Contents

Figures

Tables

1 Regulatory Compliance Statement

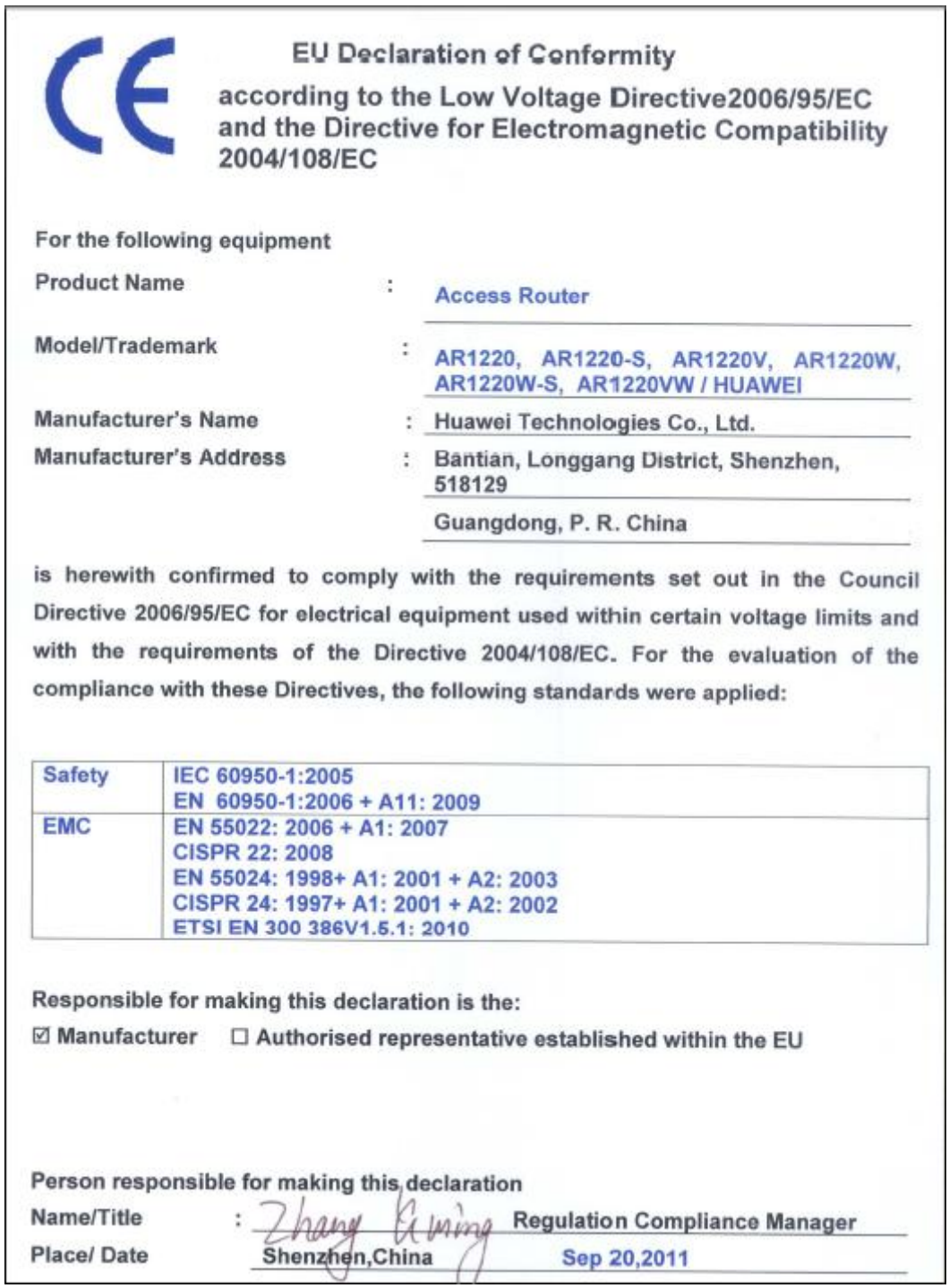
About This Chapter

This chapter provides the certification details for AR1200/AR2200/AR3200 Series Products.

