

7 Replacing the BTS3012 Boards and Modules

About This Chapter

The BTS3012 boards that can be replaced are the DTMU, DCCU, DCSU, DATU, DEMU, DELC, DMLC, and DSAC. The BTS3012 modules that can be replaced are DTRU, DDPU, DCOM, DFCU, and DFCB.

[7.1 Replacing the BTS3012/BTS3012AE Boards and Modules \(Common Operations\)](#)

Most of the BTS3012/BTS3012AE boards are installed in common subracks and signal lightning-protection subracks. Most of the BTS3012/BTS3012AE modules are installed in the DTRUs and DAFUs. Some operations are common to the replacing of boards and modules.

[7.2 Replacing a BTS3012/BTS3012AE DTMU](#)

The DTMUs are installed in slots 0 and 1 of the common subrack. If a BTS is configured with only one DTMU, replacing the DTMU disrupts all the services carried on the BTS. If a BTS is configured with two DTMUs, replacing the standby DTMU does not affect the services carried on the BTS. If you have to replace the active DTMU, switch over the active and standby DTMUs and then replace the former active DTMU to avoid interruption to services.

[7.3 Replacing a BTS3012/BTS3012AE DCCU](#)

The DCCU is installed in slot 6 of the common subrack. Replacing the DCCU disrupts all the services carried on the BTS.

[7.4 Replacing a BTS3012/BTS3012AE DCSU](#)

The DCSU is installed in slot 5 of the common subrack. Replacing the DCSU disrupts all the services carried on the BTS.

[7.5 Replacing a BTS3012/BTS3012AE DATU](#)

The DATU can be installed in slots 2, 3, 4, and 7. Replacing the DATU affects the running of the TMA.

[7.6 Replacing a BTS3012/BTS3012AE DTRU](#)

The DTRU is installed in the DTRU subrack. Replacing the DTRU disrupts all the services in the cells where the DTRU is located.

[7.7 Replacing a BTS3012/BTS3012AE DDPU](#)

The DDPU is installed in the DAFU subrack. Replacing the DDPU disrupts some services in the cells where the DDPU is located.

[7.8 Replacing a BTS3012/BTS3012AE DCOM](#)

The DCOM is installed in the DAFU subrack. Replacing the DCOM disrupts some services in the cells where the DCOM is located.

[7.9 Replacing a BTS3012/BTS3012AE DFCU](#)

The DFCU is installed in the Antenna Front-end Unit for DTRU BTS (DAFU) subrack. Replacing the DFCU disrupts some services carried on the DFCU.

[7.10 Replacing a BTS3012/BTS3012AE DFCB](#)

The DFCB is installed in the DAFU subrack. Replacing the DFCB disrupts some services carried on the DFCB.

[7.11 Replacing a BTS3012/BTS3012AE DEMU](#)

The DEMU is installed in the common subrack. During the DEMU replacement, the DEMU cannot monitor environment.

[7.12 Replacing a BTS3012 DELC](#)

The E1 Signal Lightning Protection Card for the DTRU BTS (DELC) is installed on the top of the cabinet. Before replacing the DELC, you need to remove the E1 cables on it. The services carried on the E1 cables are completely disrupted after the E1 cables are removed.

[7.13 Replacing a BTS3012 DMLC](#)

The DMLC is installed on the top of the cabinet. Before replacing the DMLC, you need to remove the cables on it. Alarms may be generated when you removing the cables, but the services carried on the BTS are not affected.

[7.14 Replacing a BTS3012 DSAC](#)

The DSAC is installed on the top of the cabinet. Before replacing the DSAC, you need to remove the cables on it. Alarms may be generated when you removing the cables, but the services carried on the BTS are not affected.

7.1 Replacing the BTS3012/BTS3012AE Boards and Modules (Common Operations)

Most of the BTS3012/BTS3012AE boards are installed in common subracks and signal lightning-protection subracks. Most of the BTS3012/BTS3012AE modules are installed in the DTRUs and DAFUs. Some operations are common to the replacing of boards and modules.

7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules

Before replacing BTS3012/BTS3012AE boards and modules, you need to arrange new boards and modules, arrange the key to the cabinet door, mark the installation positions of cables, ensure that the boards to be replaced are in standby mode, and wear an ESD wrist strap.

7.1.2 Removing a Faulty BTS3012/BTS3012AE Board

This operation is performed to remove a BTS3012/BTS3012AE board from the corresponding subrack of the cabinet.

7.1.3 Installing a BTS3012/BTS3012AE Board

Each BTS3012/BTS3012AE board has a fixed subrack. This operation is performed to install a BTS3012/BTS3012AE board into its corresponding subrack.

7.1.4 Checking the Installed BTS3012/BTS3012AE Board

After installing a BTS3012/BTS3012AE board, check whether the board is securely inserted, the board version is correct, related alarms disappear, the running status is normal, and the board can offer services.

