

User Guide

# SURFboard® SB6183

# **DOCSIS 3.0® Cable Modem**

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# Safety and Regulatory Information

### **IMPORTANT SAFETY INSTRUCTIONS**

**Read This Before You Begin** — When using your equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

- Read all of the instructions listed here and/or in the user manual before you operate this device. Give particular attention to all safety precautions. Retain the instructions for future reference.
- This device must be installed and used in strict accordance with manufacturer's instructions, as described in the user documentation that is included with the device.
- Comply with all warning and caution statements in the instructions. Observe all warning and caution symbols that are affixed to this device.
- To prevent fire or shock hazard, do not expose this device to rain or moisture. The device must not be exposed to dripping or splashing. Do not place objects filled with liquids, such as vases, on the device.
- This device was qualified under test conditions that included the use of the supplied cables between system components. To ensure regulatory and safety compliance, use only the provided power and interface cables and install them properly.
- Different types of cord sets may be used for connections to the main POWER supply circuit. Use only a main line cord that complies with all applicable device safety requirements of the country of use.
- Installation of this device must be in accordance with national wiring codes and conform to local regulations.
- Operate this device only from the type of power source indicated on the device's marking label. If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Do not overload outlets or extension cords, as this can result in a risk of fire or electric shock. Overloaded AC outlets, extension cords, frayed power cords, damaged or cracked wire insulation, and broken plugs are dangerous. They may result in a shock or fire hazard.
- Route power supply cords so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords where they are attached to plugs and convenience receptacles, and examine the point where they exit from the device.
- Place this device in a location that is close enough to an electrical outlet to accommodate the length of the power cord.
- Place the device to allow for easy access when disconnecting the power cord of the device from the AC wall outlet.
- Do not connect the plug into an extension cord, receptacle, or other outlet unless the plug can be fully inserted with no part of the blades exposed.
- Place this device on a stable surface.
- Avoid damaging the cable modem with static by touching the coaxial cable when it is attached to the earth-grounded coaxial cable-TV wall outlet.
- Always first touch the coaxial cable connector on the cable modem when disconnecting or reconnecting the Ethernet cable from the cable modem or user's PC.
- It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the device by local lightning strikes and other electrical surges.
- Postpone installation until there is no risk of thunderstorm or lightning activity in the area.
- Do not use this product near water: for example, near a bathtub, washbowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
- Do not cover the device or block the airflow to the device with any other objects. Keep the device away from excessive heat and humidity and keep the device free from vibration and dust.
- Wipe the device with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the device or use forced air to remove dust.



- For added protection, unplug the device from the wall outlet and disconnect the cables to avoid damage to this device due to lightning and power surges.
- Upon completion of any service or repairs to this device, ask the service technician to perform safety checks to determine that the device is in safe operating condition.
- Do not open the device. Do not perform any servicing other than that contained in the installation and troubleshooting instructions. Refer all servicing to qualified service personnel.
- This device should not be used in an environment that exceeds 40° C (104° F).

### SAVE THE ABOVE INSTRUCTIONS

**Note to CATV System Installer** — This reminder is provided to call the CATV system installer's attention to Articles 820.93 and 820.100 of the National Electric Code, which provides guidelines for proper grounding and, in particular, specifies that the Coaxial cable shield shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

### **FCC STATEMENTS**

### **FCC Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the device off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the device and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation.

**FCC CAUTION:** Any changes or modifications not expressly approved by ARRIS for compliance could void the user's authority to operate the equipment.

### FCC DECLARATION OF CONFORMITY

ARRIS Enterprises, Inc. 3871 Lakefield Drive, Suwanee, GA 30024, 1-215-323-1000, declares that the SURFboard SB6183 DOCSIS 3.0 Cable Modem complies with 47 CFR Parts 2 and 15 of the FCC rules as a Class B digital device.

### **INDUSTRY CANADA (IC) STATEMENT**

CAN ICES-3 (B)/NMB-3 (B)

### **CARING FOR THE ENVIRONMENT BY RECYCLING**



When you see this symbol on an ARRIS product, do not dispose of the product with residential or commercial waste.

