Install Battery Emulator – Preliminary Inspection All Models

Test Instructions

1. Attach AR2 emulator to power supply and ammeter as follows:

    *   Red plug on emulator to positive terminal of power supply

    *   Black plug on emulator to 10A input of ammeter

    *   Banana jack test lead from COM input of ammeter to negative terminal of power supply (should still be there from voltage setting)

    *   Set ammeter to the *A/mA* setting

2. Remove battery door from Unit Under Test (UUT).

3. Attach emulator to UUT with the red wire on the emulator UP (toward the top of the handheld).

4. Secure the emulator with the test door, torqueing two diagonal screws to 2 in/lbs.

Install Battery Emulator – All Models

Test Instructions

1. Attach AR2 emulator to power supply and ammeter as follows:

   - Red plug on emulator to positive terminal of power supply

   - Black plug on emulator to 10A input of ammeter

   - Banana jack test lead from COM input of ammeter to negative terminal of power supply (should still be there from voltage setting)

   - Set ammeter to the *A/mA* setting

2. Remove battery door from Unit Under Test (UUT).

3. Attach emulator to UUT with the red wire on the emulator UP (toward the top of the handheld).

4. Secure the emulator with the test door, torqueing the two screws to 2 in/lbs.

# Preliminary Std, G, & GC Test - Check Current Levels

Test Instructions

1. Press the *Max* button on the ammeter twice. The display will read *Max.* This will allow the meter to record the highest current value that is input. *If DMM does not have **Max** function, observe display closely during the following tests.*

2. Turn on the UUT.

3. Ensure the *Boot Up* current does not exceed **775mA**.

4. Turn ammeter to *Off* and then back to *A/mA.*

5. See if the UUT is running any applications such as Wi-Fi, Bluetooth, etc. If so, turn them off.

6. Ensure the *Idle* current does not exceed **300 mA**.

7. Suspend the UUT.

8. Ensure the *Suspend* current does not exceed **85 mA**.

9. **Press ESC to return to Preliminary Test.**

Click *Max/Min* twice

Preliminary GB & GBC Test - Check Current Levels

Test Instructions

1. Press the *Max* button on the ammeter twice. The display will read *Max.* This will allow the meter to record the highest current value that is input. *If DMM does not have **Max** function, observe display closely during the following tests.*

2. Turn on the UUT.

3. Ensure the *Boot Up* current does not exceed **900mA**.

4. Turn ammeter to *Off* and then back to *A/mA.*

5. See if the UUT is running any applications such as Wi-Fi, Bluetooth, Barcode, etc. If so, turn them off.

6. Ensure the *Idle* current does not exceed **385 mA**.

7. Suspend the UUT.

8. Ensure the *Suspend* current does not exceed **85 mA**.

9. **Press ESC to return to Preliminary Test.**

Click *Max/Min* twice

RMA Test - Set up Power Supply

Test Instructions

1. Attach one banana jack test lead to the positive (red) terminal on the power supply.

2. Attach the other end of this lead to the *V Ω Cap* input of the meter.

3. Attach one banana jack test lead to the negative (black) terminal on the power supply.

4. Attach the other end of this lead to the *Common* input of the meter.

5. Turn the meter dial to the VDC setting.

6. Turn on power supply.

7. Set power supply to 3.65 +/- .5 volts.

8. Remove the banana jack lead from the power supply positive terminal and meter.
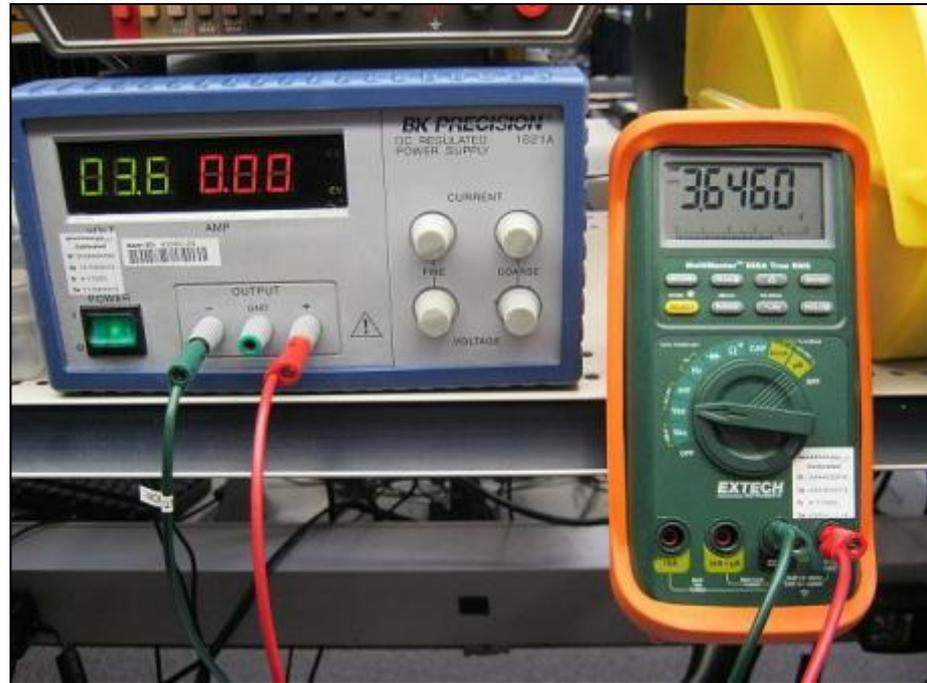
Install Battery Emulator – Std & Geo

Test Instructions

1. Attach AR2 emulator to power supply and ammeter as follows:

   - Red plug on emulator to positive terminal of power supply

   - Black plug on emulator to 10A input of ammeter

   - Banana jack test lead from COM input of ammeter to negative terminal of power supply (should still be there from voltage setting)

   - Set ammeter to the *A/mA* setting

2. Remove battery door from Unit Under Test (UUT).

3. Attach emulator to UUT with the red wire on the emulator UP (toward the top of the handheld).

4. Secure the emulator with the test door, torqueing the two screws to 2 in/lbs.

Std, G, & GC RMA Test - Check Current Levels

Test Instructions

1. Press the *Max* button on the ammeter twice. The display will read *Max.* This will allow the meter to record the highest current value that is input. *If DMM does not have **Max** function, observe display closely during the following tests.*

2. Turn on the UUT.

3. Ensure the *Boot Up* current does not exceed **775mA**.

4. Turn ammeter to *Off* and then back to *A/mA.*

5. See if the UUT is running any applications such as Wi-Fi, Bluetooth, etc. If so, turn them off.

6. Ensure the *Idle* current does not exceed **300 mA**.

7. Suspend the UUT.

8. Ensure the *Suspend* current does not exceed **85 mA**.

9. Remove battery emulator for RMA Test.

Click *Max/Min* twice

GB & GBC RMA Test - Check Current Levels

Test Instructions

1. Press the *Max* button on the ammeter twice. The display will read *Max.* This will allow the meter to record the highest current value that is input. *If DMM does not have **Max** function, observe display closely during the following tests.*

2. Turn on the UUT.

3. Ensure the *Boot Up* current does not exceed **900mA**.

4. Turn ammeter to *Off* and then back to *A/mA.*

5. See if the UUT is running any applications such as Wi-Fi, Bluetooth, Barcode, etc. If so, turn them off.

6. Ensure the *Idle* current does not exceed **385 mA**.

7. Suspend the UUT.

8. Ensure the *Suspend* current does not exceed **85 mA**.

9. Remove battery emulator for RMA Test.

Click *Max/Min* twice

Install Battery Emulator & SIM Card – GC & GCB

Test Instructions

1. Attach AR2 emulator to power supply and ammeter as follows:

   - Red plug on emulator to positive terminal of power supply

   - Black plug on emulator to 10A input of ammeter

   - Banana jack test lead from COM input of ammeter to negative terminal of power supply (should still be there from voltage setting)

   - Set ammeter to the *A/mA* setting

2. Remove battery door from Unit Under Test (UUT).

3. Install SIM card.

4. Attach emulator to UUT with the red wire on the emulator UP (toward the top of the handheld).

5. Secure the emulator with the test door, torqueing the two screws to 2 in/lbs.

Test Suite, OS, Bootloader, & Firmware Versions

AR2_AG2 Test Suite Version:
- **Version 2.1**

To check OS etc.: Tap Settings > System > System Information > System ID.

- **OS Build Version: 1.6.3**
- **OS Build Number: 15266**

- **Bootloader Version: 1.6.3**

- **Touchscreen Firmware Versions: 306a (Finger), 301a (Stylus), or 300w (Water). OS 1.5.2 or above is required for this firmware.**

- **GNSS Firmware versions by Board Version:**
  - **Board version 0.4.4.1: GPS Firmware 01.91 or 02.06**
  - **Board version 0.4.5.1 through 0.4.6.1: GPS Firmware 03.05**
  - **NOTE: GPS firmware cannot be updated. It is tied to PCBA version.**

Std, G, & GC Preliminary Inspection

- **Visually inspect unit** for obvious damage or wear (scratched or cracked touch screen or LCD, cracked or dented case, worn or damaged keyboard elastomer, damaged I/O connectors, etc.).

- **Setup Power Supply** - Click on link to: Setup power supply, install battery emulator, and check currents.
     DC volts: 3.65V +/- .5
     Current limit: 2 Amps

- **Install battery emulator.** Turn on UUT and check currents:
     Boot Current – less than **775 mA**
     Idle current – less than **300 mA** (turn off Wi-Fi, 3G Modem, Barcode, etc., if they are on.)
     Suspend current – less than **85 mA**

- **Check for current OS, bootloader, and firmware versions.** (Tap *Settings > System > System Information > System ID*.) Make a note if they need to be updated during final test.

