CRFUD maintenance Guide

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1.1 Replacing a CRFU

A CDMA RF unit (CRFU) processes radio frequency (RF) signals for a base transceiver station (BTS). CDMA is short for Code Division Multiple Access. This section describes how to replace a faulty CRFU.

1.1.1 Prerequisite

- The following tools and materials are available: electrostatic discharge (ESD) wrist strap, Phillips screwdriver, ESD box or bag, torque wrench, and keys to the front panel and cabinet door.
- A new intact CRFU is available.

Context

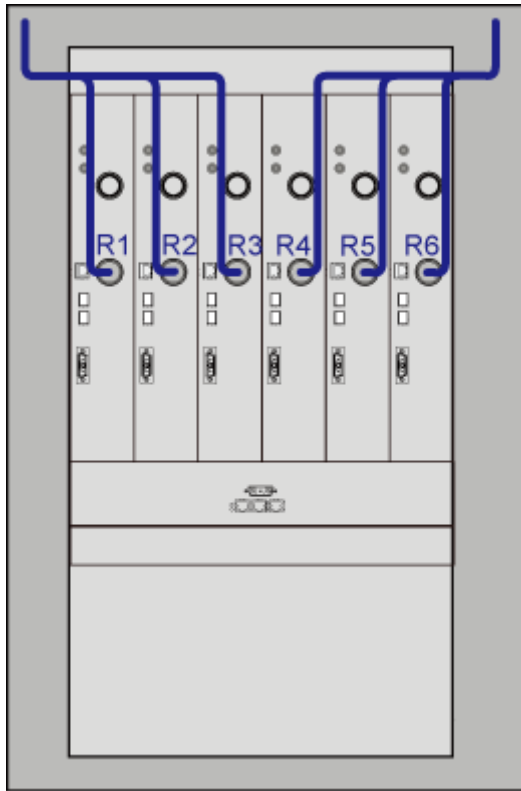Figure 5-2 shows the CRFU cable connection.

Figure 1-1 CRFU cable connection

Table 1-1 Relationship between CRFU ports and cables

Port	Cable
R1 to R6	RF jumper

1.1.2 Procedure

Step 1 Record carrier information.

Run the **DSP CBTSSECTORCARRIERINFO** command to query the IDs of the BTS cells, sectors, and carriers.

Step 2 Block carriers.

1. Run the **BLK RES** command to block all carriers in the sector corresponding to the CRFU. The recommended value of **PRI** is **Low**.
2. Run the **DSP RES** command to check whether the carriers are blocked.
- If they are blocked, go to the next step.
- Otherwise, go to Step 2.1.

Step 3 Power off the CRFU.

On the direct current distribution unit-11A (DCDU-11A), set the power switch controlling the power supply for the CRFU to **OFF**.

Step 4 Remove the faulty CRFU.

1. Remove the cables from the faulty CRFU.
- Attach a temporary label to the CRFU power cable and remove the cable.
- Attach a temporary label to the RF jumper. Then, use a torque wrench to loosen the DIN elbow male connector on the RF jumper and remove the cable.
- Attach a temporary label to each common public radio interface (CPRI) cable and remove the cables from the CRFU.
2. Loosen the screws on the CRFU panel.

Use a Phillips screwdriver to loosen the screws on the CRFU panel.
3. Remove the CRFU.

Pull out the key to the front panel to remove the CRFU, as shown in Figure 5-3.

Figure 1-2 Pulling out the key to the front panel to remove the CRFU
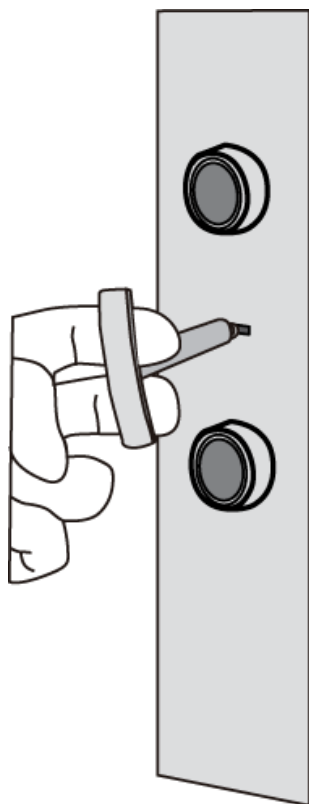
Step 5 Install the new CRFU.