7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module

This task describes how to record the information about the faulty BTS3012/BTS3012AE board or module that is replaced and handle the board or module.

7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules

Before replacing BTS3012/BTS3012AE boards and modules, you need to arrange new boards and modules, arrange the key to the cabinet door, mark the installation positions of cables, ensure that the boards to be replaced are in standby mode, and wear an ESD wrist strap.

Context



CAUTION

- If you may touch the cabinet (including boards, modules, cables, and components in the cabinet) in an operation, wear an ESD wrist strap and correctly ground it.
 - When installing boards, do not touch PCBs or components except jumpers and DIP switches.
 - Because the captive screws on the boards in the common subrack are M3 screws, use a #2 cross screwdriver (diameter: 6 mm) when loosen or tighten the screws. If you do not know the type of the cross screwdriver, try different cross screwdrivers starting from the one with the greatest diameter until you find a suitable one. Do not use the screwdriver smaller than the #2 cross screwdriver.
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**CAUTION**

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure**Step 1** Prepare new boards.

1. Determine the subracks and slots where the boards to be replaced are located.
2. Confirm the type and number of boards to be replaced.
3. check whether the hardware versions of the new boards are correct.
4. If the boards have DIP switches on them, ensure that the settings of the DIP switches on the new boards are the same as those on the faulty boards.

If...	Then...
The hardware versions of the new boards are correct	Go to Step 2 .
The hardware versions of the new boards are incorrect	Contact the Huawei local office to obtain the boards of correct versions.

Step 2 Arrange the key to the front cabinet door and other required tools, such as a #2 cross screwdriver, cable straps, and labels.

Step 3 Mark the installation positions of cables on boards and the attachment positions of cell labels on panels.

Step 4 If you need to replace an active DTMU and its standby board is in position, switch over the active DTMU. To replace other types of boards, skip this step.

**NOTE**

Only the active DTMU requires switchover before replacement.

**CAUTION**

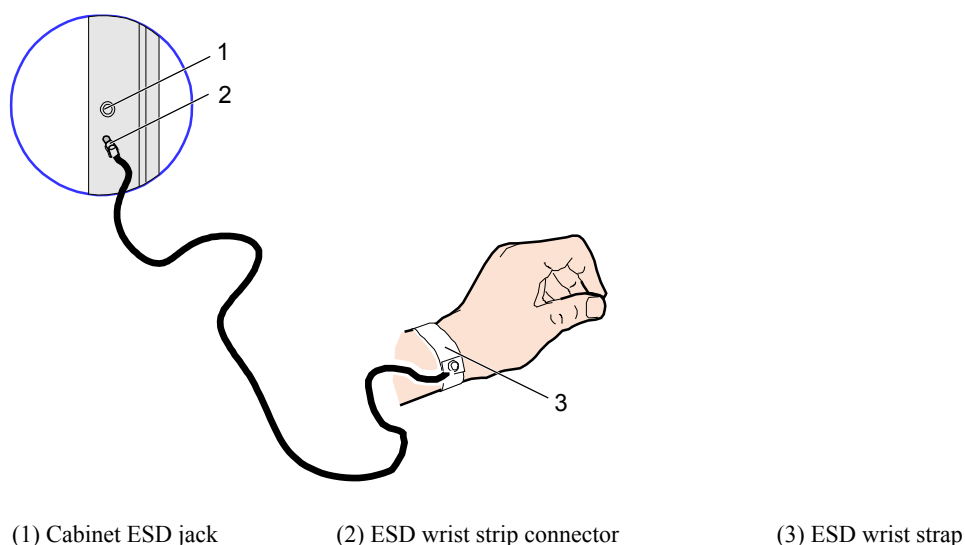
Because forced switchover may affect the system running, Huawei recommends that you perform the forced switchover (if necessary) when the traffic volume is low, for example, in the early morning.

[Query board information](#) on the Site Maintenance Terminal System.

If...	Then...
The DTMU is in standby mode	Go to Step 5 .
The DTMU is in active mode	Switch over the DTMU . The DTMU is in standby mode.

Step 5 Wear an ESD wrist strap and connect it to the ESD jack on the cabinet, as shown in [Figure 7-1](#).

Figure 7-1 Wearing an ESD wrist strap



----End

7.1.2 Removing a Faulty BTS3012/BTS3012AE Board

This operation is performed to remove a BTSBTS3012/BTS3012AE board from the corresponding subrack of the cabinet.

Prerequisite

- You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.
- You have correctly worn an ESD wrist strap and connected it to the ESD jack on the cabinet.

Context



CAUTION

If there are cables connecting the board, mark the positions of the cables and then remove the cables.