- **Test touch screen function.** Tap on *Start > Notes*. Create a new note if needed. Tap the menu and check **Draw**. Use use your finger to move the slider bar up and down. Use your finger to draw an hour-glass shape that fills the screen. Draw a box around the hour-glass. Tap the menu and select **Undo Ink.**

- **Test the keys for correct "snap" and functions.** Tap on the Note menu and uncheck **Draw**. Start with the number keys, pressing each key 6 to 10 times while varying the angle with which you press the key. Follow with the ⇧ (shift) key plus **-** (this will give an * asterix) , the period key, the □ (Back) key, the □ (Enter) key, the □ (Tab) key, and the □ (Menu/insert date) key. Verify that the correct characters are displayed that that there are no double-entries. **Close and delete the note.** Test the **Camera** and **Home** keys last.

- **Continue on next slide**

GB & GBC Preliminary Inspection

- **Visually inspect unit** for obvious damage or wear (scratched or cracked touch screen or LCD, cracked or dented case, worn or damaged keyboard elastomer, damaged I/O connectors, etc.).

- **Setup Power Supply** - Click on link: Setup power supply, install battery emulator, and check currents.
    DC volts: 3.65V +/- .5
    Current limit: 2 Amps

- **Install battery emulator.** Turn on UUT and check currents:
    Boot Current – less than **900 mA**
    Idle current – less than **385 mA** (turn off Wi-Fi, 3G Modem, Barcode, etc., if they are on.)
    Suspend current – less than **85 mA**

- **Run the *Barcode Connector* app.**

    1.   Select *Barcode Setup > Test.*

    2.   Aim the scanner at the Archer 2 Bar Code Test Sheet and tap *Scan.* Verify that it read the code correctly.

    3.   Select *OK.*

    4.   Select *Exit* (tap the **X** to close).

Note: Do not power down the barcode module

- **Check for current OS, bootloader, and firmware versions.** (Tap Settings > System > System Information > System ID.) Make a note if they need to be updated during final test.

- **Continue on next slide**

Std, G, & GC - Preliminary Inspection, continued

- **Turn on the Wi-Fi** and verify that Wi-Fi networks are available. Turn off the Wi-Fi.

- **Turn on Bluetooth.** Tap *Settings > Connections > Bluetooth > Add new device*. Verify that it discovers the Bluetooth test device. Tap *Cancel* and close Bluetooth windows.

- **Press the Camera key.** Tap Menu and turn on the flash. Take a picture and verify that the camera and flash worked.

- **Perform Bubble test.** If unit fails leak test, try to identify the source of the leak so it can be addressed during the repair. **Ref: 12333-** Bubble-Test.TST.doc**

•Perform repairs, updates, final RMA test, and inspection.

GC & GCB - Preliminary Inspection, continued

- **Test touch screen function.** Tap on Start > Notes. Create a new note if needed. Tap the menu and check "Draw". Use your finger to move the slider bar up and down. Use your finger to draw an hour-glass shape that fills the screen. Draw a box around the hour-glass. Tap the menu and select *Undo Ink.*

- **Test the keys for correct "snap" and functions.** Tap on the Note menu and uncheck *Draw*. Start with the number keys, pressing each key 6 to 10 times while varying the angle with which you press the key. Follow with the ⇧ (shift) key plus **-** (this will give an * asterix) , the period key, the ▢ (Back) key, the ▢ (Enter) key, the ▢ (Tab) key, and the ▢ (Menu/insert date) key. Verify that the correct characters are displayed that that there are no double-entries. *Close and delete the note.* Test the *Camera* and *Home* keys last.
- **Turn on the Wi-Fi** and verify that Wi-Fi networks are available. Turn off the Wi-Fi.

- **Turn on Bluetooth.** Tap *Settings > Connections > Bluetooth > Add new device*. Verify that it discovers the Bluetooth test device. Tap *Cancel* and close Bluetooth windows.

- **Press the Camera key.** Tap Menu and turn on the flash. Take a picture and verify that the camera and flash worked.

- **Perform Bubble test.** If unit fails leak test, try to identify the source of the leak so it can be addressed during the repair. **Ref: 12333-** Bubble-Test.TST.doc**

- **Perform repairs, updates, final RMA test, and inspection.**

Install Wi-Fi Calibration

Test Instructions

1. Attach 12 volts external power.

2. Install *Wi-Fi Calibration* flash drive.

3. Select *Device and Install.*

4. **Do not select *OK.***

5. Hold down power key long enough to get the reset menu.

6. Select *Reset.*

7. Remove the flash drive.

If *OK* is selected after the Wi-Fi calibration, the unit will need to be clean-booted.

Install Wi-Fi Calibration

Test Instructions
Perform on new PCBAs prior to burn-in.

1. Plug 12-volt external power into the unit. Allow unit to boot up.

2. Install *Wi-Fi Calibration* flash drive.

3. Select *Device* and *Install.*

4. Place the UUT on an isolating surface such as a cardboard box so that the unit is 12 inches from any device or surface that could cause interference.

5. Select *OK.*

6. Remove the flash drive.

7. Select Windows   key.

8. Swipe the display to the *Calibrate Wi-Fi* icon. Tap the icon.

   Note: The icon may appear in different places with different units.

   The unit will calibrate the Wi-Fi.

9. Click *OK* on the *Success* screen.
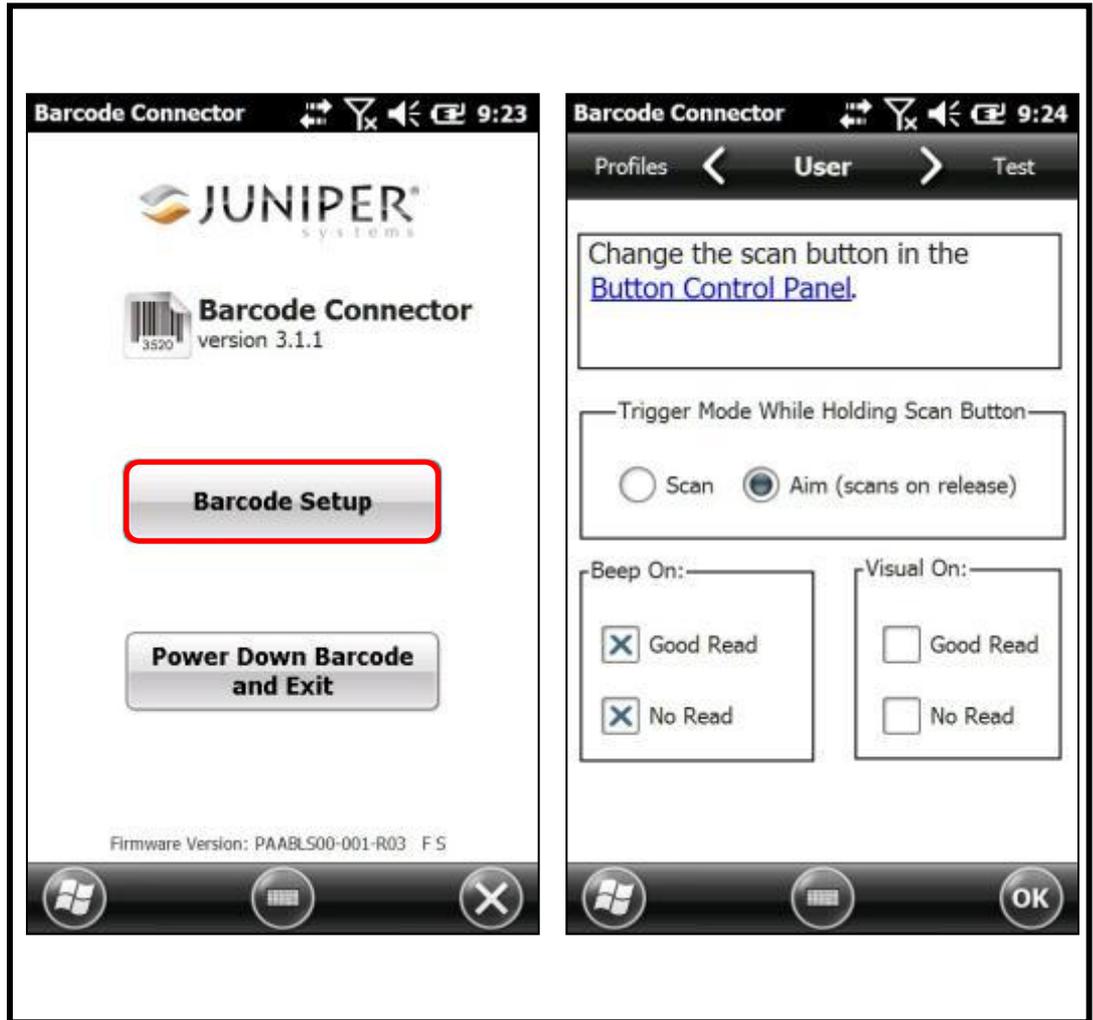
10. Remove 12-volt external power.

Run Barcode Setup

Test Instructions

1. When the unit restarts, the *Barcode Connector* menu will appear.

2. Select *Barcode Setup.*

3. Select *Aim.*

4. Select *OK.* ⊗

5. Select *Exit.*

Note: Do not power down the barcode module. The barcode function will be tested during the manual tests.

Barcode Connector ⇄ ▽ₓ ◀€ ☑ 9:23

JUNIPER systems

▊▊ **Barcode Connector**
3520 version 3.1.1

Barcode Setup

Power Down Barcode and Exit

Firmware Version: PAABLS00-001-R03 F S

Barcode Connector ⇄ ▽ₓ ◀€ ☑ 9:24

Profiles ❮ **User** ❯ Test

Change the scan button in the
Button Control Panel.