1. Push the new CRFU into the subrack along the guide rail.
2. Use a Phillips screwdriver to tighten the screws on the CRFU panel.
3. Connect previously removed cables to the CRFU.

- Connect the connector of each CPRI cable to the CPRI_0 port on the CRFU according to the temporary label.
- Connect the DIN elbow male connector of the RF jumper to the ANT_TX port on the CRFU and use a torque wrench to tighten the connector with a torque of 25 N m to 35 N m (221.27 lbf in. to 309.78 lbf in.).
- Connect the CRFU power cable and use a Phillips screwdriver to tighten the screws.

Step 6 Power on the CRFU.

On the DCDU-11A, set the power switch controlling the power supply for the CRFU to **ON**.

Step 7 Load the CRFU software.

Run the **LST BTSAUTOLD** command to check whether auto load is enabled for the BTS.

- If **Auto Load Flag** is **ON**, the CRFU automatically loads software from the back administration module (BAM).
- If **Auto Load Flag** is **OFF**, run the **DLD CBTSSW** command to load the CRFU software.

Step 8 Unblock the carriers.

Run the **UBL RES** command to unblock the carriers.

Step 9 Observe the RUN indicator on the CRFU to check whether the CRFU works properly.

If the RUN indicator blinks 1 second on and 1 second off, the CRFU works properly.

----End

1.1.3 Follow-up Procedure

After the replacement, perform the following operations:

1. Record the version, board name, slot number, and site name of the faulty board.
2. Check whether there is visible physical damage on the board, for example, mechanical parts or plug-ins are distorted, pins are bent or missing, or the board is burnt.
3. Record the information about the fault location process, including the cause of the fault, fault symptoms, alarm name, status of indicators on the board panel, and detailed procedures for identifying and clearing the fault on site.
4. Place the faulty board in an antistatic bag. Then, place the onsite fault record and the antistatic bag in the board box, and store them properly.

1.2 Replacing a CRFUd

A CDMA RF unit (CRFUd) processes radio frequency (RF) signals for a base transceiver station (BTS). CDMA is short for Code Division Multiple Access. This section describes how to replace a faulty CRFUd.

1.2.1 Prerequisite

- The following tools and materials are available: electrostatic discharge (ESD) wrist strap, Phillips screwdriver, ESD box or bag, torque wrench, and keys to the front panel and cabinet door.
- A new intact CRFUd is available.

Context

Figure 5-4 shows the CRFUd cable connection.
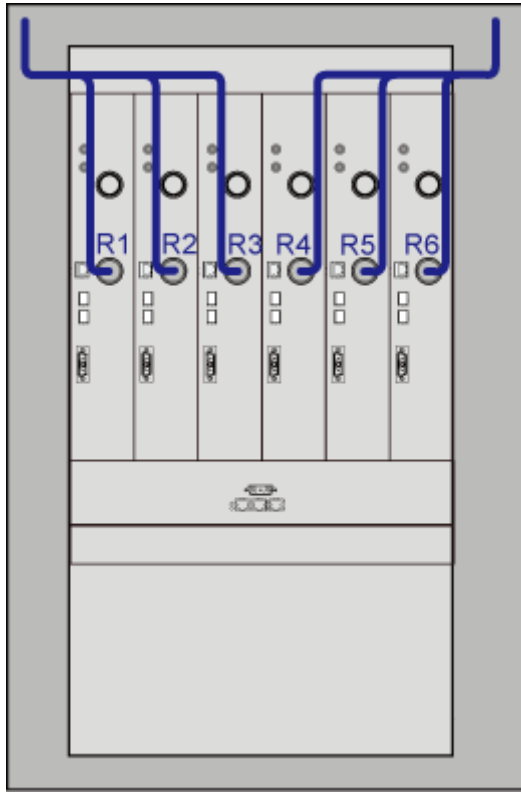
Figure 1-3 CRFUd cable connection

Table 1-2 Relationship between CRFUd ports and cables

Port	Cable
R1 to R6	RF jumper

1.2.2 Procedure

Step 1 Record carrier information.

