Troubleshooting VOA Module Problems

This chapter describes how to troubleshoot problems with VOA modules on the Cisco ONS 15530.

This chapter includes the following sections:

14.1 Overview

The VOA modules are half-width modules inserted into a carrier motherboard installed in a Cisco ONS 15530 shelf. The carrier motherboards can be installed in slots 1 through 4 and 7 through 10. Each carrier motherboard can hold up to two VOA modules. The Cisco ONS 15530 supports four types of VOA modules:

- Single WB-VOA modules
- Dual WB-VOA modules
- Single band PB-OE modules
- Dual band PB-OE modules

Figure 14-1shows an example of the interfaces for a single WB-VOA module.

Figure 14-1 Single WB-VOA Module Interfaces

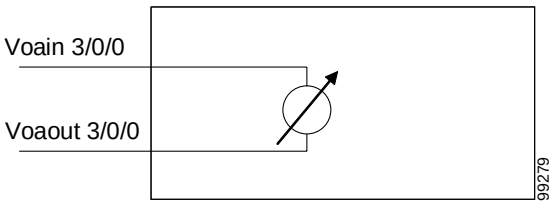


Figure 14-2 shows an example of the interfaces for a dual WB-VOA module.

Figure 14-2 Dual WB-VOA Module Interfaces

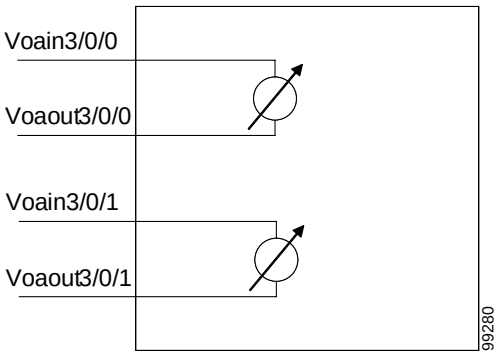


Figure 14-3 shows an example of the interfaces for a single PB-OE module.

Figure 14-3 Single PB-OE Module Interfaces

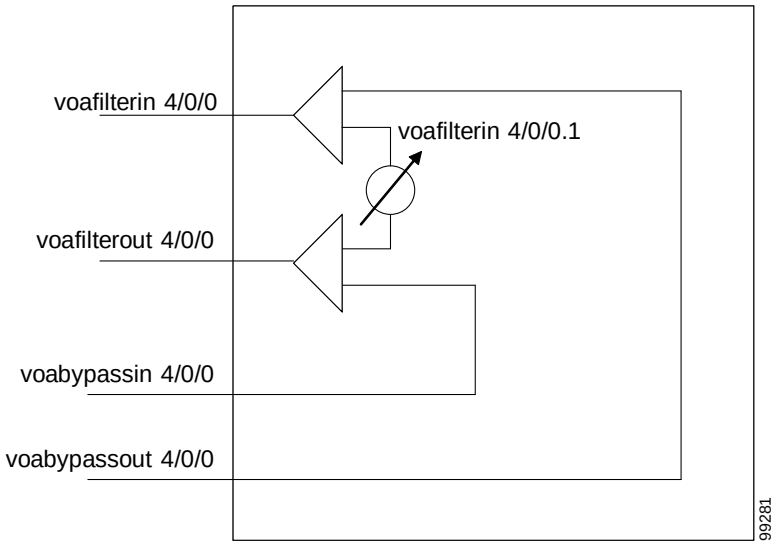
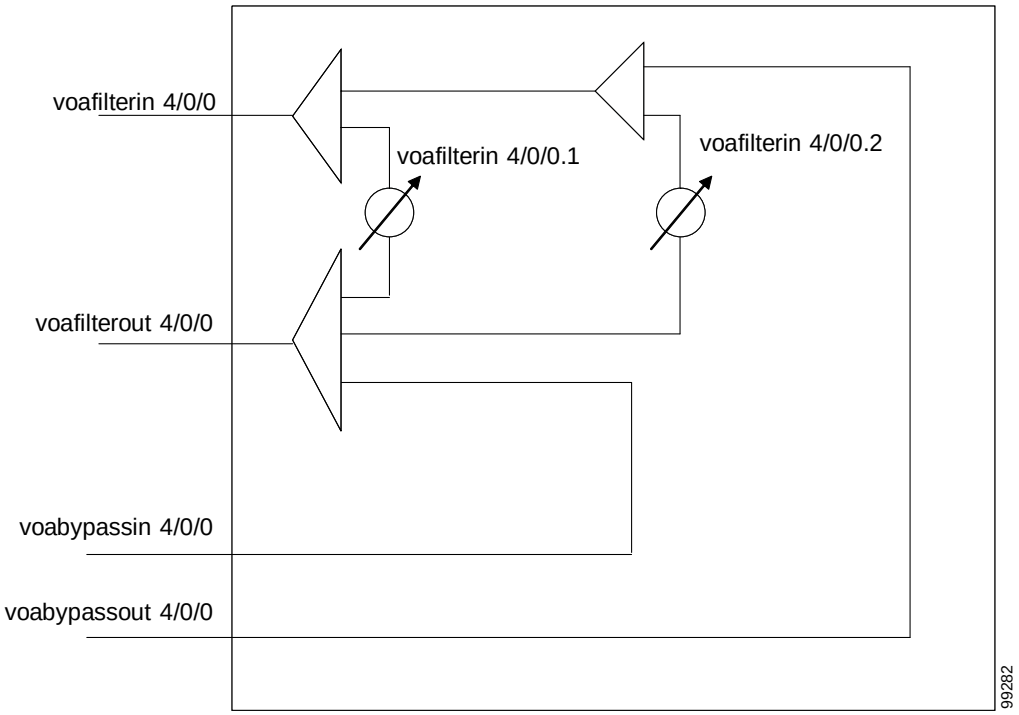