### **Recycling your ARRIS Equipment**

Please do not dispose of this product with your residential or commercial waste. Some countries or regions, such as the European Union, have set up systems to collect and recycle electrical and electronic waste items. Contact your local authorities for information about practices established for your region.



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### **Getting Started**





# **Getting Started**

The ARRIS-Motorola SURFboard<sup>®</sup> SB6183 DOCSIS<sup>®</sup> 3.0 Cable Modem provides high-speed access to the Internet and other online services on your home network. You can use your SB6183 to directly connect a computer to your home or small business LAN through an Ethernet connection.

This guide provides a product overview and instructions for installing and configuring your SB6183 Cable Modem to get it up and running on your home network.

### In the Box

Before installing your new cable modem, check that the following items are included in the box. If any items are missing, please call ARRIS Technical Support at **1-877-466-8646** for assistance.

ltem		Description
SB6183 Cable Modem		High-speed DOCSIS 3.0 cable modem
Power Supply	R P	Provides power to the modem using an electrical outlet
Ethernet Cable		Standard Category 5, or higher, cable for connecting to the network
Software License & Regulatory Card		Contains the software license, warranty, and safety instructions for the modem

### Table 1: SB6183 Package Contents



ltem		Description
SB6183 Quick Start Guide	Exception and the second	Provides basic instructions for installing the cable modem and setting up your network connections

## **Additional Items You May Need**

• Coaxial (coax) cable, if one is not already connected to a cable wall outlet

### **System Requirements**

- High-speed Internet access account
- Web browser access Microsoft Internet Explorer, Google Chrome, Firefox, or Safari
- Compatible operating systems:
  - o Windows® 8
  - o Windows 7 Service Pack 1 (SP1)
  - o Windows Vista<sup>™</sup> SP2 or later
  - o Windows XP SP3
  - o Mac<sup>®</sup> 10.4 or higher
  - o UNIX®
  - o Linux®

## **Contact Information**

For technical support or additional ARRIS-Motorola product information, please visit the ARRIS Support website at www.arrisi.com/consumer.

ARRIS Technical Support is also available at **1-877-466-8646**. When you call, you will need the following information located on the modem label on the bottom of your SB6183:

- Cable modem model name (SB6183)
- Cable modem serial number (S/N)
- Cable modem MAC address (HFC MAC ID)







## **Product Overview**

## **Front Panel**





### Table 2: SB6183 Front Panel LED Icons

LED Icon	Flashing	On	
	Not applicable — icon does not flash	Green: Power is properly connected	
RECEIVE	Scanning for a downstream (receive) channel Internet	Green: Non-bonded downstream channel is connected	
	connection	Blue*: High-speed Internet connection with bonded downstream channels	
Å	Scanning for an upstream (send) channel Internet connection	Green: Non-bonded upstream channel is connected	
SEND		Blue*: High-speed Internet connection with bonded upstream channels	
	Scanning for an Internet connection	Green: Connection to the Internet is completed	

\* Blue - Indicates DOCSIS 3.0 operation (high-speed Internet access) which may not be available in all locations. Check with your service provider for availability in your area.



## **Rear Panel**

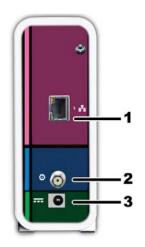


Figure 2 – SB6183 Rear View

### Table 3: SB6183 Rear Panel Ports & Connectors

	Port Name	Description
1		Ethernet port for an RJ-45 network cable connection <b>Green</b> LED indicates a data connection is made
2		Coaxial cable connector
3	POWER	Power connector <b>Note</b> : Only use the power supply provided with the cable modem.

## **Modem Label**

The modem label is located on the bottom of your SB6183. It contains specific cable modem ID information that you may need when contacting ARRIS Technical Support or your service provider.

To receive Internet service, you will have to contact your service provider for assistance. Make sure you have the cable modem model name (**SB6183**), MAC address (**HFC MAC ID**), and serial number (**S/N**) located on the modem label.





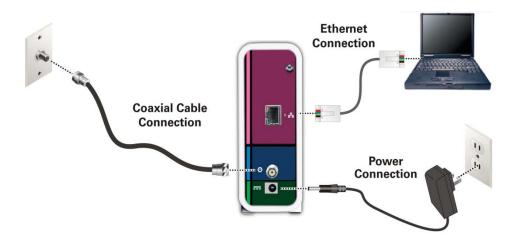
# **Installing Your Cable Modem**

This product is for indoor use only. Do not route the Ethernet cable(s) outside of the building. Exposure of the cables to lightning could create a safety hazard and damage the product.