- European Community CE Certification Declaration of Conformity (DoC)

1.1 European Community CE Certification DoC

Figure 1-1 European community CE certification DoC



EU Declaration of Conformity

according to the Low Voltage Directive2006/95/EC and the Directive for Electromagnetic Compatibility 2004/108/EC

For the following equipment

Product Name	:	Access Router
Model/Trademark	:	AR1220, AR1220-S, AR1220V, AR1220W, AR1220W-S, AR1220VW / HUAWEI
Manufacturer's Name	:	Huawei Technologies Co., Ltd.
Manufacturer's Address	:	Bantian, Longgang District, Shenzhen, 518129 Guangdong, P. R. China

is herewith confirmed to comply with the requirements set out in the Council Directive 2006/95/EC for electrical equipment used within certain voltage limits and with the requirements of the Directive 2004/108/EC. For the evaluation of the compliance with these Directives, the following standards were applied:

Safety	IEC 60950-1:2005 EN 60950-1:2006 + A11: 2009
EMC	EN 55022: 2006 + A1: 2007 CISPR 22: 2008 EN 55024: 1998+ A1: 2001 + A2: 2003 CISPR 24: 1997+ A1: 2001 + A2: 2002 ETSI EN 300 386V1.5.1: 2010

Responsible for making this declaration is the:

☑ Manufacturer ☐ Authorised representative established within the EU

Person responsible for making this declaration

Name/Title	:	Zhang Liming Regulation Compliance Manager
Place/ Date		Shenzhen,China Sep 20,2011

EU Declaration of Conformity

according to the Low Voltage Directive2006/95/EC and the Directive for Electromagnetic Compatibility 2004/108/EC

For the following equipment

Product Name	:	Access Router
Model/Trademark	:	AR3260 / HUAWEI
Manufacturer's Name	:	Huawei Technologies Co., Ltd.
Manufacturer's Address	:	Bantian, Longgang District, Shenzhen, 518129 Guangdong, P. R. China

is herewith confirmed to comply with the requirements set out in the Council Directive 2006/95/EC for electrical equipment used within certain voltage limits and with the requirements of the Directive 2004/108/EC. For the evaluation of the compliance with these Directives, the following standards were applied:

Safety	IEC 60950-1:2005 EN 60950-1:2006 + A11: 2009
EMC	EN 55022: 2006 + A1: 2007 CISPR 22: 2008 EN 55024: 1998+ A1: 2001 + A2: 2003 CISPR 24: 1997+ A1: 2001 + A2: 2002 ETSI EN 300 386V1.5.1: 2010

Responsible for making this declaration is the:

☑ Manufacturer ☐ Authorised representative established within the EU

Person responsible for making this declaration

Name/Title	:	Zhang Liming Regulation Compliance Manager
Place/ Date		Shenzhen,China Sep 20,2011

2 Regulatory Compliance Information

About This Chapter

The following table lists the contents of this chapter.

Title	Description
2.1 Regulatory Compliance Standards	The regulatory compliance standards on EMC, safety, NEBS, telecom, Laser Radiation, RF, health, and environmental protection.
2.2 European Directives Compliance	The compliance with European directives, including RoHS compliance and device recycling guide.
2.3 USA Regulatory Compliance	The USA regulatory compliance, including FCC part 15.
2.4 Canada Regulatory Compliance	
2.5 Japanese Compliance	The Japan regulatory compliance, including VCCI Class A..
2.6 CISPR 22 Compliance	The CISPR 22 regulatory compliance.

2.1 Regulatory Compliance Standards

AR1200/AR2200/AR3200 Series Products comply with the standards listed in Table 2-1.

Table 2-1 Regulatory compliance standards

Discipline	Standards
EMC	ı CISPR22:2008 Class A ı CISPR24:1997+A1:2001+A2:2002 ı EN55022:2006+A1:2007 Class A ı EN50024:1998+A1:2001+A2:2003 ı ETSI EN 300 386 V1.5.1:2010 Class A ı ETSI EN 301 489-1 V1.8.1:2008 ı ETSI EN 301 489-17 V2.1.1:2009 ı CFR 47 FCC Part 15 Subpart B:2010 Class A ı ICES 003:2004 Class A ı AS/NZS CISPR22:2009 Class A ı ANSI C63.4:2003 ı CAN/CSA-CEI/IEC CISPER 22:02 ı GB9254 Class A ı VCCI V-3:2010 Class A ı CNS 13438 Class A ı IEC61000-3-2 ı IEC61000-3-3 ı EN61000-3-2 ı EN61000-3-3 ı ITU-T K.20 ı ITU-T K.44 ı ITU-T K.45
Safety	ı IEC 60950-1:2005(2nd Edition) ı IEC/EN41003 ı EN 60950-1：2006+A11:2009 ı UL 60950-1 ı CSA C22.2 No 60950-1 ı AS/NZS 60950.1 ı BS EN 60950-1 ı IS 13252 ı GB4943