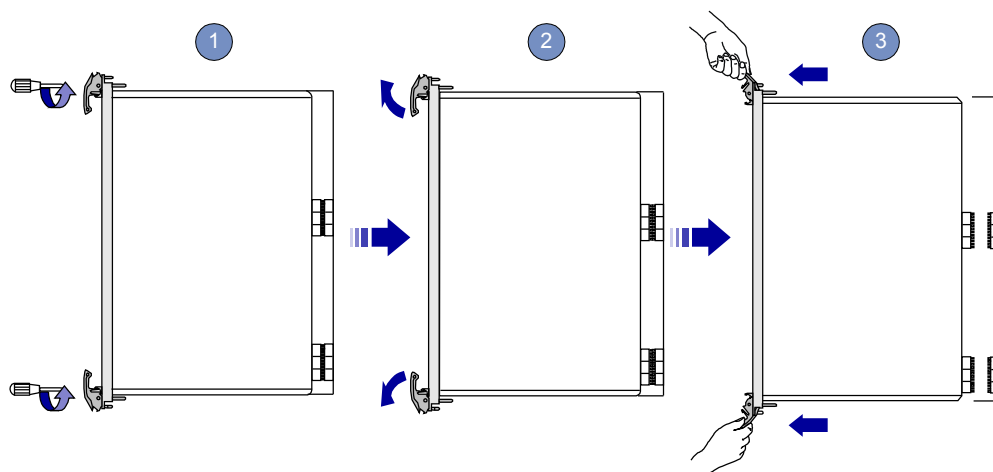
**CAUTION**

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

- Step 1** Loosen the four captive screws on the panel by screwing them anticlockwise until only a few threads remain, as shown in [Figure 7-2 \(1\)](#).

Figure 7-2 Removing the board



- Step 2** Hold the two handles on the front panel with hands and turn them 45° outward at the same time, as shown in [Figure 7-2 \(2\)](#). The board is detached from the backplane, as shown in [Figure 7-2 \(3\)](#).
- Step 3** Hold the two handles of the front panel and pull the board out of the subrack.

**CAUTION**

When pulling out the board, use moderate force if the board gets stuck. Do not shake the board. Otherwise, the pins on the backplane and the metal parts in contact with the backplane may be damaged.

- Step 4** Place the removed board into an ESD box or an ESD bag.

----End

7.1.3 Installing a BTS3012/BTS3012AE Board

Each BTS3012/BTS3012AE board has a fixed subrack. This operation is performed to install a BTS3012/BTS3012AE board into its corresponding subrack.

Prerequisite

- You have arranged the required tools, including an ESD wrist strap and a cross screwdriver.
- You have correctly worn an ESD wrist strap and connected it to the ESD jack on the cabinet.

Context



CAUTION

- Place the board into the slot according to the board nameplate. Hold the board perpendicular to the subrack, and insert it into the subrack along the guide rail.
 - Push the board slowly using moderate force to avoid damage to the pins on the backplane or parts on the board.
 - Tighten all the screws on the panel after installing the board.
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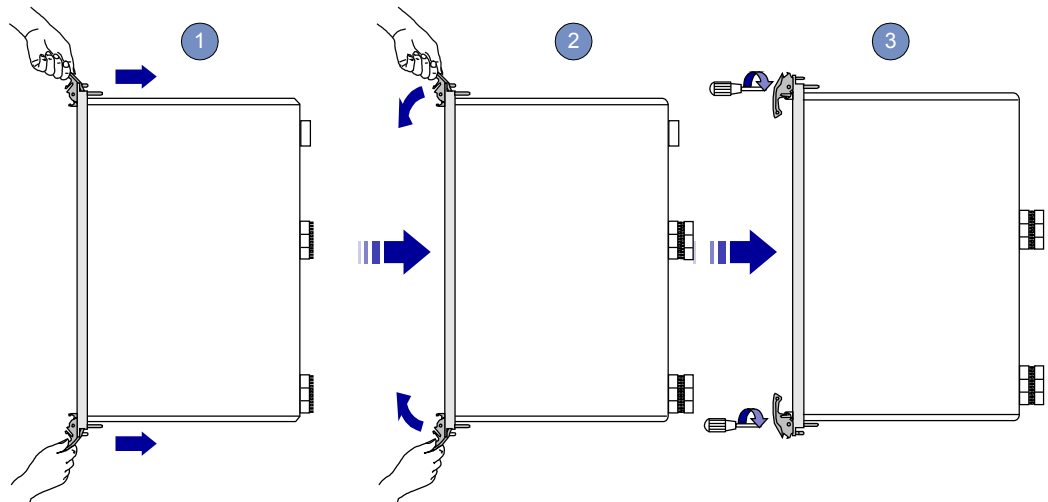


CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

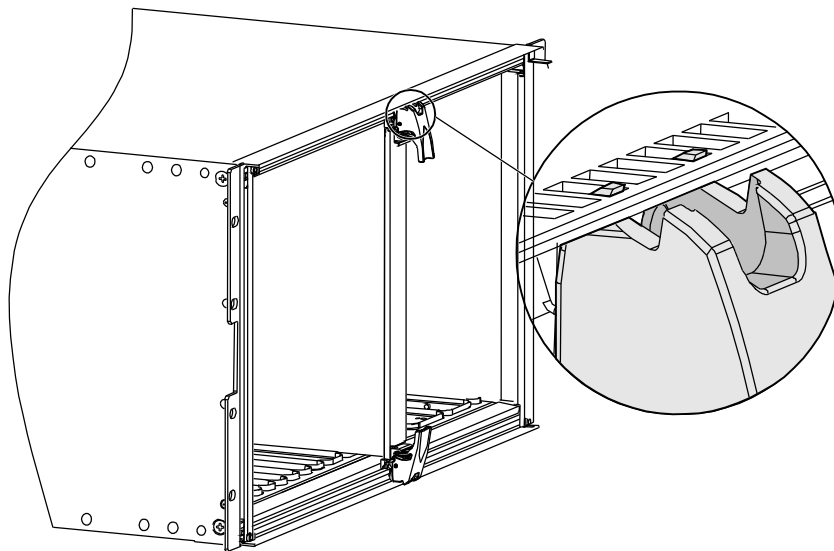
- Step 1** Tighten the four captive screws on the panel by screwing them clockwise until only a few threads remain, as shown in [Figure 7-3](#) (1).

Figure 7-3 Inserting the board

Step 2 Hold the two handles and place the board on the guide rail of the slot according to the silkscreen.

Step 3 Hold the two handles and gently push the board along the guide rail.

Step 4 When the board is in position, hold the two handles and turn them inward simultaneously, as shown in [Figure 7-3 \(2\)](#). The small hooks on the two handles clasp the upper and lower rectangle holes on the subrack, as shown in [Figure 7-4](#).

Figure 7-4 Handling the clasp subrack

Step 5 Secure the four captive screws on the panel by screwing them clockwise, as shown in [Figure 7-3 \(3\)](#).

Step 6 Install the cables on to the board according to the positions marked during [7.1.2 Removing a Faulty BTS3012/BTS3012AE Board](#).

----End

7.1.4 Checking the Installed BTS3012/BTS3012AE Board

After installing a BTS3012/BTS3012AE board, check whether the board is securely inserted, the board version is correct, related alarms disappear, the running status is normal, and the board can offer services.

Procedure

Step 1 Check whether the board is in full contact with its backplane.

If...	Then...
The board indicators are off, or the board indicators are on and then turn off.	The board is not in full contact with its backplane. Reinstall the board.
The board indicators are on within three seconds and remain on.	The board is in full contact with its backplane. Go to Step 2 .

Step 2 [Query the information of BTS boards](#).



CAUTION

You need to confirm that the software versions of the DTMU, DTRU, DDPU, and DFCU are correct before replacing these boards. The software versions of all the boards in the BTS must be correct, especially for the DTMU replacement.

If the software version does not match the current BTS version, perform [software loading](#) and [software activation](#).

Step 3 Check whether the [related alarms](#) are cleared.

Check whether there is any board related alarm on the alarm management system on the OMC. If yes, clear the alarm by following the related handling suggestions in the online help.

You can also right-click the board in the **Board Management** dialog box through the Site Maintenance Terminal System, and then select **Board Alarm** from the shortcut menu to check the alarm. If there are board alarms, clear them by following the related handling suggestions in the online help. If no alarm is reported, go to the next step.

Step 4 Check whether the [running status of the board](#) is normal.

Step 5 Check whether the board can provide normal services.

Make test calls after replacing the board. If the board supports packet services before replacement, you also have to perform the packet domain services, such as browsing the internet, to ensure that the board is normal.

----End

7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module

This task describes how to record the information about the faulty BTS3012/BTS3012AE board or module that is replaced and handle the board or module.

Prerequisite

- The faulty board or module is replaced.
- Tools such as an ESD bag and a board box are ready.

Procedure

- Step 1** Record the name and the code of the faulty board or module.
- Step 2** Check whether there are evident damage to the board or module. The damage includes burns on the PCB and parts, distorted connectors, and bent or broken pins.
- Step 3** Record the fault information, including the symptom and cause of the fault, site name, and slot number.
- Step 4** Put the board or module into the ESD bag, and then into the board box. Keep it properly.
- Step 5** Contact the Huawei local office to handle the faulty board or module.