┌─Trigger Mode While Holding Scan Button─┐

○ Scan ⦿ Aim (scans on release)

┌Beep On:─┐   ┌Visual On:─┐
☒ Good Read   ☐ Good Read
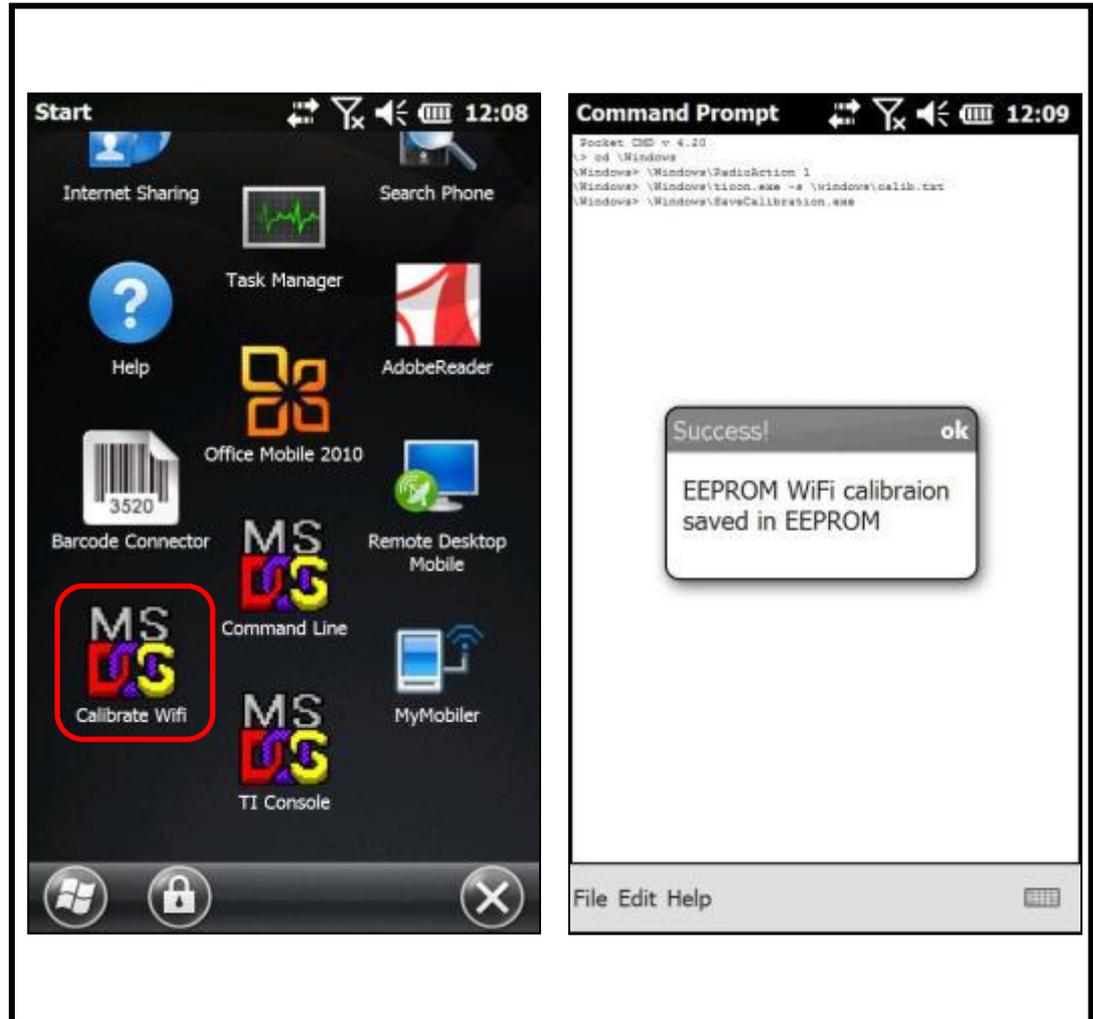☒ No Read   ☐ No Read

OK

Calibrate Wi-Fi

Test Instructions

1. Select Windows ⊞ key.

2. Swipe the display to the *Calibrate Wi-Fi* icon.

   Note: The icon may appear in different places with different units.

   The unit will calibrate the Wi-Fi.

3. Click *OK*.

Install Test Fixtures

Test Instructions

1. Suspend the UUT.

   Note: When installing the battery, ensure that the plus sign and arrow on the battery line up with similar marks on the UUT.

2. Install the following test fixtures :

   - Micro SD card

   - Battery (half-charged or less)

   - Battery door—secure two diagonally opposite screws

   - COM Loopback plug

   - Test USB drive

   - Audio jack

3. Plug in the micro-USB from the test computer (tablet).

4. Resume the UUT.

5. From the Home screen, turn off all the radios as applicable (GPS, Wi-Fi, Bluetooth, cell, etc.).

Prepare Unit for Chamber

Test Instructions

1. Attach battery door using all four screws.

2. If Gore-Tex patch is not already in place, clean the area around the vent hole at the top of the unit with alcohol and a Kimwipe. Let dry.

3. Attach a Gore-Tex patch over the vent hole.

Set Date and Time

Test Instructions

1. Place the unit in the chamber.

2. Insert 12-volt external power into the unit.

3. Allow the unit to boot.

4. Set the date and time on the unit.

Update Time   9:44

Time Zone:

GMT-7 Mt. Time (US & Canada)

Date:

12 / 16 / 2013

Time:

9 : 43 : 42   AM

OK

Run Chamber Tests

Test Instructions

1. Insert the Chamber Test (v1.1) flash drive into the USB port.

2. After the tests load, select *Start*.

3. Ensure the display reads, "*Waiting for 18:05 to start tests*."

4. Follow the instructions on the chamber to turn on and run chamber tests.

Archer2 Chamber 12:00

Burn-In | Bench

Status:

Time: 06/01/2013 00:00:38

☐ Check to run continuously.

☐ Start Test Immediately.

Test	#	Curr	Ave	Min
Bench	0	0.00	0.00	0.00
Volt	0	0.00	0.00	0.00
Amp	0	0.00	0.00	0.00
Btt. Tp	0	0.00	0.00	0.00
LCD Tp	0	0.00	0.00	0.00
Boot Tm	0	0.00	0.00	0.00

Start

OK | FILE

Remove Unit from Chamber

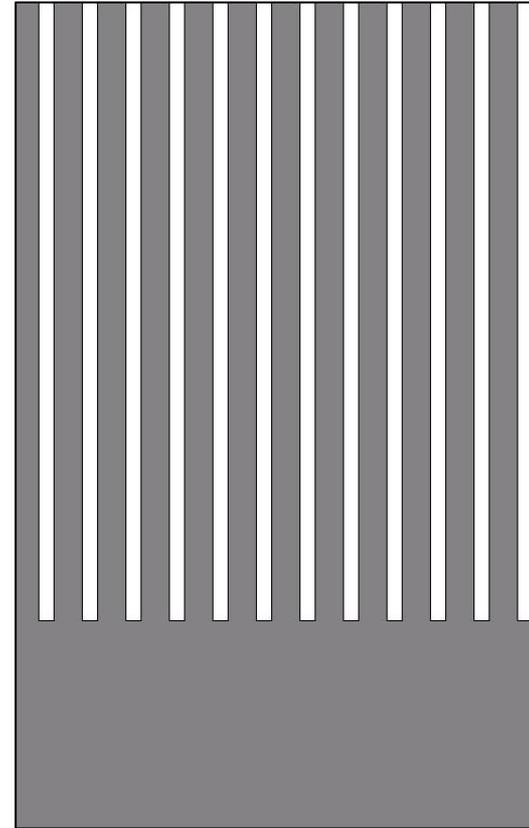| Parts List		
Qty	**JSPN**	**Description**

Assembly Instructions

DETERMINATION OF NOMINAL BENCHMARKS IS STILL IN PROCESS

1. Once the unit has successfully passed chamber testing, the screen will show the display shown at right.

2. Tap on this screen to reveal a dialog box that states that the unit has passed testing.

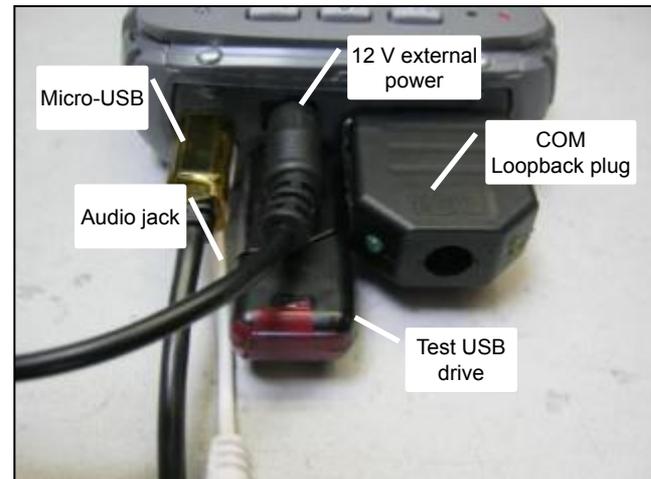**DETERMINATION OF NOMINAL BENCHMARKS IS STILL IN PROCESS**

Install Test Fixtures

Test Instructions

Note: When installing the battery, ensure that the plus sign and arrow on the battery line up with similar marks on the UUT.