Discipline	Standards
Laser safety	ı FDA rules, 21 CFR 1040.10 and 1040.11 ı IEC60825-1, IEC60825-2, EN60825-1, EN60825-2 ı GB7247
Health	ı ICNIRP Guideline ı 1999-519-EC ı EN 50385 ı OET Bulletin 65 ı IEEE Std C95.1 ı EN 60215
Environmental protection	RoHS
Grounding	ı ITU-T K.27 ı ETSI EN 300 253

Note:
EMC: electromagnetic compatibility
NEBS: Network Equipment Build Standard
RF: radio frequency
CISPR: International Special Committee on Radio Interference
EN: European Standard
ETSI: European Telecommunications Standards Institute
CFR: Code of Federal Regulations
FCC: Federal Communication Commission
IEC: International Electrotechnical Commission
AS/NZS: Australian/New Zealand Standard
VCCI: Voluntary Control Council for Interference
CNS: Chinese National Standard
UL: Underwriters Laboratories
CSA: Canadian Standards Association
BS: British Standard
IS: Indian Standard
GR: general requirement
FDA: Food and Drug Administration
BTS: base transceiver station
GSM: Global System for Mobile communications
WLAN: wireless local area network
ICNIRP: International Commission on Non-Ionizing Radiation Protection
OET: Office of Engineering Technology
IEEE: Institute of Electrical and Electronics Engineers
RoHS: restriction of the use of certain hazardous substances

2.2 European Directives Compliance

AR1200/AR2200/AR3200 Series Products comply with the following European directives.

- 89/336/EC (EMC)
- 2006/95/EC (low voltage)
- 1999/5/EC (R&TTE)

Refer to Figure 1-1 for Huawei Declaration of Conformity.

AR1200/AR2200/AR3200 Series Products comply with Directive 2002/95/EC, on the RoHS in electrical and electronic equipment. The device does not contain lead, mercury, cadmium, and hexavalent chromium and brominated flame retardants (polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE)) except for those exempted applications allowed by RoHS directive for technical reasons.

AR1200/AR2200/AR3200 Series Products comply with Directive 2002/96/EC on waste electrical and electronic equipment. Huawei is responsible for recycling its end-of-life devices. Contact Huawei local service center when recycling is required.

The main materials in the device are steel, plastics, copper, and electronic components. Most of the materials are recyclable.

lists the main materials used in the device.

Comply with the following rules for recycling at the end of life of the device.

- Remove power first in the disassembly.
- Remove and send battery、PCB、fans and cables to special institution for disposal because it contains chemical substance.
- Dispose of battery separately because it contains hazardous substance.
- No hazardous substance is contained in the label printing ink and plastic paint, and no hazardous gas is emitted when the label printing ink and plastic paint is burning.
- Dispose of the yellow chromate conversion coating screw separately because it contains Cr^{6+}.
- Provide the plastic marking reference, such as ISO1043, and EN50419.

2.3 USA Regulatory Compliance

2.3.1 FCC Part 15

AR1200/AR2200/AR3200 Series Products comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device does not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

If this device is modified without authorization from Huawei, the device may no longer comply with FCC requirements for Class A digital devices. In that a case, your right to use the device may be limited by FCC regulations. Moreover, you may be required to correct any interference to radio or television communications at your own expense.

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the device is operated in a commercial environment.

This device generates, uses and radiates radio frequency energy. If it is not installed and used in accordance with the instructions, it may cause harmful interference to radio communications.

Operation of this device in a residential area is likely to cause harmful interference. In this case the user will be requested to correct the interference at his or her own expense.

2.4 Canada Regulatory Compliance

2.4.1 RSS-Gen & RSS-210 statement

This device complies with Industry Canada licence-exempt RSS standard(s).

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

2.4.2 RSS-102 statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Cet équipement est conforme à l'exposition aux rayonnements IC limites établies pour unenvironnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre le radiateur et votre corps.

Note：RSS-Gen & RSS-210 statement and RSS-102 statement apply to models AR1220VW,AR1220W and AR1220W-S only.

2.5 Japanese Compliance

2.5.1 VCCI

AR1200/AR2200/AR3200 Series Products comply with VCCI Class A by Information Technology Equipment (ITE).