----End

7.2 Replacing a BTS3012/BTS3012AE DTMU

The DTMUs are installed in slots 0 and 1 of the common subrack. If a BTS is configured with only one DTMU, replacing the DTMU disrupts all the services carried on the BTS. If a BTS is configured with two DTMUs, replacing the standby DTMU does not affect the services carried on the BTS. If you have to replace the active DTMU, switch over the active and standby DTMUs and then replace the former active DTMU to avoid interruption to services.

Prerequisite

You have prepared for the replacement of the DTMU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DTMU replacement takes about 15 minutes.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Determine the number of installed DTMU.

If...	Then...
Only one DTMU is installed	Go to Step 2 .
Two DTMU are installed	Go to Step 10 .

Step 2 [Change the management state of the BTS](#). Set the management state of all the cells under the BTS to LOCKED.

Step 3 Power off the common subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DCCU on the busbar to OFF.
The power-off is performed in the BTS3012AE	Set the MCB DCCU on the DC power distribution box to OFF.

Step 4 Remove the cables from the panel of the faulty DTMU.

Step 5 Remove the faulty DTMU. For details, refer to [7.1.2 Removing a Faulty BTS3012/BTS3012AE Board](#).

Step 6 [Install the new DTMU](#) in the slot of the faulty one.

Step 7 Install cables to the panel of the new DTMU.

Install the cables according to the marked installation positions.

Step 8 Power on the common subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DCCU on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DCCU on the DC power distribution box to ON.

Step 9 [Change the management state of the BTS](#). Set the management state of the related cells to UNLOCKED.

The DTMU replacement is complete.

Step 10 Determine whether the board to be replaced is the active DTMU or the standby DTMU.

If...	Then...
It is the active DTMU	Go to Step 11 .
It is the standby DTMU	Go to Step 12 .

Step 11 [Switch over the active DTMU and the standby DTMU](#) manually.

Step 12 Remove the cables from the panel of the faulty DTMU.

Step 13 [Remove the faulty DTMU](#).

Step 14 [Install the new DTMU](#) in the slot of the faulty one.

Step 15 Install cables to the panel of the new DTMU. Then go to [Step 8](#).

Install the cables according to the marked installation positions.

----End

Postrequisite

Check the installed DTMU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DTMU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.3 Replacing a BTS3012/BTS3012AE DCCU

The DCCU is installed in slot 6 of the common subrack. Replacing the DCCU disrupts all the services carried on the BTS.

Prerequisite

You have prepared for the replacement of the DCCU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DCCU replacement takes about three minutes.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Power off the common subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DCCU on the busbar to OFF.
The power-off is performed in the BTS3012AE	Set the MCB DCCU on the DC power distribution box to OFF.

Step 2 Remove the cables from the panel of the faulty DCCU.

Step 3 **Remove the faulty DCCU.**

Step 4 **Install a new DCCU** in the slot of the faulty one.

Step 5 Install the cables on the panel of the new DCCU.

Install the cables according to the marked installation positions.

Step 6 Power on the common subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DCCU on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DCCU on the DC power distribution box to ON.

----End

Postrequisite

Check the installed DCCU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DCCU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.4 Replacing a BTS3012/BTS3012AE DCSU

The DCSU is installed in slot 5 of the common subrack. Replacing the DCSU disrupts all the services carried on the BTS.

Prerequisite

You have prepared for the replacement of the DCSU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DCSU replacement takes about three minutes.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Power off the common subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DCCU on the busbar to OFF.

If...	Then...
The power-off is performed in the BTS3012AE	Set the MCB DCCU on the DC power distribution box to OFF.

Step 2 Remove the cables from the panel of the faulty DCSU.

Step 3 [Remove the faulty DCSU](#).

Step 4 [Install a new DCSU](#) in the slot of the faulty one.

Step 5 Install the cables on the panel of the new DCSU.

Install the cables according to the marked installation positions.

Step 6 Power on the common subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DCCU on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DCCU on the DC power distribution box to ON.

----End

Postrequisite

Check the installed DCSU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DCSU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.5 Replacing a BTS3012/BTS3012AE DATU

The DATU can be installed in slots 2, 3, 4, and 7. Replacing the DATU affects the running of the TMA.

Prerequisite

You have prepared for the replacement of the DATU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DATU replacement takes about five minutes.

**CAUTION**

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.

**CAUTION**

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Remove the cables from the panel of the faulty DATU.

Step 2 [Remove the faulty DATU](#).

Step 3 [Install a new DATU](#) in the slot of the faulty one.

Step 4 Install the cables on the panel of the new DATU.

Install the cables according to the marked installation positions.

----End

Postrequisite

Check the installed DATU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DATU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.6 Replacing a BTS3012/BTS3012AE DTRU

The DTRU is installed in the DTRU subrack. Replacing the DTRU disrupts all the services in the cells where the DTRU is located.