Run the **DSP CBTSSECTORCARRIERINFO** command to query the IDs of the BTS cells, sectors, and carriers.

Step 2 Block carriers.

1. Run the **BLK RES** command to block all carriers in the sector corresponding to the CRFUd. The recommended value of **PRI** is **Low**.
2. Run the **DSP RES** command to check whether the carriers are blocked.

● If they are blocked, go to the next step.

● Otherwise, go to Step 2.1.

Step 3 Power off the CRFUd.

On the direct current distribution unit-11A (DCDU-11A), set the power switch controlling the power supply for the CRFUd to **OFF**.

Step 4 Remove the faulty CRFUd.

1. Remove the cables from the faulty CRFUd.

- Attach a temporary label to the CRFUd power cable and remove the cable.

- Attach a temporary label to the RF jumper. Then, use a torque wrench to loosen the DIN elbow male connector on the RF jumper and remove the cable.

- Attach a temporary label to each common public radio interface (CPRI) cable and remove the cables from the CRFUd.

2. Loosen the screws on the CRFUd panel.

   Use a Phillips screwdriver to loosen the screws on the CRFUd panel.

3. Remove the CRFUd.

   Pull out the key to the front panel to remove the CRFUd, as shown in Figure 5-5.

Figure 1-4 Pulling out the key to the front panel to remove the CRFUd
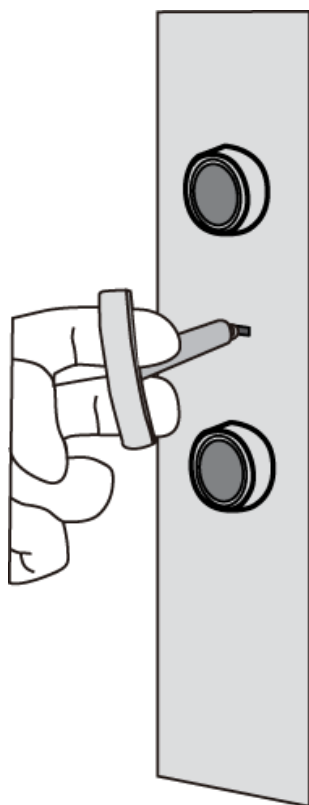
Step 5 Install the new CRFUd.

1. Push the new CRFUd into the subrack along the guide rail.

2. Use a Phillips screwdriver to tighten the screws on the CRFUd panel.

3. Connect previously removed cables to the CRFUd.

- Connect the connector of each CPRI cable to the CPRI_0 port on the CRFUd according to the temporary label.

- Connect the DIN elbow male connector of the RF jumper to the ANT_TX/RXB port on the CRFUd and use a torque wrench to tighten the connector with a torque of 25 N m to 35 N m (221.27 lbf in. to 309.78 lbf in.).

- Connect the CRFUd power cable and use a Phillips screwdriver to tighten the screws.

Step 6 Power on the CRFUd.

On the DCDU-11A, set the power switch controlling the power supply for the CRFUd to **ON**.

Step 7 Load the CRFUd software.

Run the **LST BTSAUTOLD** command to check whether auto load is enabled for the BTS.

- If **Auto Load Flag** is **ON**, the CRFUd automatically loads software from the back administration module (BAM).
- If **Auto Load Flag** is **OFF**, run the **DLD CBTSSW** command to load the CRFUd software.

Step 8 Unblock the carriers.

Run the **UBL RES** command to unblock the carriers.

Step 9 Observe the RUN indicator on the CRFUd to check whether the CRFUd works properly.

If the RUN indicator blinks 1 second on and 1 second off, the CRFU works properly.

----End

1.2.3 Follow-up Procedure

After the replacement, perform the following operations:

1. Record the version, board name, slot number, and site name of the faulty board.
2. Check whether there is visible physical damage on the board, for example, mechanical parts or plug-ins are distorted, pins are bent or missing, or the board is burnt.
3. Record the information about the fault location process, including the cause of the fault, fault symptoms, alarm name, status of indicators on the board panel, and detailed procedures for identifying and clearing the fault on site.
4. Place the faulty board in an antistatic bag. Then, place the onsite fault record and the antistatic bag in the board box, and store them properly.