Figure 14-4 shows an example of the interfaces for a dual PB-OE module.

Figure 14-4 Dual PB-OE Module Interfaces



14.2 Initial Troubleshooting Checklist

Follow this initial checklist before proceeding with the troubleshooting procedures:

- Check that the receive signal power is between –28 dBm and 11 dBm for WB-VOA modules and between –26 dBm and 11 dBm for PB-OE modules.
- Issue **show interfaces** commands to verify that the values of the optical receive thresholds are set to the desire tenths of decibels.
- Check that the LEDs on the modules show the proper state.
- Issue a **show facility-alarm status** command to display the alarms on the interfaces.
- Check that the VOA modules are patched correctly. Issue a **show patch** command to verify that the patch configuration is correct.
- Ensure that all optical connectors are clean. Refer to the *Cisco ONS 15530 Cleaning Procedures for Fiber Optic Connections*.

14.3 Troubleshooting VOA Module Problems

This section contains troubleshooting procedures for VOA module interface problems.

14.3.1 Voain Interface Shows Low Optical Alarm Threshold Error

Symptom The power of the signal monitored by the voain interface on a WB-VOA interface crossed the low optical alarm threshold value and the system raised an alarm.

Table 14-1 describes the potential causes of the symptom and the solutions.

Table 14-1 Voain Interface Shows Low Optical Alarm Threshold Error

Possible Problem	Solution
The signal is overattenuated.	1. Issue a **show interfaces** command on the voain interface to verify the attenuation setting. 2. Use an OPM (optical power monitor) to determine the signal power. 3. Issue an **optical attenuation** command to reduce the attenuation. For more information on setting attenuation values, refer to the *Cisco ONS 15530 Optical Transport Turn-Up and Test Guide*.
The signal power is too low due to a failure in the signal path.	1. Issue **show interfaces** commands for the interfaces in the signal path. 2. Resolve any interface problems detected.
The attenuation is set too high.	1. Issue a **show interfaces** command on the voain interface to verify the attenuation setting. 2. Issue an **optical attenuation** command to reduce the attenuation.
The optical connectors are dirty.	Refer to the *Cisco ONS 15530 Cleaning Procedures for Fiber Optic Connections* document.

14.3.2 Voafilterin Subinterface Shows Low Optical Alarm Threshold Error

Symptom The power of the signal monitored by the voafilterin subinterface on a PB-OE module crossed the low optical alarm threshold value and the system raised an alarm.