## **Connect the Cable Modem to Your Computer**

Before installing the cable modem:

- Check with your service provider to ensure broadband cable service is available in your area.
- Choose a location in your home where your computer and cable modem are preferably near existing cable and electrical wall outlets.





- 1. Check that a coaxial cable is connected to a cable wall outlet or RF splitter (optional).
- 2. Connect the other end of the coaxial cable to the Cable connector on the cable modem. Use your hand to tighten the connectors to avoid damaging them.
- 3. Connect the Ethernet cable to the Ethernet port on the cable modem.
- 4. Connect the other end of the Ethernet cable to the Ethernet port on your computer.
- 5. Connect the power cord to the Power port on the cable modem.
- 6. Plug the other end of the power cord into an electrical wall outlet. This automatically powers ON the cable modem.

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### **Test the Cable Modem Connection**

Although your computer may already be configured to automatically access the Internet, you should still perform the following cable modem connectivity test to verify that your devices were connected properly:

- 1. Power ON your computer and then log in.
- Check that the **Power**, **Receive**, **Send**, and **Online** front panel LEDs on your SB6183 light up in sequential order. See Front Panel for additional LED status information.
   If an LED did not light up, see Troubleshooting Solutions for more information or call ARRIS Technical Support at **1-877-466-8646** for assistance.
- 3. Contact your service provider to activate (provision) your SB6183.

**Note:** Your service provider may allow for automatic activation which will automatically launch their special website when you open a Web browser.

- 4. After your SB6183 is provisioned, open a Web browser (e.g., Internet Explorer, Google Chrome, Firefox, or Safari) on the computer connected to your SB6183.
- 5. Type a valid URL (for example, www. arrisi.com) in the address bar and then click or press **Enter**. The ARRIS website should open. If it did not open, do any of the following:
  - o See Troubleshooting Solutions for more information.
  - o Contact your service provider for assistance.
  - o Manually set up the network options on your computer to access the Internet. See below for more information.

### Set Up an Internet Connection

**IMPORTANT!** Your computer may already be configured to automatically access the Internet. If so, **do not** change the network options on your computer before contacting your service provider for assistance.

If you cannot access the Internet after installing your SB6183, you may have to manually configure your computer network options to connect to the Internet. Please contact your service provider for assistance.





# Monitoring Your Cable Modem and Connected Network

Use the SB6183 Web Manager to view and monitor the configuration settings and operational status of your SB6183. You may be able to change some network configuration settings.

**Note**: Some of the SB6183 Web Manager configuration settings may be blocked and cannot be modified. This may be due to restrictions set up by your service provider to prevent unauthorized modifications to certain cable modem configuration parameters.

## Start the Cable Modem Web Manager

- 1. Open any Web browser on the computer connected to your SB6183.
- 2. In the Address bar, type http://192.168.100.1 for the SB6183 Web Manager IP address, and then press **Enter**. The SB6183 Status Connection screen displays.

STAT							
	US PROI	OUCT INFORMATION	EVENT LOG	ADDRESSES	CONFIGU	RATION	HELP
			te of the cable mo	dem. They are used	by your ser	vice provide	r to evaluate the
			Startup P	rocedure			
Procedure Status Comment							
Acquire Do	wnstream Char	nel				In Progress	
Connectivity State In Progress Not Synchronized			onized				
			In Progress Unknown				
Boot State			In Pro	gress		Unknown	
			In Pro	-		Unknown	
Configurati				gress		Unknown Disabled	
Configurati Security		Enabled	In Pro	gress ed			
Configurati Security	on File		In Pro Disabl Denier	gress ed	S		
Security DOCSIS N	on File	Do	In Pro Disabl Denier	gress ed i bnded Channel	S SNR		Uncorrectable

Figure 4 – SB6183 Main Screen

**Note**: If you cannot access the HTML pages in the Cable Modern Web Manager, please call ARRIS Technical Support for assistance.