1. Install the following test fixtures:

   - Micro SD card

   - Battery (half-charged or less)

   - Battery door—secure two diagonally opposite screws

   - COM Loopback plug

   - Test USB drive

   - Install Audio jack

   - 12 V external power

2. Plug in the micro-USB com cable from the test computer.

3. Resume the UUT.

4. From the Home screen, turn off all the radios as applicable (GPS, Wi-Fi, Bluetooth, cell, etc.).
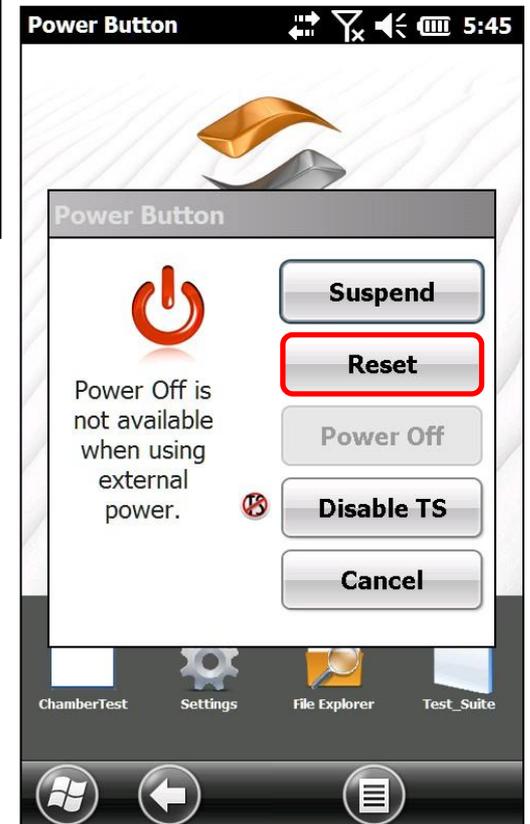

cell Battery Company
P/N 2EXL7431
ium Ion Rechargeable Battery

Micro-USB

12 V external power

COM Loopback plug

Audio jack

Test USB drive

Install Wi-Fi Calibration

Test Instructions

1. Remove all test connections except external power.

2. Install *Wi-Fi Calibration* flash drive.

3. Select *Device* and *Install.*

4. **Do not select *OK.***

5. Hold down power key long enough to get the reset menu.

6. Select *Reset.*

7. Remove the flash drive.

If *OK* is selected after the Wi-Fi calibration, the unit will need to be clean-booted.
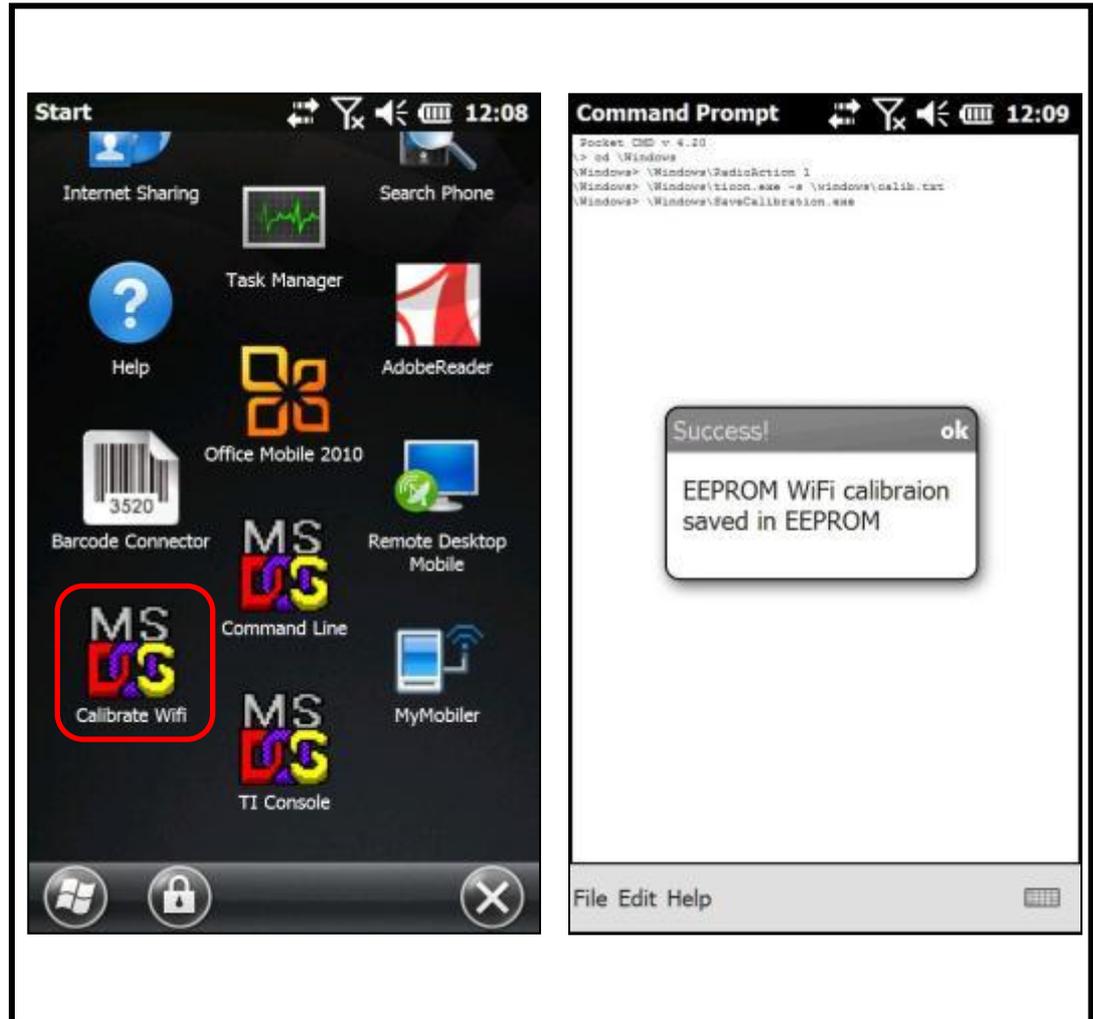
Calibrate Wi-Fi

Test Instructions

1. Select Windows ⊞ key.

2. Swipe the display to the *Calibrate Wi-Fi* icon.

   Note: The icon may appear in different places with different units.

   The unit will calibrate the Wi-Fi.

3. Click *OK*.

Success!   ok

EEPROM WiFi calibraion saved in EEPROM

Start Test Suite on UUT

1. Install your USB Test drive. Start *File Explorer* and **copy the *TestSoft* folder from *Hard* Disk to *My Device*.** Go into the *TestSoft* folder and tap on ***AR2_AG2_Test_Suite.exe***.

2. Select *All Tests*.

3. Verify that *Serial* number is correct. **Use link to Update SN# in the *Restore* tab if necessary.**

4. Tap on the *COM Test* button and observe that both the red and green ground test LEDS briefly turn on. Observe that **"Passed"** is displayed

5. Run the following tests in turn: *SD, USB, BT, Wi-Fi, Cell* (if applicable), and *Accel*. Observe that each test shows **"Passed"** before moving to the next test.

6. **Bar Code units only:** Aim the Bar Code scanner at the **Archer 2 Bar Code Test Sheet.** Tap on **ExpPod**. Observe that **"Passed"** is displayed.

7. **Remove the USB test drive before running the *LCD* and *Battery* tests.** Observe that each test shows **"Passed"**.

8. Tap on **Audio** and follow the on-screen instructions. Observe that **"Passed"** is displayed.

File Explorer		2:27
TestSoft ▾		Name ▾
Allegro2_INI	3/24/15	261B
AR2_AG2_Test...	3/24/15	169K
Archer2_INI	10/28/14	261B
Install_AR2_JS...	3/24/15	6.50K
MESAAP	3/24/15	562B
test	4/9/15	43.5K

Up — Menu — ✕

Test Suite Ver 2.1 8/2 2:42

Test Results

Serial Number:	142418
COM Test:	NOT TESTED
SD Card Test:	NOT TESTED
USB Test:	NOT TESTED
BT Test:	NOT TESTED
Wi-Fi Test:	NOT TESTED
Cell Test:	NOT TESTED
GPS Test:	NOT TESTED
ExpPodTest:	NOT TESTED
Accel Test:	NOT TESTED
LCD Test:	NOT TESTED
BatteryTest:	NOT TESTED
Audio Jack Test:	NOT TESTED
Speaker Test:	NOT TESTED
Touch Test:	NOT TESTED
Keys Test:	NOT TESTED
Camera Test:	NOT TESTED
Dock Test:	NOT TESTED
Chamber Test:	NOT TESTED
Barcode:	Archer2 Barcode Test

Results | Config | Manual Test ◀ ▶

Main Menu — Reset Tests — OK

NOTE: If a test fails, re-run the test. If it continues to fail, run *Desktop Portion* test to see error messages.

Bar Code Test

Press ESC to return

Update Serial Number

To Update Serial Number:

1. Install your USB Test drive. Start *File Explorer* and **copy the *TestSoft* folder from *Hard* Disk to *My Device*.** Go into the *TestSoft* folder and tap on **AR2_AG2_Test_Suite.exe**.