Prerequisite

You have prepared for the replacement of the DTRU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DTRU replacement takes about 10 minutes.

The DTRU is heavy. Handle it carefully.

The cables on the DTRU must be connected securely to avoid leakage of RF signals.



CAUTION

- Be careful when replacing the DTRU, because the surface temperature of the running DTRU is rather high.
 - The removed DTRU cable connectors must be installed with protective caps to avoid damages due to the contact between the inner conductor of the cable connector and the sharp edges.
-



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 [Change the management state of the BTS](#). Block the faulty DTRU.

Step 2 Power off the faulty DTRU.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB TRX on the busbar to OFF.
The power-off is performed in the BTS3012AE	Set the MCB DTRU on the DC power distribution box to OFF.

Step 3 Remove the cables from the faulty DTRU and install protective caps onto the cable connectors.

Step 4 [Remove the faulty DTRU](#).

Step 5 [Install a new DTRU](#) in the slot of the faulty one.

Step 6 Install the cables on the panel of the new DTRU.

Remove the protective caps and insert the cables into the corresponding cable interfaces on the panel according to the installation position of the cables.

Step 7 Power on the faulty DTRU.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB TRX on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DTRU on the DC power distribution box to ON.

Step 8 [Change the management state of the BTS](#). Unblock the faulty DTRU.

----End

Postrequisite

Check the installed DTRU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DTRU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.7 Replacing a BTS3012/BTS3012AE DDPU

The DDPU is installed in the DAFU subrack. Replacing the DDPU disrupts some services in the cells where the DDPU is located.

Prerequisite

You have prepared for the replacement of the DDPU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DDPU replacement takes about five minutes.

The DDPU is heavy. Handle it carefully.

The cables on the DDPU must be connected securely to avoid leakage of RF signals.



CAUTION

- Be careful when replacing the DDPU, because the surface temperature of the running DDPU is rather high.
 - The removed DDPU cable connectors must be installed with protective caps to avoid damages due to the contact between the inner conductor of the cable connector and the sharp edges.
-



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 [Change the management state of the BTS](#). Block all the DTRUs in the cabinet.

Step 2 Power off the DAFU subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DAFU on the busbar to OFF.
The power-off is performed in the BTS3012AE	Set the MCB DAFU on the DC power distribution box to OFF.

Step 3 Remove the cables from the faulty DDPU and install protective caps onto the cable connectors.

Step 4 [Remove the faulty DDPU](#).

Step 5 [Install a new DDPU](#) in the slot of the faulty one.

**WARNING**

The screws on the DDPU must be secure to ensure the current discharging function of the DDPU. If the screws are not secure, the DDPU cannot fully perform the lightning protection function. Therefore, the equipment cannot work reliably.

Step 6 Install the cables on the panel of the new DDPU.

Remove the protective caps and insert the cables into the corresponding cable interfaces on the panel according to the installation position of the cables.

Step 7 Attach the cell label to the panel of the new DDPU.

Attach the cell label to the panel of the new DDPU according to the marked positions.

Step 8 Power on the DAFU subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DAFU on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DAFU on the DC power distribution box to ON.

Step 9 [Change the management state of the BTS](#). Unblock all the DTRUs in the cabinet.

----End

Postrequisite

Check the installed DDPU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DDPU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.8 Replacing a BTS3012/BTS3012AE DCOM

The DCOM is installed in the DAFU subrack. Replacing the DCOM disrupts some services in the cells where the DCOM is located.

Prerequisite

You have prepared for the replacement of the DCOM. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including an ESD wrist strap, a cross screwdriver, and an ESD box or an ESD bag.

Context

The DCOM replacement takes about five minutes.

The cables on the DCOM must be connected securely to avoid leakage of RF signals.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

- Step 1** [Change the management state of TRXs](#). Set the management state of related TRXs to LOCKED to close the transmit channels of the DTRU.
- Step 2** Remove the cables from the panel of the faulty DCOM.
- Step 3** [Remove the faulty DCOM](#).
- Step 4** [Install a new DCOM](#) in the slot of the faulty one.
- Step 5** Install the cables on the panel of the new DCOM.

Remove the protective caps and insert the cables into the corresponding cable interfaces on the panel according to the installation position of the cables.
- Step 6** [Change the management state of TRXs](#). Set the management state of related TRXs to UNLOCKED to open the transmit channels of the DTRU.

----End

Postrequisite

Check the installed DCOM. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DCOM. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.9 Replacing a BTS3012/BTS3012AE DFCU

The DFCU is installed in the Antenna Front-end Unit for DTRU BTS (DAFU) subrack. Replacing the DFCU disrupts some services carried on the DFCU.

Prerequisite

You have prepared for the replacement of the DFCU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including a spanner, ESD wrist strap, cross screwdriver, ESD box or ESD bag, dustfree cloth, and fiber cleanser.