## **Cable Modem Web Manager Screen Options**

The SB6183 menu tabs are displayed along the top of the SB6183 Web Manager screen. To display a specific screen, click on the appropriate tab.

	RIS				SB6183
STATUS	PRODUCT INFORMATION	EVENT LOG	ADDRESSES	CONFIGURATION	HELP

Figure 5 – SB6183 Web Manager Menu Tabs

The SB6183 menu links are displayed along the bottom of the SB6183 Web Manager screen. The menu links are similar to the menu tabs and serve as an alternative method for displaying the SB6183 Web Manager screens.

STATUS	PRODUCT INFORMATION	EVENT LOG	ADDRESSES	CONFIGURATION	HELP
e arris					p, hc. ALL RIGHTS RESERVED.

Figure 6 – SB6183 Web Manager Menu Links

MENU OPTION	FUNCTION
Status	Provides the current operational status of the cable modem.
Product Information	Provides the current hardware and software-related information for the cable modem.
Event Log	Displays a listing of the time and actual events as they occur and are detected by the cable modem. This information can possibly be useful to help diagnose and correct any problems that may occur with your cable modem.
Addresses	Provides the serial number and MAC addresses for the cable modem and computer connected on your home network.
Configuration	Provides the network connection frequency and channel ID information for the cable modem. Also, allows you to reset the cable modem configuration to the factory default configuration.
Help	Provides a brief description for each screen option.

### Table 4: SB6183 Web Manager Screen Options



## **Get Help**

The Help feature provides a brief description for the SB6183 Web Manager screens.

• Click the **Help** menu tab or link on the SB6183 Web Manager screen to open the SB6183 Help Overview screen.

	Help Pages
Status	The Status page is the first page in the display. This page shows diagnostic information about the startup procedure the downstream bonded channels, and the upstream bonded channels.
Product Information	The Product Information page displays information about the hardware version, software version, MAC address, serial number, system "up" time, and network registration status.
Event Log	The Event Log page provides a list of all the events that have occurred on the cable modern. Each event shows the time that it occurred, the priority of the event, and an event description.
Addresses	The Addresses Page provides information about the network connection between the Cable Modern and your computer. Also, it provides details about the connection between the Cable Modern and the service provider's computer systems.
Configuration	The Configuration page lists information about the upstream and downstream connection to the service provider.

Figure 7 – SB6183 Help Overview Screen

## **View the Cable Modem Status**

The SB6183 Status screen displays the current startup status of the SB6183 and the downstream and upstream bonded channel connections for receive and send data transmissions.

To open the Status screen:

1. Click the Status menu tab or link on the SB6183 Web Manager screen.

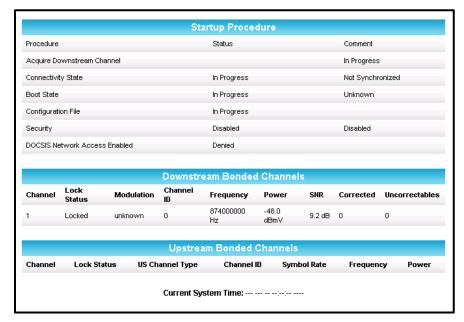


Figure 8 – SB6183 Status Screen

2. Click the **Refresh** button (**F5**) in your Web browser to reload the information on the screen.

## View the Cable Modem Product Information

The SB6183 Product Information screen displays the hardware and firmware versions, MAC address, serial number, and the current operational status of the SB6183.

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To open the Product Information screen:

1. Click the **Product Information** menu tab or link on the SB6183 Web Manager screen.

h	nformation
Standard Specification Compliant	DOCSIS 3.0
Hardware Version	1
Software Version	SB6183-9.2.0.0-GA-00-19-NOSH
Cable Modern MAC Address	30:60:23:b4:f0:38
Serial Number	394983400800022605050004
	Status
Up Time	0 days 01h:18m:42s

Figure 9 – SB6183 Product Information Screen

2. Click **Refresh** button (F5) in your Web browser to reload the information on the screen.

### **View the Event Log**

The SB6183 generates a running log of the time and events or activities that it detects during operation.

**Note**: This information may be useful to help diagnose and correct any problems that may occur with your cable modem. You may want to provide this information if you have to contact ARRIS Technical Support or your service provider for assistance.