2. Select **All Tests**.

3. Click on the **Restore** tab.

4. Enter the new serial number in the **Serial #:** field.

5. Tap on **Save TS.**

6. Verify that **Saved** is shown in the window to the right of *Restore ALL*.

7. **Reset the handheld**

Test Suite Ver 1.8   1: 12:41

Restore Test Results

- ⭕ Standard (23425)
- ⭕ Geo (23426)
- ⭕ Geo Cell (23427)   [SaveTR]
- ⭕ Geo Barcode (23431)
- ⭕ Geo Cell Barcode (23432)

Bluetooth: [0017E928ADC9]   [Save BT]
Test Status: [PASSED]   [Save TS]
Serial #: [   ]   [Save SN]
[Restore ALL]   [   ]

Manual Tests | Restore | IO M ◀ ▶

(Main Menu) (⌨) (Reset Tests) (OK)

Test Suite Ver 1.8   1: 12:40

Restore Test Results

- ⭕ Standard (23425)
- ⭕ Geo (23426)
- ⭕ Geo Cell (23427)   [SaveTR]
- ⭕ Geo Barcode (23431)
- ⭕ Geo Cell Barcode (23432)

Bluetooth: [0017E928ADC9]   [Save BT]
Test Status: [PASSED]   [Save TS]
Serial #: [142418]   [Save SN]
[Restore ALL]   [Saved]

Manual Tests | Restore | IO M ◀ ▶

(Main Menu) (⌨) (Reset Tests) (OK)

Test Suite, Continued

1. Tap on the **Speaker** button and follow the on-screen instructions. Observe that **"Passed"** is displayed.

2. Tap on the **Touch** button and the follow on-screen instructions. Observe that **"Passed"** is displayed.

3. Tap on the **Keys** button and the follow on-screen instructions. Observe that **"Passed"** is displayed. If you press the wrong key, tap *Undo* and try again.

4. **Geo units only:** Tap on **Camera** > Menu > Flash > On. Tap on the **Camera** button in the Test Suite. Follow the on-screen instructions. Observe that camera flash works in each test, that pictures are clear and focused. Observe that **"Passed"** is displayed when the tests are complete.

5. **Geo units only:** Hold the UUT under a GPS repeater or take the unit outside where it has a clear view of the sky. Tap on the **GPS** button and observe that **"Passed"** is displayed. This test may take a few minutes as GPS creates a satellite almanac.
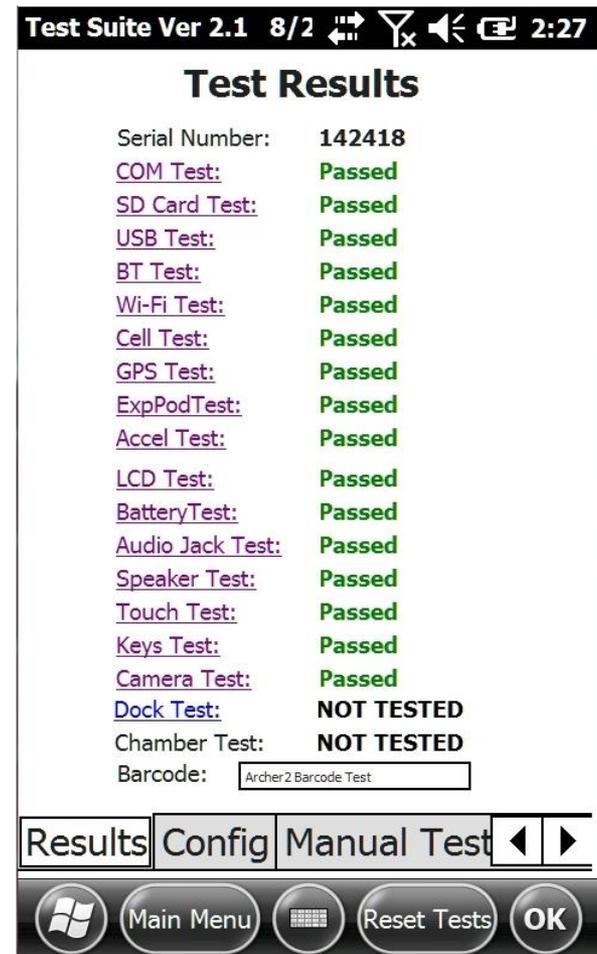
The *Dock* and *Chamber* tests in the Test Suite are for Manufacturing only. *The Dock Test for Repair Centers is found in the next slide.*

Verify that all applicable tests **"Passed"** .

Tap OK to close the test suite. Open My Device and delete the *TestSoft* folder.
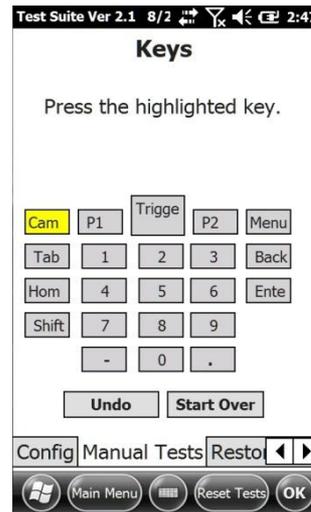
NOTE: If a test fails, re-run the test. If it continues to fail, run Desktop Portion test to see error messages.

Test Results	
Serial Number:	142418
COM Test:	Passed
SD Card Test:	Passed
USB Test:	Passed
BT Test:	Passed
Wi-Fi Test:	Passed
Cell Test:	Passed
GPS Test:	Passed
ExpPodTest:	Passed
Accel Test:	Passed
LCD Test:	Passed
BatteryTest:	Passed
Audio Jack Test:	Passed
Speaker Test:	Passed
Touch Test:	Passed
Keys Test:	Passed
Camera Test:	Passed
Dock Test:	NOT TESTED
Chamber Test:	NOT TESTED
Barcode:	Archer2 Barcode Test

Test (with docking I/O modules only)

Dock Test (with docking I/O modules only)

NOTE: The Ethernet dock will not communicate properly if the USB and network cables are plugged in at the same time. The Ethernet Dock must have a 24076 20W wall charger plugged in.

1. Plug the dock's **USB cable** into your PC. *DO NOT PLUG YOUR NETWORK CABLE IN AT THIS TIME.*

2. Make sure that Wi-Fi and cell modem on the Archer are turned off. Install the Archer in the Ethernet dock.

3. Verify that that the Red charging LED on the Archer turns on and that the External Power indicator appears at the top of the screen.

4. Verify that the unit makes a Windows Mobile Device Center or Activesync connection to the PC.

5. **Remove the unit from the dock and suspend it for 15 seconds while you unplug the USB cable from your PC**

6. Plug the **network cable** into the dock.

4. Place the unit back in the dock. Tap on *Start* and open *Internet Explorer*. Tap on the *Favorites* star and select *Bing*. Verify that the unit connects to the website.

5. Remove the unit from the dock and return IE to its Home page. **Unplug the network cable.**

Test Suite, Continued

1. Tap on the **Speaker** button and follow the on-screen instructions. Observe that **"Passed"** is displayed.

2. Tap on the **Touch** button and the follow on-screen instructions. Observe that **"Passed"** is displayed.

3. Tap on the **Keys** button and the follow on-screen instructions. Observe that **"Passed"** is displayed.

4. Geo units only: Tap on **Camera** > Menu > Flash > On. Tap on the **Camera** button in the Test Suite. Follow the on-screen instructions. Observe that camera flash works in each test, that pictures are clear and focused. Observe that **"Passed"** is displayed when the tests are complete.

5. Geo units only: Hold the UUT under a GPS repeater or take the unit outside where it has a clear view of the sky. Tap on the **GPS** button and observe that **"Passed"** is displayed. This test may take a few minutes as GPS creates a satellite almanac.

Verify that all applicable tests **"Passed"** .

Tap OK to close the Test Suite.

NOTE: If a test fails, re-run the test. If it continues to fail, run Desktop Portion test to see error messages.

Archer2 Test Suite		
Test Results		
Serial Number:	142418	
COM Test:	Passed	COM
SD Test:	Passed	SD
USB Test:	Passed	USB
BT Test:	Passed	BT
Wifi Test:	Passed	Wifi
Cell Test:	Passed	Cell
GPS Test:	Passed	GPS
ExpPod Test:	Passed	ExpPod
Accelerometer Test:	Passed	Accel
LCDTest:	Passed	LCD
Battery Test:	Passed	Battery
Audio Jack Test:	Passed	Audio
Speaker/MIC Test:	Passed	Speaker
TouchScreen Test:	Passed	Touch
Keys Test:	Passed	Keys
Camera Test:	Passed	Camera
Chamber Test:	Passed	

Barcode: Archer2 Barcode Test

Results Config Manual Test ◄ ►

Ver 1.3b Reset Tests OK

If you replaced Main PCBA, Update Wi-Fi Configuration and Model Number

Perform Wi-Fi configuration & Model update if you replaced the Main PCBA.

1. Install USB Test drive in Archer 2.

2. Plug 12V wall charger into unit.

3. Install your USB Test drive. Start *File Explorer* and copy the *TestSoft* folder from *Hard* Disk to *My Device.* Go into the *TestSoft* folder on *My Device* and tap on ***AR2_AG2_Test_Suite.exe***.

4. Tap on *Config*. Verify **Wi-Fi Type** is correct.

5. **To change:** Tap on the ***Wi-Fi Type*** menu arrow and select *International* or *US*. **Selecting *None* will disable Wi-Fi.**

6. Verify that **Model Number** is correct.

7. **To change:** Tap in the Model Number field and enter the correct number from the list shown at right.

Continue on next slide.

Archer 2 Model #'s	AR2 Model #
AR2 Standard	23600
AR2 Geo	23601
AR2 Geo Cell	23603
AR2 Geo Barcode	23602
AR2 Geo Cell Barcode	23605

Topcon FC500	FC500 Model#
FC500 STD US/N.AM Wifi	FC500001
FC500 STD EU/CE Wifi	FC500002
FC500 GEO US/N.AM Wifi	FC500003
FC500 GEO EU/CE Wifi	FC500004
FC500 GEO Cell US/N.AM Wifi	FC500005
FC500 GEO Cell EU/CE Wifi	FC500006

Save Wi-Fi and Model Changes

1. Tap *Save*. Wait for "Saved" to appear in window.

2. Tap OK to close test program.

3. Hold down the power key until Power Button menu appears. Reset the handheld.

4. When unit completes reboot, tap System Info > System ID. Confirm that Model Number is correct.

5. System Info > Wi-Fi. Confirm that Region is correct (US or International).

6. Proceed with RMA test.

Test Suite Ver 2.1 8/2   2:33

OS Version: 1.6.3 WWE

Boot Version: 1.6.3

Test Status: Passed

Model Number: 23605

Wifi Type: International

Save   Saved

Config | Manual Tests | Restor ◄ ►

Main Menu   Reset Tests   OK

Power Button   2:34

OS Version: 1.6.3 WWE

Power Button

Power Off is not available when using external power.