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。 VCCI-A

2.6 CISPR 22 Compliance

AR1200/AR2200/AR3200 Series Products comply with CISPR 22 for Class A by the ITE.

Class A ITE is a category of all other ITE that satisfies only the Class A ITE regulations, and not the Class B ITE regulations. Such equipment should not be restricted in its sale but the following warning shall be included in the instructions for use:

WARNING

This is Class A Product. In a domestic environment this product may cause radio interference; therefore, the user is required to take appropriate measures.

3 Safety Information

About This Chapter

The following table lists the contents of this chapter.

Title	Description
3.1 Overview	Safety precautions to be taken before installing and maintaining the Huawei device.
3.2 Electricity Safety	Information about the electricity safety.
3.3 Inflammable Environment	Information about the inflammable environment safety.
3.4 Battery	Information about the battery safety.
3.5 Laser	Safety precautions on the Electromagnetic Field Exposure of the device and laser.
3.6 Working at Heights	Safety precautions to be taken before using the ladders or hoisting heavy objects.
3.7 Mechanical Safety	Safety precautions on drilling, on sharp objects, on handling fans, and on lifting heavy objects.
3.8 Miscellaneous	Safety precautions on inserting and removing boards, on bundling signal cables, and cabling requirements.

3.1 Overview

3.1.1 Safety Precautions

This section describes the safety precautions to be taken before installing and maintaining the Huawei device.

- Before performing an operation, read the operation instructions and precautions to be taken, and follow them to prevent accidents. The Caution, Warning and Danger items in other documents do not cover all the safety precautions that must be followed. They are only supplementary information. The installation and maintenance personnel need to understand the basic safety precautions to be taken.
- When operating the device, obey the local safety regulations. The safety precautions provided in the documents are supplementary and shall be in compliance with the local safety regulations.
- When operating the Huawei device, in addition to the precautions, follow the specific safety instructions given by Huawei.
- The installation and maintenance personnel must receive training in safety precautions. Only qualified personnel can install or maintain the device.

3.1.2 General Requirements

To minimize the technically residual risk, it is imperative to obey the following rules. Read all the instructions before operation.

Installation

- The device (or system) must be installed or used in the access restricted location.
- Be care the hot surface when the device is operating. When touching the surface or operating the handle of the device by hands, wear gloves to protect your hands from scalding.
- Before operation, the device must be fixed securely on the floor or to other reliable objects, such as the walls and the mounting racks.
- When installing the unit, always make the ground connection first and disconnect it at the end.
- Do not block the ventilation while the device is running. Keep a minimum distance of 5 cm from the ventilation to the walls or the other objects that block the ventilation.
- Tighten the thumbscrews by using a tool after both initial installation and subsequent access to the panel.

Ground

- Do not damage the ground conductor or operate the device in the absence of well installed ground conductor. Conduct the appropriate electrical inspection.
- The device (or system) must be connected permanently to the protection ground before an operation. The cross sectional area of protective ground conductor shall be at least 1.0 mm^2.

Power Supply

- For AC supplied model: The socket-outlet shall be installed near the equipment and shall be easily accessible.
- For AC supplied model: The device applies to TN, TT power systems.
- For DC supplied model: Reinforced insulation or double insulation must be provided to isolate DC source from the AC mains supply.
- Prepared conductors are connected to the terminal block, and only appropriate AWG/Type of wire is secured in the listed lug terminals.
- This device relies on the building's installation for short-circuit (overcurrent) protection. Ensure that a fuse or circuit breaker no larger than 240 VAC, 20 A for AC supplied model or 80 VDC, 10 A for DC supplied model is used on the phase conductors (all current-carrying conductors).
- For DC supplied model, a readily accessible disconnect device shall be incorporated in the building installation wiring.
- For AC supplied model: The plug-socket combination must be accessible at all times because it serves as the main disconnect device.
- Because the device has several power supplies, disconnect all of them to switch off the device.
- The AC power supply has double pole/neutral fusing.
- To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

Human Safety

- Do not operate the device or cables at lightning strikes.
- To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telecommunication network voltage (TNV) circuits.
- Do not look directly into the optical port to prevent the laser radiation from injuring your eyes.
- Do not wear jewelry or watches when you operate the device.