To open the Event Log screen:

- 1. Click the **Event Log** menu tab or link on the SB6183 Web Manager screen. The Event Log screen displays (see Figure 10).
- 2. Click **Refresh** button (**F5**) in your Web browser to reload the information on the screen.
- 3. Click **Clear Log** if you want to delete the log entries.

Time	Priority	Description
Time Not Established	Critical (3)	SYNC Timing Synchronization failure - Failed to acquire QAM/QPSK symbol timing;;CM-MAC=30:60:23:b4:f0:38;CMTS-MAC=00:00:00:00:00:00;CM- QOS=1.0;CM-VER=3.0;
Fri Mar 07 09:48:40 2014	Information (7)	Registration Completed
Fri Mar 07 09:48:40 2014	Information (7)	Authorized;CM-MAC=30:60:23:b4:f0:38;CMTS-MAC=00:30:b8:2c:fb:40;CM- QOS=1.1;CM-VER=3.0;
Fri Mar 07 09:48:38 2014	Information (7)	Retrieved Time SUCCESS
Fri Mar 07 09:48:38 2014	Information (7)	Retrieved TFTP Config SUCCESS
Fri Mar 07 09:48:38 2014	Information (7)	Retrieved DHCP SUCCESS
Time Not Established	Warning (5)	DHCP WARNING - Non-critical field invalid in response ; CM- MAC=30:60:23:b4:f0:38;CMTS-MAC=00:30:b8:2c:fb:40;CM-QOS=1.0;CM- VER=3.0;
Time Not Established	Notice (6)	Honoring MDD; IP provisioning mode = IPv4
Time Not Established	Information (7)	Acquired Upstream SUCCESS
Time Not Established	Information (7)	Acquired Downstream ( Hz) SUCCESS
Fri Mar 07 09:47:39 2014	Information (7)	Authorized;CM-MAC=30:60:23:b4:f0:38;CMTS-MAC=00:30:b8:2c:fb:40;CM- QOS=1.1;CM-VER=3.0;
Fri Mar 07 09:47:37 2014	Information (7)	Retrieved Time SUCCESS
Fri Mar 07 09:47:37 2014	Information (7)	Retrieved TFTP Config SUCCESS
Fri Mar 07 09:47:37 2014	Information (7)	Retrieved DHCP SUCCESS

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Figure 10 – SB6183 Event Log Screen

## **View the Cable Modem Configuration**

The SB6183 Modem Configuration screen displays the downstream and upstream connection to the network. When the SB6183 successfully connects to the network, it stores the connection frequency to automatically connect whenever you have to log back onto the SB6183.

To open the Configuration screen:

• Click the **Configuration** menu tab or link on the SB6183 Web Manager screen.

Configuration		
Downstream Frequency (Hz)	75900000	
Upstream Channel ID	33	
Downstream Frequency Plan	North America 🔻	
Reboot		
Restore Factory Defaults		
Note: Resetting the cable modem to its factory default configuration will remove all stored parameters learned by the cable modem during prior initializations. The process to get back online from a factory default condition could take from 5 to 30 minutes. Please reference the cable modem User Guide for details on the power up sequence.		

Figure 11 – SB6183 Configuration Screen

**Note**: The values on the SB6183 Configuration screen cannot be changed. You will have to obtain special authorization from your service provider to change the cable modem frequencies.

## **Restore the Factory Default Modem Settings**

At any time you can reset the SB6183 to its original factory configuration. The process to restore the modem settings may take from 5 to 30 minutes to complete. During this process your network connection will be disabled.

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**WARNING!** This action will delete your current cable modem configuration and any custom settings you may have created.

To open the Configuration screen:

1. Click the **Configuration** menu tab or link on the SB6183 Web Manager Menu. The Configuration screen displays.

Downstream Frequency (Hz)	75900000
Upstream Channel ID	33
Downstream Frequency Plan	North America 🔻
	Reboot
	Restore Factory Defaults
prior initializations. The process to get back or	Note: ault configuration will remove all stored parameters learned by the cable modem durin nline from a factory default condition could take from 5 to 30 minutes. Please referend dem User Guide for details on the power up sequence.