Suspend

Reset

Power Off

Disable TS

Cancel

Config | Manual Tests | Restor ◄ ►

Main Menu   Reset Tests   OK

Update OS & Firmware

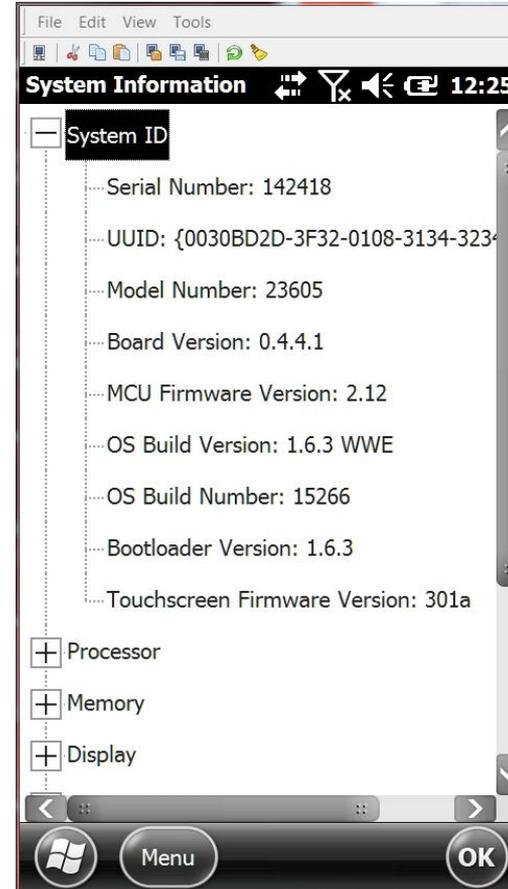**Important: Plug 12V external power into UUT before performing update.**

Verify that OS, bootloader, and firmware versions are current.

To update, connect UUT to your PC with USB cable and make a Windows Mobile Device Center connection.

1. Run the applicable language OS installer on your PC. For English OS, run the **Archer-2-OS-***-English.exe**. Follow on-screen instructions. Click **GREEN** check box to complete each step.

2. Unit will reboot & display *Updating Firmware* followed by *Updating OS*.

3. Unit may require additional reboots to reload barcode .CABs, etc. Tap OK when prompted.

4. After the device reboots, check OS, bootloaders, and firmware versions to confirm that the updates were successful. (Settings > System > System Information > System ID.)

Confirm OS updated correctly.

Example:

File Edit View Tools

System Information 12:25

System ID

Serial Number: 142418

UUID: {0030BD2D-3F32-0108-3134-3234

Model Number: 23605

Board Version: 0.4.4.1

MCU Firmware Version: 2.12

OS Build Version: 1.6.3 WWE

OS Build Number: 15266

Bootloader Version: 1.6.3

Touchscreen Firmware Version: 301a

Processor

Memory

Display

Menu   OK

Update Touch Screen Firmware

Important: Plug 12V external power into UUT before performing update.
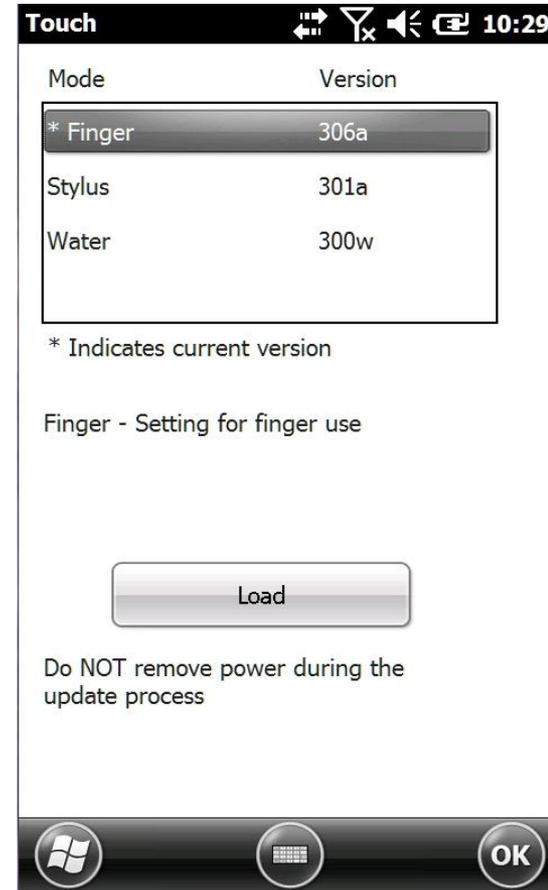
The 306a, 301a, & 300w touch screen firmware comes standard with OS 1.5.2. You should never have to update the touch screen firmware unless the customer will not agree to updating to OS 1.5.2.

OS 1.5.2 or above is required for the 3** touch screen firmware..

1. To update, connect UUT to your PC with USB cable and make a Windows Mobile Device Center connection.

2. To install, copy the *AR2-Touch-Patch.CAB* file to the Archer 2, locate the file in File Explorer on the unit.

3. Tap on the file. The system will soft Reset automatically.

4. After installation, tap on *Start > Settings > System > Touch*, select a new profile, then tap *Load*.

Select Touch Screen Firmware Version

Example:

Mode	Version
* Finger	306a
Stylus	301a
Water	300w

* Indicates current version

Finger - Setting for finger use

Load

Do NOT remove power during the update process

# Final Cell Modem Test - *Only if cell problems were reported*

Confirm that cell modem & SIM card are working.

Note: This test requires a functioning SIM card for your area. To install the SIM card, you must *Power-Off,* then remove battery. Install the SIM card in the SIM card tray, reinstall battery, and boot the UUT.

1. In Home screen, tap on the **3G Modem** widget. Observe that the modem powers-up and displays **Available**. This may take a couple of minutes.

2. Tap on Start > Internet Explorer. Tap on the *Favorites* star and select *Bing*.

3. Observe that the unit connects to the website. Close Internet Explorer and turn off the 3G Modem.

This test confirms that the cell modem and SIM are working, not just available.
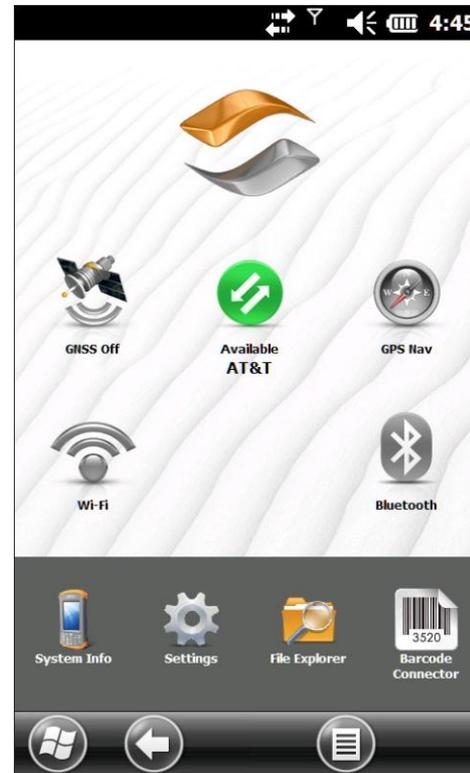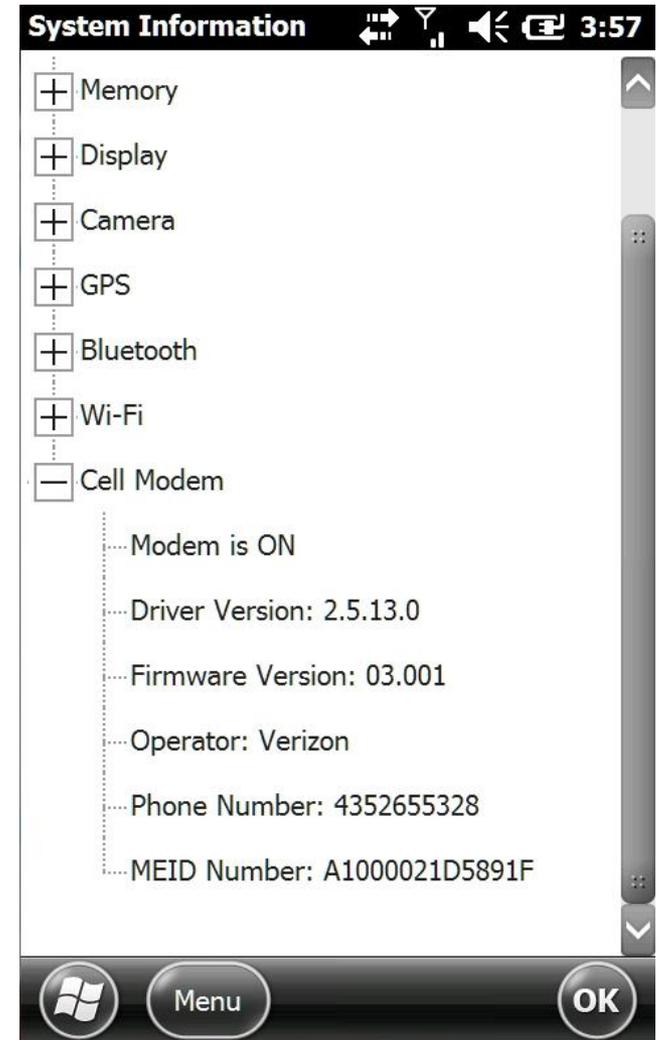
IMPORTANT: 24771 CDMA Cell Modem Registration

NOTE: If you have replaced a 24771 CDMA modem, the MEID numbers from the new modem must be entered in the Juniper Systems Quality Database and registered on the Verizon Portal.