Operator

- Only qualified and skilled personnel must install, configure, and disassemble the device.
- Only the personnel authorized must operate the device.
- Any replacement or change to the device or parts of the device (including the software) must be done by qualified or authorized personnel of Huawei.
- Any fault or error that might cause safety problems must be reported immediately to the person in charge.
- Only qualified personnel must remove or disable the safety facilities, or to troubleshoot and maintain the device.

Ensure that the instructions provided in this document are followed completely. The document also provides guidelines in selecting the measuring and testing device.

3.2 Electricity Safety

3.2.1 High Voltage

DANGER

The high voltage power supply offers power for the device operation. Direct or indirect contact (through damp objects) with high voltage and AC mains supply may result in fatal danger.

- During the installation of the AC power supply facility, follow the local safety regulations. The personnel who install the AC facility must be qualified to perform high voltage and AC operations.
- Do not wear conductive articles, such as watches, hand chains, bracelets and rings during the operation.
- When water is found in the rack or the rack is damp, switch off the power supply immediately.
- When the operation is performed in a damp environment, make sure that the device is dry.

WARNING

Non-standard and improper high voltage operations may result in fire and electric shock. Therefore, you must obey the local rules and regulations when bridging and wiring AC cables. Only qualified personnel must perform high voltage and AC operations.

3.2.2 Thunderstorm

DANGER

High voltage and AC operations, or operations on a steel tower and a mast are prohibited during thunderstorm.

During thunderstorm, the electromagnetic field generated in the thunderstorm area may damage the electronic parts. To prevent damage to the device during lightning, ground the device properly.

3.2.3 Tools

WARNING

Suggestion: Dedicated tools must be used during high voltage and AC operations. Avoid using ordinary tools.

3.2.4 High Electrical Leakage

WARNING

Ground the device before powering on the device. Otherwise, the personnel and device are in danger.

If the "high electrical leakage" flag is stuck to the power terminal of the device, you must ground the device before powering it on.

3.2.5 Power Cable

WARNING

Installation and removal of live line are prohibited. Transient contact between the core of the power cable and the conductor may generate electric arc or spark, which may cause fire or eye injury.

- Before installing or removing the power cable, turn off the power switch.
- Before connecting the power cable, confirm that the power cable and label comply with the requirements of the actual installation.

CAUTION

- For the DC power supplied device, use 1.0 mm² or 16 AWG minimum power supply cord.
- For AC power supplied device, use 1.0 mm² or 16 AWG minimum power supply cord.
- Use the type H03VV-F or light PVC sheathed flexible cord based on IEC 60227.

3.2.6 Fuse

WARNING

If a fuse is to be replaced, the new fuse shall be of the same type and specifications.

3.2.7 Electrostatic Discharge

CAUTION

The static electricity generated by the human body may damage the electrostatic sensitive components on the circuit board, such as the large-scale integrated circuit (LSI).

In the following situations, the human body will generate a static electromagnetic field:

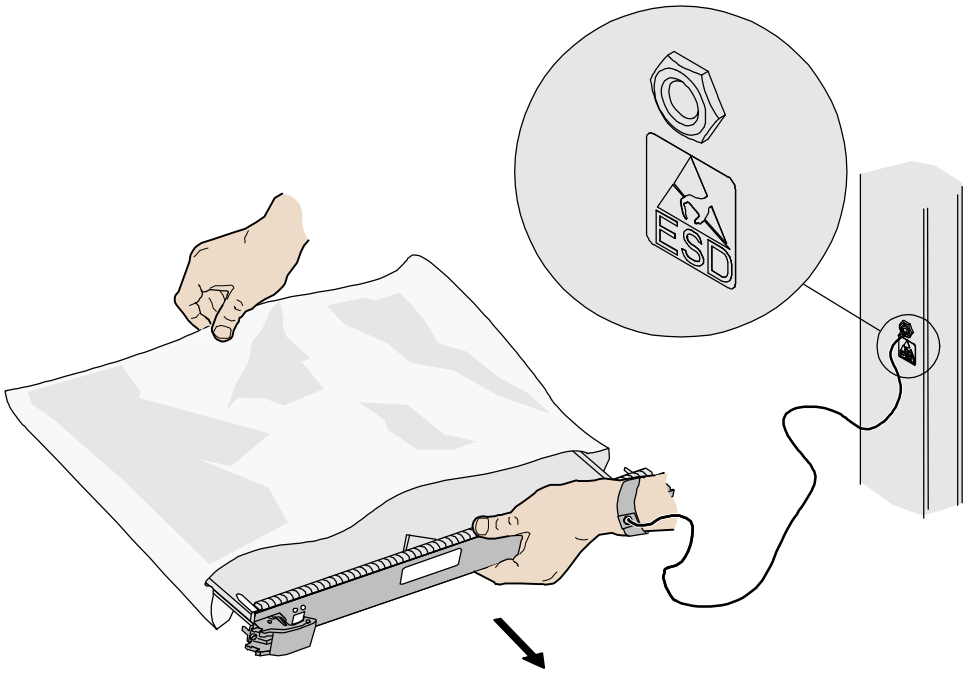
- Human body moving
- Clothes friction
- Friction between shoes and the ground
- Holding ordinary plastic in hand