Figure 12 – SB6183 Configuration Screen

2. Click Restore Factory Defaults.

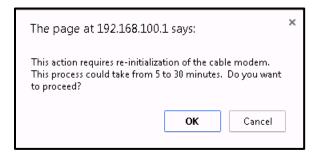


Figure 13 – Restore Factory Defaults Dialog Box

3. Click **OK**. The SB6183 Web Manager will automatically open when the Restore Factory Defaults process is complete.



### **Reboot the SB6183**

To reboot the SB6183:

1. Click the **Configuration** menu tab or menu link on the SB6183 Web Manager Menu. The Configuration screen displays.

Configuration		
Downstream Frequency (Hz)	75900000	
Upstream Channel ID	33	
Downstream Frequency Plan	North America 🔻	
	Reboot	
	Restore Factory Defaults	
prior initializations. The process to get back o	Note: ault configuration will remove all stored parameters learned by the cable modern during Inline from a factory default condition could take from 5 to 30 minutes. Please referenc dem User Guide for details on the power up sequence.	

Figure 14 – SB6183 Configuration Screen

2. Click Reboot.

The page at 192.168.100.1 says:		
Are you sure you want to reset the modem?		
	ОК	Cancel
	ОК	Cancel

Figure 15 – SB6183 Reboot Dialog Box

- 3. Click **OK**. This message displays: **The device has been reset... RELOAD**.
- 4. Click **RELOAD** to log back into the SB6183 Web Manager.

### Exit the SB6183 Web Manager

To log out and close the SB6183 Web Manager:

• Close the browser window.

### Troubleshooting Tips





# **Troubleshooting Tips**

## **Solutions**

Modem Problem	Possible Solution	
POWER LED Icon is OFF	<ul> <li>Check the power connection to the cable modem and the electrical wall outlet.</li> </ul>	
	Check that the electrical wall outlet is working.	
	Is the outlet controlled by a wall light switch? If so, check that the light switch is in the ON position.	
	<b>Note</b> : We recommend that, whenever possible, you do not plug your cable modem into an outlet controlled by a wall light switch.	
Cannot access the Internet	<ul> <li>Check that the <b>Power</b> and <b>Online</b> LEDs on the cable modem front panel are lit up SOLID.</li> </ul>	
Cannot Send or Receive Data	<ul> <li>Check each end of the coaxial cable connection on the modem and cable outlet.</li> </ul>	
	Hand tighten, if necessary.	
	<ul> <li>Check the Ethernet cable to make sure it is properly connected to the modem and computer.</li> </ul>	
	• On the front panel, check the status of the LED icons and refer to Front Panel LED Icons and Error Conditions to identify the problem.	
	<ul> <li>If you have cable television, check your television to ensure your cable service is operating properly.</li> </ul>	
	<ul> <li>If none of the above resolves the problem, call ARRIS Technical Support at 1-877-466-8646 or contact your service provider for assistance.</li> </ul>	

### **Table 5: Troubleshooting Solutions**



## **Front Panel LED Icons and Error Conditions**

The SB6183 front panel LED icons provide status information for the following error conditions:

#### **Table 6: Front Panel LED Icons and Error Conditions**

LED ICON	STATUS	IF, DURING STARTUP:	IF, DURING NORMAL OPERATION
	OFF	Modem is not properly plugged into the electrical outlet	Modem is unplugged
RECEIVE	FLASHING	Downstream receive channel cannot be acquired	Downstream channel is lost
	FLASHING	Upstream send channel cannot be acquired	Upstream channel is lost
	FLASHING	IP registration is unsuccessful	IP registration is lost

#### Warranty Information





## **Warranty Information**

SURFboard SB6183 DOCSIS 3.0 Cable Modem ARRIS Enterprises, Inc. (ARRIS)

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These matters are governed by the laws of the Commonwealth of Pennsylvania, without regard to conflict of laws principles and excluding the provisions of the United Nations Convention on Contracts for the International Sale of Goods.

**Retail Purchasers Only:** If you purchased this Product **directly** from ARRIS or from a ARRIS authorized retail reseller, please call the ARRIS toll-free number, **1-877-466-8646** for warranty service or technical support. Technical support charges may apply.

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