Send the Archer's serial number and the MEID number to the Mfg. Support Software Engineer and Mfg. Support Group Manager. They will register the new modem within 24 hours (M-F).

Repair Centers: Contact your JS Repair Center Account Manager with the information; they will pass it on to Mfg. Support.

System Information   3:57

+ Memory
+ Display
+ Camera
+ GPS
+ Bluetooth
+ Wi-Fi
− Cell Modem
 ┊── Modem is ON
 ┊── Driver Version: 2.5.13.0
 ┊── Firmware Version: 03.001
 ┊── Operator: Verizon
 ┊── Phone Number: 4352655328
 ┊── MEID Number: A1000021D5891F

Menu   OK

Start Desktop Portion Test Suite – Burn new SN# / Diagnostic Tests

Burn new Serial number and run

1. From the test station computer desktop, open the Archer 2 test suite. The display shown at right will appear.

2. Scan the unit serial number into the serial number box in the upper left.

3. Select *Run Tests*.

UPDATE Desktop Portion Test Suite to Burn New SN# / Diagnostic Tests

Burn Serial Number on New PCBA - Diagnostics Test

Connect UUT to your PC with USB cable and make a Windows Mobile Device Center connection. Install your AR2 USB Test drive in PC. Navigate to USB:\Archer 2\23407 AR2 Test Suite V 1.3c\Desktop Portion

1. Run the Archer2_PC_Test_Suite.exe on your PC. The display shown at right will appear.

    ⚠️ Make sure the barcode scanner is aimed at the barcode test target before starting the tests. You may not have time to aim it manually.

2. **To start the tests and to burn a serial number for a new PCBA**, you first must type the SN# in the *Serial* window, then click the *Run Tests* button.

3. This test program will display diagnostic errors in the *Errors* column. These may help you identify and correct a problem.

4. Click *Reset Tests* to clear results and start again.

5. Disconnect USB cable.

Archer2 PC Test Suite Ver 1.0 10/28/13

Test:		Tests Results:	Errors:	Test:		Tests Results:	Errors:
Test Serial	Serial:	NOT SAVED		Test ExpPod	ExpPod:	NOT TESTED	
Test COM	COM:	NOT TESTED		Test Accel	Accelerometer:	NOT TESTED	
Test SD	Micro SD Card:	NOT TESTED		Test LCD	LCD:	NOT TESTED	
Test USB	USB drive:	NOT TESTED		Test Battery	Battery:	NOT TESTED	
Test BT	BT:	NOT TESTED		Test Audio	Audio Jack:	NOT TESTED	
Test Wifi	Wifi:	NOT TESTED		Test Speaker	Speaker / MIC:	NOT TESTED	
Test Cell	Cell:	NOT TESTED		Test Touch	TouchScreen:	NOT TESTED	
Test GPS	GPS:	NOT TESTED		Test Keys	Keyboard:	NOT TESTED	

Connection Status: Connected

Progam Status:

Run Tests

Reset Tests   **Reconnect**

NOTE: The Desktop Portion tests are automated, but the *Audio Jack, Speaker/Mic, Touchscreen*, and *Keyboard* tests require your input on the handheld. The Desktop test will install the handheld test suite on the UUT. When the tests are complete, the *Test Soft* folder <u>must</u> be manually deleted from the UUT's *My Device*.

Use Desktop Test Suite to see Failure Diagnostics

If unit fails manual tests, use Desktop Test Suite to view diagnostic error messages:

Install required test fixtures on the Allegro.

Connect the UUT to your PC with micro USB cable. Make a Windows Mobile Device Center connection.

Navigate to the *Archer 2 23407 AR2_AG2 Test Suite V *.** folder on your PC.

Run the *Service_AR2_AG2_PC_Test_Suite*.

1. Check the *Archer2* box under *Platform.*

2. Enter the SN# of the UUT in the *Serial* window, then click the *Run Tests* button.

NOTE: If you get an error stating that the firmware versions are out of date, click the button to run the tests anyway.

1. This test program will display diagnostic errors in the *Errors* column. These may help you identify and correct a problem.

2. If needed, click *Reset Tests* to clear results and start again.

⚠ Disconnect USB cable from UUT and delete *TestSoft* from UUT's *My Device*.

Service AR2_AG2 PC Test Suite Ver 1.8 8 Dec 14
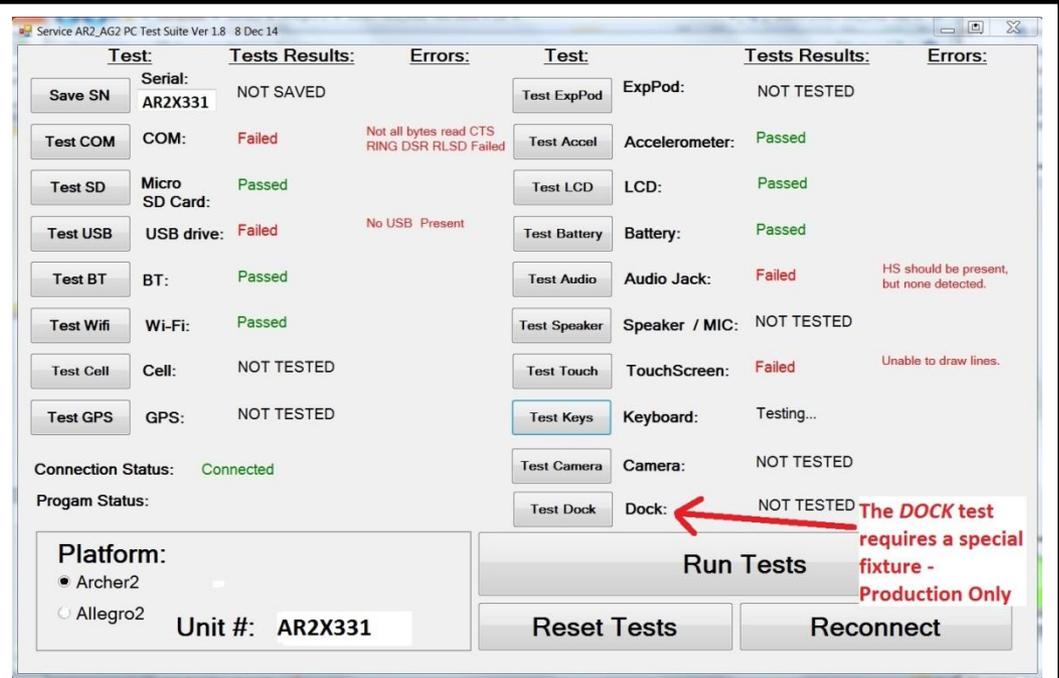
Test:		Tests Results:	Errors:	Test:		Tests Results:	Errors:
Save SN	Serial: AR2X331	NOT SAVED		Test ExpPod	ExpPod:	NOT TESTED	
Test COM	COM:	Failed	Not all bytes read CTS RING DSR RLSD Failed	Test Accel	Accelerometer:	Passed	
Test SD	Micro SD Card:	Passed		Test LCD	LCD:	Passed	
Test USB	USB drive:	Failed	No USB Present	Test Battery	Battery:	Passed	
Test BT	BT:	Passed		Test Audio	Audio Jack:	Failed	HS should be present, but none detected.
Test Wifi	Wi-Fi:	Passed		Test Speaker	Speaker / MIC:	NOT TESTED	
Test Cell	Cell:	NOT TESTED		Test Touch	TouchScreen:	Failed	Unable to draw lines.
Test GPS	GPS:	NOT TESTED		Test Keys	Keyboard:	Testing...	
Connection Status:		Connected		Test Camera	Camera:	NOT TESTED	
Progam Status:				Test Dock	Dock:	NOT TESTED	

Platform:
- ● Archer2
- ○ Allegro2

Unit #: AR2X331

Run Tests

Reset Tests   **Reconnect**

The DOCK test requires a special fixture - Production Only

NOTE: Remove the USB drive before running the *LCD* test; the test may fail otherwise. If the *LCD* test fails the first time, run it again.

The *Audio Jack, Speaker/Mic, Touchscreen*, *Keyboard, & Camera* tests require your input on the handheld. The Desktop test will install the handheld test suite on the UUT.

When the tests are complete, the *Test Soft* folder <u>must</u> be manually deleted from the UUT's *My Device*.

Perform RMA Leak Test

Parts List		
Qty	**JSPN**	**Description**
	24615	AR2 Leak-Test Door
		Bubble Test Fixture

Ref: 12333-** Bubble-Test.TST.doc

...rform leak test on r...d unit _before_ performing o... ...sts.

1. Refer to the 12333-**
   Bubble-Test.TST.doc for
   instructions.

2. If the unit fails, it will need to be
   re-worked until it passes.

3. **NOTE: Do not install 24470
   hydrophobic vent patch until
   RMA tests are complete.**

Apply Product and Void Labels

Parts List		
Qty	**JSPN**	**Description**
1		Product Label
1	13230	Tamper-Proof (Void) Label

1. Verify product label is correct. Install new label as needed.

   REF: 23400-** AR2 SC FCF document for the correct label.

1. Place the *Void* label lengthwise across the seam at the top of the unit as shown.

Final Inspection

1. Remove all test fixtures. **Do not forget test batteries and test SD cards.**

2. Reinstall customer's cards (if any).

3. Reinstall customer's battery and battery door.

4.   🔴   **Install 24470 Hydrophobic Vent patch**.

