Preparing to Install a Shared Port Adapter or a SPA Interface Processor

This chapter describes the general equipment, safety, and site preparation requirements for installing SIPs and SPAs. This chapter contains the following sections:

Safety Guidelines

Before you perform any procedure in this publication, review the safety guidelines in this section to avoid injuring yourself or damaging the equipment.

The following guidelines are for your safety and to protect equipment. The guidelines do not include all hazards. Be alert.

Safety Warnings

Note Review the safety warnings listed in the Regulatory Compliance and Safety Information for Cisco ASR 9000 Series Aggregation Services Routers publication (Document Number OL-17505-01) before installing, configuring, or maintaining a line card.

- Keep the work area clear and dust free during and after installation. Do not allow dirt or debris to enter into any laser-based components.
- Do not wear loose clothing, jewelry, or other items that could get caught in the router while working with line cards.
- Cisco equipment operates safely when it is used in accordance with its specifications and product usage instructions.

Electromagnetic Compatibility Regulatory Statements

Electromagnetic compatibility regulatory statements are listed in the Regulatory Compliance and Safety Information for Cisco ASR 9000 Series Aggregation Services Routers publication (Document Number OL-17505-01). Review these before installing, configuring, or maintaining your SIP or SPA.

Electrical Equipment Guidelines

Follow these basic guidelines when working with any electrical equipment:

- Before beginning any procedures requiring access to the chassis interior, locate the emergency power-off switch for the room in which you are working.
- Disconnect all power and external cables before moving a chassis.
- Do not work alone when potentially hazardous conditions exist.
- Never assume that power has been disconnected from a circuit; always check.
- Do not perform any action that creates a potential hazard to people or makes the equipment unsafe; carefully examine your work area for possible hazards such as moist floors, ungrounded power extension cables, and missing safety grounds.

Telephone Wiring Guidelines

Use the following guidelines when working with any equipment that is connected to telephone wiring or to other network cabling:

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.

Laser/LED Safety

The single-mode transmitter in the module uses a small laser to transmit the light signal to the network ring. Keep the transmit port covered whenever a cable is not connected to it. Although multimode transceivers typically use LEDs for transmission, it is good practice to keep open ports covered and avoid staring into open ports or apertures. The single-mode aperture port contains a laser warning label, as shown in the figure below.

Figure 1: Laser Warning Labels for Single-Mode Port

CLASS 1 LASER PRODUCT
LASERPRODUKT DER KLASSE 1

PRODUIT LASER DE CLASSE 1
クラス 1 レーザ製品
PRODUCTO LASER CLASE 1

Warning   Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

Warning Class 1 laser product. Statement 1008

The multimode aperture contains a Class 1 LED warning label, as shown in the figure below.

Figure 2: Class 1 LED Warning Label for Multimode Port

Warning Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments. Statement 1051

Warning Class 1 LED product. Statement 1027

Preventing Electrostatic Discharge

Electrostatic discharge (ESD) damage, which can occur when electronic cards or components are improperly handled, results in complete or intermittent failures. Electromagnetic interference (EMI) shielding is an integral component of the line card. Cisco recommends using an ESD-preventive strap whenever you are handling network equipment or one of its components.

The following are guidelines for preventing ESD damage:

- Always use an ESD-preventive wrist or ankle strap and ensure that it makes good skin contact. Connect the equipment end of the connection cord to an ESD connection socket on the router or to bare metal on the chassis.
- Handle SIPs by the captive installation screws, the provided handle, ejector levers, or the line card metal carrier only; avoid touching the board or connector pins.
- Place removed SIPs board-side-up on an antistatic surface or in a static shielding bag. If you plan to return the component to the factory, immediately place it in a static shielding bag.
- Avoid contact between the SIPs and clothing. The wrist strap only protects the board from ESD voltages on the body; ESD voltages on clothing can still cause damage.

Caution For safety, periodically check the resistance value of the ESD strap. The measurement should be between 1 and 10 megohms.

Required Tools and Equipment

You need the following tools and parts to remove and install SIPs:

- Flat-blade or Phillips screwdriver

- ESD-preventive wrist or ankle strap and instructions
- Interface cables to connect the SIP with another router or switch