Context

The DFCU replacement takes about 15 minutes.

The DFCU is heavy. Handle it carefully.

The cables on the DFCU must be connected securely to avoid leakage of RF signals.



CAUTION

- Be careful when replacing the DFCU, because the surface temperature of the running DFCU is rather high.
 - The removed DFCU cable connectors must be installed with protective caps to avoid damages due to the contact between the inner conductor of the cable connector and the sharp edges.
-



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 **Change the management state of the BTS.** Block all the DTRUs in the cabinet.

Step 2 Power off the DAFU subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DAFU on the busbar to OFF.
The power-off is performed in the BTS3012AE	Set the MCB DAFU on the DC power distribution box to OFF.

Step 3 Remove the cables from the faulty DFCU and install protective caps onto the cable connectors.

Step 4 [Remove the faulty DFCU](#).

Step 5 [Install a new DFCU](#) in the slot of the faulty one.

Step 6 Install the cables on the panel of the new DFCU.

Remove the protective caps and insert the cables into the corresponding cable interfaces on the panel according to the installation positions of the cables. Keep the protective caps for future use.

Step 7 Attach the cell labels to the panels of the new DFCU.

Attach the cell labels to the panel of the new DFCU according to the marked positions.

Step 8 Power on the DAFU subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DAFU on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DAFU on the DC power distribution box to ON.

Step 9 [Change the management state of the BTS](#). Unblock all the DTRUs in the cabinet.

----End

Postrequisite

Check the installed DFCU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#)

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Handle the replaced DFCU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.10 Replacing a BTS3012/BTS3012AE DFCB

The DFCB is installed in the DAFU subrack. Replacing the DFCB disrupts some services carried on the DFCB.

Prerequisite

You have prepared for the replacement of the DFCB. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including a spanner, ESD wrist strap, cross screwdriver, ESD box or ESD bag, dustfree cloth, and fiber cleanser.

Context

The DFCB replacement takes about 15 minutes.

The DFCB is heavy. Handle it carefully.

The cables on the DFCB must be connected securely to avoid leakage of RF signals.



CAUTION

- Be careful when replacing the DFCB, because the surface temperature of the running DFCB is rather high.
 - The removed DFCB cable connectors must be installed with protective caps to avoid damages due to the contact between the inner conductor of the cable connector and the sharp edges.
-



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 **Change the management state of the BTS.** Block all the DTRUs in the cabinet.

Step 2 Power off the DAFU subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DAFU on the busbar to OFF.
The power-off is performed in the BTS3012AE	Set the MCB DAFU on the DC power distribution box to OFF.

Step 3 Remove the cables from the faulty DFCB and install protective caps onto the cable connectors.

Step 4 **Remove the faulty DFCB.**

Step 5 **Install a new DFCB** in the slot of the faulty one.

Step 6 Install the cables on the panel of the new DFCB.

Remove the protective caps and insert the cables into the corresponding cable interfaces on the panel according to the installation positions of the cables. Keep the protective caps for future use.

Step 7 Attach the cell labels to the panels of the new DFCB.

Attach the cell labels to the panel of the new DFCB according to the marked positions.

Step 8 Power on the DAFU subrack.

If...	Then...
The power-off is performed in the BTS3012	Set the MCB DAFU on the busbar to ON.
The power-off is performed in the BTS3012AE	Set the MCB DAFU on the DC power distribution box to ON.

Step 9 **Change the management state of the BTS.** Unblock all the DTRUs in the cabinet.

----End

Postrequisite

Check the installed DFCB. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DFCB. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.11 Replacing a BTS3012/BTS3012AE DEMU

The DEMU is installed in the common subrack. During the DEMU replacement, the DEMU cannot monitor environment.

Prerequisite

You have prepared for the replacement of the DEMU. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including a screwdriver, ESD wrist strap, and the key to the front door of the cabinet.

Context

The DEMU replacement takes about three minutes.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.

**CAUTION**

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Remove the cables from the panel of the faulty DEMU.

Step 2 [Remove the faulty DEMU](#).

Step 3 [Install a new DEMU](#) in the slot of the faulty one.

Step 4 Install the cables on the panel of the new DEMU.

Remove the protective caps and insert the cables into the corresponding cable interfaces on the panel according to the installation position of the cables.

----End

Postrequisite

Check the installed DEMU. For details, refer to [7.1.4 Checking the Installed BTS3012/BTS3012AE Board](#).

Handle the replaced DEMU. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.12 Replacing a BTS3012 DELC

The E1 Signal Lightning Protection Card for the DTRU BTS (DELC) is installed on the top of the cabinet. Before replacing the DELC, you need to remove the E1 cables on it. The services carried on the E1 cables are completely disrupted after the E1 cables are removed.

