

# SurfBeam 2 Modem Test

## Summary

Use the Satellite **Modem Test** to differentiate between a satellite modem problem and an on-site cabling or customer power problem. In addition, it tests for modem LED indicator light failures and physical damage.

Tests for:

### **Modem failures**

- Physical damage
- Modem boot-up failure
- No power to modem
- Connector failure
- Modem Ethernet connection failure

### **Customer cabling/power failures**

- Failure in the customer power source or customer provided Power Surge Protection devices
- Failure in the customer Ethernet cable

This Job Aid covers:

[Tools required](#)

[Required Escalation Data](#)

[The Modem Test and Software Downloads](#)

[Test Detail](#)

This Job Aid supports all Technician audiences.

# Tools required

- Power extension cord
- Volt-Ohm meter
- Technician laptop computer
- Ethernet replacement cable
- Replacement modem

# Required Escalation Data

If satellite modem is replaced:

- Modem MAC address of failed modem
- Modem MAC address of new modem
- Test run results and result actions

# The Modem Test and Software Downloads

Recall that after achieving Modem Lock, the network determines whether the modem needs to download new firmware. **If the modem begins to download firmware, it delays whatever process is occurring until the download completes. Always allow the modem to complete the download.** We recommend that Technicians use the Graphical User Interface (GUI) to watch the progression of Modem Lock from the Basic Status page (<http://192.168.100.1>)

Important! Do **not** replace a modem to avoid software downloads. Contact Support if a modem appears to have a failure related to a new download (i.e., it fails to reboot after a download completes, continuously downloads, etc. See Step 5.)

# Test Detail

Review modem for any physical damage, such as

- Cracked case
- AC/DC power cable damage
- Water marks
- Power block damage

If no physical damage is apparent, move on to “Modem POST (Power On Self-Test)”

If physical damage is apparent, validate the repair using the **Modem Lock Test**



Modem POST (Power On Self-Test)

Disconnect the modem AC power cord from the power source to power down the modem

If present, disconnect customer provided Power Surge Protection device. Do not use a Power Surge Protection device during this test.

Disconnect all cables from the modem. (Coax and Ethernet)

Reconnect the modem AC power cord to the power source to boot up the modem, and observe the modem LEDs:

<b>If</b>	<b>Then</b>
All LEDs display solid blue for two seconds, then the 2nd, 3rd, and 4th LEDs go dark, followed by the 2nd LED flashing once per second	Go to "Test Modem Power Connections"
The power LED does not light	Use Volt-Ohm meter to test electrical outlet to determine if the outlet provides electricity: <ul style="list-style-type: none"><li>• If there is power, validate the repair using the Modem Lock Test</li><li>• If there is no power, use your electrical extension cord to move to another power source and restart the Modem Test</li></ul>
The LEDs displays solid blue, but the 2nd LED does not begin flashing	Validate the repair using the Modem Lock Test
All LEDs blink in unison: POST (Power on Self-Test) failure	Validate the repair using the Modem Lock Test

Test Modem Power Connections:

**Preparation:**

The Modem is powered, the power LED displays solid blue and the 2nd LED flashes. Coax and Ethernet cables are still disconnected.

**Carry out the Tests**

Modem: Power cable wiggle test:

- Observe the modem power LED
- Grasp power cable approximately 3 inches from the back of the modem
- Slowly move the cable up-down and left-right, just enough to stress the cable without pulling
  - If modem power LED display remains solid blue, then continue
  - If modem power LED display flutters or goes on/off, validate the repair using the **Modem Lock Test**

Power Block: Power cable wiggle test:

- Observe the modem power LED
- Grasp AC power cable approximately 3 inches from modem power block
- Slowly move the cable up-down and left-right, just enough to stress the cable without pulling
  - If modem power LED display remains solid blue, go to "Test Modem Ethernet Connections"
  - If modem power LED display flutters or goes on/off, validate the repair using the **Modem Lock Test**

Test Modem Ethernet Connections:

**Preparation:**

Power down the modem.

Reconnect the coax.

Power up the modem again, and obtain Modem Lock.

### **Carry out the Test:**

Connect your laptop computer to the modem Ethernet port with the Ethernet cable

Boot-up or reboot your laptop

Observe the modem Ethernet (4<sup>th</sup>) LED:

- If the modem Ethernet LED displays dark:
  - Exchange customer Ethernet cable for replacement Ethernet cable
  - Observe modem Ethernet LED:
    - If modem Ethernet displays blue, continue
    - If modem Ethernet LED continues to display dark, validate the repair using the **Modem Lock Test**
- If the LED displays solid blue and never flashes, validate the repair using the **Modem Lock Test**
- If the LED displays solid blue and with occasional flashing, validate the repair using the **Modem Lock Test**

Test Modem Browser Interface/Software Download:

### **Preparation:**

After all previous tests pass, power off modem

Attach the Ethernet cable between the modem and your laptop computer

Power on modem

### **Carry out the Test:**

Open the computer browser, go to URL: **http://192.168.100.1**

Observe the browser display:

- If the GUI displays, continue
- If the GUI does not display:
- Validate that the computer/IP settings are correct
  - If yes, validate the repair using the **Modem Lock Test**
  - If no, correct issue and continue

Click the Modem button to change the GUI to the Modem/IFL Cable Status page. Watch the progress of the status indicators and the status text, and wait for the Online status. Wait 20 seconds to see if the status text changes to Software Download.

- If yes, confirm Software Download status by observing the 2<sup>nd</sup> and 4<sup>th</sup> LEDs. These LEDs will blink; the 4<sup>th</sup> LED blinking twice as fast as the 2<sup>nd</sup>.

Wait for software to complete (10-20 minutes):

- If software download does not complete, validate the repair using the **Modem Lock Test**.
- If software download continuously repeats, call Installer Relations to verify a network outage, then restart Modem test.

Validate the repair using the **Modem Lock Test**

If modem lock cannot be achieved, replace the modem and restart the **Modem Test**

**Important!** If a modem is replaced during a service call and tests as “No Trouble Found” during the **Return Material Authorization (RMA)** testing process, there is the potential for charge backs or non-payment of the service call. Repeated “No Trouble Found” returns by a Technician may result in

Technician ID decertification.