The static electromagnetic field will remain within the human body for a long time.

Before touching the device, hand-operating parts, circuit boards, or ASICs, wear a grounded electrostatic discharge (ESD) wrist strap. It can prevent the sensitive components from damage by the static electricity in the human body.

Figure 3-1 shows the wearing of an ESD wrist strap.

Figure 3-1 Wearing an ESD wrist strap



3.3 Inflammable Environment

Operating the electrical device in inflammable environment can be fatal.

DANGER

Do not place the device in the environment that has inflammable and explosive air or fog. Do not perform any operation in this environment.

3.4 Battery

3.4.1 Storage Battery

DANGER

Before handling the battery, read carefully the safety precautions to be taken for battery handling and connections.

CAUTION

Non-standard operation on batteries may result in danger.

During operation:

- Protect the battery against short-circuit
- Prevent electrolyte overflow and leakage

Electrolyte overflow may damage the device. It will corrode the metal parts and the circuit boards, and ultimately damage the device and cause short-circuit of the circuit boards.

General Operations

Before installing and maintaining the battery, note the following:

- Do not wear metal articles such as wristwatch, hand chain, bracelet and ring.
- Use special-purpose insulation tools.
- Take care to protect you eyes when operating the device.
- Wear rubber gloves and an apron in the case of electrolyte overflow.
- Always keep the electrode front upright when handling the battery. Do not place the battery upside down or tilt it.

Short-Circuit

WARNING

Battery short-circuit may cause physical injury. Though voltage of a general battery is low, high transient current generated by short-circuit will release a large amount of power.

There is danger of explosion if the battery is incorrectly replaced. Therefore, replace the battery only with the same or equivalent type recommended by the manufacturer.

CAUTION

Keep away metal objects, which may cause battery short-circuit, from batteries. If they have to be used, first disconnect the batteries in use before performing any other operations.

Harmful Gas

CAUTION

- Do not use unsealed lead-acid batteries, because the gas emitted from the battery may result in fire or device corrosion.
- Lay the battery horizontally and fix it properly.
- The battery in use will emit flammable gas. Therefore, put the battery in a place with good ventilation, and take fire precautions.

High Temperature

CAUTION

High temperature may result in distortion, damage and electrolyte overflow of the battery.

When the temperature of the battery exceeds 60°C, check whether there is acid liquid overflow. If acid liquid overflow occurs, handle the acid liquid immediately.

Acid Liquid

CAUTION

In case of acid liquid overflow, absorb and neutralize the liquid immediately.

When moving or removing a leaky battery, note the possible damage caused by the acid liquid. Once the acid liquid spill is found, use the following materials to absorb and neutralize it.

- Sodium bicarbonate (baking soda): $NaHCO_3$
- Sodium carbonate (soda): Na_2CO_3

The use of antacids must follow the guide provided by the battery supplier.

3.4.2 Lithium Battery

WARNING

- There is danger of explosion if the battery is incorrectly replaced. Therefore, replace the battery only with the same or equivalent type recommended by the manufacturer.
- Dispose the used batteries according to the manufacturer's instructions.
- Do not dispose of lithium battery in fire.

3.5 Laser

The laser hazard level of this device is *Class 1*.

WARNING

When handling optical fibers, do not stand close to, or look at the optical fiber outlet directly with unaided eyes.

3.5.1 General Laser Information

Laser transceivers or transmitters are used in the optical transmission system and associated test tools. The wavelength of the laser is between 780 nm and 1600 nm. Because the laser is transmitted through the optical fiber, it has very high power density and is invisible to human eyes. When a beam of light enters the eye, the retina may be damaged.

Laser of wavelengths used in telecommunications can cause thermal damage to the retina.