Table 14-2 describes the potential causes of the symptom and the solutions.

Table 14-2 Voafilterin Subinterface Shows Low Optical Alarm Threshold Error

Possible Problem	Solution
The signal is overattenuated.	1. Issue a **show interfaces** command on the voafilterin subinterface to verify the attenuation setting. 2. Use an OPM (optical power monitor) to determine the signal power. 3. Issue an **optical attenuation** command to reduce the attenuation.
The PB-OE module does not support the channel bands on the trunk signal.	1. Check the network design to verify that the channel band attenuated by the PB-OE module is present. 2. If channel band is not present, obtain the correct PB-OE module.
The optical connectors are dirty.	Refer to the *Cisco ONS 15530 Cleaning Procedures for Fiber Optic Connections* document.

14.3.3 Voain Interface Shows High Optical Alarm Threshold Error

Symptom The power of the signal monitored by the voain interface on a WB-VOA module crossed the high optical alarm threshold value and the system raised an alarm.

Table 14-3 describes the potential causes of the symptom and the solutions.

Table 14-3 Voain Interface Shows High Optical Alarm Threshold Error

Possible Problem	Solution
The signal attenuation is too low.	1. Issue a **show interfaces** command on the voain interface to verify the attenuation setting. 2. Use an OPM (optical power monitor) to determine the signal power. 3. Issue an **optical attenuation** command to increase the attenuation. For more information on setting attenuation values, refer to the *Cisco ONS 15530 Optical Transport Turn-Up and Test Guide*.
The high alarm threshold value is set too low.	1. Issue a **show interfaces** command on the voain interface to verify the threshold setting. 2. Issue an **optical threshold** command to increase the threshold setting.

14.3.4 Voafilterin Subinterface Shows High Optical Alarm Threshold Error

Symptom The power of the signal monitored by the voafilterin subinterface on a PB-OE module crossed the high optical alarm threshold value and the system raised an alarm.

Table 14-4 describes the potential causes of the symptom and the solutions.

Table 14-4 Voafilterin Subinterface Shows High Optical Alarm Threshold Error

Possible Problem	Solution
The signal attenuation is too low.	1. Issue a **show interfaces** command on the voafilterin subinterface to verify the attenuation setting. 2. Use an OPM (optical power monitor) to determine the signal power. 3. Issue an **optical attenuation** command to increase the attenuation. For more information on setting attenuation values, refer to the *Cisco ONS 15530 Optical Transport Turn-Up and Test Guide*.
The high alarm threshold value is set too low.	1. Issue a **show interfaces** command on the voafilterin subinterface to verify the threshold setting. 2. Issue an **optical threshold** command to increase the threshold setting.

14.3.5 STA LED Continues Blinking After Initialization Complete

Symptom The STA LED continues to blink after initialization of the VOA module should be complete. For removal and reinsertion, initialization completes in a few seconds. For system reload, initialization completes after the entire shelf is initialized.

Table 14-5 describes the potential causes of the symptom and the solutions.

Table 14-5 STA LED Continues Blinking After Initialization Complete

Possible Problem	Solution
The VOA module is not properly seated.	Remove and reinsert the VOA module as described in the *Cisco ONS 15530 Optical Transport Turn-Up and Test Guide*.
The carrier motherboard is not properly seated.	1. Remove the VOA module as described in the *Cisco ONS 15530 Optical Transport Turn-Up and Test Guide*. 2. Reseat the carrier motherboard. 3. Reinsert the VOA module as described in the *Cisco ONS 15530 Optical Transport Turn-Up and Test Guide*.

14.3.6 Optical Threshold Warnings Not Reported

Symptom The signal power crosses an optical warning threshold and it is not reported.

Table 14-6 describes the potential cause of the symptom and the solution.

Table 14-6 Optical Threshold Warnings Not Reported

Possible Problem	Solution
The optical warnings are configured to not be reported.	1. Issue a **show interfaces** command on the voain interface or the voafilterin subinterface. 2. Issue an **optical threshold** command if the optical warning threshold severity is set to not reported. Change the severity to **minor** or **not alarmed**.