Prerequisite

You have prepared for the replacement of the DELC. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including a screwdriver, ESD wrist strap, and the key to the front door of the cabinet.

Context

The DELC replacement takes about three minutes.

When pushing or pulling the DELC, be careful to avoid any damage to the pins.

Be careful when standing on a ladder to replace the DELC on the top of the cabinet.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Remove the E1 cables.

Loosen the screws on the DB25 male connectors of the E1 cables and pull out the connectors.

Step 2 Remove the faulty DELC.

Use a screwdriver to loosen the captive screws around the DELC, and remove the DELC from the mount panel.

Step 3 Install the new DELC.

Place the new DELC in the right position. Fasten the DELC to the mount panel with the combination screw.

Step 4 Install the E1 cables.

Insert the E1 cables into the marked positions and fasten the screws.

----End

Postrequisite

After replacing the DELC, verify the following:

1. E1 cables are correctly installed.
2. The grounding status of the E1 cables is correct.
3. The related alarms (such as the alarms related to the E1) on the Site Maintenance Terminal System have disappeared.

Handle the replaced DELC. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.13 Replacing a BTS3012 DMLC

The DMLC is installed on the top of the cabinet. Before replacing the DMLC, you need to remove the cables on it. Alarms may be generated when you removing the cables, but the services carried on the BTS are not affected.

Prerequisite

You have prepared for the replacement of the DMLC. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including a screwdriver, ESD wrist strap, and the key to the front door of the cabinet.

Context

The DMLC replacement takes about three minutes.

Before replacing the DMLC, you need to remove the Boolean value input cable or Boolean value output cable, environment monitoring cable, RET antenna control cable, or monitor signal cable. This interrupts the signals carried by these cables.

When pushing or pulling the DMLC, be careful to avoid any damage to the pins.

Be careful when standing on a ladder to replace the DMLC on the top of the cabinet.



CAUTION

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.



CAUTION

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Remove signal cables.

Remove the signal cables from the DMLC.

Step 2 Remove the faulty DMLC.

Use a screwdriver to loosen the captive screws around the DMLC, and remove the DMLC from the mount panel.

Step 3 Install the new DMLC.

Place the new DMLC in the right position. Fasten the DMLC to the mount panel with the combination screw.

Step 4 Install signal cables.

Install the signal cables according to the marked installation positions.

----End

Postrequisite

After replacing the DMLC, verify the following:

1. Signal cables are correctly installed and tightly connected.
2. The related alarms on the Site Maintenance Terminal System or the peer equipment are cleared.

Handle the replaced DMLC. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).

7.14 Replacing a BTS3012 DSAC

The DSAC is installed on the top of the cabinet. Before replacing the DSAC, you need to remove the cables on it. Alarms may be generated when you removing the cables, but the services carried on the BTS are not affected.

Prerequisite

You have prepared for the replacement of the DSAC. For details, refer to [7.1.1 Preparing for Replacing BTS3012/BTS3012AE Boards and Modules](#).

You have arranged the required tools, including a screwdriver, ESD wrist strap, and the key to the front door of the cabinet.

Context

The DSAC replacement takes about three minutes.

Before replacing the DSAC, you need to remove the Boolean value input cable or Boolean value output cable, environment monitoring cable, RET antenna control cable, or monitor signal cable. This interrupts the signals carried by these cables.

When pushing or pulling the DSAC, be careful to avoid any damage to the pins.

Be careful when standing on a ladder to replace the DSAC on the top of the cabinet.

**CAUTION**

Take correct ESD prevention measures, such as wearing an ESD wrist strap or ESD gloves, to avoid static damage to boards, modules, and electronic components.

**CAUTION**

After the operation, remove the ESD wrist strap, arrange its line, and place it on the zig strap of the air filter inside the door of the cabinet. Confirm that the cables and parts are in position. The ESD wrist strap must not be connected to the ESD jack when you close the door. Otherwise, the door will get stuck by the ESD wrist strap and the ESD wrist strap or the cabinet door will be damaged.

Procedure

Step 1 Remove signal cables.

Remove the signal cables from the DSAC.

Step 2 Remove the faulty DSAC.

Use a screwdriver to loosen the captive screws around the DSAC, and remove the DSAC from the mount panel.

Step 3 Install the new DSAC.

Place the new DSAC in the right position. Fasten the DSAC to the mount panel with the combination screw.

Step 4 Install signal cables.

Install the signal cables according to the marked installation positions.

----End

Postrequisite

After replacing the DSAC, verify the following:

1. Signal cables are correctly installed and tightly connected.
2. The related alarms on the Site Maintenance Terminal System or the peer equipment are cleared.

Handle the replaced DSAC. For details, refer to [7.1.5 Handling the Replaced BTS3012/BTS3012AE Board and Module](#).