Lasers used in lightwave systems have a larger beam divergence, typically 10 to 20 degrees. Viewing an un-terminated fiber or damaged fiber with the unaided eye at distances greater than 150 mm (6 inches) will normally not cause eye injury. However, damage may occur if an optical tool such as a microscope, magnifying glass or eye loupe is used to view the energized fiber end.

In its normal operating mode, a lightwave system is totally enclosed and presents no risk of eye injury. Additional safety is achieved by an automatic laser shut-down (ALS) of the system. The ALS, however, can be applied for bi-directional transmission only. If the receiver side does not detect the laser from the transmission side, it will give the transmission side a signal. Upon receiving the signal, the ALS will shut down the laser emission within 100 ms.

3.5.2 Laser Safety Guidelines

Read the following guidelines to avoid laser radiation:

- Read the instructions before installing, operating and maintaining the device. Ignoring the instructions can cause exposure to dangerous laser radiation.
- Wear a pair of eye-protective glasses when you are handling lasers or fibers.

- All the operation shall be performed by personnel who have completed the approved training courses.
- Make sure that the optical source is switched off before disconnecting optical fiber connectors.
- Before opening the front door of an optical transmission system, make sure that you are not exposed to laser radiation.
- Do not look at the end of an exposed fiber or an open connector when you are not sure whether the optical source is switched off or not.
- Use an optical power meter to check and ensure that the optical source is switched off by measuring the optical power.
- Do not use an optical tool such as a microscope, a magnifying glass or an eye loupe to view the optical connector or fiber.

3.5.3 Handling Fibers

Read the instructions before handling fibers.

- Cutting and splicing fibers must be performed by the trained personnel only.
- Before cutting or splicing a fiber, ensure the fiber is disconnected from the optical source. After disconnecting the fiber, use protecting caps to protect all the optical connectors.

3.6 Working at Heights

WARNING

When working at heights, be careful to prevent objects from falling.

When working at heights, shall comply with the following requirements.

- The personnel who work at heights must be trained.
- The operating machines and tools shall be carried and handled safely to avoid falling.
- Safety protection measures, such as wearing a helmet and a safety belt, shall be taken.
- In cold regions, wear worm clothes when performing high-altitude operation.
- All lifting appliances must be thoroughly checked before the work is started.