5. Install top & bottom bumpers & stylus.

6. Clean the unit (including bumpers, elastomer, keyboard bezel, and door) with Greased Lightning Multi-Purpose Cleaner, Windex, or mild soap & water.

7. Inspect unit for any flaws or missing parts, scratches, etc.

8. Complete RMA paperwork.

9. Confirm unit is Powered Off.

10. Confirm that all accessories received with the UUT are in the box before shipping.

Test Windows Mobile Device Center Connection

WMDC Connection Test

Setup Windows Mobile Device Center:

1. Start Windows Mobile Device Center. Click on *Mobile Device Settings > Connection Settings*.

2. Check the box at the bottom to "*Allow data connections on device when connected to PC*"

Test WMDC Connection:

1. Plug in the micro-USB comm cable from the test computer.

2. Verify that unit establishes a Windows Mobile Device Center connection.

3. Disconnect cable from the UUT if no further tests need to be run from PC.

FC-500's ONLY - FC-500 JSCAB Update

Assembly Instructions

If you have replaced the programmed internal microSD card on an FC-500, you must perform the following FC-500.CAB update to install the Topcon splash screens and change the I/O configuration to enable the FC-500 keyboard.

NOTE: A 24618 FC-500 KEYBOARD ASSEMBLY MUST BE INSTALLED BEFORE PERFORMING THIS UPDATE

1. Copy all files in the FC500 JSCAB Install folder to the root directory of a microSD card.

2. Ensure there are no other files (folders are fine) on the root of the SD card.

3. Install the SD card in the FC-500.

4. Reset the FC-500.

.

STEP TITLE

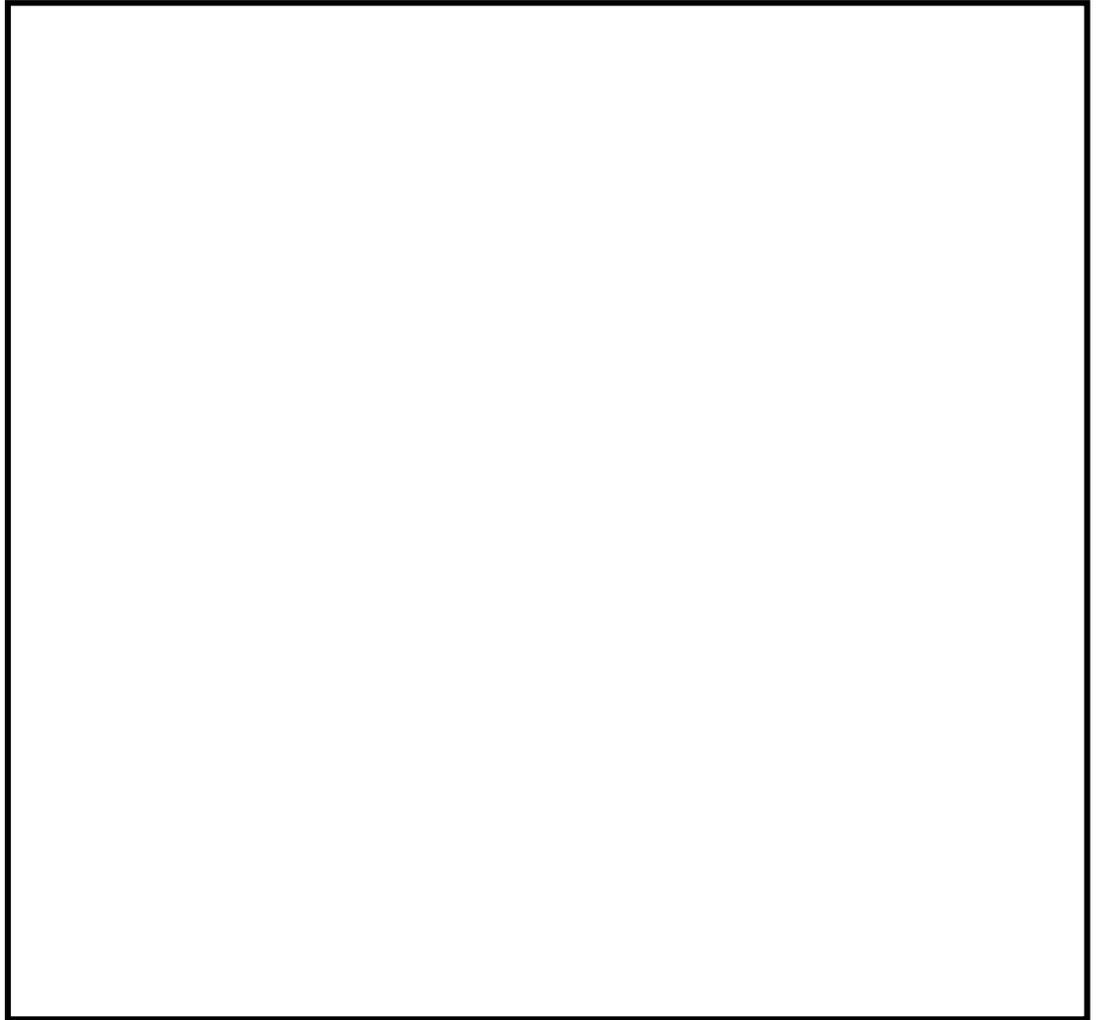| Parts List		
Qty	**JSPN**	**Description**

Assembly Instructions

This is to have the assembler check something **before** the step is done

1. Place assembly instructions here.

This is to have the assembler check something **after** the step is done

STEP TITLE

Parts List		
Qty	JSPN	Description

Assembly Instructions

This is to have the assembler check something **before** the step is done

1. Place assembly instructions here.

This is to have the assembler check something **after** the step is done

STEP TITLE

Parts List		
Qty	**JSPN**	**Description**

Assembly Instructions

This is to have the assembler check something **before** the step is done
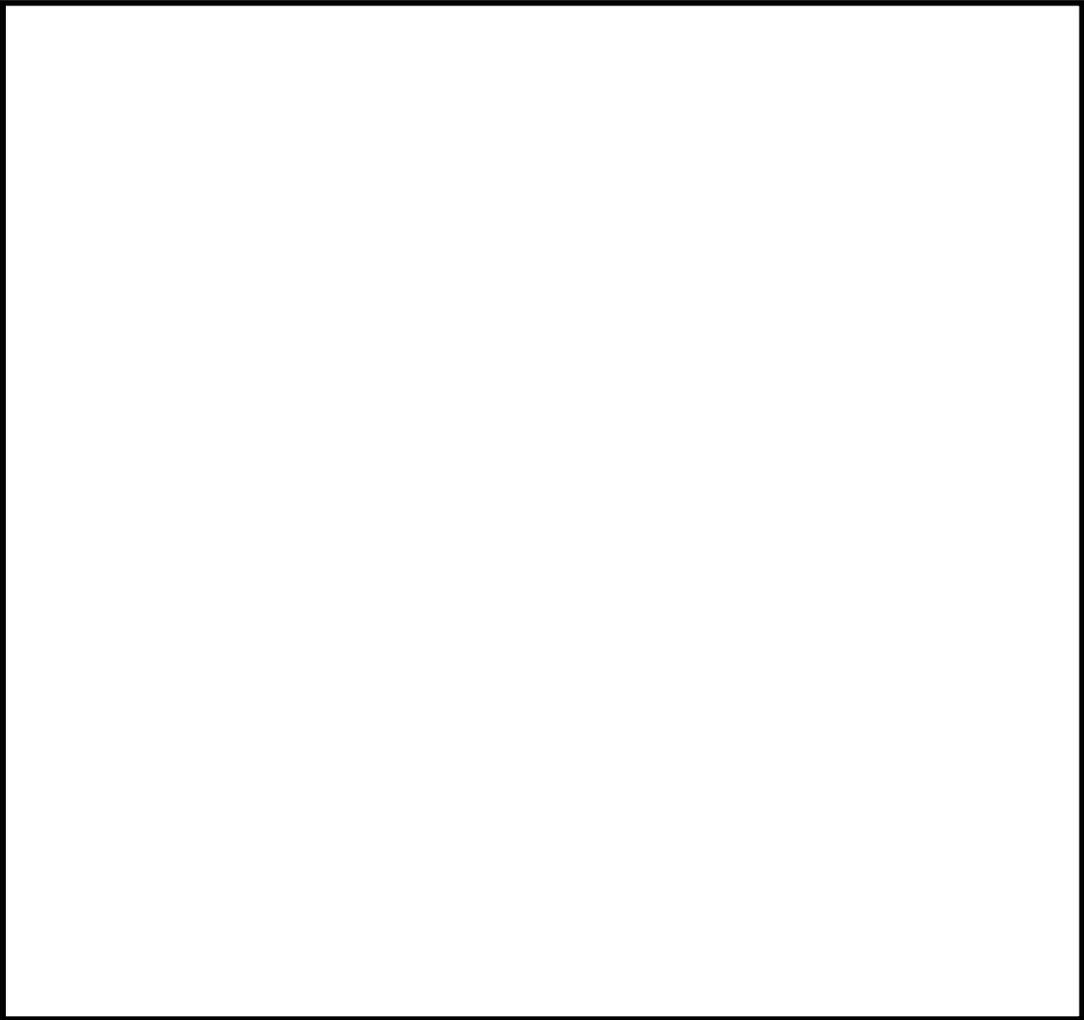
1. Place assembly instructions here.

This is to have the assembler check something **after** the step is done

STEP TITLE

Parts List		
Qty	**JSPN**	**Description**

Assembly Instructions

This is to have the assembler check something **<u>before</u>** the step is done

1. Place assembly instructions here.

This is to have the assembler check something **<u>after</u>** the step is done