3.6.1 Weight Lifting

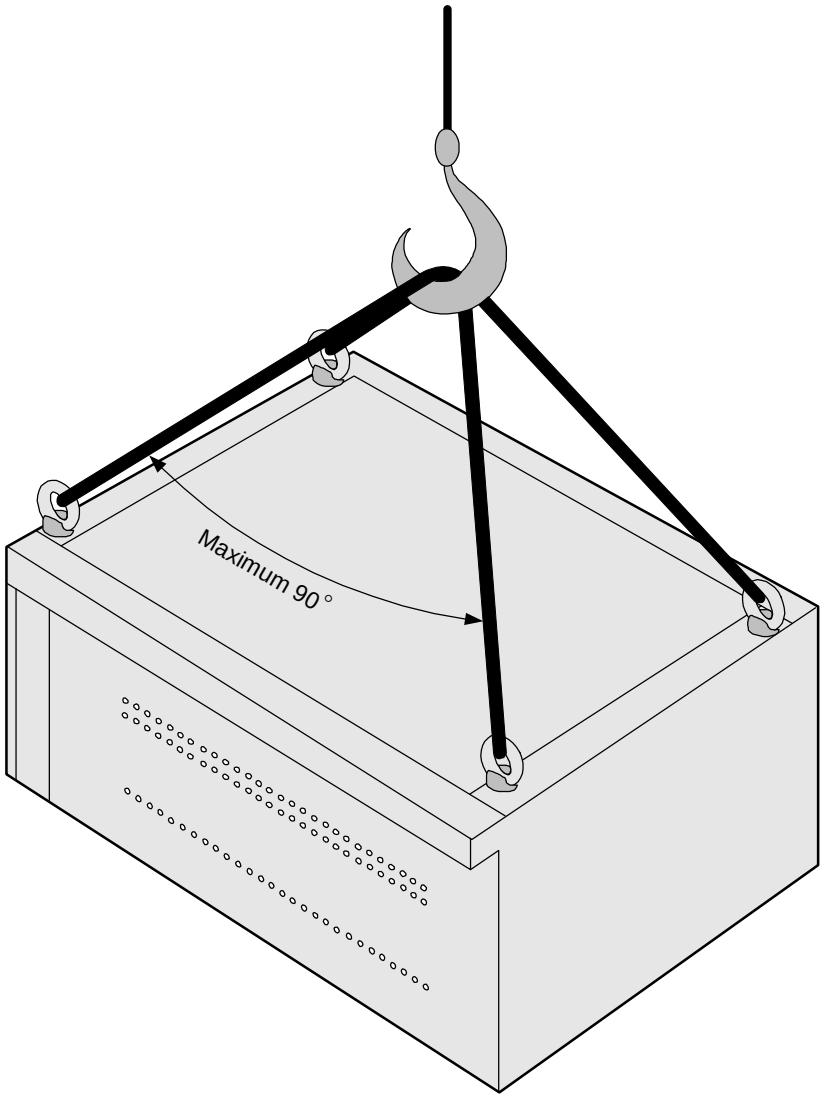
WARNING

Do not access the areas under the jib arm and the goods in suspension when lifting weight.

- Ensure the operators have completed the related training and are qualified.
- Check the weight lifting tools and confirm that the tools are in good condition.

- Lift the weight only when the weight lifting tools are firmly fixed onto the weight-bearing object or the wall.
- Use a concise command to avoid incorrect operation.
- Ensure the angle between the two cables is less than or equal to 90 degrees during the lift. (see Figure 3-2).

Figure 3-2 Weight lifting



3.6.2 Safety Guide on Ladder Use

Checking the Ladder

Before using the ladder, first check if the ladder is in good condition. Make sure that you know the maximum weight that the ladder can support; overweight on the ladder is strictly prohibited.

Placing the Ladder

Slant angle is suggested to be 75 degrees. The slant can be measured with the angle square or with arms. When using a ladder, place the wider end of the ladder on the ground. Otherwise, take protective measures on the base part of the ladder to avoid skidding. Place the ladder on stable ground.

Climbing the Ladder

When climbing the ladder, note the following.

- Ensure the gravity center of your body does not deviate from the ladder edge.
- To lessen the danger and ensure the safety, hold your balance on the ladder before any operation.
- Do not climb higher than the forth highest step of the ladder.
- If you are about to climb to the top, the length of the ladder shall be one meter higher than the eave.

3.7 Mechanical Safety

3.7.1 Drilling

WARNING

Drilling on the rack without permission is strictly prohibited. Drilling that does not satisfy the requirements concerned may damage the wires and cables inside the rack. If the metal shavings from the drilling fall into the rack, it may result in short circuit of the circuit boards.

- Before drilling a hole on the rack, wear insulation gloves, and remove the cables inside the rack.
- During the drilling, ensure that your eyes are well protected. The hot shavings may injury to your eyes.
- Ensure that the metal shavings do not get into the rack.
- Non-standard drilling may damage the electromagnetic shielding performance of the rack.
- After drilling, clean the metal shavings in time.

3.7.2 Sharp Objects

WARNING

When carrying the device by hand, wear protection gloves to avoid injury by sharp objects.

3.7.3 Handling Fans

Ensure the following:

- When replacing a component, place the component, screw, and tool at a safe place to prevent them from falling into the running fan.
- When replacing the ambient equipment around the fan, do not place the finger or board into the running fan until the fan is switched off and stops running.

3.7.4 Lifting Heavy Objects

WARNING

When lifting heavy objects, do not stand or walk under the arm or the lifted object.

3.8 Miscellaneous

3.8.1 Inserting and Removing a Board

To insert or remove a board, abide by the following requirements:

CAUTION

When inserting a board, handle it gently to avoid distorting pins on the backplane.

- Insert the board along the slot guide.
- The two sides of one board should not contact another board to avoid short-circuit or scratch.
- When holding a board in hand, do not touch the board circuit, components, connectors, or connection slots.

3.8.2 Bundling Signal Cables

CAUTION

- Bundle the signal cables separately from the strong current cables or high voltage cables.
- Maintain a minimum space of 150 mm between adjacent ties.

3.8.3 Cabling Requirements

At a very low temperature, movement of the cable may damage the plastic skin of the cable. To ensure the construction safety, comply with the following requirements:

- When installing cables, ensure that the environment temperature is above 0°C.
- If cables are stored in the place below 0°C, move the cables into a place at a room temperature and store the cables for more than 24 hours before installation.
- Move the cables with care, especially at a low temperature. Do not drop the cables directly from the vehicle.